



ARTIFICIAL INTELLIGENCE INTEGRATION IN ENGLISH



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ABOUT THE BOOK

Artificial Intelligence (AI) is a Cognitive Science and the history of its evolution suggests that it has grown out of the knowledge derived from disciplines such as Science, Mathematics, Philosophy, Sociology, Computing and others. Hence, it is fair for any education system to recognize the importance of integrating AI Readiness to maximize learning across other disciplines.

AI is being widely recognized to be the power that will fuel the future global digital economy; and has gained geo-strategic importance. A large number of countries are striving hard to stay ahead with their policy initiatives, to get their youth ready to function in an environment driven by AI and other emerging technologies.

India's own AI Strategy identifies AI as an opportunity and solution provider for inclusive economic growth and social development. The report also identifies the importance of skills-based education (as opposed to knowledge intensive education), and the value of project related work in order to "effectively harness the potential of AI in a sustainable manner" and to make India's next generation 'AI ready'.

CBSE has introduced Artificial Intelligence as an optional subject at Class 9 from the Session 2019-2020 onwards and has been conducting trainings for Teachers on how to use AI in the Classroom. A Training Video has also been prepared to assist the same.

CBSE has also announced AI as a multi-disciplinary integrated pedagogical approach to further enhance teaching and learning across classes 6 to 10. This document is an attempt to propose how schools may train the trainers to match relevant topics/ themes from the curricula with AI concepts. It contains details on the importance of Artificial Intelligence and Artificial Intelligence Tools as a pedagogical support for experiential learning. Guidelines for Teachers can be found in the form of Lesson Plans integrating AI in Classroom Teaching.

How this Integration Document was created

In keeping with the vision of CBSE to introduce and train Teachers on AI readiness, and the usage of AI in classroom teaching and learning practices; a series of online webinars were conducted with AI experts and Teachers of various Subjects from CBSE Schools. (see *Figure 1*)

Lesson Plans in each Subject were discussed and written, and a suggestive list of activities and projects integrating Artificial Intelligence into regular subject teaching was curated and compiled. An AI Glossary, relevant to each Lesson Plan was created to facilitate ease of reference and usage. At the same time a comprehensive glossary of AI Tools used by all the subject teachers has been added to each of the subject document. for reflection and necessary follow up by teachers.

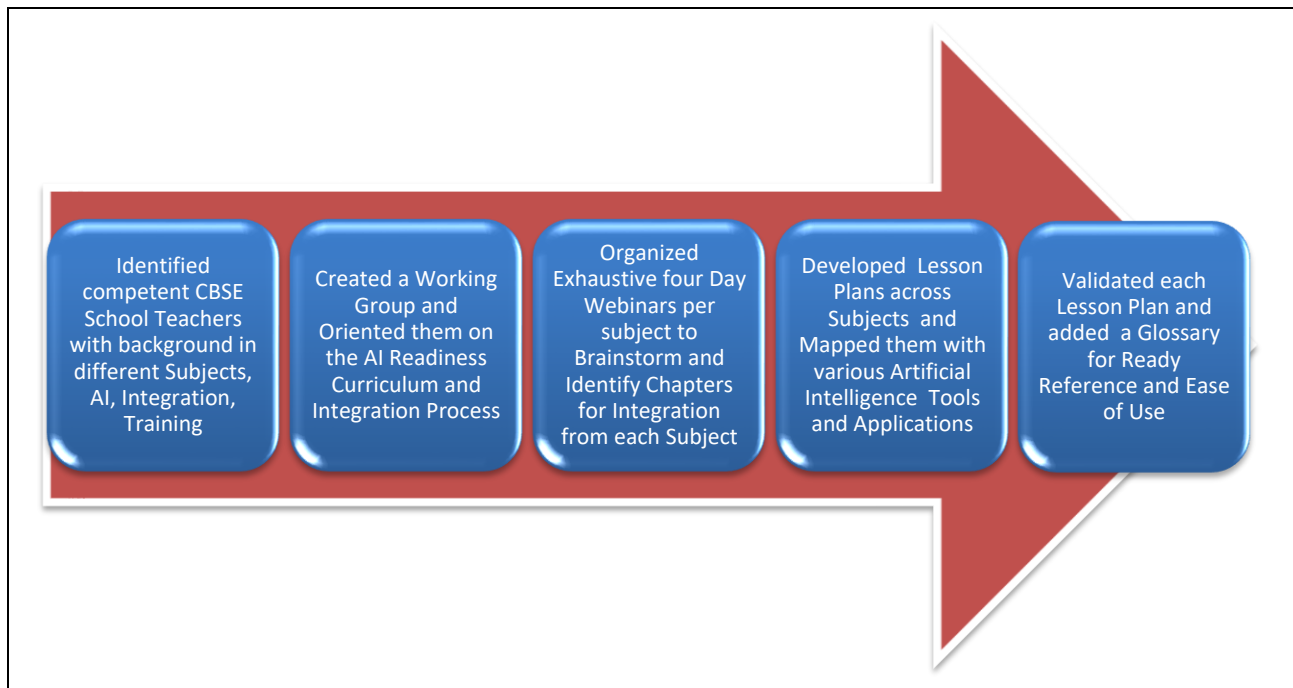


Figure 1: How this Integration Document was created

It is important to understand that AI is one of the cognitive science disciplines that provides tools to build intelligence in contrast to other disciplines that just study and analyze the external behavior of intelligent agents. Realizing this need, it has been decided that all teachers teaching in CBSE schools should familiarize themselves with the prevalent AI knowledge and use it to make learning of their subjects more effective and student centered. It is visualized that such a step would help to build larger understanding of AI among teacher and student communities.

It is highly recommended that teachers explore the Exemplar Lesson Plans and Glossary in this document, and go beyond what has been showcased, to develop more such exemplars and teaching methodologies integrating Artificial Intelligence in day to day learning across subjects, for students.

Disclaimer: Individual lesson plans have been created and edited by the contributing teachers as per their respective beliefs and understanding. The originality of their perception has been maintained while curating this document

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Class	Chapter/Topic	Book (NCERT)	
6	3.1 A Tale of Two Birds	A Pact with the Sun	22
	3.2 A Different Kind of School	Honey Suckle	24
	3.3 A Pact with the Sun	A Pact with the Sun	27
	3.4 A Game of Chance	Honey Suckle	29
	3.5 What Happened to the Reptiles	A Pact with the Sun	31
	3.6 The Kite	Honey Suckle	34
	3.7 Taro's Reward	Honey Suckle	36
	3.8 The Monkey and the Crocodile	A Pact with the Sun	38
	3.9 The Shepherd's Treasure	A Pact with the Sun	40
7	3.10 The Tiny Teacher	An Alien Hand	43
	3.11 Expert Detectives	Honeycomb	46
	3.12 The Cop and the Anthem	An Alien Hand	49
	3.13 Golu grows a nose	An Alien Hand	51
	3.14 The Desert	An Alien Hand	54
	3.15 I Want Something in a Cage	An Alien Hand	56
	3.16 The Story of Cricket	Honeycomb	58
	3.17 The Squirrel	Honeycomb	61
	3.18 The Ashes that made Trees Bloom	Honeycomb	63

8	3.19 The Tsunami	Honeydew	67
	3.20 A Visit to Cambridge	Honeydew	69
	3.21 Macavity: The Mystery Cat	Honeydew	72
	3.22 Jalebis	It so Happened	74
	3.23 Ancient Education System of India	Honeydew	77
	3.24 A Short Monsoon Diary	Honeydew	79
	3.25 The Ant and the Cricket	Honeydew	81
	3.26 Children at work	It so Happened	83
	3.27 This is Jody's Farm	Honeydew	85
9	3.28 The Road Not Taken	Beehive	89
	3.29 Wind	Beehive	93
	3.30 Rain on the Roof	Beehive	96
	3.31 Packing	Beehive	99
	3.32 My Childhood	Beehive	102
	3.33 The Adventures of Toto	Moments	104
	3.34 On Killing a Tree	Beehive	106
	3.35 Weathering the Storm in Ersama	Moments	108
	3.36 A Legend of the Northland	Beehive	111
10	3.37 How to Tell Wild Animals	First Flight	114
	3.38 A letter to God	First Flight	116
	3.39 Madam Rides the Bus	First Flight	119
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CHAPTER 1

AN INTRODUCTION TO ARTIFICIAL INTELLIGENCE

1.1 What is Artificial Intelligence?

Artificial Intelligence has always been a term which intrigues people all over the world. Artificial Intelligence (AI) refers to the ability of machines to perform cognitive tasks like thinking, perceiving, learning, problem solving and decision making; it is inspired by the ways people use their brains to perceive, learn, reason out and decide the action.

Various organizations have coined their own versions of defining Artificial Intelligence. Some of them are mentioned below:

NITI Aayog: National Strategy for Artificial Intelligence

AI refers to the ability of machines to perform cognitive tasks like thinking, perceiving, learning, problem solving and decision making. Initially conceived as a technology that could mimic human intelligence, AI has evolved in ways that far exceed its original conception. With incredible advances made in data collection, processing and computation power, intelligent systems can now be deployed to take over a variety of tasks, enable connectivity and enhance productivity.

World Economic Forum

Artificial intelligence (AI) is the software engine that drives the Fourth Industrial Revolution. Its impact can already be seen in homes, businesses and political processes. In its embodied form of robots, it will soon be driving cars, stocking warehouses and caring for the young and elderly. It holds the promise of solving some of the most pressing issues facing society, but also presents challenges such as inscrutable “black box” algorithms, unethical use of data and potential job displacement. As rapid advances in machine learning (ML) increase the scope and scale of AI’s deployment across all aspects of daily life, and as the technology itself can learn and change on its own, multi-stakeholder collaboration is required to optimize accountability, transparency, privacy and impartiality to create trust.

European Artificial Intelligence (AI) leadership, the path for an integrated vision AI is not a well-defined technology and no universally agreed definition exists. It is rather a cover term for techniques associated with data analysis and pattern recognition. AI is not a new technology, having existed since the 1950s. While some markets, sectors and individual businesses are more advanced than others, AI is still at a relatively early stage of development, so that the range of potential applications, and the quality of most existing applications, have ample margins left for further development and improvement.

Encyclopedia Britannica

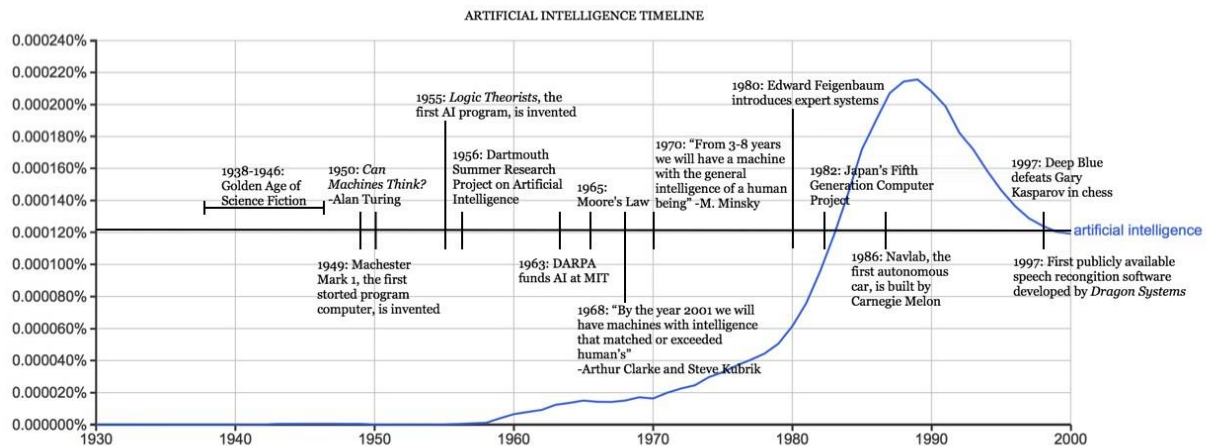
Artificial intelligence (AI), is the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. The term is frequently applied to the project of developing systems endowed with the intellectual processes characteristic of humans, such as the ability to reason, discover meaning, generalize or learn, from past experience.

In other words, AI can be defined as:

AI is a form of intelligence, a type of technology and a field of study. AI theory and development of computer systems (both machines and software) are able to perform tasks that normally require human intelligence. Artificial Intelligence covers a broad range of domains and applications and is expected to impact every field in the future. Overall, its core idea is building machines and algorithms which are capable of performing computational tasks that would otherwise require human like brain functions.

1.1.1 History of AI – Live Science

The beginnings of modern **AI** can be traced to classical philosophers' attempts to describe human thinking as a symbolic system. (see Annexure 4.5) But the field of **AI** wasn't formally founded until 1956, at a conference at Dartmouth College, in Hanover, New Hampshire, where the term "**Artificial Intelligence**" was coined. The graphic below appropriately explains why AI is a live science, what are the ups and downs in the pace of AI journey and how AI progressed in this domain from the year 1930-2000.

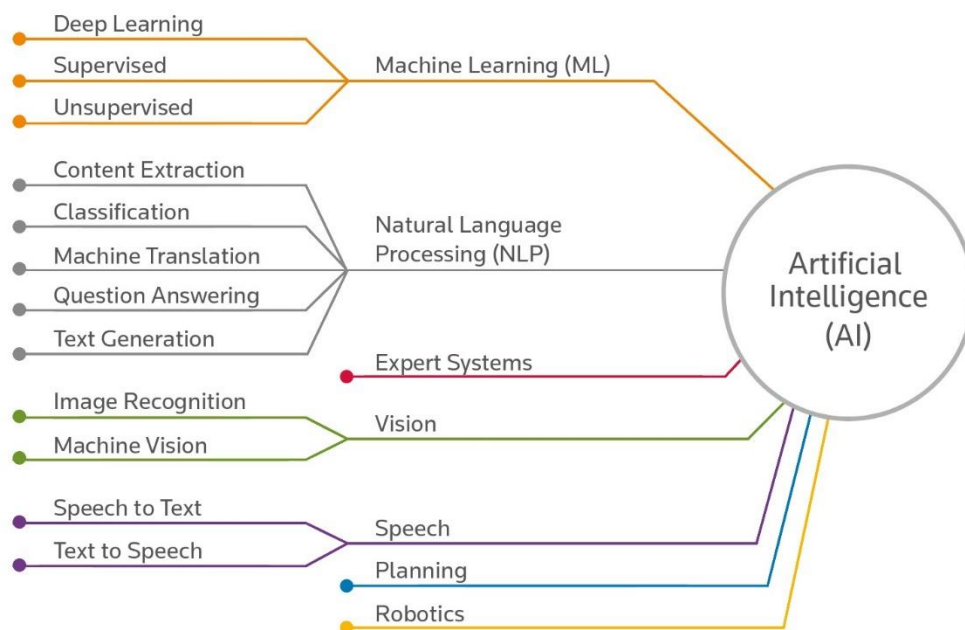


<http://sitn.hms.harvard.edu/flash/2017/history-artificial-intelligence/>

1.2 What do we understand by AI in EDUCATION?

An effective education system has the dual responsibility to develop the most critical resource (i.e. the human resource) of a nation. 1- , that the younger generations must be educated in a way that they are 'ready for life' and are positive contributors to the advancement & enrichment of their nation. 2- , they must be exposed to such learning environments with the help of updated tools and enlightened teachers so that their learning outcomes can be maximized and suited to the potential of every learner. In order that modern-day education achieves its goals of making its students 'AI Ready', it is imperative to know what K-12 learners must experience and confront in their day to day life.

AI is underlying the multitudes of its applications in the world; it encompasses and works on an array of capabilities which have universal application in different areas of study and operations. Some of the most important AI competencies with significant commonalities and connections with those of the other fields of study are shown in the graphic below.



<http://www.fullai.org/short-history-artificial-intelligence/>

A careful study of the above graph would lead us to believe that many of the technologies and the underlying principles that each of these follows, have a strong correlation with the teaching learning processes at school as well as college levels. Hence it is necessary that AI should not only be introduced as a subject in the school curricula, but also should become a link to teach other subjects at all the levels. Many of the AI based applications are now available to facilitate a learner to learn in his own unique way and at his own pace.

1.3 What is CBSE's initiative encompassing Artificial Education?

Making school students 'AI Aware' or forging 'AI Readiness' among students is a huge task indeed. Central Board of Secondary Education has taken a '**twin initiative**' in this regard.

First is to introduce AI as an elective subject in classes 8,9 and 10. To begin with, schools have to apply to CBSE and be approved to run this course. AI curriculum for classes 8 and 9 has been chalked out and a Facilitators' Handbook has been produced. CBSE is also supporting extensive teacher training for the teaching of AI in schools.

The **Second** part of CBSE initiative deals with the premise that AI is a Cognitive Science which can be linked to various subjects that concern themselves with cognition and reasoning. Almost every one of the school subjects would fall in this domain. Be it - Mathematics, Computing, Neuro-Sciences, Psychology, Physics, Economics, Sociology, Philosophy, Languages and some others. It is, therefore, mandated by CBSE that all its schools begin to integrate AI with other disciplines from classes 1 -12.

1.4 What is the rationale for this Twin Initiative?

Initiative 1: Artificial Intelligence permeates the length and breadth of the world we live in today. Our young generation is witnessing many uses of AI every day. While Google manages our mail accounts, it also makes suggestions about what words to use to respond to a given email and/ or project follow up reminders. Facebook not only connects us with friends but also makes suggestions about our priorities, personal needs and preferences. Today we witness smart parking spaces as well as have cars that park themselves. In many advanced countries the traffic is monitored, controlled and managed by using the data collected of moving traffic and prevalent weather conditions. Chat bots collect data for big and small businesses to assess the market requirements of their products and also support the respective business houses in interaction with the customer and resultant satisfaction. There are also AI powered devices to support households in simple tasks such as cleaning etc. All the domains of life - from medicine to manufacturing to national security and defense – are currently getting impacted by the use of Artificial Intelligence. Space missions, which extensively use unmanned space shuttles and unmanned vehicles to traverse the unknown areas of other planets, collect tremendous data not only to understand the planet they go to but also to acquire intelligence about the betterment of their own operations in future. Hence, it is essential that students of today should study this domain to understand and later be able to expand this knowledge in their own interest and in the interest of humanity.

Initiative 2: It is important to understand that AI is one amongst the cognitive science disciplines that provides tools to build intelligence in contrast to other disciplines that just study and analyze the external behavior of intelligent agents. Realizing this need, it has been decided that all teachers teaching in CBSE schools should familiarize themselves with the prevalent AI knowledge and use it to make learning of their subjects more effective and student centered. It is visualized that such a step would help to build larger understanding of AI amongst the teacher and student communities.

This document is an attempt to suggest how schools may train the teachers of class 6 –10 to relate to the relevant topics/ themes from their respective curricula with technologies that AI deploys. The document will also showcase to the teachers the AI based tools that can support and augment learning across disciplines, in and out of the classrooms. The extensive AI glossary and the App Matrix is an effort to include a list of varied resources for teachers to extend the integration activity to other topics of their respective subjects.

1.5 What do we mean by AI Integrated Education?

AI integration with the other school disciplines is to be viewed from two different perspectives.

Perspective 1: While exploring the possibilities to integrate subjects with AI, it was felt that it can be a two-way process. The teacher may select a topic from the subject that easily lends itself to any one of the AI concepts. He/she would, then, either select the AI concept as a tool to teach the subject topic chosen by him/her or using the understanding of the topic, he/she may be able to show a linkage to AI knowledge and usage.

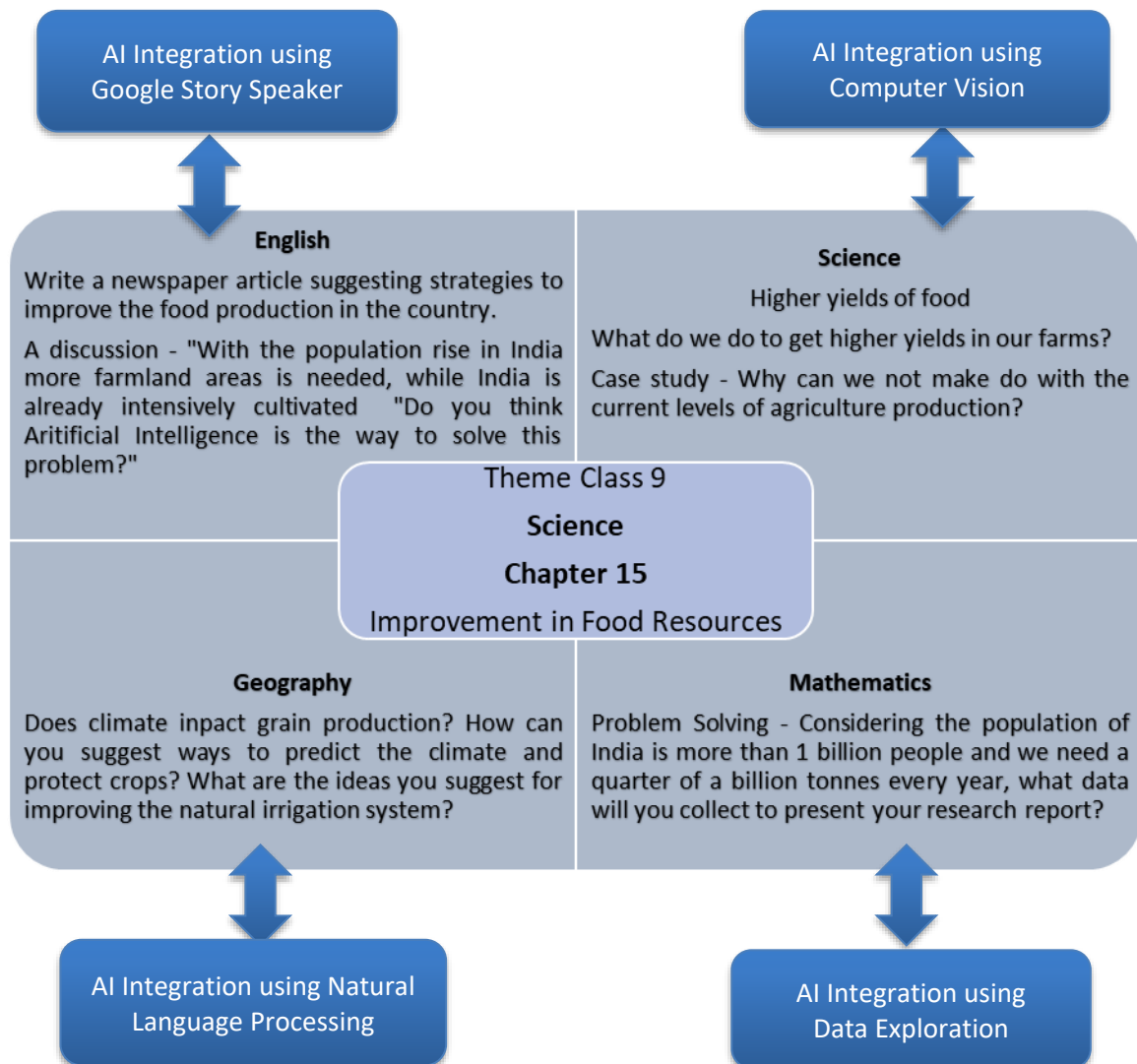
For example: 'Data Collection' is a familiar task in Mathematics and 'Data Acquisition' is an important basic AI concept. The teacher may use an AI based app to demonstrate Data collection in a Mathematics Class or teach the concept and functionality of the AI application through their understanding of the Data Collection operations in Mathematics.

Perspective 2: A practicing teacher may consider one subject +AI integration with it, which is a simpler and more functional approach.

The other approach could be to have inter disciplinary integration, in which the teacher may pick up one such topic from her own subject that has relevance to other subjects also. Then, in consultation with other teachers, the four of them could explore the same topic to achieve the learning outcomes of their respective subjects, while at the same time integrating each subject with AI. (see example 2 below)

The former approach is feasible in normal classroom teaching, the later would have to take the shape of a project and would have to be conducted in large class groups over a span of time.

Interdisciplinary Integration with Artificial Intelligence - Class 9



Since, Artificial Intelligence is a Cognitive Science and the history of its evolution suggests, it has grown out of the knowledge systems derived from other disciplines like Science, Mathematics, Philosophy, Sociology, Computing and others, it is fair for students to see the linkages. Hence, it is fair for any education system to recognize the importance of its integration with the teaching of other disciplines, to maximize learning.

1.6 What would the students do in an AI integrated Class?

A working group at CBSE has put together 7 Big Markers that may be adopted to develop a structured action plan by the teacher for K-12 learners.

Marker 1. *Identifying the problem is the starting point of the learning cycle*; students of all levels without any exception must be exposed to the skill of scoping and identifying the problem. Having done so, the learners of all ages must learn the way to state the problem to their parents/ teachers/ themselves/ community/ team, they are working with or working for.

Marker 2. *Data acquisition related to the identified problem is another big domain for learning* and it is a logical next step to proceed with. Such an exercise will prepare the students to attempt the nuances of problem solving which is also an important aspect of the AI project cycle.

Marker 3. *Computers are machines which can also ‘see’, ‘hear’ and ‘speak’*. So, as such, they can be used to collect data for us. Many applications are now available which make our machines very useful for this purpose. An exposure to such capabilities of the machine needs to be explained to students of all grades. By using AI in teaching, the expectation is that the teacher will lead students to identify these tools and consequently use them to improve the learning process.

Marker 4. *Learners must learn to represent the collected data in the form of identifiable models*. Once the students have the data to solve the problem, they can progressively be made to develop the skill of representing the collected data in visual presentations in the form of graphs, charts etc. The understanding and skill to build such comprehensible models is critical learning for a 21st century student. *Computers are the given machines which help store data and represent models*.

Marker 5. *Computers also learn by themselves from the newer data acquired by them to build newer and better models in the future*. With interaction of inputs from the training data available to the machines, just like the human mind, the machines are able to produce entirely different models/ representations. Students of all grades need to be made aware of such capabilities which make machines “intelligent”.

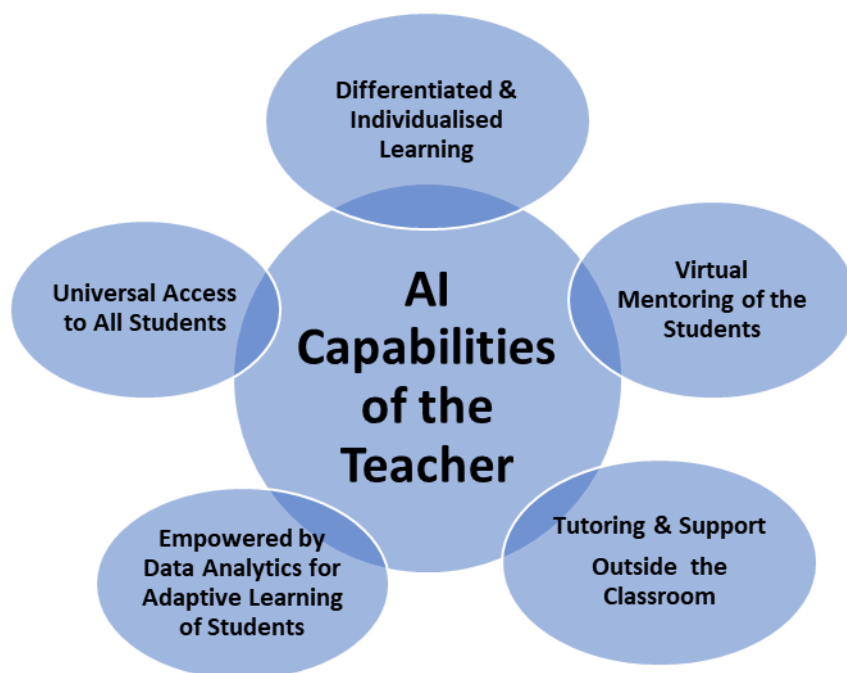
Marker 6. *For training the machine, it needs to interact with humans (intelligent agents); Though such interactions make the machine more and more intelligent, it can never be presumed that the machine would ever be as intelligent as humans are*. It is highly impossible for the machine to reach the capabilities of the human mind. The Robots (as these machines are sometimes called), would at their best be able to improve the efficiency of human beings and never really be able to replicate it. Such debates need to be part of discussions in the class when AI is integrated with other subjects.

Marker 7. *AI applications can be beneficial or harmful in the long run*. What, when, where and to what extent should these AI applications be built? At what stage and in what ways can an AI based application be used or not used? Students of all age groups in class 1-12 should be sensitized to AI ethics through different simulations, role plays, discussions and debates.

1.7 How can AI integrated teaching help teachers to achieve the desired learning outcomes?

While the debate regarding how much screen time is appropriate for children rages on among educators, psychologists, and parents, Artificial Intelligence and Machine Learning are additional emerging technologies that are beginning to alter education institutions and changing how education may happen in the future. Even though most experts believe the critical presence of teachers is irreplaceable, there have to be many changes to the way a teacher’s job is done and to educational best practices.

As AI educational solutions continue to mature, the hope is that AI will help fill need gaps in learning and teaching and allow schools and teachers to do more than ever before. AI can drive efficiency, personalization and allow teachers some extra time to deploy their understanding and adaptability—uniquely human capabilities, to teach, where machines would struggle. By leveraging the best attributes of AI machines and teachers, the education system will be driven towards the best outcome for students. Since the students of today will need to work in a future where AI is no longer a notion but is the reality, it's important that our educational institutions expose students to updated technologies and their usage. No one can deny the fact that AI capabilities would help teachers to achieve desired learning outcomes, in the following five-fold ways:



Once AI tools are in operation, the teacher will be facilitated, to have more spare time in the classroom. So, she/he can now focus on unique learning styles of her students. Having assumed the AI capabilities, she/he can also in turn, focus suitably on the challenge of developing the skills of language processing, reasoning and cognitive modelling.

1.8 Does AI integration in Education promote 'Effective Pedagogy' in the classroom?

Since all cognitive domains of education relate very closely to the concept of AI, it offers ample opportunities for student engagement that cannot be found in lecturing out of the textbooks within the fixed four walls setting of the classroom. In an era termed as AI SPRING, AI and machine learning are growing dynamically, they each have the potential to propel the other forward and accelerate the learning frontiers in a synergistic fashion, along with the creation of newer innovative technologies. It is universally acknowledged that AI would be the source and the cause of improving the teaching- learning methodology in the classroom.

In many parts of the world, especially in advanced nations, Machine Learning algorithms in the education space, have already begun helping teachers fill the gaps, in the Subjects students are struggling with the most.

As of today, the list of such AI based pedagogical practices is long. A motivated and enlightened teacher would come across many such tools and practices during her research which can be profitably used by her from time to time in the interest of her students.

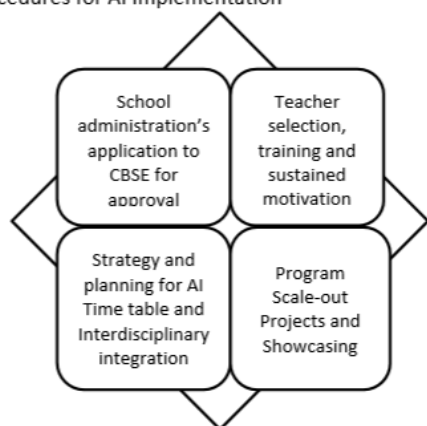
1.9 What is the role of Schools in the success of CBSE directive for AI integrated Learning?

Much of the professional world which today's student is going to face 10 or 15 years from now, will be increasingly based on and derived from AI technologies. Hence there is dire need for the present generation of young students to be exposed and empowered enough to understand and practice AI competencies in order to remain relevant to the times they live in. In doing so, while they benefit from an AI embedded world now, later in their lives, they must also learn how to identify and perceive the challenges that extensive use of AI may pose. Taking a cue from proactive thinking of CBSE about its responsibility towards the students studying in its affiliated schools, it is high time that the leadership in CBSE schools in particular, pledge their support to the task of sensitizing their students about AI in their lives and teach them to be positive contributors towards AI development in the larger interest of the society they live in.

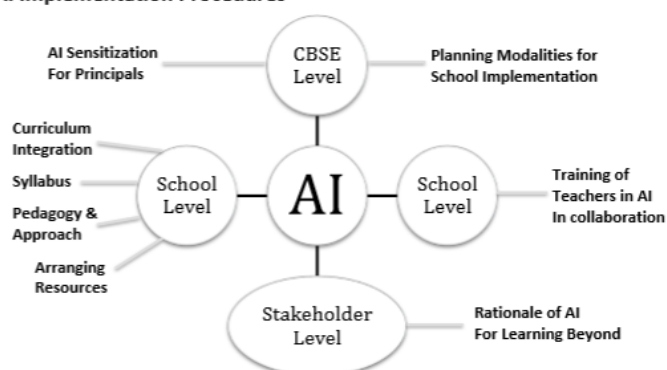
The outcome of the twin initiatives of CBSE would depend on the way schools perceive and implement it, the way teachers engage with it and plan some of their lessons, so that the resultant understanding about AI amongst the students is logical. Once the trigger is positive, we believe a large population of students would go on an 'auto' mode to explore AI domains and get sensitized to AI applications. It has been observed that some teachers suffer from a complex that anything that is technology is computer based and anything that is computer based is beyond their comprehension or reach. It is important to reiterate here that once the teacher accepts the reality of AI inevitability in modern day living and its enhanced role in the future, she/he would view this document and the suggestions made herein with an open mind. We hope that the support material and examples provided in this document will serve as a useful trigger for practicing teachers to use AI as a tool to enhance learning. With such a positive mindset, the schools and teachers would not only augment their own AI awareness, but will also be seen empowering their students with the requisite AI capabilities. They will find umpteen examples in their respective environments to connect the knowledge of individual subjects to AI technologies. It won't be an exaggeration to state that many scenarios will be created in such a collaboration of the teachers and the learners that AI integration will be an important case in study maximizing student learning outcomes in such schools.

AI Implementation Procedures

School Procedures for AI Implementation



AI Implementation Procedures



1.10 How would this AI integrated Learning help meet the national goals-NCF/ NCERT/ NA

This thought process is completely in sync with the National Policy stipulated by NITI Aayog in ‘**Skilling for the AI Age – Getting India Ready for the AI Wave**’. Even the National Curriculum Framework developed as far back as 2005, and the Position Paper on Education Technology have echoed similar outcomes that AI integration is expected to achieve.

NITI Aayog Vision

“The Education sector needs to be realigned in order to effectively harness the potential of AI in a sustainable manner. In primary and secondary schools, there is a need for transition to skill-based education in subjects relevant to AI. Often criticized for being overly knowledge intensive, Indian education is in urgent need of transition in subjects relevant to STEM, or computer-based education. As jobs based on technology become prominent, so will the need to develop applied skills in a continuously changing environment.

Increased amount of project work across education levels, promoting schemes like Atal Tinkering Labs (ATL) in schools, necessary changes in curricula in schools, are some of the steps that need to be considered.”

The National Curriculum Framework 2005

The aims of education as stated in the NCF are as follows:

Seeking guidance from the Constitutional vision of India as a secular, egalitarian and pluralistic society, founded on the values of social justice and equality, certain broad aims of education have been identified in this document. These include:

- Independence of thought and action
- Sensitivity to others’ well-being and feelings
- Learning to respond to new situations in a flexible and creative manner
- Pre-disposition towards participation in democratic processes, and
- The ability to work towards and contribute to economic processes and social change.

NCF has laid down five guiding principles for curriculum development:

- Connecting knowledge to life outside the school
- Ensuring that learning shifts away from rote methods
- Enriching the curriculum so that it goes beyond textbooks
- Making examinations more flexible and integrating them with classroom life, and
- Nurturing an overriding identity informed by caring concerns within the democratic polity of the country.

And for the aims of teaching, NCF states that:

- No system of education can rise above the quality of its teachers, and the quality of teachers greatly depends on the means deployed for selection, procedures used for training, and the strategies adopted for ensuring accountability
- Teaching should aim at enhancing children's natural desire and strategies to learn
- Knowledge needs to be distinguished from information, and teaching needs to be seen as a professional activity, not as coaching for memorization or as transmission of facts.
- Activity is the heart of the child's attempt to make sense of the world around him/her. Therefore, every resource must be deployed to enable children to express themselves, handle objects, explore their natural and social milieu, and to grow up healthy.

The NCERT Position Paper on Education Technology (2.6) in its **section 6.4.5 on In School Education states that:**

- "Move from a predetermined set of outcomes and skill sets to one that enables students to develop explanatory reasoning and other higher order skills.
- Enable students to access sources of knowledge, interpret them and create knowledge rather than be passive users.
- Promote flexible models of curriculum transaction.
- Promote individual learning styles.
- Encourage use of flexible curriculum content, at least in primary education, and flexible models of evaluation."

It further clarifies that:

"Computers are programmable devices. This very fact makes it possible for users to make demands on these machines. This implies two things: first, that the computer ought to be capable of responding to intuitive demands, and second, that the user communicates in a language that the computer can interpret." and that "The creative potential of the computer, and the liberating potential of the internet can only be unleashed when we actively make these kinds of demands of these technologies. The students of the future should be oriented to this possibility, allowing them to stand their ground amidst the technology mediated onslaughts of the modern world. Integrating ICT into education will require that these aspects of the technology are catered to as a whole."

It is important to note that NCF observations were made as early as 2005 when the noise about AI was not heard much, yet the 'writing on the wall' lends itself to endorsing the recent developments of AI in Education.

Hence, **CBSE in its Circular No 14/ 2019** dated 09-03-2019 has clearly communicated that:

"Artificial Intelligence (AI) is being widely recognized to be the power that will fuel the future global digital economy. AI in the past few years has gained geo-strategic importance and a large number of countries are striving hard to stay ahead with their policy initiatives to get their country ready. India's own AI Strategy identifies AI as an opportunity & solution provider for inclusive economic growth and Social development. The report also identifies the importance of skills-based education (as opposed to knowledge intensive education), and the value of project related work in order to "effectively harness the potential of AI in a sustainable manner" and to make India's next generation to be 'AI ready'.

As a beginning in this direction, CBSE has introduced Artificial Intelligence as an optional 6th subject at Class 9 from the Session 2019-2020. To enhance the multidisciplinary approach in teaching learning and also to sensitize the new generation, it has been decided that Schools may start AI "Inspire module" of 12 hours at Class 8 itself.

1.11 OPTIMISM

It is interesting to present the following content of “Optimism” from the History of evolution of AI to add to the reader’s understanding that seemingly unimaginable and impossible events actually happen due to human effort, if a streak of positivity and optimism is maintained during the course of action.

*The Optimism

The first generation of AI researchers made these predictions about their work:

- 1958, H. A. Simon and Allen Newell: "within ten years a digital computer will be the world's chess champion" and "within ten years a digital computer will discover and prove an important new mathematical theorem."^[57]
- 1965, H. A. Simon: "machines will be capable, within twenty years, of doing any work a man can do."^[58]
- 1967, Marvin Minsky: "Within a generation ... the problem of creating 'artificial intelligence' will substantially be solved."^[59]
- 1970, Marvin Minsky (in Life Magazine): "In from three to eight years we will have a machine with the general intelligence of an average human being."^[60]

https://en.wikipedia.org/wiki/History_of_artificial_intelligence

The ‘Optimism’ showcased by the researchers above, has to be simulated by the practicing teacher in terms of AI Integration in their classrooms making their pedagogy more effective and maximizing the learning outcomes of their students.

1.12 National Education Policy 2020

As per the National Education Policy 2020

The world is undergoing rapid changes in the knowledge landscape. With various dramatic scientific and technological advances, such as the rise of big data, machine learning, and artificial intelligence, many unskilled jobs worldwide may be taken over by machines, while the need for a skilled workforce, particularly involving mathematics, computer science, and data science, in conjunction with multidisciplinary abilities across the sciences, social sciences, and humanities, will be increasingly in greater demand

India is a global leader in information and communication technology and in other cutting-edge domains, such as space. The Digital India Campaign is helping to transform the entire nation into a digitally empowered society and knowledge economy. While education will play a critical role in this transformation, technology itself will play an important role in the improvement of educational processes and outcomes; thus, the relationship between technology and education at all levels is bidirectional.

Given the explosive pace of technological development allied with the sheer creativity of tech savvy teachers and entrepreneurs including student entrepreneurs, it is certain that technology will impact education in multiple ways, only some of which can be foreseen at the present time. New technologies involving artificial intelligence, machine learning, block chains, smart boards, handheld computing devices, adaptive computer testing for student development, and other forms of educational software and hardware will not just change what students learn in the classroom but how they learn, and thus these areas and beyond will require extensive research both on the technological as well as educational fronts

CHAPTER 2

HOW to INTEGRATE AI in SCHOOL TEACHING – A CALL TO TEACHERS

2.1 AI is NOT ALONE

AI does not operate in silos nor is it a stand - alone field of study or practice. Many a times in Chapter 1, it has been said that it drives its knowledge as well as has its applications across other domains of knowledge. See below how the school domains of study (both formal and informal) interact with the concepts that Artificial Intelligence follows.

AI CROSS BREEDS WITH OTHER SUBJECTS

Subject Domain	What is Common with AI domain
Psychology	How people perceive information, process it and build knowledge; how they behave
Philosophy	Mind as a physical entity, methods of reasoning, basis of learning, foundations of language, rationality and logic
Neuro-Science	How the basic information processing units - neurons process information
Mathematics	Algorithms, computability, proof, methods of representation, tractability & decidability
Statistics	Learning from data, uncertainty/ certainty of modelling
Economics	Rational economic agents, usefulness of data & models, decision theory
Linguistics	Grammar, syntax, knowledge representations
Computer Science	Building computers
Cognitive Sciences	Processes & things in nature, interpretation of different phenomena & their impact

2.2 PRINCIPLES of AI INTEGRATED LEARNING

AI creates some Essential Learning Experiences which are:

- Experiences of creating through the process of problem solving
- Experiences of informed decision making
- Experiences of self-reflection, values and ethics.
- Experiences for exploring future career opportunities
- Experiences of demonstrating responsible citizenship

2.3 OBJECTIVES of AI INTEGRATED LEARNING

AI integrated learning would help to develop Key Competencies for Lifelong Learning, some of which are:

- Acquiring subject knowledge using AI as a tool
- Learning problem solving
- Innovativeness and taking initiative
- Application across key disciplines
- Developing interaction and Learning to Be
- Assuming Social responsibilities and applications
- Learning Vocational ethics
- Applying Communication skills

2.4 PRACTICE 'AI+X' PARADIGM for INTEGRATION

So, this could be the starting point for a practicing teacher. The teacher needs to go through the following steps to integrate her normal lesson plan with AI.

Step 1- Identify the topic from the subject for which the subject teacher has certain teaching pedagogy; let us call it 'X'

Step 2- Research to find 'AI' concepts that show conceptual commonality with the subject and the topic. Research to find 'AI' can be done with the help of any of the four resources given below

- A) through online search
- B) from the exemplars provided in this document
- C) from the list of support material provided in this document in terms of 'Additional Resources' 'AI Concepts' and 'Glossary'

Step 3- Attach this 'AI' to 'X' in your lesson planning.

- A) Discuss your lesson plan related requirement with your department colleagues or the computer faculty. This now becomes X+AI or AI +X, where X is your subject topic.

Such "**AI+X**" or "**X+AI**" **paradigm** is advocated in our national policy document also.

2.5 ARTIFICIAL INTELLIGENCE CONCEPTS PERVADE MAINSTREAM DISCIPLINES

Artificial Intelligence cannot be divorced from other disciplines; its evolution and development is mutually interlinked as shown in the table given below. Hence both the fields need to be linked for mutual benefit. As educators, it is the right step to consider integration of AI with the other school disciplines where two different approaches are possible:

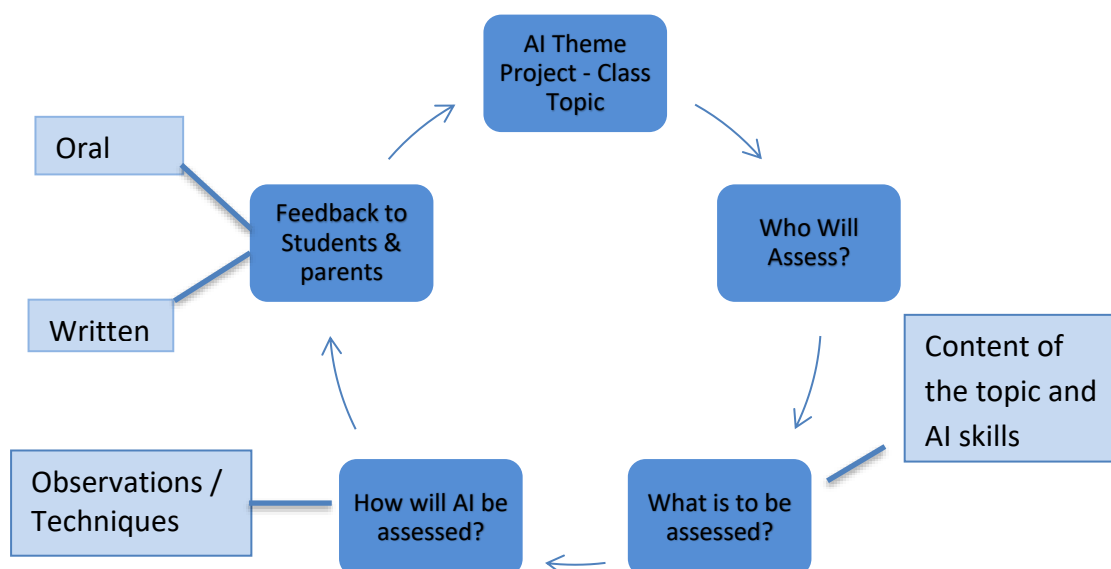
- a) AI as a tool to learn Mathematics, English, Science or Social Science or
- b) Language or Mathematics and other disciplines as a tool to learn Artificial Intelligence

2.5.1 Skills Assessed

After completion of each unit, the students may be evaluated for the following skills:

Conceptual Skills	Technical Skills	Life Skills
- Problem Scoping - Problem statement - Data Acquisition - Data Exploration - Graphical Representation of data/ building models - Neural networks - 3 domains of AI – Data, Computer Vision & Natural language Processing - AI Applications	- Ability to use AI powered Tools - Identifying linkage of AI Applications with knowledge systems	- Thinking skills - Problem Solving skills - Decision making Skills - Social Skills- Teamwork - Leadership - Effective Communication Skills - Oral & Written Presentation Skills

2.5.2 Suggestive Assessment Approaches for AI



2.5.3 Assessment Rubrics

SKILLS	SUB SKILL ASSESSED (from 2.5.1 above)	Highly Proficient	Proficient	Beginner	Teacher's Comments
AI CONCEPTS					
THINKING SKILLS					
LIFE SKILLS					

Also read Chapter 4 Appendix 6 for detailed Assessment Rubrics

CHAPTER 3

AI Integrated Lesson Plans

ENGLISH

CLASS 6

3.1 A Tale of Two Birds

Chapter Covered	Chapter 1: A Tale of Two Birds	AI Concepts Integrated
Name of the book	A Pact with the Sun, Class 6, NCERT	
Subject and Artificial Intelligence Integrated	Integration of Awareness of Artificial Intelligence & Teaching of English	
Objectives	- To build an appreciation and awareness of Artificial Intelligence - To practice reading aloud in groups - To develop skills of imagination; creativity and writing. - To try and predict probability by using Artificial Intelligence and by linking this to why the Poet chose the road he did. - To draw parallels of the story with AI as it exists in our life	Introduction to Google Story Speaker
Time Required	2 periods of 40 minutes each	
Classroom Arrangement	Flexible	
Material Required	Pen, paper, blackboard, chalk, smartboard/screen and projector & laptops	
Pre-Preparation Activity	The students are divided into groups for a discussion in preparation for the topic.	
Previous Knowledge	Students are asked to discuss on Artificial Intelligence as they recognize it and to make a list of where they have encountered it in day to day life. Each group will then present a summary of their discussion	
Introduction	The teacher leads students to recognize Chatbots powered by Artificial Intelligence. She/He asks them to keep this in mind while reading out the story aloud in their groups.	
Methodology	- The students are divided into groups of 4 and asked to read aloud the unit The Tale of Two Birds. - They are also shown a video on how chatbots are being developed and used in day to day interactions	
Discussion on the Text	There is an open discussion on: - Characters identified in the story - Identify if any Human or Animal can be equated with a modern day Chatbot The students are then asked to answer the questions as a group exercise:	Students are asked to explore how Artificial Intelligence is trained and developed

	• What is the difference in the way the two Birds welcome the traveler? • How important is the social environment/company we keep on personality development? • Is this also seen in the way that Artificial Intelligence is trained and developed? • Is there any similarity between the way the birds interact and any artificial intelligence you have come across? • Each pair group is then asked to share a summary of their discussion with the larger group.	
Learning Outcomes	• Students will appreciate Literature • Develop an interest in reading aloud and discussion • Develop Awareness about AI • Infer the moral of the story • Gain awareness of ethics in the context of AI	A discussion on Ethics regards Artificial Intelligence is initiated
Self-Evaluation and Follow-Up	• The teacher analyses the responses and flow of thoughts of students	
Follow-up Activity	• The students will be asked to identify five different areas where AI enabled devices are interacting with humans.	Students are encouraged to explore areas of AI and Human interactions

GLOSSARY:

AI Activity Description

Ask the students to think of the following scenarios:

1. As Artificial Intelligence gets incorporated in various industries, the employability of unskilled labor reduces day by day. A lot of global reports and surveys have predicted mass unemployment in the near future due to emerging technologies. Is it ethical to fire people with limited skills or no skills due to technology upgradation?
2. Most of the virtual assistants like Google Assistant, Cortana, Siri, Alexa, etc. have female voices? Do you consider this as a bias? Why is a female voice chosen over any other and why are other voices not so popular?
3. If a person develops an AI algorithm, would his/her bias get reflected in the AI algorithm? For example, if an American developer develops an AI algorithm which is trained for his accent only, is it not a bias for people with different accents?
4. If an AI machine makes a mistake, who should be held responsible for it? The Developer, The AI developing firm, The User, or The AI machine itself?

Explain to the students that these questions do not have a right answer. What might be correct for one might not be correct for the other. Hence, it is the perception which matters in such issues. To summarize this activity, tell the students that there are a lot of ethical issues which exist around AI since AI is a domain which is boundless at this point of time. Hence, it is important to have ethical guidelines which can guide us in such conditions where there is no clear definition of what is right and what is wrong.

ENGLISH

CLASS 6

3.2 A Different Kind of School

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 5: A Different Kind of School	
Name of the Book	Honeysuckle Class 6, NCERT	
Subject and Artificial Intelligence Integrated	Integration of awareness of Artificial intelligence and teaching of English	Google map for directions
Learning Objectives	- To practice reading aloud in groups - To develop skills of imagination; creativity and writing - To enhance vocabulary and expressions - To develop the values - empathy, service to others, respect for all - To try Artificial Intelligence by linking this to practice and read directions - To draw parallels of the story with AI as it exists in our lives - To appreciate the role of AI in the medical field today	Word Blitz (android enabled) OR Semantics https://research.google.com/semantris/
Time Required	2 periods of 40 minutes each	
Classroom Arrangement	Flexible	
Material Required	Pen, paper, blackboard, chalk, smartboard/screen and projector & laptops	
Pre – Preparation Activities	The students are divided into groups.	
Previous Knowledge	To introduce the topic, generate a discussion through the following questions. - Have you played games like Blind Man's Buff or One legged race or Sack race? How did it feel to be blind or unable to use one's eyes or legs properly? - Do you know anyone who is differently abled? What difficulties does the person face in his/her daily lives? - How can you help people with disabilities? - When helping a differently abled person, we are thoughtful and careful. Should we also be thoughtful and careful in our daily lives? How will this help us?	Warm Up Activity: https://creatability.withgoogle.com/sound-canvas (drawing without using hands, with other body parts)
Methodology	The students are divided into groups of 4 and asked to read aloud the unit 'A different kind of school'. https://youtu.be/R0cbckyD9Q0	

	The students will play the games Blind man's Buff, writing on one's back, and sack race and then they can share their experience in the class https://youtu.be/f-IVv8eceDk (Chapter video) In each group every child has one blind day, one lame day...one normal day" Which day was the hardest? Why was it identified as the hardest? (Discuss) How did one feel on the normal day? What did one do to make the day easier for other group members?	
Learning Outcomes	Students will: • Practice reading aloud in groups. • Develop skills of imagination, creativity and writing. • Develop enhanced vocabulary and expressions. • Develop the values - empathy, service to others, respect for all. • Try Artificial Intelligence by linking this to practice and read directions. • Draw parallels of the story with AI as it exists in life • Appreciate the role of AI in the medical field today	
Follow up Activities	Story sequencing Activity. Parallels of the story can be created through AI.	Inkle writer to write the story.
Reflections	The students will learn values from the chapter and perhaps will change the world	

GLOSSARY:

AI Activity Description

Ask the students to think of the following scenarios:

1. As Artificial Intelligence gets incorporated in various fields, we cannot stay away from it. The AI system has brought about a revolutionary change in the medical field.
2. Discuss how the wheel chair is controlled, and how it reads the mind.
3. How smart watches have become health monitors.
4. Do you think AI can take the place of doctors? The integration of technology and AI systems can develop a better medical system.
5. Whom will you take your friend to in case of medical emergency? Why? Will you rely on the robot doing the surgery?
6. Whom should you hold responsible in case of a mistake? The computer, the person operating the computer or the developer?
7. AI has made the lives of physically challenged people easier but can it replace the pleasure of being helped by loved ones?

To summarize this activity, tell the students that the technology cannot take away the pleasure of human touch and presence, which is very much required. Hence, it is important to have ethical guidelines which can guide us in such conditions where there is no clear definition of what is right and what is wrong.

AI Tools Used

1. Google map for directions:
2. Word Blitz (android enabled) (Challenge your friends and test your vocabulary! Can be played on android, Windows)
3. Semantics AI tool

Semantris A Google experiment, Semantris is a word association game powered by machine learning. Each time you enter a word that is associated with the target word, the AI looks at all the words in play and chooses the ones it thinks are most related.

<https://research.google.com/semantris/> Warm Up Activity:

<https://creatability.withgoogle.com/sound-canvas>

Drawing without using hands, using both sight and sound with other body parts

4. Inkle story writer to write the story
<http://writer.inklestudios.com/>

At inklewriter, great writers tell great stories.

Inklewriter is created, to help writers tell interactive tales with the minimum of fuss. **inklewriter** keeps your branching story organised, so you can concentrate on what's important – the writing. **inklewriter** is a free tool designed to allow anyone to write and publish interactive stories. It's perfect for writers who want to try out interactivity, but also for teachers and students looking to mix computer skills and creative writing.

ENGLISH

CLASS 6

3.3 A Pact with the Sun

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 8: A Pact with the Sun	
Name of the Book	A Pact with The Sun- NCERT Class 6	
Subject and Artificial Intelligence Integrated	A Pact with The Sun (Story) in English and Artificial Intelligence (AI Dungeon)	AI Dungeon
Learning Objectives	• Read the lesson fluently with correct intonation and pronunciation. • Understand the lesson and remember the events and description. • Understand the importance of fresh air and sunlight for healthy living. • To try using AI Dungeon to create a story. • Enhance the vocabulary and technical skills of students.	
Time Required	3 periods of 40 minutes each	
Classroom Arrangement	Online/ Flexible	
Material Required	Classroom: Pen, paper, blackboard, chalk, smartboard/screen and projector, laptop/computer. Online class: Internet connection, laptop/desktop/ smartphone, textbook/PDF text, Padlet, AI Dungeon	
Pre – Preparation Activities	Students are given instructions on the starter activity.	
Previous Knowledge	Students are asked about any story they have read or heard about children being imaginative. They are guided to reflect on a story along similar lines and asked to frame a story using AI Dungeon.	Students will choose AI Dungeon custom story AI tool and feed in a sentence according to their choice to continue writing a story.
Methodology	• Students will be asked Probing questions on people's reaction when someone is diagnosed with chronic illness. • Reading aloud of the story by students. • Explanation of the lesson, with inputs from students. • Discussion on the various components of the lesson. • Discussion on contextual and non-contextual questions.	

Learning Outcomes	At the end of the lesson, students will be able to: • Read the lesson fluently with proper pronunciation, intonation, and stress. • Extrapolate the given text. • Develop awareness and sensitivity to importance of fresh air and sunlight for healthy living. • Infer the theme of the story. • Give coherent answers to contextual questions. • will have learned to build a narrative story. • learn to develop skills of comprehension imagination, creativity and writing.	
Follow up Activities	The teacher will assess the success of the activity through an interactive session on Padlet, where students will respond to various reflective questions.	
Reflections	Discussion with Students on the role of AI applications	

GLOSSARY:

AI Related Terminology

AI Dungeon: An AI tool that can be used to generate stories, AI Dungeon can be used in single-player as well as multiplayer text adventure game which uses artificial intelligence to generate unlimited content. It also allows players to create and share their own custom adventure settings.

The tool first asks to make a choice amongst the three options available: New Single Player Game, New Multi Player Game, and Join Multiplayer Game. The second step is to choose from the list of settings available after which the user can type in words and receive responses from the AI tool to frame a new story.

<https://play.aidungeon.io/>

ENGLISH

CLASS 6

3.4 A Game of Chance

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 8: A Game of Chance	
Name of the Book	Honeysuckle, Class 6, NCERT	
Subject and Artificial Intelligence Integrated	Artificial Intelligence and teaching of English	
Learning Objectives	• To practice silent reading and develop comprehension skills • To develop skills of imagination and creativity • To understand, appreciate and enjoy fiction • To infer, analyze and evaluate text • To enhance vocabulary using AI tool. • To link the theme of the chapter with the underlying principles of AI.	
Time Required	3 periods of 40 minutes each.	
Classroom Arrangement	Flexible	
Material Required	Textbooks, pen, paper, smartboard, laptop, marker	
Pre – Preparation Activities	Learners will be divided into pairs for a warm-up activity based on 'getting lucky' with machines.	
Previous Knowledge	Students will share the names of their favourite festivals. They will discuss the games that are usually played in towns/villages. They will further play AI Thing Translator to recognize the capabilities of a machine and see if they can 'get lucky' with it. They will rate their experience on Poll Everywhere.	AI Thing Translator https://thing-translator.appspot.com/
Methodology	• Students will indulge in a discussion based on these prompts: - What do you find common in fairs of our country? - What games are usually observed in a fair? - Discuss the similarities/differences between the 'Lucky Dip' game and the AI game that you played. - How was the protagonist fooled? • Students will further read the story in pairs. They will fill in the blanks individually without referring to the text. • They will watch a video of the story for better comprehension. • They will read/re-read the text to answer comprehension check questions.	

Learning Outcomes	• The students will understand the theme of the chapter and build linkages with their real life. • The students will develop critical thinking/ inference skills. • The students will draw parallels of the story with AI as it exists in our life. • The students will develop comprehension skills. • The students will enrich their vocabulary. • The students will develop communicative skills.	
Follow up Activities	Find out instances from your daily life wherein people try to con others and share with your partner. Build your Vocabulary: With reference to the 'Working with Language' section, play Semantris. Recall and enlist at least five words that you encountered in the game and write whether they can be classified as verbs/ nouns or both.	Semantris https://research.google.com/semantris/
Reflections	Students will compare the shop owner's role and computer's role after playing AI Thing Translator.	

GLOSSARY:

AI related Terminology

AI Thing Translator: Take a picture of something to hear how to say it in a different language. This experiment lets you take a picture of something to hear how to say it in a different language.

AI Activity Description: Students will bring any item in front of the camera and observe how the machine/computer responds. They will also hear how to say that in a different language chosen by them and thereby, improve their pronunciation.

Link to AI Thing Translator:
<https://thing-translator.appspot.com/>

Semantris

Semantris is a set of word association games powered by machine-learned, natural language understanding technology. Each time you enter a clue, the AI looks at all the words in play and chooses the ones it thinks are most related. Because the AI was trained on billions of examples of conversational text that span a large variety of topics, it's able to make many types of associations.

Playing word games is a fun way to increase vocabulary and learn new words. Semantris works with word associations that can benefit writing as students work on enriching their writing with adjectives, adverbs, and synonyms.

There are 2 modes available in the game.

ARCADE: Arcade mode requires the player to come up with associated words for certain words. You are supposed to think and enter as fast as you can before an increasing list of words fills your screen.

BLOCKS: Blocks is a turn-based game mode. You can take your time to come up with different types of clues and see which ones the game understands best.

Link to Semantris:
<https://research.google.com/semantris/>

ENGLISH

CLASS 6

3.5 What Happened to the Reptiles?

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 9: What Happened to the Reptiles?	
Name of the Book	A Pact with the Sun, Class 6, NCERT	
Subject and Artificial Intelligence Integrated	- Integration of Awareness of Artificial Intelligence & Teaching of English - Mystery Animal https://mysteryanimal.withgoogle.com/ - Google assistant (Natural Language Processing)	Mystery Animal https://mysteryanimal.withgoogle.com/ Google assistant (Natural Language Processing)
Learning Objectives	- To teach students importance of religious harmony. - To correlate the topic with ecological balance through food chain. - To make the children understand that all sections of society depend on each other for survival by drawing parallels between the humans and the animal kingdom. - To develop reading and listening skills of the students. - To practice silent reading and develop comprehension skills.	
Time Required	2 periods of 40 minutes each	
Classroom Arrangement	Flexible	
Material Required	Pen, paper, blackboard, chalk, smart board/screen and projector & laptops For pre-preparation activity: https://mysteryanimal.withgoogle.com/	
Pre – Preparation Activities	- The students are divided into groups to play the game Mystery Animal - In their groups they will make a list of reptiles they can recall. - Then they will play the game against the computer.	Mystery Animal https://mysteryanimal.withgoogle.com/ Students will be introduced to the AI game and will try to identify the animal.
Previous Knowledge	- Students will be asked to share some features about reptiles. - Students will be asked to share their knowledge about caste system in India.	
Methodology	- The teacher introduces students to Google assistant chatbot. - When the chatbot responds the students say “Talk to NCERT”	Students learn how to use Google assistant.

	• They are then redirected to ciet.nic.in site. • The chatbot asks other questions about the class, the name of the book the students want to access etc. • Then the audiobook the students want to listen to starts playing. • Students will listen attentively and do silent reading of the chapter. • The teacher will explain the chapter and tell them the meanings of difficult words.	
Discussion on the text	There is an open discussion on: • How animals of the jungle are interdependent on each other? • Are humans also interdependent on each other? • Problem, reason and solution to violence in society due to religious or racial differences. • Importance of food chain for ecological balance. • What can humans learn from animals?	
Learning Outcomes	• Learn to develop comprehension skills. • Correlate the topic with food chain in animal kingdom. • Understand the theme of the lesson, i.e., unity in diversity. • Learn new vocabulary words. • Learn to accept diversity in society. • Learn how to adjust in adverse situations in life from these animals.	
Follow up Activities	• Students will be asked to make a poster on the theme 'Unity in Diversity'. • Students will be asked to read the chapter using Google docs feature speech to text to self-evaluate their reading.	
Reflections	The students will share their posters which reflect their understanding of the necessity of unity in the society.	

GLOSSARY:

1. AI Related Terminologies

Mystery Animal: Mystery Animal is an AI experiment developed by Google on an open-sourced platform which is based on Natural Language Processing domain. In this game, the computer pretends to be an animal and the player needs to guess the animal by asking 20 Yes/No questions. The player asks the machine questions with the help of earphones/headphones/microphone to which the machine will respond either in Yes or No and according to the answers the player needs to modify his/her questions to guess the animal.

Natural Language Processing: It is the ability of a program to understand human language. Human language data can be fed to the machine in the form of text or speech. Natural Language Processing is one of the sub-fields of Artificial Intelligence wherein the machine interprets human language and produces intelligent output.

2. AI Activity description:

1. Mystery animal: A game based on Natural Language processing where the participant has to guess the animal by asking the computer a series of questions (maximum 20).

- Students need to go to the following link: <https://mysteryanimal.withgoogle.com/> .
- After reaching the website, students need to click on *Preview it Now!* Which will then start the experiment.
- The computer randomly selects animals which the students have to guess. The machine answers in either yes or no.
 - Tell students to ask questions related to the basic characteristics of the animal such as “Can you fly?” or “Are you a reptile?”.
 - The player asks the machine questions with the help of earphones/headphones/microphone.

NOTE: Mystery Animal works ONLY on Google Chrome browser.

3. GOOGLE ASSISTANT: It is an AI powered virtual assistant which can engage in two-way conversation. Users can interact with this tool through natural voice. It offers voice commands, voice searching letting you complete a number of tasks by saying “OK Google” or “Hey. Google” wake words.

For this activity:

- Open Google Assistant in your device by saying ‘OK Google’ or pressing the voice assistant option.
- Say ‘Talk to NCERT’ after the voice assistant is active.
- The assistant will ask you about your class, chapter, units and the story you want to listen to.
- You will have to speak out your preferred option and the audio- book will start playing.

ENGLISH

CLASS 6

3.6 The Kite

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 2: The Kite	
Name of the Book	Honeysuckle - NCERT Class 6	
Subject and Artificial Intelligence Integrated	Integration of AI in teaching of English	
Learning Objectives	Students should be able to share their experiences of kite flying Students should be instructed about the safety measures they need to take care of while flying kites on the roof or street. Students should be able to describe kites using different adjectives. Students may be able to tell about the various materials used to make kites. Students would be able to explain the meaning of action words they learn from the poem.	
Time Required	2, 40-minute class periods	
Classroom Arrangement	Seating arrangement - Theory Sessions- as in regular classroom Activities Sessions- In groups of four Online	
Material Required	Laptop/Mobile device/other tablet device, Network connection, Book- Honeysuckle	
Pre – Preparation Activities	Discussion of kite flying, on which festivals kite flying is done, how it is different in different states or countries.	
Previous Knowledge	Material required to make kites. Places where kite flying is common during festivals. Significance of kite flying	
Methodology	Use of flash cards and videos to show kite flying in different states and on different festivals Begin the class with discussion about the author Poem Recitation with proper stress and intonation. After the reading of the poem, Students will be shown various action words and they have to find the words through the meaning Identification of poetic devices and rhyme scheme.	Canvas Tool- Students may be asked to make predictions regards kite flying
Learning Outcomes	Students will: Use adjectives for various things, feelings Use descriptive sentences for a situation like kite flying. Explain the meanings of common action words.	

Follow up Activities	Google Forms can be used to assess the meanings and context of the poem Inkle writer for reflections. Share their learning from the poem along with their experiences	Google Forms Inkle writer
Reflections		My story time

GLOSSARY:

AI related Terminology

Canvas Tool- A Simple Tool to Start Making Decisions with the Help of AI

AI makes prediction better, faster, and cheaper. Not only can you more easily predict the future (What's the weather going to be like next week?), but you can also predict the present (what is the English translation of this Spanish website?). Prediction is about using information you have to generate information you don't have.

Google Forms

Inklewriter

<http://writer.inklestudios.com/>

Inklewriter is created, to help writers tell interactive tales with the minimum of fuss. **inklewriter** keeps your branching story organised, so you can concentrate on what's important – the writing. **inklewriter** is a free tool designed to allow anyone to write and publish interactive stories. It's perfect for writers who want to try out interactivity, but also for teachers and students looking to mix computer skills and creative writing.

My Storytime

My Storytime helps you record stories when you're apart and makes them instantly accessible back home through the Google Assistant.

<https://mystorytime.com/>

ENGLISH

CLASS 6

3.7 Taro's Reward

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 3: Taro's Reward	Ethics and values through the AI Tool: Moral machine
Name of the Book	Honeysuckle, Grade 6, NCERT	
Subject and Artificial Intelligence Integrated	Moral machine is used as an AI tool and is integrated with teaching of English.	www.moralmachine.net
Learning Objectives	The children will be able to: • Appreciate the value of Artificial intelligence. • Analyze and interpret the literary text. • Share their opinions regarding the importance of ethics and values in one's life. • Appreciate the importance of family bonding and family values • Recognize the moral of the story.	
Time Required	2 Periods of 40 minutes each	
Classroom Arrangement	Flexible	
Material Required	Textbook, Dictionary, white board or chalk board, markers or chalk, notebook papers, pens, smart board and laptop to access the lesson and AI integration. Internet websites for data acquisition.	
Pre – Preparation Activities	The class will be divided into groups of students with different understanding levels. The students will be asked to download the AI tool: Ethics in AI...moral machine.net	
Previous Knowledge	The students know about the love and bonding that they are sharing with their family members. The students also know about the common AI tools around us.	

Methodology	The students will use the AI Tool “Moral machine” in groups and will share their school of thought with the class. They will be asked to share their personal experience as well, if any. Then, they will read the story partly and share their understanding with the class. The teacher leads the discussion on the importance of family bonding and family values. The students will also be encouraged to identify their role as a dutiful child with their elder family members or to the elderly people of the society. The following topics will be reviewed: • Qualities of Taro as a son. • How was Taro’s honesty rewarded? • The lesson of the story.	https://www.moralmachine.net/
Learning Outcomes	At the end of the unit, The students will be able to: Apply the concepts of AI tools and to relate it with their subject related classroom activities. Identify their duties towards the elderly people of the family or of the society. Demonstrate the value of honesty. Recognize the value of family bonding.	
Follow up Activities	• The students will be asked to write the Character Sketch of Taro and will write about how he was rewarded for his honesty. • The students will be assigned to make a Family Tree with the help of their Grand Parents. • They will also be asked to make Gratitude Cards for their Grandparents to show their love, care and respect towards them.	
Reflection	The students will be asked to explore AI Inkwriter as an alternative tool.	www.inkwriter.com

GLOSSARY:

AI Related Terminology:

AI Moral Machine: It is a platform for gathering a human perspective on moral decisions made by machine intelligence, such as self-driving cars

Here, a driverless car must choose the lesser of two evils. As an outside observer one can judge which outcome is more acceptable.

Although morality is a solely human trait but through this AI tool the students can explore the areas of value and ethics, that they should give preference, like social values, following laws or protecting lives of people and animals etc.

Inkwriter

<http://writer.inklestudios.com/>

Inkwriter is created, to help writers tell interactive tales with the minimum of fuss. **inkwriter** keeps your branching story organised, so you can concentrate on what’s important – the writing. **inkwriter** is a free tool designed to allow anyone to write and publish interactive stories. It’s perfect for writers who want to try out interactivity, but also for teachers and students looking to mix computer skills and creative writing.

ENGLISH

CLASS 6

3.8 The Monkey and the Crocodile

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 6: The Monkey and the Crocodile	
Name of the Book	A Pact with the Sun, Class 6, NCERT	
Subject and Artificial Intelligence Integrated	Integration of Awareness of Artificial Intelligence & Teaching of English	
Learning Objectives	• To practice reading aloud in groups, monitor their reading and self-correct where necessary • Identify and discuss what makes this story exciting to read. • Infer the plot, characters and the theme behind the story. • Critically evaluate the characters and their traits. • Make connections between their prior knowledge and information in the story to make predictions and inferences. • To build an appreciation and awareness of Artificial Intelligence Tools- ❖ Using 'Mystery Animal'. • To try using Artificial Intelligence via Inklewriter and develop skills of imagination, creativity and writing by changing the ending of the story.	• Mystery Animal • Inklewriter
Time Required	• 3 periods 40 minute each	
Classroom Arrangement	• Seating arrangement -Flexible	
Material Required	• Pen, paper, blackboard, chalk, smart board/screen and projector & laptops.	
Pre – Preparation Activities	• Introduction to Panchtantra using other tales. • Students are asked to click on the link provided and play Mystery Animal and see if they are able to guess the animal.	Mystery Animal https://mysteryanimal.withgoogle.com/
Previous Knowledge	• The students are aware of Artificial Intelligence and know the various fields where it is being used. • A quick knowledge sharing session can be conducted regarding the same. • They are familiar with other Panchtantra tales with tricky characters.	

Methodology	• Loud reading of the lesson by the students. • Introduction of the narrative features (setting, characters, dialogue, plot, and a clear beginning, middle and end) • Vocabulary building. • Discussing the character traits and critically evaluating it. • Discussion on real life situations experienced by the students.	
Learning Outcomes	Students will – • develop an interest in reading aloud the story. • be able to apply and extend their knowledge of vocabulary and word structure. • infer the theme and the moral of the story. • be able to critically evaluate the characters and the situation. • be able to relate it to real life situations and hence would be able to find a solution to a problem. • develop awareness about AI and its tools like Semantris (for vocabulary building) , Mystery Animal (for guessing the animal) and Inklewriter (for story writing)	Semantris
Follow up Activities	• The students would be asked to use Inklewriter to change the ending of the story by bringing in their creativity and using AI.	Inklewriter
Reflections	• Review the students' responses and their earlier predictions. • Did their idea change about the characters as they read the story. • Discussion with students on the role of AI application • Any other AI application that can be used as an alternative.	

GLOSSARY:

AI Terminologies - AI Activity Description

a) **Mystery Animal:** Students need to go to the following link: <https://mysteryanimal.withgoogle.com/>
After reaching the website, students need to click on Preview it Now! Which will then start the experiment. In this experiment, the machine randomly selects any animal which the player needs to identify with the help of 20 Yes/No questions to be asked to the machine. Whatever question asked, the machine either responds in Yes or No or lets the user know when it is not able to comprehend the statement.

b) **Semantris :** Students need to go to the following link: <https://research.google.com/semantris/>

Semantris is a set of word association games powered by machine-learned, natural language understanding technology. Each time you enter a clue, the AI looks at all the words in play and chooses the ones it thinks are most related. Because the AI was trained on billions of examples of conversational text that span a large variety of topics, it's able to make many types of associations.

c) **Inklewriter :** Students need to go to the following link: www.inklewriter.com

Inklewriter is a free tool designed to allow anyone to write and publish interactive stories. The Inklewriter lets you write as you play, branching the story with choices, and then linking those stories back together again. It keeps track of which paths you've finished, and which still need to be written.

ENGLISH

CLASS 6

3.9 The Shepherd's Treasure

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 3: The Shepherd's Treasure	
Name of the Book	A Pact with the Sun	
Subject and Artificial Intelligence Integrated	English - Working on the development of vocabulary Twist the end (Creativity) – Inklewriter (Follow up)	Semantris Inklewriter
Learning Objectives	Learning Objectives: (Based on Bloom's Taxonomy) The student will be able to: • read the text with fluency, clarity and intonation. (remembering and understanding) • develop their listening and comprehension skills. (understanding and applying) • discuss the answers of comprehension questions based on the text. (understanding) • enhance their vocabulary and use the new words appropriately to frame meaningful sentences. (AI application - Semantris) • discuss the character-sketch of the main characters of the play and summarize the theme of the text. (analyzing and evaluating - Mentimeter) • determine and discuss the moral values learnt from the chapter. (understanding and applying) • organize and express their views and ideas in a well-structured and systematic manner. (creating – Twist the tale - inklewriter) • to build an appreciation for AI tools.	
Time Required	4 - 40-minute class period	
Classroom Arrangement	Seating arrangement –Flexible	
Material Required	Textbooks, curriculum guides, story books, lab manuals, reference materials, and so forth https://research.google.com/semantris/ www.inklewriter.com	https://research.google.com/semantris/ www.inklewriter.com
Pre – Preparation Activities	Introductory Activity: Arousing curiosity among learners through structured discussion using illustrations. The teacher can show the picture of a shepherd on the screen and ask them some probing questions such as: What comes to your mind when you see the picture of a shepherd? Names of some stories related to shepherds and related behaviour can be discussed. Involvement in social media Use of mobile phones, laptops	

Previous Knowledge	Should be aware of the term 'folktale'. Meaning of the word shepherd and related vocabulary. Basic skills to use Google search engine	
Methodology	Pre-Lesson Session – Introductory activity, Structured discussion and some knowledge about folktales. While Reading aloud, students will focus on enrichment of vocabulary, comprehension skills enhancement and independent reading. Post Session – Open ended discussion, moral based questions and character sketch.	
Learning Outcomes	The students are able to: ● read the text with fluency, clarity and intonation. (remembering and understanding) ● develop their listening and comprehension skills. (understanding and applying) ● discuss the answers of comprehension questions based on the text. (understanding) ● enhance their vocabulary and use the new words appropriately to frame meaningful sentences. (creating – AI application - Semantris) ● discuss the character-sketch of the main characters of the play and summarize the theme of the text. (analyzing and evaluating - Mentimeter) ● determine and discuss the moral values learnt from the chapter. (understanding and applying) ● organize and express their views and ideas in a well-structured and systematic manner. (creating – Twist the tale - inklewriter) ● to build an appreciation for AI tools.	
Follow up Activities	Google form based on the chapter can be created to assess the understanding of the students. Character sketch (shepherd, king and other courtiers) – Mentimeter Story created on Inklewriter can be discussed in the class.	
Reflections	Pixton app can be used in place of inklewriter to create the story in the form of a comic strip.	

GLOSSARY:

AI Rrelated Terminology

Semantris

<https://research.google.com/semantris/>

A Google experiment, Semantris is a word association game powered by machine learning. Each time you enter a word that is associated with the target word, the AI looks at all the words in play and chooses the ones it thinks are most related.

Inklewriter

<http://writer.inklestudios.com/>

Inklewriter is created, to help writers tell interactive tales with the minimum of fuss. **inklewriter** keeps your branching story organised, so you can concentrate on what's important – the writing. **inklewriter** is a free tool designed to allow anyone to write and publish interactive stories. It's perfect for writers who want to try out interactivity, but also for teachers and students looking to mix computer skills and creative writing.

ENGLISH

CLASS 7

3.10 The Tiny Teacher

Chapter Covered	Chapter 1: The Tiny Teacher	AI Concepts Integrated
Name of the book	An Alien Hand, Class 7, NCERT	
Subject and Artificial Intelligence Integrated	Application of Artificial Intelligence & Teaching of English	
Objectives	- To use AI tools to practice story telling – open source AI tool - To practice silent reading and develop comprehension skills - To develop skills of imagination creativity and writing. - To build a narrative story about the layout of an Ant hill using Google story speaker - To write the story and share it in a larger group	
Time Required	2 periods of 40 minutes each	
Classroom Arrangement	Flexible	
Material Required	Pen, paper, blackboard, chalk, smartboard/screen and projector, Google Story Speaker & laptops	
Pre- Preparation Activity	The students are divided in pairs asked to download Google story speaker app in preparation for the topic.	Students are asked to download Google story speaker app in preparation for the topic.
Previous Knowledge	Students are asked to discuss and draw the insides of an Anthill as comprehended by them after silently reading the story 'The Tiny Teacher'. They will mention the various rooms/spaces in the Anthill as allocated to each particular sect of Ants.	
Introduction	The teacher introduces students to how Google Story Speaker can be used to create a narrative based on the picture that they have drawn.	
Methodology	- The students are shown a video on how story speaker works. - The students work in pairs to create a story based on the drawing they have created of the Ant hill. - They then share their story with the other groups.	Students learn how to use Story Speaker to present their story
Discussion on the Text	There is an open discussion on: - How the life of an ordinary ant in an anthill is like a book which many of us seldom open. - What are grubs? - Why do ants carry these grubs with them? - In what way is an Ant's life peaceful? - Does this reflect in the way they create their Anthills? - What other creatures live in Ant hills?	
Learning Outcomes	- The Students will be able to learn to use AI tools to practice story telling - They learn to develop comprehension skills - They learn to develop skills of imagination creativity and writing. - They learn to build a narrative story about the layout of an Ant hill using Google story speaker - They understand that following rules leads to a peaceful life	

Self-Evaluation and Follow-Up	The teacher analyses the responses of the students regards three things which they have learnt from the Tiny Teachers – the Ants	
Follow-up Activity	The students will be asked to complete the poem with the words given in the box and recite the same in the class.	

GLOSSARY:

1. AI Related Terminologies:

Story Speaker: It is an AI experiment which is available as an add-on to Google Docs. Story Speaker lets anyone create an interactive story with no coding required. It is an easy to install and easy to use tool and comes in handy when the user wants to create a story which changes according to the user's input.

Link to install Story Speaker extension for Story Speaker: <https://chrome.google.com/webstore/detail/story-speaker/ohfibfhfbhknfdkipjdopbnegkbkij>

Introduction to Story Speaker: <https://www.youtube.com/watch?v=wsrzvYYvhH8&feature=youtu.be>

Link to read more about Story Speaker:

<https://docs.google.com/document/d/1hFrBtsBbF2LoZ1FFpXEH7L6fWH1lj24W1-itXnKSXK8/edit>

Basic Template of Story Speaker: https://docs.google.com/document/d/1rXPSayQVVQ-T5cWlhxPbOCc2UJEZTbVWkxqOnC_RnDE/edit?usp=sharing

Steps to install Story Speaker:

- Login in to your Google account
- Go to google.com
- Search for story speaker addon download
- Go to the first link of experiments.google.com
- Click on Launch Experiment
- To install this addon, click on free.
- Give the required permissions to get the addon.
- Once it is installed, go to docs.google.com → Add-ons → Story Speaker → Open Story Speaker

Ask the students to first load in the basic template and play it. To play the story, go to Add-ons → Story Speaker → Open Story Speaker, as soon as the story speaker window opens at the right, click on Play your Story → scroll down to Play story in chat preview. The basic template will start playing where once the story pauses, the user needs to give input according to the question asked. According to the response fed either by typing or by speaking, the story will change.

Basic Template of Story Speaker:

Title: The Tale of The Pig Monster ← Title of the story (can be changed)

By: Your name ← Author's Name (can be changed)

START HERE ← Depicts the Start of the story to the machine (CANNOT be changed)

Intro ← Start of the story (CANNOT be changed)

You're standing in a forest. There are two roads in front of you. Do you go to the left or the right? ← Introduction to the story. Students can make it their own way

[1] **If you say "left"** ← Conditional Statement. Can only change the text in " " according to what input do they expect from the user to diverge their story.

You hear a fearsome growling. A pig monster approaches. It eats you. I'm sorry. [[END]] ← The story diverges as the user gives appropriate input. The text here can be changed according to the story. [[END]] depicts that the story would end at this point.

If you say “right”

You walk down a darkened path. You come to a house. There's a light on inside. Do you go inside? ← The statement where you want the user to respond should end with a question like this.

[2] If you say “yes” or “go inside”

You knock on the door. It opens, revealing the pig monster. This is the pig monster's house. It eats you. I'm sorry. [[END]]

If you say “no” or “keep going” or “don't go inside”

You keep walking. The story would keep going. But you'll have to write it. [[END]]

Otherwise ← If user enters any input other than the expected ones, the story lands at this point. This is for the [2] if condition. (CANNOT be changed)

Do you want to go in the house? Say “yes” or “no.” It's getting cold out here. ← (can be changed)

Otherwise ← The story would land at this point if the user gives an unexpected response to the Intro question. (CANNOT be changed)

You've got to go to the left or the right. The pig monster isn't going to wait all day. ← (Can be changed)

Anytime you say “where is the pig monster” ← Optional Statement. Text in “ ” can be changed

I don't know. It could be anywhere. ← (can be changed)

Fallback ← This statement gets executed for any erroneous response which does not get covered in any Otherwise statements. (CANNOT be changed)

Sorry, I didn't get that. Try asking again. ← (can be changed)

NOTE:

- The statements written in **BOLD** are interpreted by the machine for specific purposes. Thus, in most cases, they cannot be changed as they describe a specific function to the machine.
- Wherever one wants the story to diverge, the statement should end with a question which the user can answer so that according to his/her response, choices can be made. There can be more than one choice for the user to make but it is advisable that whichever choice the user has should be mentioned in the question itself to bring more clarity.
- Indentation is very important in writing an interactive story using story speaker. It lets the machine understand the flow of the story. Indentations are given with the help of TAB key. As you can see, the If statement [1] in the template has been tabbed after the intro part as it shows that this If statement comes under intro. While the other If statement [2], has been tabbed again to show that it comes inside the **If you say “right”** statement.

2. AI Activity Description

Ask the students to draw a basic layout of how an anthill would look from inside on the basis of the findings they have out of the chapter. They layout should be made in such a way that it can be described in a story. Once the layout is complete, ask the students to explore the basic template and try playing it before they start working on their story. After they understand how to use the tool, ask them to make an interactive story to describe the layout they have made for the anthill and let them interact with the story. At the end of this activity, the students should be able to describe the whole anthill layout in the form of an interactive story.

ENGLISH

CLASS 7

3.11 Expert Detectives

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 6: Expert Detectives	
Name of the Book	Honeycomb-NCERT Class 7	
Subject and Artificial Intelligence Integrated	Integration of teaching of English language and awareness of Artificial intelligence.	
Learning Objectives	- To practice reading aloud with correct pronunciation and expressions. - To develop skills of imagination; creativity and writing. - To enhance vocabulary and expressions and frame grammatically correct sentences. - To encourage students to interrogate. A sense of curiosity is nature's original school of education. - To inculcate values such as open-mindedness, compassion, respect, perseverance, inquisitiveness. - To draw parallels of the story with AI as it exists in our life through various AI tools. (AI Dungeon/Inkale writer) - To build an appreciation and awareness of Artificial Intelligence	https://play.aidungeon.io/WarmUp Activity: https://emojisca.vengerhunt.wit.hgoogle.com/ OR https://experiments.withgoogle.com/visual-crosswords
Time Required	2 periods of 40 minutes each	
Classroom Arrangement	Flexible	
Material Required	Pen, paper, blackboard, chalk, smartboard/screen and projector & laptops, internet connection, dictionary	
Pre – Preparation Activities	The students are divided in groups.	
Previous Knowledge	To trigger the previous knowledge the following questions will be asked. - What does loneliness mean to them? - Can they imagine being alone in a house? - Do they believe that appearance is often deceptive? - Have they ever played hide and seek and detective games? Do they enjoy it? - Have they played any treasure hunt game on the computer? How do they feel when they come to know that they are searching the wrong areas?	Discussion on AI Ethics
Methodology	The students are divided into groups of 3 and are asked to read aloud the unit 'Expert Detective' (role play). The students will find the meanings of difficult words from the dictionary (forms of word). The children will listen to the audio of the chapter. The children can play treasure hunt in the classroom.	https://www.gizbot.com (to learn pronunciation)

Learning Outcomes	• Students will appreciate Literature • They will cherish friends and friendship. • Develop affection for neighbours. • Develop an interest in reading aloud and discussion • learn vocabulary and its usage • Develop Awareness about AI • Infer the moral of the story	
Follow up Activities	The students will do a survey on whether people love to live alone or in company. Whether they are hospitable or unfriendly. Then, the students will collect the data and analyze it using analytical tools of AI.	AI data analytical tool https://datavizcatalogue.com/
Reflections	The students will learn values and perhaps will change the world around us.	

GLOSSARY:

AI Activity Description:

Ask the students to think of the following scenarios:

1. As Artificial Intelligence gets incorporated in various fields, we cannot stay away from it. The face recognition lock, Siri, Google assistant on your mobile are common examples.
2. Do you think AI can make security systems more efficient? The integration of technology and AI systems can develop a better security system.
3. If an AI machine makes a mistake, who should be held responsible for it? The Developer, The AI developing firm, The User, or The AI machine itself?
4. With Alexa, online games etc. around, do people feel less lonely?

To summarize this activity, tell the students that the technology cannot take away the pleasure of human touch and presence, which is very much required. Hence, it is important to have ethical guidelines which can guide us in such conditions where there is no clear definition of what is right and what is wrong.

AI Tools Used:

AI Dungeon

1. <https://play.aidungeon.io/>

AI Dungeon is a text adventure game; however, unlike traditional text adventure games, which use pre-written content, *AI Dungeon* uses artificial intelligence to generate effectively limitless open-ended storylines.

When first beginning the game, players are greeted by the following opening:

"You're about to enter a world of endless possibilities, where you can do absolutely anything you can imagine.... Will you proceed?"

Players are then prompted to choose a setting for their adventure (e.g. fantasy, mystery, apocalyptic, cyberpunk, zombies), followed by other options relevant to the setting (such as character class for fantasy settings).

After beginning an adventure, there are three main interaction methods that can be chosen for each of the player's pieces of text input:

- Do: Must be followed by a verb, allowing the player to perform an action.

- Say: Must be followed by dialog sentences, allowing players to communicate with other characters.
- Story: Can be followed by sentences describing something that happens to help the story progress, or that players want the AI to know for future events.

The game's artificial intelligence allows it to adapt and respond to almost any action entered by the player.

Providing blank input can also be used to prompt the AI to generate further content.

2. <https://emojiscavengerhunt.withgoogle.com/>

Emoji Scavenger Hunt is a browser-based game built with machine learning that uses your phone's camera and a neural network to try and guess what it's seeing. ..., the game is built to run efficiently on your phone's web browser without needing to access backend servers.

3. <https://experiments.withgoogle.com/visual-crosswords>

4. AI data analytical tool <https://youtu.be/Gk5cjDetViM> (adobe CC)

ENGLISH

CLASS 7

3.12 The Cop and The Anthem

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 4: The Cop and The Anthem	
Name of the Book	An Alien Hand-NCERT Class7	
Subject and Artificial Intelligence Integrated	The Cop and The Anthem (Story) in English and Artificial Intelligence (AI Dungeons)	AI Dungeon
Learning Objectives	- Read the lesson with correct intonation and pronunciation. - Understand the lesson and remember the events and description. - Understand the difference between right and wrong and importance of decision making. - To try using AI Dungeon to create a story.	
Time Required	3 periods of 40 minutes each	
Classroom Arrangement	Online	
Material Required	Physical classroom: Pen, paper, blackboard, chalk, smartboard/screen and projector, laptop/computer. Online class: Internet connection, laptop/desktop/smartphone, textbook/PDF text, Padlet, AI Dungeon	
Pre – Preparation Activities	Students are given instructions on the starter activity.	
Previous Knowledge	Students are asked any story they must have heard about prison. They are guided to reflect on a story along similar lines and asked to frame a story using AI Dungeon.	Students will choose custom story and feed in a sentence according to their choice to continue writing a story.
Methodology	- Students are shown a video on how Rock Paper Scissor and AI Dungeon works. - Reading aloud of the story by students. - Explanation of the lesson, with inputs from students. - Discussion on the various components of the lesson. - Discussion on contextual and non-contextual questions.	https://play.aidungeon.io/ AI Game: Rock Paper Scissors

Learning Outcomes	At the end of the lesson, students will be able to: • Read the lesson fluently with proper pronunciation, intonation, and stress. • Extrapolate the given text. • Develop comprehension skills and skills of imagination and creativity. • Infer the theme of the story. • Give coherent answers to contextual questions. • learn to build a narrative story.	
Follow up Activities	• The teacher will assess the success of the activity through an interactive session on Padlet, where students will respond to various reflective questions. • Vocabulary building activity through Semantris.	Semantris https://researchgoogle.com/semantris/ .
Reflections	• Discussion with Students on the role of AI application • Any other AI application that can be used as an alternative.	

GLOSSARY:

AI Related Terminology

1. AI Dungeon

<https://play.aidungeon.io/>

AI Dungeon is a text adventure game; however, unlike traditional text adventure games, which use pre-written content, *AI Dungeon* uses artificial intelligence to generate effectively limitless open-ended storylines.

When first beginning the game, players are greeted by the following opening:

"You're about to enter a world of endless possibilities, where you can do absolutely anything you can imagine.... Will you proceed?"

Players are then prompted to choose a setting for their adventure (e.g. fantasy, mystery, apocalyptic, cyberpunk, zombies), followed by other options relevant to the setting (such as character class for fantasy settings).

After beginning an adventure, there are three main interaction methods that can be chosen for each of the player's pieces of text input:

- Do: Must be followed by a verb, allowing the player to perform an action.
- Say: Must be followed by dialog sentences, allowing players to communicate with other characters.
- Story: Can be followed by sentences describing something that happens to help the story progress, or that players want the AI to know for future events.

The game's artificial intelligence allows it to adapt and respond to almost any action entered by the player.

Providing blank input can also be used to prompt the AI to generate further content.

2. Semantris

<https://researchgoogle.com/semantris/>.

Semantris is a set of word association game powered by machine learned, natural language understanding technology. Each time you enter a clue the AI looks at the words in play and chooses the ones it thinks are most related.

ENGLISH

CLASS 7

3.13 Golu Grows a Nose

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 5: Golu Grows a Nose	
Name of the Book	An Alien Hand, Class 7, NCERT	
Subject and Artificial Intelligence Integrated	Artificial Intelligence and teaching of English	
Learning Objectives	- To understand, appreciate and enjoy Pourquoi stories. - To develop critical thinking, imagination and creativity. - To upskill the ability of framing questions using AI tools. - To practice silent reading and develop comprehension skills. - To infer, analyze and evaluate text. - To improve oratory skills	
Time Required	2 periods of 40 minutes each.	
Classroom Arrangement	Flexible	
Material Required	Textbooks, pen, paper, smartboard, laptop, marker	https://en.akinator.com/ https://mysteryanimal.withgoogle.com/
Pre – Preparation Activities	Students are divided into groups of 4 and asked to research on ‘Just So Stories’ by Rudyard Kipling.	
Previous Knowledge	Students discuss and share their knowledge about pourquoi stories and post the name of one such story on Nearpod Collaborate Board.	
Methodology	- Students read the story in pairs and discuss- - Why does Golu ask so many questions? - Do you approve of this quality of Golu? - Why do you think Golu’s relatives did not answer his questions? - What do you need to be careful about while framing questions? - Students play Akinator to learn the skill of framing relevant and precise questions. - To practice the skill learnt through Akinator, they are asked to play Mystery Animal as a complementary AI tool. - They draw a flowchart to write the sequence of events as they take place in the story and discuss-	https://en.akinator.com/ While playing Akinator, students will be asked to pay attention to the nature and structure of questions framed by the computer. They will further apply the technique in Mystery Animal. https://mysteryanimal.withgoogle.com/

	• Who helps Golu? Was he a source of encouragement for Golu? • What are 'crocodile tears'? • What benefits of the long nose did Golu discover?	
Learning Outcomes	• Students will be able to work in groups to appreciate etiological stories. • They will be able to augment their skill of framing questions. • The students will develop comprehension skills. • The students will improve their analytical and reasoning prowess. • They will develop oratory skills.	
Follow up Activities	Golu, who was initially distressed due to his long nose, was able to acknowledge and embrace its benefits later. Work in groups to prepare for a role play presentation on 'Count your Blessings'.	
Reflections	The students will be asked to maintain a self-assessment journal to reflect on their performance and understanding of the concepts/skills learnt in the sessions.	

GLOSSARY:

AI related Terminology

Akinator: Akinator is a computer game and mobile app. During gameplay, it attempts to determine what fictional or real-life "character" the player is thinking of by asking a series of questions (like the game *Twenty Questions*). It uses an artificial intelligence program that learns the best questions to ask through its experience with players.

Mystery Animal: Mystery Animal is an AI experiment developed by Google on an open-sourced platform which is based on Natural Language Processing domain. In this game, the computer pretends to be an animal and the player needs to guess the animal by asking 20 Yes/No questions. The player asks the machine questions with the help of earphones/headphones/microphone to which the machine will respond either in Yes or No and according to the answers the player needs to modify his/her questions to guess the animal.

Natural Language Processing: It is the ability of a program to understand human language. Human language data can be fed to the machine in the form of text or speech. Natural Language Processing is one of the sub-fields of Artificial Intelligence wherein the machine interprets human language and produces intelligent output.

AI Activity Description

Akinator: To begin the questionnaire, the user must press the play button and think of a popular character, object or other things that frequently come to mind (musician, athlete, political personality, video game, mother or father, actor, fictional film/TV character, Internet personality, etc.). Akinator, a cartoon genie, begins asking a series of questions (as many as required), with "Yes", "No", "Probably", "Probably not" and "Don't know" as possible answers, to hack down the potential character. If the answer is narrowed down to a single likely option before 25 questions are asked, the program will automatically ask whether the character it chose is correct. If the character is guessed wrong three times in a row (or more, usually in intervals of 25, 50, and 80), then the program will prompt the user to input the character's name, to expand its database of choices

Link to Akinator:

<https://en.akinator.com/>

Mystery Animal: Students need to go to the following link: <https://mysteryanimal.withgoogle.com/>. After reaching the website, students need to click on Preview it Now! Which will then start the experiment. In this experiment, the machine randomly selects any animal which the player needs to identify with the help of 20 Yes/No questions to be asked to the machine. Whatever question asked, the machine either responds in Yes or No or lets the user know when it is not able to comprehend the statement.

NOTE: Mystery Animal works ONLY on Google Chrome browser

Link to Mystery Animal:

<https://mysteryanimal.withgoogle.com/>

ENGLISH

CLASS 7

3.14 The Desert

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 3: The Desert	
Name of the Book	An Alien Hand Class 7 NCERT	
Subject and Artificial Intelligence Integrated	English and Artificial Intelligence	Autodraw https://www.autodraw.com/ My storytime https://app.mystorytime.com/
Learning Objectives	- To understand the physical features of a desert. - To appreciate the beauty of nature in all its forms. - To learn about the adaptations of plants and animals to survive in deserts. - To develop skills of imagination, creativity and writing.	
Time Required	2 periods of 40 minutes each	
Classroom Arrangement	Flexible	
Material Required	Pen, paper, blackboard, chalk, smartboard/ screen and projector	
Pre – Preparation Activities	- Students will be asked to make a list of plants and animals found in the desert. - Students will use Autodraw where the computer identifies the things they draw.	AI tool Autodraw is used. https://autodraw.com
Previous Knowledge	- Students are asked if they have travelled to Rajasthan or Ladakh. - They are asked to tell the difference and similarities between both the places. - Students are asked about deserts – hot and cold. - They are asked to name plants and animals found in these regions.	
Methodology	- The teacher will do model reading of the chapter and the students will do silent reading. - The teacher will explain the chapter and give meanings of difficult words. - The students will then be divided into groups and gather information from the internet about camels, oasis, the lifestyle of people in desert areas-their food, clothes, work, social customs, etc. - Students will be introduced to AI tool My Storytime using which they create a story set in a desert using	Sites for data acquisition https://sciencing.com/information-desert-animals-plants-6579441.html - https://www.desertanimals.net/

	the information they've collected from the internet. The main character of the story should be a camel.	My Storytime is used to create a story. https://mystorytime.com/
Learning Outcomes	Students develop: • Better comprehension skills. • Enhanced creative writing skills of students. • Understanding of the different elements of nature. • Write coherently with focus on appropriate beginning, middle and end.	
Follow up Activities	• Students will be asked to write a descriptive paragraph about a desert- hot or cold. • Students will read it out in the next class.	
Reflections	The teacher will note if knowledge of students about a desert has been enhanced.	

GLOSSARY:

AI Activity Description

1. Autodraw!

For this activity, ask the students to go to <https://autodraw.com>. Once they land on this website, ask the students to select the first icon from the left side toolbar.

This icon activates the AI element of the tool. Now, ask the students to draw the animal from their list and let the AI algorithm detect and predict the possible drawings similar to it. The predictions would appear in the top row.

2. My Storytime: It is an AI experiment which lets anyone create an interactive story with no coding required. It comes in handy when the user wants to create a story.

- Open the site using: <https://mystorytime.com/>
- Log into your Google account
- You'll be asked to make short recordings, including phrases that will help guide Storytime when invoked, such as "Which story would you like to hear?" or "Should we keep reading?" Or "Read a different story?"
- Once you've recorded those set-up phrases, you can start recording yourself creating a story.

ENGLISH

CLASS 7

3.15 I Want Something in a Cage

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 6: I Want Something in a Cage	
Name of the Book	Alien Hand – NCERT Class7	
Subject and Artificial Intelligence Integrated	Integration of Artificial Intelligence in English	
Learning Objectives	- Students should be able to discuss about the life and work of the writer L..E. Greeve - Students should be able to explain the story in their own words. - Students should be able to analyse the message given by the story- freedom. White Doves are also symbols for peace and freedom. - Students should be able to tell the synonyms and antonyms of key words like freedom, disdain, insulted etc. - Students should be able to give some instructions about safe-keeping of a pet	
Time Required	4 classes of 40 minutes each	
Classroom Arrangement	Online	
Material Required	Laptop/Mobile device/other tablet device, Network connection, Book- Alien Hand	
Pre – Preparation Activities	Discussion- Children may be asked how many of them have pets at home or would they like to keep a pet and which one. How do they like to play with their pets? What are the various ways in which they take care of their pets?	Quizlet app https://quizlet.com/en-gb/features/live can be used to display hints about a pet animal and the children have to guess it and then the correct option may be viewed by them to check.
Previous Knowledge	What kind of sounds are made by different pets like dogs bark/howl, birds chirp/imitate, cats purr/meow, fishes tap on the tank/glass etc. What are the different kinds of food eaten by different pets? Ways and means of acquiring animals.	Mystery Animal game https://mysteryanimal.withgoogle.com/

Methodology	Discussing about the writer Reading the lesson with fluency and correct pronunciation Highlighting the vocabulary words and discussing their meanings. Identifying the theme and message from the lesson. Character sketch of Mrs. Purcell and the man Understanding the importance of freedom in our lives and the life of animals. Flashcards having pictures of various animals that are kept as pets at home.	
Learning Outcomes	Know about the writer Identify the theme and the message from the poem Understand the meanings of new words and Apply them in sentences of their own	
Follow up Activities	Google forms will be taken to assess the learning from the lesson.	Story speaker may be used where children can write a story from the perspective of a pet animal. Mystery Animal game

GLOSSARY:

Quizlet

Quizlet app <https://quizlet.com/en-gb/features/live> can be used to display hints about a pet animal and the children have to guess it and then the correct option may be viewed by them to check. Mystery Animal: Students need to go to the following link: <https://mysteryanimal.withgoogle.com/>

Mystery Animal

<https://mysteryanimal.withgoogle.com/> After reaching the website, students need to click on Preview it Now! Which will then start the experiment. In this experiment, the machine randomly selects any animal which the player needs to identify with the help of 20 Yes/No questions to be asked to the machine. Whatever question asked, the machine either responds in Yes or No or lets the user know when it is not able to comprehend the statement

ENGLISH

CLASS 7

3.16 The Story of Cricket

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 10: The Story of Cricket	
Name of the Book	Honeycomb, Grade 7, NCERT	
Subject and Artificial Intelligence Integrated	Exploration of data collection is used as an AI tool and is integrated with teaching of English.	datavizcatalogue.com
Learning Objectives	The children will be able to: • Use AI tools to explore data available on the popularity of different sports in India. • Compare the popularity of different sports in India by exploring available data sets in a group. • Describe the origin and development of cricket. • Recognize the importance of playing games and sports.	
Time Required	2 Periods of 40 minutes each	
Classroom Arrangement	Flexible	
Material Required	Text book, Dictionary, white board or chalk board, markers or chalk, notebook papers, pens, smart board and laptop to access the lesson and AI integration. Internet websites for data acquisition.	
Pre – Preparation Activities	The class will be divided into groups of students with different understanding levels and will be asked to collect information on: Team India's performance & position in the World Cup Cricket.(ODI) Popular sports of India. Popular sports around the world. Most popular Sports Leagues in India. The students will be asked to download the AI tool: datavizcatalogue.com	
Previous Knowledge	The students know how to represent the data graphically. They are also familiar with the new words used in data interpretation. They also know about Cricket and other popular games and sports of India and around the world.	
Methodology	• The students will be asked to read the chapter partly in a group and will share their opinion with the class. • The teacher will introduce the topic "Story of Cricket "with an interactive method of discussion.	https://datavizcatalogue.com Histogram

	• The students will share their views on sports as an integral part of a healthy life. They will share their knowledge on various sports like hockey, football and tennis. They also discuss about Cricket as the most popular game of India. The students will then work in their groups to collect information on the assigned topics. They will be encouraged to explore the following sites to collect data : - Kaggle data learning - Sports analytic data sets - www.mykhel.com (sports leagues in India.) • Alexa tools After that, each group will be asked for a presentation of their reports along with the factual details. Text book discussion: Topic to be discussed in addition: • “Changing of cricket over a period of time”. • Extreme popularity of cricket is affecting the other sports in India. • What are the reasons for the extreme popularity of cricket in India? • Is it different from other team games? How?	
Learning Outcomes	At the end of the unit, The students will be able to: Apply the concepts of AI tools to explore data. Acquire knowledge on factual and illustrated report presentation Appreciate the 3Cs: Creativity, communication and collaboration while working in a group as a team. Analyze and interpret the story.	
Follow up Activities	• They will be asked to write an article on “Changes in cricket over a period of time” • They will be asked to make a Scrapbook to write about their favourite cricketers Inside it. They can stick colourful photographs and also can add paper cutting, carrying useful information about Cricket and cricketers.	
Reflections	The tool can be integrated with other subjects as well.	

GLOSSARY:

AI Related Terminology

Data Acquisition and Data Visualization

Data acquisition refers to acquiring authentic data crucial for the AI model from reliable sources.

There can be various ways in which the students can collect data.

The analysis part comes next. For This, the students need to visualize the acquired data. They can do so by visiting <https://datavizcatalogue.com>

Data Exploration refers to visualizing the data to determine the pattern, relationships between elements and trends in the dataset that gives a clear meaning and understanding of the dataset. Data exploration is important as it helps the user to select an AI model in the next stage of the AI project cycle. To visualize the data, various types of visual representations can be used such as diagrams, charts, graphs, flows and so on..

ENGLISH

CLASS 7

3.17 The Squirrel

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 1: The Squirrel	
Name of the Book	Honeycomb, Class 7, NCERT	
Subject and Artificial Intelligence Integrated	Integration of Awareness of Artificial Intelligence & Teaching of English	
Learning Objectives	- To develop the habit of reading, enjoying poetry and rhyme with appropriate pause, intonation and pronunciation. - To identify and discuss the various aspects of a squirrel in the poem (appearance, food) - To develop an aesthetic sense for nature. - To infer on the poet's choice of the subject and the central idea behind the poem. - To build an appreciation and awareness of Artificial Intelligence Tools- ❖ Using 'Mystery Animal'. ❖ Using 'Semantis' for building vocabulary. ❖ Gather data about the various squirrels and classify them by characteristics.	Mystery Animal Semantis Data collection
Time Required	2 periods 40 minute each	
Classroom Arrangement	Seating arrangement -Flexible	
Material Required	Pen, paper, blackboard, chalk, smart board/screen and projector & laptops.	
Pre – Preparation Activities	Students are asked to click on the link provided and play Mystery Animal and see if they are able to guess the animal.	Mystery Animal https://mysteryanimal.withgoogle.com/
Previous Knowledge	- The students are aware of the animals in their surroundings particularly the squirrel. - They have observed its activities closely and have their own experiences regarding the same. - The students are aware of Artificial Intelligence and know the various fields where it is being used. - A quick knowledge sharing session can be conducted regarding the same.	
Methodology	- Introduction to poetry and its elements. - Introduction of the poet. - Loud reading of the poem with appropriate pause, intonation and pronunciation. - Vocabulary building using Semantis. - Explanation of the various poetic devices- rhyme, rhythm, personification used in the poem.	Semantis https://research.google.com/semantis/

	• Explanation of the central idea behind the poem. • Discussion on the relevance of the title.	
Learning Outcomes	Students will – • Be able to read the poem with correct rhythm and intonation. • Be able to appreciate poetry and get the central idea of the poem. • Be able to comprehend the poet's thoughts and imagination. • Be able to express their own experience and observation of a squirrel in a descriptive writing. • Develop awareness about AI and its tools like Semantris (for vocabulary building), Mystery Animal (for guessing the animal) and collection of data on the various kinds of squirrels.	
Follow up Activities	• Students will record their own observation of the squirrel. • Research and collect data on the various kinds of squirrels and their characteristics. • Asked to write a poetry describing another animal of their choice.	• Data Collection
Reflections	• Review other poems on squirrels written by other poets. • Discussion with students on the role of AI application • Any other AI application that can be used as an alternative.	

GLOSSARY:

AI Terminologies - AI Activity Description

- a) **Mystery Animal:** Students need to go to the following link: <https://mysteryanimal.withgoogle.com/>
After reaching the website, students need to click on Preview it Now! Which will then start the experiment. In this experiment, the machine randomly selects any animal which the player needs to identify with the help of 20 Yes/No questions to be asked to the machine. Whatever question asked, the machine either responds in Yes or No or lets the user know when it is not able to comprehend the statement.
- b) **Semantris :** Students need to go to the following link: <https://research.google.com/semantris/> Semantris is a set of word association games powered by machine-learned, natural language understanding technology. Each time you enter a clue, the AI looks at all the words in play and chooses the ones it thinks are most related. Because the AI was trained on billions of examples of conversational text that span a large variety of topics, it's able to make many types of associations.
- c) **Data collection:** Students are encouraged to search, acquire and explore Data on the kinds of squirrels and classify and write their characteristics.

ENGLISH

CLASS 7

3.18 The Ashes That Made Trees Bloom

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 4: The Ashes That Made Trees Bloom	
Name of the Book	Honeycomb - Class VII - NCERT	
Subject and Artificial Intelligence Integrated	Name of Topic from the Chapter English and Artificial Intelligence The Ashes That Made Trees Bloom - A Japanese story The subject area you are specifically targeting for the topic: values such as honesty, compassion, diligence, etc. with a hint of magical realism. Name of AI application/concept Artificial Intelligence & English - o Ethics: Moral Machine - o Data Exploration - o Inklewriter / My Story Time	AI tools: Ethics: Moral Machine https://www.moralmachine.net/ Data Exploration https://datavizcatalogue.com/ https://mystorytime.com/ Inklewriter / My Story Time www.inklewriter.com
Learning Objectives	The learners will be able to • understand the values such as honesty, compassion, diligence etc. • comprehend the moral that greed is a negative trait and will always lead to tragedy. • Infer that human beings should love and be compassionate to all the creatures on this planet. • Focus on all competencies - LSRW • To engage students in an interactive activity to help them understand the importance of ethics in our lives: Moral Machine	https://www.moralmachine.net/
Time Required	3 periods of 40 minutes each	
Classroom Arrangement	Seating arrangement - • Theory Sessions – regular classroom arrangement • Activities Sessions – Flexible (for group / pair work)	
Material Required	• Textbook – Honeycomb, notebook for noting down important information • Black / White board, chalk / marker, • Smartboard /screen and projector, internet connection / Computer Lab. • AI applications / tools : • Inklewriter / My Story Time • Data Exploration • Moral Machine	

	- Using folk tales of India, students will be creating stories through the AI tool 'Inklewriter' / 'My Story Time'. As a follow-up activity - Students will give a short presentation of the stories based on values in our life.	
Learning Outcomes	The students will be able to - Find similarities and differences in the cultures of India and Japan - Compare and contrast the characters of the two farmers. - Analyse that goodness is rewarded. - Comment on the situations where honesty, compassion, diligence is revealed. - Compare real life context with narrative text. - Understand the text and answer the questions based on the text. - make use of their experiences and relate with their learning. - use visual aids, and develop learning materials to complement and supplement the textbook - Students will be able to go beyond the text and have a real-life experience. Use of AI tool 'Moral Machine' will help them imbibe the values of empathy, kindness and generosity. - Through the use of AI tool 'Inklewriter'/'My Story Time', the students will be able to write value-based stories.	
Follow up Activities	- Discussion on the ways to make life more optimistic – Write an article on Importance of building values in teenagers. - Students will give short presentations expressing their thoughts on imbibing such values in life through stories prepared by them using the AI tool: My Story Time / Inklewriter	AI tool: https://mystorytime.com/ www.inklewriter.com
Reflections	- Students will be encouraged to share as a whole class activity the learning outcomes of the AI tools, Inklewriter / My Story Time - The students will show the stories created by them using the AI tool based on their own real-life experiences or stories they'd heard from their grandparents They will also be asked to share their experiences of any other app / tool that could be used as a learning aid for this chapter.	

GLOSSARY:

AI Related Terminologies

Ethics: Moral Machine

Ethics in AI.

Artificial intelligence is a field that is boundless in today's time. There are a lot of scenarios that tell us that ethical issues exist around AI. Hence, it is important to have an understanding of ethics in AI and to have ethical guidelines which can guide us in such conditions where there is no clear definition of what is right or wrong.

<https://www.moralmachine.net/>

Data Exploration

AI Related Terminologies

Data Acquisition: Data acquisition refers to acquiring authentic data crucial for the AI model from reliable sources. The data acquired could then be divided into two categories: Training Data and Testing Data. The AI model gets trained on the basis of training data and is evaluated on the basis of testing data.

There can be various ways in which you can collect data. Some of them are:

- Surveys
- Web Scraping
- Sensors
- Cameras
- Observations
- Application Program Interface

Data Exploration: After acquiring data there comes the need to analyze the data. For this, they need to visualize the acquired data in some user-friendly format so that they can:

- Quickly get a sense of the trends, relationships and patterns contained within the data.
- Define strategy for which model to use at a later stage.
- Communicate the same to others effectively.

To visualize data, various types of visual representations can be used by the students like diagrams, charts, graphs, flows, etc.

<https://datavizcatalogue.com>

My Story Time

My Storytime helps you record stories when you're apart and makes them instantly accessible back home through the Google Assistant.

<https://mystorytime.com/>

Inklewriter

Inklewriter is a free tool designed to allow anyone to write and publish interactive stories. It's perfect for writers who want to try out interactivity, but also for teachers and students looking to mix computer skills and creative writing.

www.inklewriter.com

ENGLISH

CLASS 8

3.19 The Tsunami

Chapter Covered	Chapter 2: The Tsunami	AI Concepts Integrated
Name of the book	Honeydew, Class 8, NCERT	
Subject and Artificial Intelligence Integrated	Exploration of Data Collection using Artificial Intelligence & Teaching of English	
Objectives	- To use AI tools to Explore data available on Tsunami at three different places - To practice group work in order to explore available data sets to compare impact of Tsunami. - To develop report writing skills based on facts and figures.	Use of AI tools to Explore data available on Tsunami
Time Required	3 periods of 40 minutes each	
Classroom Arrangement	Flexible	
Material Required	Pen, paper, blackboard, chalk, smartboard/screen and projector, internet websites for data acquisition & laptops	
Pre- Preparation Activity	The students are divided into three groups and asked to collect information about the 2004 Tsunami in Andaman & Nicobar; Sri Lanka and Thailand.	
Previous Knowledge	Students are asked to research about natural Calamities and call out what they know about a Tsunami and the devastation caused by it.	
Introduction	The Teacher leads the discussion on Tsunamis and assigns case study of one place i.e. Sri Lanka; Thailand; Andaman& Nicobar to each group.	
Methodology	- The students are shown a video on how Tsunamis occur and the devastation caused as a result. - The students work in their group to source data on the Tsunami hit region they have been assigned. - They are asked to present pictorial representation of data on - Lives lost - Homeless - Food Scarcity after Tsunami - Infrastructural losses - A report on the above along with Visual representation of Data will be presented by each group	Students are encouraged to search, acquire and explore Data and represent it according to the desired parameters. https://datavizcatalogue.com
Discussion on the Text	There is an open discussion on: - How the behavior of animals was a clear warning of the Tsunami. - What other warning signs were experienced by people of the regions? - Why do Tsunamis happen? - Is there a way to predict them?	
Learning Outcomes	- The Students will be able to learn to collect data and use data exploration to understand facts and represent them. - They learn to work in groups and develop team spirit. - They learn to develop skills of factual representation of data - They learn the skill of report writing.	

Self-Evaluation and Follow-Up	• The students compare the situation in all three places through a presentation by each group • They understand the enormity of Natural disasters such as Tsunamis	
Follow-up Activity	• The students will be asked to write a report stating facts and using pictorial representation of Data collected and analyzed.	

GLOSSARY:

1. AI Related Terminologies

Data Acquisition: Data acquisition refers to acquiring authentic data crucial for the AI model from reliable sources. The data acquired could then be divided into two categories: Training Data and Testing Data. The AI model gets trained on the basis of training data and is evaluated on the basis of testing data.

There can be various ways in which you can collect data. Some of them are:

- Surveys
- Web Scraping
- Sensors
- Cameras
- Observations
- Application Program Interface

Data Exploration: After acquiring data there comes the need to analyze the data. For this, they need to visualize the acquired data in some user-friendly format so that they can:

- Quickly get a sense of the trends, relationships and patterns contained within the data.
- Define strategy for which model to use at a later stage.
- Communicate the same to others effectively.

To visualize data, various types of visual representations can be used by the students like diagrams, charts, graphs, flows, etc.

<https://datavizcatalogue.com>

2. AI Activity Description

For this activity, divide the students in 3 groups. Each group will be given a case study out of the three tsunamis of Sri Lanka, Thailand and Andaman & Nicobar. Students need to acquire information regarding their case study on the basis of the following parameters:

- Lives lost
- Homeless
- Food Scarcity after Tsunami
- Infrastructural losses

After students have acquired data, they would be asked to visualize the same in the form of a graphical representation. The students will present their case study to the whole class. They should be able to draw some conclusion out of their research. Students will also be asked to brainstorm on how AI can be used to help in such situations or even in predicting tsunamis.

ENGLISH

CLASS 8

3.20 A Visit to Cambridge

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 7: A Visit to Cambridge	
Name of the Book	Honeydew – NCERT Class 8	
Subject and Artificial Intelligence Integrated	Integration of teaching of English and awareness of Artificial intelligence.	
Learning Objectives	• To bring awareness among the students that physical disability is not a hurdle in an individual's growth. • To create scientific thinking among the students. • To make students aware about their surroundings and having respect for all. • To create curiosity among the students to get information about disabled people..	
Time Required	Two periods of 40 minutes each	
Classroom Arrangement	Flexible	
Material Required	Pen, paper, blackboard, chalk, smartboard/screen, Google story speaker, projector & laptops	
Pre – Preparation Activities	Group discussion on the following points: • To introduce about the life of Firdaus Kanga and Hawking. This story is of two disabled or differently abled people meeting. One was the greatest scientist Stephen Hawking, who was suffering from a form of paralysis and the other was a writer and journalist named Firdaus Kanga. He was born with brittle bones. • To tell the students that interview is the serviceable communication which provides information about the great celebrities. • To motivate the students not to be worried about physical disability and Hawking is the best example for the source of inspiration. • The students will be told about chatbot and ai interview.	
Previous Knowledge	The students will be asked about Cambridge and Stephen Hawking? The students should have working knowledge of various tools of AI.	Introduction to Chatbot https://www.chatbot.com/

Methodology	The teacher starts the discussion on Stephan Hawking and Firdaus Kanga https://youtu.be/t1JGkxys7RI The students are shown a video about the life of Stephan Hawking and Firdaus Kanga. The students are asked to read aloud the story A Visit to Cambridge. A video on life of Stephen Hawking. https://youtu.be/GIzOWckJct0 The students will be asked to create an open ended story through ai inkle writer or generate a story through AI dungeon.	https://play.aidungeon.io/
	There is an open discussion on the following vocabulary. The students are then asked to answer the questions as a group exercise.	Ethical games could be played.
Learning Outcomes	• Students will appreciate literature. • Develop an interest in reading aloud and discussion. • They learn to work in groups and develop team spirit.	A discussion on ethics regarding AI is initiated.
Follow up Activities	The teacher analyses the responses and flow of thoughts of students The students understand about the hurdles a physically disabled person faces and develop empathy for differently abled people. Encourage the students to take an interview. Through my interview tool the students can log in for free and design questions to be asked and it can be taken as group activity. Encourage the students to arrange a fair to help physically challenged people and frame a notice for the same.	https://www.myinterview.com/?ssrid=ssr#top https://experiments.withgoogle.com/body-synth
Reflections	The students will learn values from the chapter, they will understand that hurdles do not bring an end to life and perhaps will change the world around us. The students will be encouraged to read about Deepa Malik.	

GLOSSARY:

AI Activity Description

Introduction to Chatbot <https://www.chatbot.com/>
<https://play.aidungeon.io/>
A discussion on ethics regarding AI is initiated.

Ethics in AI

Artificial intelligence is a field that is boundless in today's time. There are a lot of scenarios that tell us that ethical issues exist around AI. Hence, it is important to have an understanding of ethics in AI and to have ethical guidelines which can guide us in such conditions where there is no clear definition of what is right or wrong.

<https://experiments.withgoogle.com/body-synth>
<https://www.myinterview.com/?ssrid=ssr#top>

In an online world of applications and candidate profiles, it's difficult to get a true sense of a person. myInterview was designed to put personality into the hiring process through video interviewing and predictive analytics. It's quick and easy to use, and we'd love to demonstrate how you can make **faster** and better **data-driven** hiring decisions.

Ask the students to think of the following scenarios:

1. As Artificial Intelligence gets incorporated in various fields, we cannot stay away from it. The AI system has brought about a revolutionary change in the medical field.
2. Discuss how the wheelchair is controlled, and how it reads the mind.
3. How smart watches have become health monitors. Do you think AI can take the place of doctors? The integration of technology and AI systems can develop a better medical system.
4. Whom will you take your friend to in case of medical emergency? Why? Will you rely on the robot doing the surgery?
5. Whom should you hold responsible in case of a mistake? The computer, the person operating the computer or the developer?
6. AI has made the lives of physically challenged people easier, but can it replace the pleasure of being helped by loved ones?
7. To summarize this activity, tell the students that the technology cannot take away the pleasure of human touch and presence, which is very much required. Hence, it is important to have ethical guidelines which can guide us in such conditions where there is no clear definition of what is right and what is wrong.

ENGLISH

CLASS 8

3.21 Macavity: The Mystery Cat

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 3: Macavity: The Mystery Cat	Arts experiment with Google (Poem Portraits), Mystery Animal.
Name of the Book	Honeydew NCERT Class 8	
Subject and Artificial Intelligence Integrated	Macavity The Mystery Cat(poem) in English and Artificial Intelligence (Mystery Animal, Poem Portrait)	
Learning Objectives	• Understand the poem • Analyze the theme of the poem • Identify and explain the poetic devices used • To analyze the traits of thieves and cops. • To try using Arts experiment with Google (Poem Portraits) to compose a poem.	
Time Required	2 period of 40 minutes each	
Classroom Arrangement	Online	
Material Required	Physical classroom: Pen, paper, blackboard, chalk, smartboard/screen and projector, laptop/computer. Online class: Internet connection, laptop/desktop/smartphone, textbook/PDF text, Padlet, Arts experiment with Google (Poem Portraits), Mystery Animal.	
Pre – Preparation Activities	Students are given instructions on the starter activity.	
Previous Knowledge	Students are asked to recall any story they might have heard about cops chasing a criminal.	
Methodology	• The students are made to listen to a rendition of the poem. • Motivate reflection on the title and the story depicted in the poem. • Explanation of the poem with emphasis on important phrases. • Discussion on the poem	Arts experiment with Google (Poem Portraits), https://artsexperiments.withgoogle.com/poemportraits Mystery Animal https://mysteryanimal.withgoogle.com

Learning Outcomes	At the end of the poem, students will be able to: • Quote important lines from the poem • Paraphrase the poem • Identify and analyze the theme of the poem • Identify and explain the poetic devices used. • Co-relate the various sounds and emotions as expressed in the poem • Reflect on own experiences • Give coherent answers to questions related to the poem.	
Follow up Activities	The teacher will assess the success of the activity through a poem/paragraph which students will be asked to compose/write. Students will use Arts experiment with Google, Poem Portraits.	
Reflections	Discussion with Students on the role of AI application Any other AI application that can be used as an alternative.	

GLOSSARY:

AI Related Terminology

1. Arts experiment with Google (Poem Portraits): POEMPORTRAITS is an experimental, collective artwork, woven at the intersection of AI and human creativity - combining poetry, design and machine learning - conceived by artist and designer Es Devlin in collaboration with Google Arts & Culture Lab and creative technologist Ross Goodwin.

In this, the user is required to feed in a word to begin the interaction after which the tool gives out two lines which can be used by the users to continue writing a poem.

<https://artsexperiments.withgoogle.com/poemportraits>

2. Mystery Animal: is a voice experiment. The computer pretends to be an animal and you have to guess what it is using your voice. The player will ask questions to probe into the identity of the animal. the questions should be such that they have answers in yes or no .<https://mysteryanimal.withgoogle.com>

ENGLISH

CLASS 8

3.22 Jalebis

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 8: Jalebis	
Name of the Book	It so happened..., Class 8, NCERT	
Subject and Artificial Intelligence Integrated	Teaching of English and application of Artificial Intelligence	
Learning Objectives	- To practice silent reading and develop comprehension skills - To develop skills of imagination, creativity and writing. - To understand the importance of the values underlying the chapter. - To understand, appreciate and enjoy fiction - To infer, analyze and evaluate text - To narrate stories with proper diction and voice modulation. - To draw parallels of the story with AI.	
Time Required	3 periods of 40 minutes each.	
Classroom Arrangement	Flexible	
Material Required	Textbooks, pen, paper, smartboard, laptop, marker Links: https://play.aidungeon.io/ https://mystorytime.com/	https://play.aidungeon.io/ https://mystorytime.com/
Pre – Preparation Activities	The class is divided into five groups and each group is asked to analyze one illustration given in the chapter.	
Previous Knowledge	Students describe the illustrations groupwise and try to predict the story.	
Methodology	Students indulge in a silent reading session and later discuss how we encounter varied possibilities/options in our lives. - Which two options did the narrator have? - Which one did he choose? - How did that choice change his story? - What if he had not chosen to buy the jalebis? - Have you ever faced a dilemmatic situation like this? Students will create a story using AI Dungeon. Students discuss the settings (fantasy, mystery etc.) given in the tool and discuss the aspect of possibilities in the game to further link it with the text.	The students will link the underlying principle of AI Dungeon to share their understanding of the story. https://play.aidungeon.io/

	They will build linkages between the possibilities offered in game and in our lives. They will reflect on the fact that the story they created was a result of the choices they made. • Was there any similarity between AI Dungeon and our life? • Can we depend on prayers blindly for the fulfillment of our needs? • Where do you think Rasheed goes wrong?	
Learning Outcomes	• Students will improve their reading comprehension. • Students will learn the importance of reasoning before making choices. • The students will improve their analytical and creative prowess. • They will develop oratory skills. • They will learn to narrate stories.	
Follow up Activities	Students will record the story using My Storytime and share with their teachers, friends and family.	Students will narrate/record the story using My Storytime and share with their peers.
Reflections	Students will give feedback to each other through Padlet Feedback board.	

GLOSSARY:

AI Related Terminologies

1. AI Dungeon: AI Dungeon is a free-to-play single-player and multiplayer text adventure game which uses artificial intelligence to generate unlimited content. It also allows players to create and share their own custom adventure settings.

Link to the game: <https://play.aidungeon.io/>

2. My Storytime: My Storytime is a conversational Google Assistant action that lets a user record stories and make them accessible on devices that include Nest Mini, Nest Hub, and Nest Hub Max. My Storytime users can record stories (using a microphone) directly from the official website, or upload MP3 audio files with a tool within the My Storytime dashboard. The users can play the stories with Google Assistant.

Link to My Storytime: <https://mystorytime.com/>

AI Activity Description

AI Dungeon: It uses artificial intelligence to generate effectively limitless open-ended storylines.

When first beginning the game, players are greeted by the following opening:

"You're about to enter a world of endless possibilities, where you can do absolutely anything you can imagine.... Will you proceed?"

Players are then prompted to choose a setting for their adventure (e.g. fantasy, mystery, apocalyptic, cyberpunk, zombies), followed by other options relevant to the setting (such as character class for fantasy settings).

After beginning an adventure, there are three main interaction methods that can be chosen for each of the player's pieces of text input:

- **Do:** Must be followed by a verb, allowing the player to perform an action.

- Say: Must be followed by dialog sentences, allowing players to communicate with other characters.
- Story: Can be followed by sentences describing something that happens to progress the story, or that players want the AI to know for future events.

The game's artificial intelligence allows it to adapt and respond to almost any action entered by the player. Providing blank input can also be used to prompt the AI to generate further content.

My Storytime:

1. Visit the My Storytime website.
2. Log into your Google account.
3. You'll be asked to make short recordings, including phrases that will help guide Storytime when invoked, such as "Which story would you like to hear?" or "Should we keep reading?" or "Read a different story?"
4. Once you've recorded those set-up phrases, you can start recording yourself to share stories.
5. Once recorded, you can share it with anyone by adding the email of the person in the dialog box that appears after selecting the 'share' option.
6. Once shared, all the participants can add a story of their choice to create a pool of stories (if required).

ENGLISH

CLASS 8

3.23 Ancient Education System of India

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 11: Ancient Education System of India	
Name of the Book	It so happened..., Class 8, NCERT	
Subject and Artificial Intelligence Integrated	Exploration of Data Collection using Artificial Intelligence & Teaching of English	
Learning Objectives	- To understand the education system of ancient India. - To draw attention towards austerity practiced by students. - To understand the value system of ancient India. - To critically evaluate the ancient and present education system. - To practice group work in order to explore available data sets.	
Time Required	3 periods of 40 minutes each	
Classroom Arrangement	Flexible	
Material Required	Pen, paper, blackboard, chalk, smartboard/screen and projector, internet websites for data acquisition & laptops or tablets For pre-preparation activity: Download Civilization AR application https://play.google.com/store/apps/details?id=uk.co.bbc.civilisations&hl=en_IN	
Pre – Preparation Activities	The teacher shows students how to use the Civilization AR app. When the students point their camera towards an empty space they are shown an artifact of their choice. The device then gives the details of the ancient artifact. By using this app the students will understand how gaining knowledge has changed over the years.	
Previous Knowledge	- Students are asked to share their knowledge about gurukuls. - Students are asked to name ancient books and philosophers of India.	

Methodology	- Intensive reading of the chapter is done. - Teacher will tell Synonyms and meanings of difficult words. - After reading the chapter students are divided into 4 groups - They are asked to acquire data about the ancient and modern education such as: - Location of schools and universities - Facilities provided to the students - Rules and regulation to be followed by students - relation between teacher and students.	Students are encouraged to search, acquire Data from the internet. http://indianmanuscripts.com/ https://www.britannica.com/place/Taxila https://www.ancient.eu/taxila/
Learning Outcomes	- Students will learn Data Acquisition from various sources on the internet. - Students will understand the change in Education system in India that has taken place over the years. - Students will predict the future education system. - Critically evaluate the present system as to what it is lacking.	
Follow up Activities	Students will be asked to prepare for a debate where one team will speak in favour of ancient education system and the other against it based on the data they have collected.	Data Acquisition: Data acquisition refers to acquiring authentic data crucial for the AI model from reliable sources
Reflections	Debating skill of students is polished. Their ability to critically evaluate a topic can be judged.	

GLOSSARY:

1. AI Related Terminologies

Data Acquisition: Data acquisition refers to acquiring authentic data crucial for the AI model from reliable sources. The data acquired could then be divided into two categories: Training Data and Testing Data. The AI model gets trained on the basis of training data and is evaluated on the basis of testing data.

There can be various ways in which you can collect data. Some of them are:

- Surveys
- Web Scraping
- Sensors
- Cameras
- Observations
- Application Program Interface

2. Activity Description

Civilization AR: Putting history in your hand - the BBC's first ever Augmented Reality app Civilizations AR brings art and culture direct to you from across the world. Discover the secrets of ancient Egypt, reveal hidden layers beneath Renaissance masterpieces and learn more about the origins of these cultural treasures and the people who made them.

Treasures to be found include an ancient Egyptian mummy from the Torquay Museum, Rodin's The Kiss from the National Museum of Wales, iconic sculptures from Henry Moore and Barbara Hepworth and masterpieces by Tintoretto, Bellini and Turner.

How to use:

- 1) Find a well lit, flat area and move your device slowly around to detect a surface.
- 2) Tap and hold on the surface to place the artifact.
- 3) Choose the artifact you want to know about.

ENGLISH

CLASS 8

3.24 A Short Monsoon Diary

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 8: A Short Monsoon Diary	
Name of the Book	Honeydew -NCERT Class 8	
Subject and Artificial Intelligence Integrated	Integration of Artificial Intelligence in English	
Learning Objectives	To Gain inspiration from the life and work of the author Ruskin Bond. Analyze the writing style of the author- experiential Understand the meaning of 'extracts from a diary' Observe and narrate about the change of season in the country Highlight the importance of monsoon in different parts of the country.	
Time Required	3 classes of 40 minutes each	
Classroom Arrangement	Online/Flexible	
Material Required	Laptop/Mobile device/other tablet device, Network connection, Book- Honeydew	
Pre – Preparation Activities	Discussion- Asking children about their experience of visiting a hill station. How do they feel in cool or rainy weather?	
Previous Knowledge	Where is Mussoorie? When do hill stations receive rainfall? What kinds of flowers bloom in Mussoorie, name animals found in hilly areas, write about food eaten commonly in hilly areas.	
Methodology	Reading about the author Ruskin Bond Reading with proper fluency and pronunciation Discussion Difference between Diary writing and Journal Making a story map of change in seasons from June to March. Highlighting the things that give pleasure to the author in the rainy season. Learning- Happiness in simple things of life. Miracles of nature. Life's little joyous moments come from non-materialistic things.	Auto draw- Scene of a hill station or a rainy day. https://autodraw.com

Learning Outcomes	Knowledge about the famous works of the author and his writing style. Ability to describe the rainy season in the hills and differentiate it from the monsoons in the plains. Justify the theme- How does the author highlight the importance of nature.	
Follow up Activities	Writing a diary entry- one day in the rainy season.	My story time- How I spent a vacation in the mountains. https://mystorytime.com
Reflections	Reading similar stories or poems by the same author where nature and small joys in life are appreciated.	

GLOSSARY:

Autodraw

Autodraw is an AI enabled tool based on the AI domain "CV" in which the machine identifies the pattern of your drawing and accordingly maps it with the most similar image. The tool shows various options trying to predict what the user is drawing.

My Storytime

My Storytime: My Storytime is a conversational Google Assistant action that lets a user record stories and make them accessible on devices that include Nest Mini, Nest Hub, and Nest Hub Max. My Storytime users can record stories (using a microphone) directly from the official website, or upload MP3 audio files with a tool within the My Storytime dashboard. The users can play the stories with Google Assistant.

ENGLISH

CLASS 8

3.25 The Ant and the Cricket

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 1: The Ant and the Cricket	
Name of the Book	Honeydew, Grade 8, NCERT	
Subject and Artificial Intelligence Integrated	Create awareness on Artificial Intelligence & teaching English. AI Tool, integrated here, is Inkle writer.	www.inklewriter.com
Learning Objectives	The children will be able to: • Demonstrate the use of Inkle writer AI tool. • Create a short narrative story with plot, characterization, and a proper moral by using the AI tool. • Acquire the knowledge to share their stories with a larger group of students. • Identify the theme and the poetic devices used in the poem. • Comprehend the moral of the fable. • Identify the elements of fables.	
Time Required	2 Periods of 40 minutes each	
Classroom Arrangement	Flexible	
Material Required	Text book, Dictionary, white board or chalk board, markers or chalk, notebook papers, pens, smart board and laptop to access the lesson and AI integration. Internet websites for data acquisition.	
Pre – Preparation Activities	The class will be divided into pairs with different understanding levels. The students will be asked to download the AI Tool: Inkle writer	www.inklewriter.com
Previous Knowledge	The students know about the Theme and the Characters of the poem.	

Methodology	A video on will be shown to the students on how inkle writer works. The students will work in a pair to create their stories. Each pair will share their story with others. Textbook discussion: The teacher will introduce the topic with the elements of fables The students will be asked to read the poem in pairs and will share their views with other groups The students will share their thoughts on the moral of the poem They will also discuss the elements of fables. At the end, they will be asked to find the setting and the poetic devices used in the poem. The following topics will be discussed The main idea of the poem. Two different versions of opinion of the ant and the cricket. "Some crickets have four legs, and some have two."	https://youtu.be/OLkvLMiGj7w
Learning Outcomes	The students will be able to: Appreciate the integration of AI tool with English Create the story in a pair by using the AI tool Inkle writer. Demonstrate the idea of TPS (Think, Pair, Share) while working in a pair. Analyze and interpret the poem. Create an original fable.	
Follow up Activities	The students will be asked to write an original fable by following the elements of writing fables (setting, animal characters, personification, conflict and morals) with proper illustration to convey a moral lesson or message. They will also be asked to create a comic strip on the poem, "The Ant and The Cricket."	
Reflections	The teacher will ask students to explore AI dungeon as an alternative AI toolfor creating their own interactive stories	https://play.aidungeon.io

GLOSSARY:

AI Related Terminology

AI Inklewriter

It is a free tool designed to allow the people to write their own interactive stories. It helps to keep the stories organized , so that the writer can concentrate only on the important part of the story. It even keeps track of the finished path and what still needs to be written. There is no set-up and no drawing diagrams. So, one can feel free to write here. Once written, it can be shared with whomsoever they like.

www.inklewriter.com

AI Dungeon

AI Dungeon: AI Dungeon is a free-to-play single-player and multiplayer text adventure game which uses artificial intelligence to generate unlimited content. It also allows players to create and share their own custom adventure settings.

<https://play.aidungeon.io>

ENGLISH

CLASS 8

3.26 Children at work

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 2: Children at work	
Name of the Book	It so happened..., Class 8, NCERT	
Subject and Artificial Intelligence Integrated	Integration of Awareness of Artificial Intelligence & Teaching of English	
Learning Objectives	- To practice reading aloud, monitor their reading and self-correct where necessary - To understand the plot, setting, characters and the theme of the story. - To understand how immature decision making and a random choice can lead to unexpected experiences. - To be aware of the hard reality of the world and its bitter experiences. - Make connections between their prior knowledge and information in the story to make predictions and inferences. - To try using Artificial Intelligence via Inklewriter and develop skills of imagination, creativity and writing by creating another story. - To build an appreciation and awareness of Artificial Intelligence Tools- ❖ Using STAQU to help unite the missing children with their parents. ❖ To gather data about CHILD LABOUR and the reason as to why the children work. - To analyze and compare data through visual representation. - To learn and develop skills of representation of data.	Inklewriter
Time Required	4 periods 40 minute each	
Classroom Arrangement	Seating arrangement -Flexible	
Material Required	Pen, paper, blackboard, chalk, smart board/screen and projector & laptops.	
Pre – Preparation Activities	- The students will be divided into groups of 4 - To research on CHILD LABOUR and the reasons behind it so that they can relate to the dilemma faced by Velu. - To research on the HUMAN RIGHTS associated with children. - They will be asked to gather information about STAQU which uses AI to help police find the missing children.	

Previous Knowledge	The students are aware of the term Child Labour and a few reasons behind it. They are aware of Artificial Intelligence and know the various fields where it is being used. A quick knowledge sharing session can be conducted regarding the same.	
Methodology	The students will be shown a documentary on CHILD LABOUR with special emphasis on their miserable life conditions. Loud reading of the lesson by the students. Introduction of the narrative features (setting, characters, dialogue, plot, and a clear beginning, middle and end) Analyzing and critically evaluating the characters and the steps taken by the children. Open discussion on the Social responsibility of every citizen towards children engaged in work.	
Learning Outcomes	Students will – • develop an interest in reading aloud with correct pauses and pronunciation. • be able to apply and extend their knowledge of vocabulary and word structure. • infer the central idea behind the story. • be able to critically evaluate the characters and their situation and would empathize with the children. • be able to relate it to real life situations and hence would be able to find a solution to a problem. • develop awareness about AI and its tools like STAQU (which helps unite missing children with their parents), Data Collection (gather data and presenting it) and Inklewriter (for story writing)	
Follow up Activities	• The students would be asked to use Inklewriter to continue writing what happens to Velu and Jaya.	<i>Inklewriter</i> www.inklewriter.com
Reflections	• Review the students' responses of data collection and their earlier predictions of the same. • Discussion with students on the role of AI application • Any other AI application that can be used as an alternative.	

GLOSSARY:

AI Terminologies - AI Activity Description

a) Inklewriter : Students need to go to the following link: www.inklewriter.com

Inklewriter is a free tool designed to allow anyone to write and publish interactive stories. The inklewriter lets you write as you play, branching the story with choices, and then linking those stories back together again. It keeps track of which parts you've finished and which still need to be written.

b) Data collection and Data Acquisition

Data Acquisition refers to acquiring authentic data from reliable and authentic sources/platforms that is required for the AI model. There can be various ways to collect data. Students are encouraged to search, acquire, explore and collect Data .

ENGLISH

CLASS 8

3.27 This is Jody's Farm

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 6: This is Jody's Farm	
Name of the Book	Honeydew, Class 8, NCERT	
Subject and Artificial Intelligence Integrated	Name of Topic from the Chapter - This is Jody's Farm The subject area you are specifically targeting for the topic: - Moral Ethics Name of AI application/concept - Mystery Animal - Ethics . Moral Machine	
Learning Objectives	The learners will be able to - Practice the four language skills - Appreciate values like compassion, justice, care and concern for human and animal life - Understand the essence of mother's love for her children - Express their views describing their pet through guided writing. - Inculcate habit of sharing and caring - Discuss the central idea of the lesson - Evaluate the interdependency of human beings and animals About developing conceptual skills on AI applications - To engage students in an interactive activity to make them reflect on the values one needs to possess by engaging them in the game Moral Machine - To develop questioning skills by working in pairs through the use of the AI Game Mystery Animal as a precursor to reading the chapter to appreciate it.	Moral Machine – AI Game to be used as a reflective activity on the ethics Mystery Animal - AI Game to introduce the chapter using Natural Language Processing AI tool 'Inklewriter' Story writing tool
Time Required	3 periods of 40 minutes each	
Classroom Arrangement	Seating arrangement - - Theory Sessions – regular class room arrangement - Activities Sessions – Flexible (for group / pair work)	
Material Required	- Textbook – Honeydew, notebook for noting down important information related to chapter - Black / White board, chalk / marker, - Smartboard /screen and projector / laptops, internet connection AI applications / tools : - Ethics in AI – Moral Machine - Mystery Animal 'Inklewriter'	Ethics in AI : https://www.moralmachine.net/ Mystery Animal http://bit.ly/iai4yma AI tool 'Inklewriter' www.inklewriter.com

Pre – Preparation Activities	Enter activities that help in preparing student's skills, attitude, and basic conceptual skills The teacher will discuss about - - the common home remedies or first aid - animals used as pets and their care Enter activities that help in building students basic AI and Digital skills - Ethics in AI – Moral Machine - Mystery Animal	Ethics in AI : https://www.moralmachine.net/ Mystery Animal http://bit.ly/iai4yma
Previous Knowledge	- Prior knowledge of basic home remedies will be discussed with students, to let them present their knowledge about first aid in case of an injury. - Students are asked to share in groups their experiences of keeping a pet animal at home and ways to care for it. - A representative from each group will be asked to share the learning in their respective groups.	
Methodology	- Focus on enrichment of vocabulary - Comprehension skills enhancement and independent reading. <u>Pre-Reading:</u> Introductory activity - Structured discussion in groups on the home remedies and first-aid. - Playing the AI games 'Mystery Animals' to develop questioning skills to be used as a pair activity to ask questions about different cultures and Ethics in AI: Moral Machine to enable reflective thinking in students. - Students will research about different natural medicines in case of an injury or snake bite <u>While Reading:</u> - The students are divided into groups of four and asked to read aloud the chapter. - They enhance their vocabulary by trying to guess the meaning in context. - They try to comprehend the depth of the lesson and understand the facts presented. - There is an open discussion on the need of following values in our lives: - Compassion - Justice - Care - concern for human and animal life - interdependence of human beings and animals <u>Post Reading:</u> Open ended discussion and learning beyond books ➤ Discussion on the text is done through short comprehension question based on the extracts from the chapter. ➤ A quiz is conducted as a follow-up activity to check the students' comprehension of the main points of the chapter. ➤ Using real life experiences, students will be creating stories as a group activity through the AI tool 'Inklewriter' and share the same with the class as a follow-up activity.	AI tool 'Mystery Animal' to develop questioning skills AI tool 'Emoji Scavenger Hunt' – to understand how to guess the object without seeing it. Flashcards using AI

Learning Outcomes	The students will be able to • propagate values like compassion and justice, care and concern for human and animal life. • Appreciate the essence of mother's love for the babies. • Understand and protect the interdependency of human beings and animals. • Understand that various home remedies or first aid methods exist for different health problems. • make oral and written presentations • make use of their experiences and relate with their learning. • use visual aids, and develop learning materials to complement and supplement the textbook • Apprehend how humans need to learn to exist with other species on the earth • to go beyond the text and have a real-life experience. Write a paragraph describing a special day with their pet. • Use of AI tool 'Moral Machine' will help them imbibe the values of compassion, justice empathy, kindness and concern for human and animal life • Through the use of AI tool 'Inklewriter', the students will be able to write value-based stories.	
Follow up Activities	• Discussion on the values for lifelong experiences • Students will present their creative skills through story presentations on the given themes based on morals	Inklewriter www.inklewriter.com
Reflections	• Students will be encouraged to share as a whole class activity the learning outcomes of the game they played through 'Mystery Animal' and how it helped them frame questions to understand animal life. • With the game 'Moral Machine', they were able to reflect upon values in life such as love and compassion. • The students will show the stories created by them using the AI tool 'Inklestories' based on their own real-life experiences of owning a pet. They will also be asked to share their experiences of any other app / tool that could be used as a learning aid for this chapter.	

GLOSSARY:

AI Related Terminology

AI Inklewriter

It is a free tool designed to allow the people to write their own interactive stories. It helps to keep the stories organized, so that the writer can concentrate only on the important part of the story. It even keeps track of the finished path and what still needs to be written. There is no set-up and no drawing diagrams. So, one can feel free to write here. Once written, it can be shared with whomsoever they like.

www.inklewriter.com

Ethics in AI: Artificial intelligence is a field that is boundless in today's time. There are a lot of scenarios that tell us that ethical issues exist around AI. Hence, it is important to have an understanding of ethics in AI and to have ethical guidelines which can guide us in such conditions where there is no clear definition of what is right or wrong.

<https://www.moralmachine.net/>

Mystery Animal: An AI experiment developed by Google based on the AI domain "NLP" In this game, the computer pretends to be an animal and the player needs to guess the animal by asking 20 yes/no questions. The player asks questions to the machine via microphone to which the machine will respond either in Yes or No and according to the answers, the player needs to modify his/her questions to guess the animal. Upon opening the website, click on preview it now! to start.

<https://mysteryanimal.withgoogle.com/>

Emoji Scavenger Hunt: Emoji Scavenger Hunt is a browser-based game built with machine learning that uses your phone's camera and a neural network to try and guess what it's seeing. ... js, the game is built to run efficiently on your phone's web browser without needing to access backend servers.

<https://emojiscavengerhunt.withgoogle.com/>

ENGLISH

CLASS 9

3.28 The Road Not Taken

Chapter Covered	Chapter 1: The Road Not Taken	AI Concepts Integrated
Name of the book	Beehive, Class 9, NCERT	
Subject and Artificial Intelligence Integrated	Artificial Intelligence & English	
Objectives	- To build an appreciation of nature and the changing seasons as described by the poet - To draw on the symbolism of the roads as mentioned by Robert Frost - To prompt decision making and analysis of the consequences of the decisions made - To try and predict probability by using Artificial Intelligence and by linking this to why the Poet chose the road he did.	
Time Required	2 periods of 40 minutes each	
Classroom Arrangement	Flexible	
Material Required	Pen, paper, sticky notes blackboard, chalk, smartboard/ screen and projector, laptops, internet connection & Google Story Speaker add-on for Google Docs.	
Pre- Preparation Activity	The students are divided into pairs for the Pre-Preparation activity.	
Previous Knowledge	Students are asked to play an online game called Rock Paper Scissors in pairs – to understand probability and prediction. Each pair will then explain what they have understood about choices and whether there is a pattern to them. The students will also explain how the AI in the game either defeated them or not and why.	Artificial Intelligence Game - which is based on Data collection and analyses
Introduction	The teacher asks students to think about various occasions when they are faced with decision making and the probability of choosing something they may regret later. She /He introduces them to Google Story Speaker and asks them to build a story based on the choices they make and the path they take.	Introduction to Google Story Speaker - discussion and creation of a chat bot
Methodology	The students are asked to listen to a reading on the unit The Road Not Taken by Robert Frost to absorb the depth in the seemingly simple verses. There is an open discussion on what the poet meant by the following: - a yellow wood - it was grassy and wanted wear - the passing there - leaves no step had trodden black - how way leads on to way	
Discussion on the Text	- After the Pre preparation activity the class retains its pairs and students are asked to re-read the poem and then answer the questions as a pair exercise: - Where does the traveler find himself? What problem does he face? - Is there any difference between the two roads as the poet describes them (i) in stanzas two and three? (ii) in the last two lines of the poem - What do you think the last two lines of the poem mean? (Looking back, does the poet regret his choice or accept it?)	

	Thereafter, the teacher divides the class into pairs and asks them to use Google Story Speaker to write the story they had begun earlier Have you ever had to make a difficult choice (or do you think you will have difficult choices to make)? How will you make the choice (for what reasons)? 2. After you have made a choice do you always think about what might have been, or do you accept the reality of the situation? Each pair group is then asked to share their story with another group.	
Learning Outcomes	Students interpret how they will have difficult choices to make They learn to reason out before making the choice They analyze whether after a choice has been made, they think about what might have been, or whether they accept reality They develop skills of team work and coordination and improve their analytical and reasoning prowess.	
Self-Evaluation and Follow-Up	The teacher will assess the success of the activity through a poster which students will be asked to make on decisions that will affect their future	
Follow-up Activity	The students will be asked to write an article as their future self from the position they are in life due to a decision they took in their youth that “made the difference”.	

GLOSSARY:

1. AI Related Terminologies

Rock, Paper Scissors: This rock-paper-scissors game illustrates the basic principles of an adaptive artificial intelligence technology. Here, the artificially intelligent system learns to identify patterns of a person's behavior by analyzing their decision strategies in order to predict future behavior. This game is based on the domain **Data for AI** where the machine collects and analyzes data to predict future outcomes.

Link to the game: <https://www.afiniti.com/corporate/rock-paper-scissors>

The objective of playing this game is to illustrate how humans work in certain patterns and how an AI-enabled machine can detect those patterns for predicting future outcomes.

Story Speaker: It is an AI experiment which is available as an add-on to Google Docs. Story Speaker lets anyone create an interactive story with no coding required. It is an easy to install and easy to use tool and comes in handy when the user wants to create a story which changes according to the user's input.

Link to install Story Speaker extension for Story Speaker: <https://chrome.google.com/webstore/detail/story-speaker/ohfibfhfhbkndkipjdopbnegkbkjpj>

Introduction to Story Speaker: <https://www.youtube.com/watch?v=wsrzvYYvhH8&feature=youtu.be>

Link to read more about Story Speaker:

<https://docs.google.com/document/d/1hFrBtsBbF2LoZ1FFpXEH7L6fWH1lj24W1-itXnKSXK8/edit>

Basic Template of Story Speaker: https://docs.google.com/document/d/1rXPSayQVVO-T5cWlhXpBOCc2UJEZTbVWkxqOnC_RnDE/edit?usp=sharing

Steps to install Story Speaker:

- Login in to your Google account
- Go to google.com
- Search for story speaker addon download
- Go to the first link of experiments.google.com
- Click on Launch Experiment

- To install this addon, click on free.
- Give the required permissions to get the addon.
- Once it is installed, go to docs.google.com → Add-ons → Story Speaker → Open Story Speaker

Ask the students to first load in the basic template and play it. To play the story, go to Add-ons → Story Speaker → Open Story Speaker, as soon as the story speaker window opens at the right, click on Play your Story → scroll down to Play story in chat preview. The basic template will start playing where once the story pauses, the user needs to give input according to the question asked. According to the response fed either by typing or by speaking, the story will change.

Basic Template of Story Speaker:

Title: The Tale of The Pig Monster ← Title of the story (can be changed)

By: Your name ← Author's Name (can be changed)

START HERE ← Depicts the Start of the story to the machine (CANNOT be changed)

Intro ← Start of the story (CANNOT be changed)

You're standing in a forest. There are two roads in front of you. Do you go to the left or the right? ← Introduction to the story. Students can make it their own way

[1] **If you say "left"** ← Conditional Statement. Can only change the text in " " according to what input do they expect from the user to diverge their story.

You hear a fearsome growling. A pig monster approaches. It eats you. I'm sorry. [[END]] ← The story diverges as the user gives appropriate input. The text here can be changed according to the story. [[END]] depicts that the story would end at this point.

If you say "right"

You walk down a darkened path. You come to a house. There's a light on inside. Do you go inside? ← The statement where you want the user to respond should end with a question like this.

[2] **If you say "yes" or "go inside"**

You knock on the door. It opens, revealing the pig monster. This is the pig monster's house. It eats you. I'm sorry. [[END]]

If you say "no" or "keep going" or "don't go inside"

You keep walking. The story would keep going. But you'll have to write it. [[END]]

Otherwise ← If user enters any input other than the expected ones, the story lands at this point. This is for the [2] if condition. (CANNOT be changed)

Do you want to go in the house? Say "yes" or "no." It's getting cold out here. ← (can be changed)

Otherwise ← The story would land at this point if the user gives an unexpected response to the Intro question. (CANNOT be changed)

You've got to go to the left or the right. The pig monster isn't going to wait all day. ← (Can be changed)

Anytime you say "where is the pig monster" ← Optional Statement. Text in " " can be changed

I don't know. It could be anywhere. ← (can be changed)

Fallback ← This statement gets executed for any erroneous response which does not get covered in any Otherwise statements. (CANNOT be changed)

Sorry, I didn't get that. Try asking again. ← (can be changed)

NOTE:

- The statements written in **BOLD** are interpreted by the machine for specific purposes. Thus, in most cases, they cannot be changed as they describe a specific function to the machine.
- Wherever one wants the story to diverge, the statement should end with a question which the user can answer so that according to his/her response, choices can be made. There can be more than one choice for the user to make but it is advisable that whichever choice the user has should be mentioned in the question itself to bring more clarity.

- Indentation is very important in writing an interactive story using story speaker. It lets the machine understand the flow of the story. Indentations are given with the help of TAB key. As you can see, the If statement [1] in the template has been tabbed after the intro part as it shows that this If statement comes under intro. While the other If statement [2], has been tabbed again to show that it comes inside the **If you say “right”** statement.

2. AI Activity Description

Rock-Paper-Scissors: Ask the students to go on the link: <https://www.afiniti.com/corporate/rock-paper-scissors> and click on play the game.

As soon as they land up in the game arena, they will observe 3 buttons each for Rock, Paper and Scissors. They need to choose one on the basis of the move which they want to make against AI. Remember that the hand at the left is the human's hand while the one on the right side is the AI. As soon as the student makes a move, the AI will also randomly select one out of the three and according to the conventional rules, one will win against the another. The score gets updated at the top while in the middle of the screen, one can see which round was won by whom as the red colour depicts victory. Ask students to play the 20 rounds of the game and keep checking the scores.

Students will be able to identify how the AI-enabled machine is taking the choices of its opponent as data to train itself in such a way that it can predict future moves and can win against its opponent. Ask the students to try the following:

1. Try changing moves randomly and observe how the machines copes with it.
2. Try making the same move at least 7 times and then changing it abruptly. How does the machine react to it?

Story Speaker: Ask the students to explore the basic template and try playing it before they start working on their story. After they understand how to use the tool, ask them to make an interactive story to depict a scenario where they had to make a choice and the paths changed.

ENGLISH

CLASS 9

3.29 Wind

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 2: Wind	
Name of the Book	Beehive NCERT Class 9	
Subject and Artificial Intelligence Integrated	Integration of awareness of Artificial intelligence and teaching of English	
Learning Objectives	- To praise nature's great power i.e. air, water, fire - To deal with nature's powers appropriately. - To understand and appreciate the poem thoroughly. - To enrich their vocabulary - To help them to enjoy and appreciate poetry. - To impart knowledge about figure of speech. - To kindle the imagination of creative poetry - To enable students to grasp the theme and gist of the poem. - To help students exercise the message given in the poem in their life. - To identify various poetic devices used in the poem. - To understand weather forecasting tools.	Weather forecasting tool (Discussion) https://experiments.withgoogle.com/body-synth (to appreciate the beauty of music)
Time Required	2 periods of 40 mins each	
Classroom Arrangement	Flexible	
Material Required	Pen, paper, blackboard, chalk, smartboard/screen, projector & laptops	
Pre – Preparation Activities	The students are divided in groups of 4 for the pre preparation activity.	
Previous Knowledge	Students are asked to discuss among themselves the famous personalities who faced many challenges and hardships in their lives and still came out strong and carved a niche in their respective fields. Each group will then present a summary of the discussion.	
Introduction	The teacher asks the students to think of the various ways to make the mind strong and hearts firm to face challenges in life.	

Methodology	The students are asked to listen to a reading on the poem Wind by Subramania Bharati to understand the summary: We all know that wind is a natural phenomenon. In this poem, the poet talks to the wind. The power of wind has been described and the poet says that wind is destructive. He has linked the destructive power of wind to the adversities of life and says that the weak people break down, but stronger people emerge out of adversities, stronger. The poem gives an important message that we should be mentally tough and physically strong in order to survive the hardships of life. A weak person breaks down like a weak building and crumbles. We must make these destructive forces our friends, with our strength and determination.	Warm up activity: rock paper scissors (based on probability) https://go-goals.org (play game online as warm up activity and appreciate the development in technology.)
Discussion on the Text	After the Pre preparation activity the class retains its group and students are asked to re-read the poem and then answer the questions: What are the things the wind does in the first stanza? • Have you seen anybody winnow grain at home or in a paddy field? What is the word in your language for winnowing? What do people use for winnowing? (Give the words in your language if you know them.) • What does the poet say the wind god winnows? • How do we make wind our friend? • What do the last four lines of the poem mean to you? • How does the poet speak to the wind—in anger or with humour? You must also have seen or heard of the wind “crumbling lives”. What is your response to this? Is it the same as the poet’s? • What does the wind symbolize?	
Learning Outcomes	• The moral lessons that we learn from the poem is that the poem inspires us to face challenges and hardship with courage, firm determination and grit. • The poem Wind is a symbol of problems and obstacles which are to be dealt with without fear. • We must be friends with the wind (obstacles) to cope with hard situations that we face on our daily lives. Poetic Devices Learnt: • Personification • Metaphor • Anaphora • Symbolism	A discussion on ethics regarding AI is initiated.

Follow up Activities	The students will be asked to write poetry with some other element of nature. OR The students can be told to collect data of cyclones hitting India in 2019-2020 and compare the data with 2000-2001. The students will be encouraged to make a report.	https://www.poem-generator.org.uk/quick/ (generates a poem based on keywords) Data analytical tools of AI can be used. https://datavizcatalogue.com/
Reflections	The students will appreciate the poem and the poetry. Listen to the Poem on audio books (NCERT) for better understanding of rhythm and intonation.	

GLOSSARY:

AI Activity Description

Ask the students to think of the following scenarios:

1. As Artificial Intelligence gets incorporated in various fields, we cannot stay away from it. The weather forecast system works on AI.
 2. Do you think AI can make accurate weather predictions?
 3. If an AI machine makes a mistake, who should be held responsible for it? The Developer, The AI developing firm, The User, or The AI machine itself?
- With the weather forecast system on our mobiles we can plan our day accordingly.

Ethics in AI

For further explanation on AI Ethics concerns students can be told that Artificial intelligence is a field that is boundless in today's time. There are a lot of scenarios that tell us that ethical issues exist around AI. Hence, it is important to have an understanding of ethics in AI, and to have ethical guidelines which can guide us in such conditions where there is no clear definition of what is right or wrong.

<https://www.moralmachine.net/>

AI Tools used:

1. Inklewriter

Inklewriter is created, to help writers tell interactive tales with the minimum of fuss. Inklewriter keeps your branching story organized, so you can concentrate on what's important – the writing. Inklewriter is a free tool designed to allow anyone to write and publish interactive stories. It's perfect for writers who want to try out interactivity, but also for teachers and students looking to mix computer skills and creative writing.

2. Data analytical tools of AI can be used. Data Acquisition

Data Acquisition refers to acquiring authentic data from reliable and authentic sources/platforms that is required for the AI model. There can be various ways to collect data.

Data Exploration

Data Exploration refers to visualizing the data to determine the pattern, relationships between elements and trends in the dataset that gives a clear meaning and understanding of the dataset. Data exploration is important as it helps the user to select an AI model in the next stage of the AI project cycle. To visualize the data, various types of visual representations can be used such as diagrams, charts, graphs, flows and so on.

<https://datavizcatalogue.com>

ENGLISH

CLASS 9

3.30 Rain on the Roof

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 3: Rain on the Roof	
Name of the Book	Beehive, Class 9, NCERT	
Subject and Artificial Intelligence Integrated	Rain on the Roof (Poem) in English and Artificial Intelligence (Arts experiment with Google, Poem Portraits)	1. Arts experiment with Google (Poem Portraits) 2. Imaginary Soundscape
Learning Objectives	The learners will be able to: • Understand the poem • Analyze the theme of the poem • Identify and explain the poetic devices used • To analyze the range of emotions one can undergo in certain situations • To try using Arts experiment with Google (Poem Portraits) to compose a poem.	
Time Required	2 periods of 40 minutes each	
Classroom Arrangement	Online (Flexible)	
Materials Required	Physical classroom: Pen, paper, blackboard, chalk, smartboard/screen and projector, laptop/computer, textbook. Online class: Internet connection, laptop/desktop/smartphone, textbook/PDF text, Pear deck presentation, Padlet, AI tools: Arts experiment with Google (Poem Portraits) and Imaginary Soundscape	
Pre – Preparation Activities	Students are given instructions on the starter activity. Students are shown three different images with situations pertaining to rain and asked to share three words that comes to their mind when they see the pictures	
Previous Knowledge	Using AI modelled Imaginary Soundscape, they are introduced to some sounds and asked to reflect on what comes first to their mind/recollect a memory.	Students will use AI Imaginary Soundscape to recollect memories. https://experiments.withgoogle.com/imaginary-soundscape
Methodology	• The students are made to listen to a rendition of the poem. • Motivate reflection on the title and situations that come to students' minds. • Introduction of the poet and the kind of poetry he wrote.	

	• Explanation of the poem with emphasis on important phrases. • Identification of the poetic devices. • Discussion on the poem. • Discussion of contextual and non-contextual questions. • Use of AI tools.	
Learning Outcomes	At the end of the poem, students will be able to: • Quote important lines from the poem. • Paraphrase the poem. • Identify and analyze the theme of the poem. • Identify and explain the poetic devices used. • Infer and articulate the feelings of the poet. • Co-relate the various sounds and emotions as expressed in the poem. • Reflect on own experiences. • Answer all contextual and non-contextual questions. • Compose a short poem or write a paragraph on any other element of nature. • ix) Demonstrate usage of AI concepts integrated.	
Follow up Activities	The teacher will assess the success of the activity through a poem/paragraph which students will be asked to compose/write. Students will use Arts experiment with Google, Poem Portraits.	Students will feed in a word associated with rain or any other element of nature and based on the input received, can continue the poem. https://experiments.withgoogle.com/poemporraits
Reflections	Develop thoughts on the work done by students. Discussion with Students on the role of AI application: Ask and take feedback on the scope of the AI tools used and any problems they encountered while using the AI tool. Any other AI application that can be used as an alternative.	

GLOSSARY:

AI Related Terminology

1. Arts experiment with Google (Poem Portraits): Poem Portraits is an experimental, collective artwork, woven at the intersection of AI and human creativity - combining poetry, design and machine learning - conceived by artist and designer Es Devlin in collaboration with Google Arts & Culture Lab and creative technologist Ross Goodwin.

In this, the user is required to feed in a word to begin the interaction after which the tool gives out two lines which can be used by the users to continue writing a poem.

2. Imaginary Soundscape: We, human beings, can imagine sounds by taking a glance at a photo: The scenery of a beach may bring the sound of crashing waves to mind. You may hear sounds of horns and street advertising when you look at a picture of a busy crossing. “Imaginary Soundscape” is a web-based sound installation, focusing on this unconscious behavior, where viewers can freely walk around Google Street View and immerse themselves into imaginary soundscapes generated with deep learning models.

This work is based on the recent development of the cross-modal information retrieval technique, such as image-to-audio, text-to-image, using deep learning. Given video inputs, the system was trained with two models: one well-established, pre-trained image recognition model, processes the frames, while another convolutional neural network reads the audio as spectrogram images, evolving so that the distribution of its output gets as close as possible to that of the first one. Once trained, the two networks allow us to retrieve the best-matched sound file for a scene, out of our massive environmental sound dataset.

The soundscapes generated by the AI sometimes amaze us by meeting our expectation, but occasionally ignore the cultural and geographical context (the sound of waves on an icy field of Greenland for instance). These differences and mistakes lead us to contemplate how the imagination works and how fertile the sound environments surrounding us are. By externalizing our synesthetic thinking, we try to shed lights on the power of imagination we all share. (Source: <http://www.imaginarysoundscape.net/>)

ENGLISH

CLASS 9

3.31 Packing

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 7: Packing	
Name of the Book	Beehive, Class 9, NCERT	
Subject and Artificial Intelligence Integrated	Application of Artificial Intelligence and Teaching of English	
Learning Objectives	- To comprehend the author's writing style - To understand the importance of being humble and modest - To understand the importance of working in an organized manner - To contextually relate meanings of unfamiliar words and phrases - To read the lesson with correct pronunciation and derive the theme of the lesson - To develop skills of imagination and creativity - To infer, analyze and evaluate text - To understand, appreciate and enjoy fiction - To link the theme of the chapter with the underlying principles of AI.	
Time Required	3 periods of 40 minutes each	
Classroom Arrangement	Flexible	
Material Required	laptop/ desktop or smart mobile phone with internet connection, chalk, blackboard. https://emojiscavengerhunt.withgoogle.com/ www.inklewriter.com	https://emojiscavengerhunt.withgoogle.com/ www.inklewriter.com
Pre – Preparation Activities	The students are inducted to play the game 'Emoji Scavenger Hunt'	
Previous Knowledge	Students will be asked if they have ever discovered on a trip that they have forgotten to pack a few things they very much need, or that they can't find them easily. Was it because they were confused what to pack and how to pack? Students are asked to play an online game called Emoji Scavenger Hunt. They will have to locate the emoji the game shows them in the real world with their phone's camera. A neural network will try to guess what it's seeing.	Artificial Intelligence Game - which is based on Computer Vision

Methodology	The teacher asks students to read the lesson 'Packing' which is about the confusion and mess made by inexperienced packing. Based on the theme, there will be a discussion on the following questions: • What was the narrator rather proud of? • What horrible idea struck the author when he had packed the bag? • What was Jerome's real intention when he offered to pack? • Where did Jerome finally find the toothbrush? • What did George and Harris offer to pack and why? • How did the butter episode in the story cause nuisance? • Who was Montmorency? • What did Jerome say was Montmorency's ambition in life? • Of the three, Jerome, George and Harris, who do you think is the best or worst packer? Give reasons for your choice of answer.	
Learning Outcomes	• The students will develop comprehension skills. • The students will identify the humorous elements in the story. • The students will enrich their vocabulary. • The students will analyze the importance of good organizational skills to avoid confusion. • The students will develop communicative skills. • The students will draw parallels of the story with AI as it exists in our life.	
Follow up Activities	• The teacher will create an online post-it board using Padlet Web app and share a unique Padlet link with the students. The students will click on the link and answer the following exit ticket prompt: 'What is your takeaway from the lesson?' • The teacher will ask the students to use Inkle writer to create a story on any of their excursions where they experienced a hilarious incident arising out of confusion and mess.	Students learn how to use Inkle writer to write an interactive story.
Reflections	Discuss with students- • How did you find the experience of playing the AI Game? • Explore other apps/tools that you can use to write interactive stories.	

GLOSSARY:

AI Related Terminologies

1. Emoji Scavenger Hunt: Emoji Scavenger Hunt is an AI game that asks the user to use a smartphone's camera to find objects that match an emoji within a time limit. With each find, the time limit increases.

Link to Emoji Scavenger Hunt: <https://emojiscavengerhunt.withgoogle.com/>

2. Inklewriter: Inklewriter is an easy-to-use online tool to write interactive stories. It helps the writer build different story options. One can define options which could be as simple as making a character turn left or right, or a much more complicated situation like a conversation with many different options. Pictures can also be added to the story and the writing can be shared.

Link to Inklewriter: www.inklewriter.com

AI Activity Description

Emoji Scavenger Hunt: Ask the students to go the link <https://emojiscavengerhunt.withgoogle.com/>

As the students click on the link, they will be asked to give the website permission to access the camera. The scavenger hunt will ask them to find things/emoji in their real word with their device camera. A neutral network will try to guess what it is seeing. The students have to ensure that the sound is on.

Inklewriter: Ask the students to go on the link www.inklewriter.com They will be offered the option of taking the tutorial or starting a new story. If they click new, they can get writing straightaway. They'll write their story onto the scraps of paper in the middle of the inklewriter workbench. When they want to add choices, they can click the Add Option button, and type in the name of the choice. Each choice has an arrow they can click to follow that path. They can use the rewind buttons in the top right of every page of their story. Clicking rewind will roll the story back to that point, so they can add new options or take different choices.

They can also open the contents panel using the button in the top right. This list every paragraph of the text they have written Once their story has branched, they can bring the different branches back together by using the 'join' button below a section of the text. Clicking this button brings up the content panel, for them to select which paragraph to join to. They can read their story by clicking the 'read' button in the toolbar.

ENGLISH

CLASS 9

3.32 My Childhood

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 6: My Childhood	
Name of the Book	Beehive NCERT Class 9	
Subject and Artificial Intelligence Integrated	Application of Artificial Intelligence & Teaching of English	
Learning Objectives	- To practice silent reading and develop comprehension skills - To develop skills of imagination creativity and writing. - To make students familiar with the lives and deeds of great men, - To make them aspire for better things in life, - To show the path of character building, - To develop in them desirable sentiments. - To use AI tools to practice story telling – open source AI tool	
Time Required	3 periods of 40 minutes each	
Classroom Arrangement	Flexible	
Material Required	Pen, paper, blackboard, chalk, smartboard/ screen and projector, & laptops	
Pre – Preparation Activities	The students are divided in pairs asked to use Inkle writer (AL TOOL) in preparation for the topic. https://www.youtube.com/watch?v=A7HzFQstqT4	Students are asked to use Inkle writer in preparation for the topic.
Previous Knowledge	Students are asked to discuss Dr. Abdul Kalam and his contributions to humanity	
Methodology	- The teacher divides the class in pairs. - The teacher instructs the students to Read out the following lines by Dr. Kalam. You have to dream before your dreams can come true. Or Climbing to the top demands strength, whether it is to the top of Mount Everest or to the top of your career. - The students are shown a video on how Inkle writer works. https://www.youtube.com/watch?v=A7HzFQstqT4 - The students work in pairs to create a motivational story - They then share their story with the other groups	

Learning Outcomes	• They learn to develop comprehension skills • They learn to develop skills of imagination creativity and writing. • They learn to build a narrative story using Inkle Writer	
Follow up Activities	Teacher will encourage students to use story time by google assistant (AL TOOL) to enhance their listening and writing skills	https://www.theverge.com/2019/11/21/20976510/google-assistant-my-storytime-nest
Reflections	Discussion with the students on the topic: Kalam: An inspiration for thousands	

GLOSSARY:

AI Related Terminologies

- A. My Storytime: Google has launched a nice new Assistant feature called My Storytime that lets parents simulate reading to their kids when one parent is away from home. A parent will be able to record themselves reading chapters of stories, and the other parent (or babysitter) can ask Google Nest to read those recordings to the kids.

Steps:

- Visit the My Storytime website.
- Log into your Google account .
- You'll be asked to make short recordings, including phrases that will help guide Storytime when invoked, such as "Which story would you like to hear?" or "Should we keep reading?" or "Read a different story?"

Once you've recorded those set-up phrases, you can start recording yourself reading aloud entire chapters of any book

- B. Inkle writer is a free tool designed to allow anyone to write and publish online interactive stories that branch off in different directions. It's gives creative writers new opportunities for developing narratives
Watch video to learn how to use inkle writer:

- C. <https://www.youtube.com/watch?v=A7HzFQstqT4>

ENGLISH

CLASS 9

3.33 The Adventures of Toto

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 2: The Adventures of Toto	
Name of the Book	Moments – NCERT Class 9	
Subject and Artificial Intelligence Integrated	Integration of AI in teaching of English	
Learning Objectives	The students will be able to- • appreciate AI tools such as 'Mystery Animal'. • infer the meaning of the title. • know about Ruskin Bond. • share their experiences of having/keeping a pet. • realize that certain animals are not meant to be kept as pets. • understand that each pet has its own characteristics and take care of them accordingly. • infer the plot, theme, central idea of this story. • understand that animals thrive better in their natural habitat. • enhance their vocabulary by learning new words.	Mystery Animal- Helps the user recognize animals by asking various yes/no questions. Inkle writer- Students can write their experience of keeping a pet. Semantris
Time Required	Example: 3 periods of 40 minutes each	
Classroom Arrangement	Online	
Material Required	Textbook, Electronic device with data connection	
Pre – Preparation Activities	Students will be asked to discuss the following- • Name a few animals which can be kept as pets. • Does anyone in the group have pets?? • Funny moments with their pets • Importance of love towards animals.	
Previous Knowledge	Pets are beneficial to humans, but not all are the same.	
Methodology	Reading of the story. After the reading of the story, open discussion on- • Relationship of grandfather with Toto. • Toto's arrival in the house. • Appearance of Toto • Activities performed by Toto. • Adjustment with him at home. • Toto as a troublemaker.	Scribbling Speech - Students will be asked to draw the picture of Toto as it appears.

Learning Outcomes	Students get to: • Know about the writer • Enhance vocabulary and use those words in their daily life. • Understand the theme of the story. • Realize the importance of keeping animals in their natural habitat.	
Follow up Activities	Google Forms can be administered, and Pad let can also be used to test the knowledge and understanding of the text.	

GLOSSARY:

Mystery Animal

An AI experiment developed by Google based on the AI domain "NLP" In this game, the computer pretends to be an animal and the player needs to guess the animal by asking 20 yes/no questions. The player asks questions to the machine via microphone to which the machine will respond either in Yes or No and according to the answers, the player needs to modify his/her questions to guess the animal. Upon opening the website, click on preview it now! to start.

<https://mysteryanimal.withgoogle.com/>

Inkle writer- Students can write their experience of keeping a pet.

Inklewriter is a free tool designed to allow anyone to write and publish interactive stories. It's perfect for writers who want to try out interactivity, but also for teachers and students looking to mix computer skills and creative writing.

www.inklewriter.com

Semantris

Semantris is a Google experiment word association game powered by machine learning. Each time you enter a word that is associated with the target word, the AI looks at all the words in play and chooses the ones it thinks are most related.

<https://research.google.com/semantris/>

Scribbling Speech

Language and images are closely intertwined: We think in pictures and we explain facts as spatial constellations. What if the spoken word could be transformed into dynamic visual worlds in real time? Speech input, machine learning and recurrent neural networks for image generation allow computers to generate complex imaginary worlds that follow the narrator and thus create complex animations controlled by linguistic structures.

<https://experiments.withgoogle.com/scribbling-speech>

ENGLISH

CLASS 9

3.34 On Killing a Tree

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 8: On Killing a Tree	
Name of the Book	Beehive, Grade 9, NCERT	
Subject and Artificial Intelligence Integrated	Create awareness on Artificial Intelligence & teaching English.	
Learning Objectives	The children will be able to: • Appreciate the value of Artificial intelligence. • Differentiate between the terms Deforestation, Reforestation and Afforestation • Analyze and interpret data • Share the interpretation of the data assigned to their groups	
Time Required	2 Periods of 40 minutes each	
Classroom Arrangement	Flexible	
Material Required	Textbook, Dictionary, white board or chalk board, markers or chalk, notebook papers, pens, smart board and laptop to access the lesson and AI integration. Internet websites for data acquisition.	
Pre – Preparation Activities	The class will be divided in 4 groups and asked to collect information about the forest and tree cover of India, top five states in terms of increase in forest area, top five states in terms of forest cover as a percentage of their geographical area and the increase/decrease in forest cover in hills and tribal districts The links for data acquisition will be shared: india.mongabay.com/2020/01/indias-forest-cover-is-rising-but-northeast-and-tribals-lose/ They will also be asked to download Data Exploration app.	The link to download the app will be shared. datavizcatalogue.com
Previous Knowledge	The students know how to represent the given data graphically. They are also familiar with the vocabulary used in data interpretation.	

Methodology	The teacher starts the discussion with the topic- De forestation in Arrey Colony, Mumbai. The students share their views on the same taking into consideration the reasons, the role of the activists, media and government, effect on the environment. The students will also be encouraged to discuss their role as a responsible citizen of society. The students will then work in their groups, collect information on the topic given to them and represent it graphically. Each group will then hand over its data to the group to its right for interpretation followed by the presentation. Discussion on the text There is an open discussion on • Is it easy to kill a tree? Why not? • What is the meaning of bleeding bark? • What finally kills a tree? • Identify the tone and mood of the speaker	Data representation through datavizcatalogue.com Histogram
Learning Outcomes	The students will • Acquire skills to gather information • Work as a team • Use Data Exploration to represent their data • Interpret data using appropriate vocabulary • Get hands on practice of the AI tool	
Follow up Activities	The students will be asked to join 'Adopt a Tree' campaign. The link to find more about it will be shared by the teacher. https://support.wwfindia.org/aat/ They will be asked to write a letter to their friend telling them about this campaign and motivating them to join it.	
Reflections	The tool can be integrated with other subjects.	

GLOSSARY:

Data acquisition refers to acquiring authentic data crucial for the AI model from reliable sources. There can be various ways in which the students can collect data.

The analyze part comes next. For this, the students need to visualize the acquired data.

At the time of presentation, they can use various kinds of visual representations like, diagrams, charts, graphs, flow charts etc.

ENGLISH

CLASS 9

3.35 Weathering the Storm in Ersama

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 6: Weathering the Storm in Ersama	
Name of the Book	Moments – NCERT Class 9	
Subject and Artificial Intelligence Integrated	Integration of Artificial Intelligence & Teaching of English	
Learning Objectives	To build an appreciation and awareness of Artificial Intelligence Tools- • Using 'Inklewriter' • Using 'Semantis' • To analyze and compare data through Visual Representation of the same. • To work in a group and learn teamwork. • To try using Artificial Intelligence via Inklewriter and develop skills of imagination, creativity and writing by extending the story. • To know how AI is used to increase preparedness and become a means to alert people about impending Natural Disaster. • To understand the role of AI in record keeping and tracking missing people • To write an informative Analytical/Descriptive paragraph. • To explore the concept of empathy, hope, valour and optimism	
Time Required	4 periods 40 minutes each	
Classroom Arrangement	Seating arrangement For Theory- Horseshoe or U shaped For Activity-In clusters	
Material Required	Pen, paper, blackboard, chalk, smartboard/screen and projector & laptops. • Links/Resources https://m.youtube.com/watch?v=3OnOD1VOVLM (News Report) • https://m.hindustantimes.com/india/revisiting-the-supercyclone-that-hit-odisha-in-1999/story-S0IDY1STwdrVdMravThCZK.html (Details of the Cyclone) • https://www.bhubaneswarbuzz.com/videos/calamity-documentary-1999-supercyclone-odisha-not-know • https://m.youtube.com/watch?v=0tYuYLUCx-w (Ray of Hope: IDRF Rehabilitation after Odisha 1999 Super Cyclone) • For creating Bar Graphs— https://nces.ed.gov/nceskids/graphing/classic/bar_pie_data.asp?ChartType=bar	

Pre – Preparation Activities	- The students will be divided into 3 groups. Each group will be asked to carry out research on- - The Red Cross Shelter and its massive Relief work in Odisha since 1999. - Technological advancements for managing Natural Disasters. - They will also observe the fall in the percentage of lives lost since the 1999 disaster till 2020, in Odisha and represent it in the form of Bar graphs.	Data Exploration
Previous Knowledge	- The students have already acquired knowledge about the Natural Disasters and the Role of the Red Cross in combating its aftermath. - Each Group will be asked to share their information post research and visually present data for a comparative analysis.	
Methodology	Introduction-The students will then be shown a documentary on the devastation caused by the Cyclone of 1999 in Odisha. - Through an Open Discussion they will be asked to reflect upon the social responsibility of every citizen in the wake of a Natural Disaster. - The students will also analyze how the intervention of technology and Artificial Intelligence can minimize damage and also provide timely alerts . - Text exploration-The students will discuss the background of the writer Harsh Mander as a social Activist . - The students will read the chapter and analyze the role of the protagonist, Prashant . - The students will discuss the qualities possessed by Prashant such as, leadership, empathy, optimism and selflessness - The students will also explore the concept of Social Responsibility and Community Service for combatting Post Disaster challenges. - Language Exploration-The students will analyze the Narrative Voice and Structure of the text . - They will discuss the use of third person narrative and the use of facts and information in the text. - Discuss Text based questions and identify value points pertaining to the answers. - Explore the Glossary- The students can enhance their vocabulary by using another AI Tool, Semantris.	Students are encouraged to search, acquire and explore Data. AI Tool-Data Exploration https://datavizcatalogue.com Representing data in the form of Graphs. Semantris
Learning Outcomes	The students will be able to: - Learn to write an Analytical/Descriptive paragraph. - learn to Visually present data for analysis. - realize their Social Responsibility. - learn to write a story and extend the journey of the protagonist. - They learn to work in groups and develop team spirit. - They learn to develop skills of factual representation of data. - Learn the importance of Community Service.	

Follow up Activities	• The students will be asked to write a Descriptive/Analytical Paragraph based on the Visual Representation of Data and the documentary on Odisha Cyclone Tragedy,1999. • The students will be asked to take the journey of Prashant forward and create their story from the ending point of the chapter using AI Tool, Inkle writer. • The students will be asked to carry out Community Service such as spending few hours at An Orphanage or an Old Age Home. • Feed the stray dogs • Donate books.	Inklewriter
Reflections	Discussion with students on the role of AI application in managing the aftermath of a Natural Disaster	

GLOSSARY:

AI Related Terminologies

Data Acquisition: Data acquisition refers to acquiring authentic data crucial for the AI model from reliable sources. The data acquired could then be divided into two categories: Training Data and Testing Data. The AI model gets trained on the basis of training data and is evaluated on the basis of testing data.

Data Exploration: Data Exploration refers to visualizing the data to determine the pattern, relationships between elements and trends in the dataset that gives a clear meaning and understanding of the dataset. Data exploration is important as it helps the user to select an AI model in the next stage of the AI project cycle. To visualize the data, various types of visual representations can be used such as diagrams, charts, graphs, flows and so on.

<https://datavizcatalogue.com>

There can be various ways in which you can collect data. Some of them are: • Surveys • Web Scraping • Sensors • Cameras • Observations • Application Program Interface Data Exploration: After acquiring data there comes the need to analyze the data. For this, they need to visualize the acquired data in some user-friendly format so that they can:

- Quickly get a sense of the trends, relationships and patterns contained within the data.
- Define strategy for which model to use at a later stage.
- Communicate the same to others effectively. To visualize data, various types of visual representations can be used by the students like diagrams, charts, graphs, flows, etc.

Semantris: Semantris A Google experiment, Semantris is a word association game powered by machine learning. Each time you enter a word that is associated with the target word, the AI looks at all the words in play and chooses the ones it thinks are most related

<https://research.google.com/semantris/>

Inklewriter: Inklewriter is a free tool designed to allow anyone to write and publish interactive stories. It's perfect for writers who want to try out interactivity, but also for teachers and students looking to mix computer skills and creative writing.

www.inklewriter.com

ENGLISH

CLASS 9

3.36 A Legend of the Northland

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 2: A Legend of the Northland	
Name of the Book	Beehive, Class 9, NCERT	
Subject and Artificial Intelligence Integrated	Artificial Intelligence & English - Moral Machine - Inklewriter /AI Dungeon	
Learning Objectives	The learners will be able to: - realize the importance of 'empathy' in their lives - learn to appreciate core values of human life, such as kindness, generosity, being considerate and helpful - observe and appreciate the folktales passed on from one generation to another - focus on developing language skills of Listening, Speaking, Reading and Writing AI Objective: - To help students understand the importance of ethics in our life – use of AI Game, moral machine (https://www.moralmachine.net/) as a precursor to reading the Poem to appreciate it.	AI tool 'Moral Machine' to introduce the theme of the poem
Time Required	2 periods of 40 minutes each	
Classroom Arrangement	Seating arrangement - Theory Sessions – regular classroom arrangement Activities Sessions – Flexible (for group / pair work)	
Material Required	- Textbook - Beehive, sticky notes for writing important information related to stanzas in the poem, - Black/White board, chalk / marker - Smartboard / screen and projector, internet connection / Use of Computer Lab - AI applications / tools: www.inklewriter.com https://play.aidungeon.io/ https://www.moralmachine.net/	
Pre – Preparation Activities	Meaning of ballad and examples The students are divided into groups for the Pre-preparation activity: - to discuss on the values of being helpful and kind - to disregard the attitude of being selfish - the qualities one should imbibe in his/her life - Moral Machine - AI Game	AI tool: https://www.moralmachine.net

Previous Knowledge	• Prior knowledge of ballads is elicited from the students, wherein they are encouraged to share any story they've read or a video they'd watched. • Students are asked to recount their experience, in groups, of watching stories based on moral values and if they'd played a game based on Artificial Intelligence on ethics. • A representative from each group will be asked to share the unique features of the moves in the game.	
Methodology	Focus on • enrichment of vocabulary • Comprehension skills enhancement and independent reading • Communication, Brain Storming, Information Literacy, Initiative, Critical thinking <u>Pre-Reading:</u> Introductory activity - Structured discussion in groups • Northland - A country in north - cold place where people wear clothes made of fur - Discussion on climate • Legend - an old traditional story, usually with a moral teaching. • Should one have a selfish perspective in one's life? Why/ Why not? • Do you think helping others is good? Give reasons. • What qualities should one imbibe in his/her life? About the poet Playing an AI game, Moral Machine – followed by sharing of stories / experiences highlighting the importance of ethics in one's life <u>While Reading:</u> • Silent and loud reading by students • The students are asked to express their understanding of the poem in the first reading. • They listen to a reading of the poem to comprehend the central idea and the depth of the poem highlighted by the poet. • There is an open discussion on the words and phrases from the poem to bring out the following expressions / meaning: - Make a hole in something with a tool - Small amount - To make dough from flour - Famish - Strange - To give a religious talk <u>Post Reading:</u> Open ended discussion and moral based questions. • Discussion on the text is done through short comprehension questions based on the extracts from the poem. • A quiz is conducted as a follow-up activity to check the students' comprehension of the main idea of each stanza and the theme of the poem. • Creating stories with moral themes through the AI tool 'Inklewriter'.	Discussion on Ethics in AI https://www.moralmachine.net/ www.inklewriter.com https://play.aidungeon.io/

Learning Outcomes	• The students will be able to research on the topic related details like poet's background, historical references etc. • Students will practice pronunciation and rhyme. • They interpret poetry by understanding a variety of cultures, language and history. • They develop critical thinking and analytical skills, teamwork and coordination. • They learn to appreciate poetry and identify poetic devices. • They will be able to decipher the metaphorical meaning of poetry. • They shall be able to apply the principles of literary criticism to the analysis of poetry. • Use of AI tool 'Moral Machine' will help them imbibe the values of empathy, kindness and generosity. • Through the use of AI tool 'Inklewriter', the students will be able to write value-based stories.	
Follow up Activities	• Hots and analytical questions to be asked in assessment. • A Quiz using Kahoot / Google form based on the chapter to assess the understanding of the students. • Stories created on 'inklewriter' / AI Dungeon can be shared and discussed in the class.	
Reflections	Students will be encouraged to discuss in groups the learning outcomes of the AI games they played, to enhance their questioning skills and creating value-based stories through 'Inklewriter' and how they could apply the learning in real-life situations. • They will also be asked to share their experiences of any other app / tool that could be used as a learning aid for this poem.	

GLOSSARY:

AI Tool - 'Moral Machine'

Ethics in AI

Artificial intelligence is a field that is boundless in today's time. There are a lot of scenarios that tell us that ethical issues exist around AI. Hence, it is important to have an understanding of ethics in AI and to have ethical guidelines which can guide us in such conditions where there is no clear definition of what is right or wrong.

<https://www.moralmachine.net/>

Inklewriter

Inklewriter is a free tool designed to allow anyone to write and publish interactive stories. It's perfect for writers who want to try out interactivity, but also for teachers and students looking to mix computer skills and creative writing. NLP www.inklewriter.com

www.inklewriter.com

AI Dungeon

AI Dungeon is a free-to-play single-player and multiplayer text adventure game which uses artificial intelligence to generate unlimited content. It also allows players to create and share their own custom adventure settings.

<https://play.aidungeon.io/>

ENGLISH

CLASS 10

3.37 How to Tell Wild Animals

Chapter Covered	Chapter 3: How to Tell Wild Animals	AI Concepts Integrated
Name of the book	First Flight, Class 10, NCERT	
Subject and Artificial Intelligence Integrated	Artificial Intelligence & English (Poetry)	
Objectives	- To help students practice pronunciation and understand rhyme. - To develop an understanding of why poetic liberties are permitted in language usage. - To make the students understand and appreciate the benefits of the present educational system. - To help students identify different animals using the AI Game Mystery Animal as a precursor to reading the Poem to appreciate it. - To draw out how Artificial Intelligence can be used to curb poaching.	Mystery Animal - AI Game to introduce the chapter using Natural language Processing Reflective video demonstrating how wild life can be protected using Artificial Intelligence
Time Required	2 periods of 40 minutes each	
Classroom Arrangement	Flexible – preferred round table seating	
Material Required	Pen, paper, sticky notes blackboard, chalk, smartboard/ screen and projector and laptops	
Pre-Preparation Activity	The students are divided into pairs to play the AI game Mystery Animal https://experiments.withgoogle.com/mystery-animal	Mystery Animal - AI Game using Natural language Processing
Previous Knowledge	Students are asked to recount their experience of playing against Artificial Intelligence and identifying the animal. Each pair will be asked to speak about the unique features of the animal they identified.	
Introduction	The teacher asks students to read aloud the Poem How to tell Wild Animals in pairs.	
Methodology	The students will be divided in pairs to play the introductory game and then read the Poem aloud.	
Discussion on the Text	- After the activity the class retains its groups and students are asked to answer the questions as a pair group exercise: - Does ‘dyin’ really rhyme with ‘lying’? Can you say it in such a way that it does? - Do you think the words “lept “and“lep” in the third stanza are spelled correctly? Why does the Poet spell them like this? - Can you find other examples of Poets taking liberties with language either in English or in your own language? - Can you find examples of humorous Poems in your own Language? - Poaching is a major cause of extinction of species. Watch the video and discuss https://www.youtube.com/watch?v=yYY0Jg0qGH0	Reflective video demonstrating how wild life can be protected using Artificial Intelligence
Learning Outcomes	Students will practice pronunciation and understand rhyme.	

	• Students develop an understanding of why poetic liberties are permitted in language usage. • Students understand and appreciate the benefits of present educational system. • Students identify different animals using the AI Game Mystery Animal as a precursor to reading the Poem to appreciate it. • Students draw out how Artificial Intelligence can be used to curb poaching.	
Self-Evaluation and Follow-Up	The Teacher will encourage students to look for more examples of Artificial Intelligence to help in writing a poem based on Wild Animals	
Follow-up Activity	The students will be asked to present these Poems to the class.	

GLOSSARY:

1. AI Related Terminologies

Mystery Animal: Mystery Animal is an AI experiment developed by Google on an open-sourced platform which is based on Natural Language Processing domain. In this game, the computer pretends to be an animal and the player needs to guess the animal by asking 20 Yes/No questions. The player asks the machine questions with the help of earphones/headphones/microphone to which the machine will respond either in Yes or No and according to the answers the player needs to modify his/her questions to guess the animal.

Natural Language Processing: It is the ability of a program to understand human language. Human language data can be fed to the machine in the form of text or speech. Natural Language Processing is one of the sub-fields of Artificial Intelligence wherein the machine interprets human language and produces intelligent output.

2. AI Activity Description

a. **Mystery Animal:** Students need to go to the following link: <https://mysteryanimal.withgoogle.com/> . After reaching the website, students need to click on *Preview it Now!* Which will then start the experiment. In this experiment, the machine randomly selects any animal which the player needs to identify with the help of 20 Yes/No questions to be asked to the machine. Whatever question asked, the machine either responds in Yes or No or lets the user know when it is not able to comprehend the statement.

NOTE: Mystery Animal works ONLY on Google Chrome browser.

b. **Reflective video demonstrating how wild life can be protected using Artificial Intelligence:** <https://www.youtube.com/watch?v=yYY0Jg0qGH0>

Students can find the video on the link mentioned above. This video is about reducing illegal poaching activities in an area where illegal poaching is a critical problem. The device named 'Trail Guard' has been powered with computer vision-based AI which can identify if any suspicious activity takes place. It ensures only authorized people get near to the animals. The device is small enough to be easily hidden in natural surroundings.

ENGLISH

CLASS 10

3.38 A Letter to God

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 3: A Letter to God	
Name of the Book	First Flight, Class 10, NCERT	
Subject and Artificial Intelligence Integrated	Integration of awareness of Artificial intelligence and teaching of English	
Learning Objectives	- To make them understand the importance of faith. - To make them believe that faith can move mountains. - To develop such faith in them to develop confidence in them. - To practice reading aloud in groups - To develop skills of imagination; creativity and writing. - To introduce them to an AI tool for writing letters.	https://www.letter-generator.org.uk/
Time Required	2 periods - 40 minutes each	
Classroom Arrangement	Flexible	
Material Required	Pen, paper, blackboard, chalk, smartboard/screen, google story speaker and projector & laptops	
Pre – Preparation Activities	The students are divided in groups. Warm up session through go-goals.org. https://go-goals.org (play the game online as a warm up activity)	
Previous Knowledge	Students are asked to discuss on Artificial Intelligence as they recognize it and make a list of where they have encountered it in daily life. Students will be asked to share their experiences of life when their faith in God was proven right. The students should be aware of voice recognition AI tools.	Google's 'Speech-to-Text' feature can be used to translate speech to text or vice versa.
Introduction	Teacher introduces students to Chatbots powered by AI. They are asked to keep this in mind while reading aloud the story in their groups.	https://www.chatbot.com/
Methodology	The students are divided into groups of 5 and asked to read aloud -A letter to God. They are also shown a video on how chatbots are developed and used in day-to-day interactions.	

Discussion on the Text	There is an open discussion on: • The plot of the story. • Characters in the story. • Turning point of the story. • Theme of the story. • Moral of the story. • Ending of the story.	
Learning Outcomes	• Students will appreciate literature. • Develop an interest in reading aloud and discussion. • Develop awareness about AI. • Infer the moral of the story.	A discussion on Ethics regarding AI is initiated.
Follow up Activities	The teacher analyses the responses and flow of thoughts of students. The students will write a parallel story using Inkle writer. Discussion on postal service and email. The students will write an article on the topic 'Faith can move Mountains' for the school magazine.	Inklewriter
Reflections	The students will learn that faith in God and trust in humanity can solve impossible things. Though some people don't believe in God but sometimes impossible things become possible due to God or a strong faith in God and humanity too. The story tries to explain that we should not lose our faith even when there is no way out.	

GLOSSARY:

AI Activity Description:

Ask the students to think of the following scenarios:

- As Artificial Intelligence gets incorporated in various industries, the employability of unskilled labor reduces day by day. A lot of global reports and surveys have predicted mass unemployment in the near future, due to emerging technologies. Is it ethical to fire people with limited skills or no skills due to technology upgradation?
- As Artificial Intelligence gets incorporated in various fields, we cannot stay away from it. Even the weather forecast system works on AI!
- Do you think AI can make accurate weather predictions?
- If an AI machine makes a mistake, who should be held responsible for it? The Developer, The AI developing firm, The User, or The AI machine itself?
- With the weather forecast system on our mobiles we can plan our day accordingly.
- To summarize this activity, tell the students that the technology cannot take away the pleasure of human touch and presence, which is very much required. Hence, it is important to have ethical guidelines which can guide us in such conditions where there is no clear definition of what is right and what is wrong.
- If an AI machine makes a mistake, who should be held responsible for it? The Developer, The AI developing firm, The User, or The AI machine itself?

Explain to the students that these questions do not have a right answer. What might be correct for one might not be correct for the other. Hence, it is the perception which matters in such issues.

To summarize this activity, tell the students that there are a lot of ethical issues which exist around AI since AI is a domain which is boundless at this point of time. Hence, it is important to have ethical guidelines which can guide us in such conditions where there is no clear definition of what is right and what is wrong.

AI Tools

1. Inkle writer to write the story <http://writer.inklestudios.com/>

At inkle, great writers tell great stories.

Inkle writer is created, to help writers tell interactive tales with the minimum of fuss. Inkle writer keeps your branching story organized, so you can concentrate on what's important – the writing. Inkle writer is a free tool designed to allow anyone to write and publish interactive stories. It's perfect for writers who want to try out interactivity, but also for teachers and students looking to mix computer skills and creative writing.

2. Google's 'Speech-to-Text' feature can be used to translate speech to text or vice versa.
3. What Is a Chatbot?
A chatbot is a computer program that simulates human conversation through voice commands or text chats or both. Chatbot, short for chatterbot, is an Artificial Intelligence (AI) feature that can be embedded and used through any major messaging applications. There are a number of synonyms for chatbot, including "talk bot," "bot," "IM bot," "interactive agent" or "artificial conversation entity."

ENGLISH

CLASS 10

3.39 Madam Rides the Bus

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 9: Madam Rides the Bus	
Name of the Book	First Flight, Class 10, NCERT	
Subject and Artificial Intelligence Integrated	Madam Rides the Bus (Story) in English and Artificial Intelligence	1. My Story Time 2. Scribbling Speech 3. Semantris
Learning Objectives	The learners will be able to: • Read the lesson fluently. • Understand the lesson and remember the events and description. • Recount the story in their own words. • Gauge the intensity and yearning of a growing girl to explore her surroundings. • Gauge how the young girl comes to realize about life and death and how she sees the gap in human understanding of the same. • Infer the theme of the story. • Answer contextual and non-contextual questions. • To try using My Story Time to narrate a story. • To try using Scribbling Speech to create scenes.	
Time Required	4 periods of 40 minutes each	
Classroom Arrangement	Online (Flexible)	
Material Required	Physical classroom: Pen, paper, blackboard, chalk, smartboard/screen and projector, laptop/computer. Online class: Internet connection, laptop/desktop/smartphone, textbook/PDF text, Pear deck presentation, Padlet, AI tools: My Story Time and Scribbling Speech	
Pre – Preparation Activities	Students are given instructions on the starter activity. Activity 2 of Before You Read portion is taken up. Using Scribbling Speech to draw scenes.	https://experiments.withgoogle.com/scribbling-speech
Previous Knowledge	Students are asked about their first travel experience undertaken alone. Probing questions on people's reaction to when a child travels alone.	
Methodology	• Reading aloud of the story by students. • Explanation of the lesson, with inputs from students. • Analyse the theme of the story. • Discussion on contextual and non-contextual questions. • Use of AI tools.	

Learning Outcomes	At the end of the lesson, students will be able to: • Read the lesson fluently with proper pronunciation, intonation, and stress. • Recount the story in their own words. • Extrapolate the given text. • Develop awareness and sensitivity to the feelings of children in regard to their desires, yearnings, curiosity and understanding. • Infer the theme of the story. • Answer all contextual and non-contextual questions. • Demonstrate usage of AI concepts integrated.	
Follow up Activities	The teacher will assess the success of the activity through an interactive session on Padlet, where students will respond to various reflective questions. Using My Story Time to narrate and record their own stories.	Students will use Semantris to enrich vocabulary to write their story https://research.google.com/semantris/ Students will use My Story Time to narrate and record their own story https://mystorytime.com/
Reflections	Develop thoughts on work done by students. Discussion with Students on the role of AI application: Ask and take feedback on the scope of the AI tools used and any problems they encountered while using the AI tool.	

GLOSSARY:

AI related terminology

1. My Story Time:

This app can be used to pre-record stories from anywhere and can be played using Google Assistant. To use, sign in with your Google account and start recording a new story. The user can also record greetings and instructions for the listeners, share stories with others and listen to the story whenever he/she wants to.

2. Scribbling Speech:

Language and images are closely intertwined: We think in pictures and we explain facts as spatial constellations. What if the spoken word could be transformed into dynamic visual worlds in real time? Speech input, machine learning and recurrent neural networks for image generation allow computers to generate complex imaginary worlds that follow the narrator and thus create complex animations controlled by linguistic structures

[:https://experiments.withgoogle.com/scribbling-speech](https://experiments.withgoogle.com/scribbling-speech)

3. Semantris

A Google experiment, Semantris is a word association game powered by machine learning. Each time you enter a word that is associated with the target word, the AI looks at all the words in play and chooses the ones it thinks are most related.

<https://research.google.com/semantris/>

ENGLISH

CLASS 10

3.40 The Thief's Story

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 2: The Thief's Story	
Name of the Book	Footprints Without Feet, Class 10, NCERT	
Subject and Artificial Intelligence Integrated	Application of Artificial Intelligence and Teaching of English	Rock Paper Scissors https://www.afiniti.com/corporate/rock-paper-scissors
Learning Objectives	- To build an appreciation and awareness of Artificial Intelligence - To practice silent reading and develop comprehension skills - To develop skills of imagination, creativity and writing - To understand the importance of honesty and integrity in life - To understand, appreciate and enjoy fiction - To infer, analyze and evaluate text - To link the theme of the chapter with the underlying principles of AI.	
Time Required	3 periods of 40 minutes each	
Classroom Arrangement	Flexible	
Material Required	laptop/ desktop or smart mobile phone with internet connection, chalk, blackboard	https://en.akinator.com/ www.inklewriter.com
Pre – Preparation Activities	The students are inducted to play the game 'Akinator'.	
Previous Knowledge	Students discuss and share how they made use of the choices ever offered to them. Did they choose a different path or the beaten track? Students are asked to play an online game called 'Akinator' which is linked to the story as a number of questions arise in the mind of the protagonist.	Artificial Intelligence Game- Akinator
Methodology	The teacher asks students to read the lesson 'The Thief's Story' and understand the theme of the story. There will be an open discussion on the following questions: - What did Anil do to earn his living? - Why did Hari choose Anil to be his next victim? - Why was it difficult for Hari Singh to rob Anil? - Did Hari Singh understand the value of education? Give a reasoned answer.	

	• Why did Hari Singh justify to himself that it was ok to rob Anil? • Throw light on the role played by Anil in the transformation of Hari Singh. • Why did Anil not hand the thief over to the police? • What choices did Hari Singh have after robbing Anil? What did he decide to do? • Explain the character traits displayed by Hari based on his decision at the end of the story.	
Learning Outcomes	• The students will develop comprehension skills. • The students will improve their analytical and reasoning prowess. • The students will understand the importance of education in grooming a person to think and act in a manner conducive to societal and personal good. • The students will enrich their vocabulary. • The students will analyze the importance of values and make right decisions in life. • The students will develop communicative skills.	
Follow up Activities	The teacher will ask the students to use Inkle writer to write a similar kind of story with a different ending.	Students learn how to use Inkle writer to write an interactive story.
Reflections	Discuss with students- • How did you find the experience of playing an AI Game? • Do you think the choices we make impact our lives considerably?	

GLOSSARY:

AI Related Terminologies

1. Akinator: Akinator is a computer game and mobile app. During gameplay, it attempts to determine what fictional or real-life "character" the player is thinking of by asking a series of questions (like the game *Twenty Questions*). It uses an artificial intelligence program that learns the best questions to ask through its experience with players.

<https://en.akinator.com/>

2. Inkle writer: Inkle writer is an easy-to-use online tool to write interactive stories. It helps the writer build different story options. One can define options which could be as simple as making a character turn left or right, or a much more complicated situation like a conversation with many different options. Pictures can also be added to the story and the writing can be shared.

www.inklewriter.com

AI Activity Description:

Akinator: To begin the questionnaire, the user must press the play button and think of a popular character, object or other things that frequently come to mind (musician, athlete, political personality, video game, mother or father, actor, fictional film/TV character, Internet personality, etc.). Akinator, a cartoon genie, begins asking a series of questions (as many as required), with "Yes", "No", "Probably", "Probably not" and "Don't know" as possible answers, to hack down the potential character. If the answer is narrowed down to a single likely option before 25 questions are asked, the program will automatically ask whether the character

it chose is correct. If the character is guessed wrong three times in a row (or more, usually in intervals of 25, 50, and 80), then the program will prompt the user to input the character's name, to expand its database of choices

Inkle writer: Ask the students to go on the link www.inklewriter.com They will be offered the option of taking the tutorial or starting a new story. If they click new, they can get writing straightaway. They'll write their story onto the scraps of paper in the middle of the inkle writer workbench. When they want to add choices, they can click the Add Option button, and type in the name of the choice. Each choice has an arrow they can click to follow that path. They can use the rewind buttons in the top right of every page of their story. Clicking rewind will roll the story back to that point, so they can add new options or take different choices.

They can also open the contents panel using the button in the top right. This list every paragraph of the text they have written Once their story has branched, they can bring the different branches back together by using the 'join' button below a section of the text. Clicking this button brings up the content panel, for them to select which paragraph to join to. They can read their story by clicking the 'read' button in the toolbar.

ENGLISH

CLASS 10

3.41 A Tiger in the Zoo

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 2: A Tiger in the Zoo	
Name of the Book	First Flight, Class10, NCERT	
Subject and Artificial Intelligence Integrated	Artificial Intelligence & English	
Learning Objectives	The Students will: • Develop sensitivity for the theme of the poem • Enhance vocabulary, understand it and use them appropriately. • Express ideas and thoughts in a poetic form • Understand how poetry can relate to their personal life. • To help students identify different animals using the AI Game Mystery Animal as a precursor to reading the Poem to appreciate it. • To draw out how Artificial Intelligence can be used to curb poaching.	Mystery Animal - AI Game to introduce the POEM Reflective video demonstrating how wild-life can be protected using Artificial Intelligence
Time Required	2 periods of 40 minutes each	
Classroom Arrangement	Flexible	
Material Required	Pen, paper, blackboard, chalk, smartboard/screen and projector and laptops	
Pre – Preparation Activities	The students are divided into pairs to play the AI game Mystery-Animal https://experiments.withgoogle.com/mystery-animal	
Previous Knowledge	Students are asked to recount their experience of playing against Artificial Intelligence and identifying the animal. Each pair will be asked to speak about the habitat of the animal they identified.	
Methodology	The students will be divided in pairs to play the introductory game and then read the Poem aloud. • After the activity the class retains its groups and students are asked to discuss the style, poetic effect and theme of the poem • Ask students to bring the contrast between captivity and freedom • Group discussion on 'Freedom is a birth right. It is the most beautiful gift of God.	

Learning Outcomes	• Understand the importance of freedom. • Understand the dangers of deforestation and blessings of forestation. • Understand that all animals will be happy only in their natural habitat. • Understand the responsibility of present generation in preserving the environment and earth. • Recite the poem with proper intonation and rhythm.	
Follow up Activities	The Teacher will encourage students to look for more examples of Artificial Intelligence to help in collecting data for the causes of endangered /extinct species. .	
Reflections	Students will collect information about 'Project Tiger' and draft a poster on 'Save the Tiger, Save Humanity'	Students are encouraged to search, acquire Data.

GLOSSARY:

1. AI Related Terminologies

Mystery Animal: Mystery Animal is an AI experiment developed by Google on an open-sourced platform which is based on Natural

2. AI Activity Description

a. Mystery Animal: Students need to go to the following link: <https://mysteryanimal.withgoogle.com/>. After reaching the website, students need to click on Preview it Now! Which will then start the experiment. In this experiment, the machine randomly selects any animal which the player needs to identify with the help of 20 Yes/No questions to be asked to the machine. Whatever question asked, the machine either responds in Yes or No or lets the user know when it is not able to comprehend the statement. NOTE: Mystery Animal works ONLY on Google Chrome browser.

b. Reflective video demonstrating how wild life can be protected using Artificial Intelligence:
<https://www.youtube.com/watch?v=yYY0Jg0qGH0>

Students can find the video on the link mentioned above. This video is about reducing illegal poaching activities in an area where illegal poaching is a critical problem. The device named 'Trail Guard' has been powered with computer vision-based AI which can identify if any suspicious activity takes place. It ensures only authorized people get near the animals. The device is small enough to be easily hidden in natural surroundings.

ENGLISH

CLASS 10

3.42 Dust of Snow

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 1: Dust of Snow	
Name of the Book	First Flight, Class 10, NCERT	
Subject and Artificial Intelligence Integrated	Integration of AI in teaching of English	
Learning Objectives	The students will be able to- • know about the poet- Robert Frost • describe the hidden meaning of the poetry. • connect the poetry with real life situations. • enhance vocabulary. • identify the poetic devices.	Semantris
Time Required	2 periods of 40 minutes	
Classroom Arrangement	Online	
Material Required	Textbook, Electronic device with better data connection	
Pre – Preparation Activities	Students will be asked to discuss the following- • their perception of the colors black and white. • is it okay to blame ourselves all the time?	
Previous Knowledge	Importance of positivity A negative mind will never yield positive results. Creating a short story on the Importance of positivity	Inkle writer
Methodology	Begin the class with discussion about the poet. Poem recitation with proper stress and intonation. After reciting the poem, discussion on- What is your source of motivation which gives you a positive outlook whenever you feel low? The crow, the hemlock are dark images, and yet, the poet sees the colour of happiness. Significance of hemlock tree. Identification of poetic devices.	Quizlet- https://quizlet.com/285154283/test
Learning Outcomes	Know about the poet Share the message conveyed by the poet. Understand the meanings of new words.	
Follow up Activities	Padlet will be used to give answers to all the thought probing questions.	

GLOSSARY:

Semantris - A Google experiment

Semantris is a word association game powered by machine learning. Each time you enter a word that is associated with the target word, the AI looks at all the words in play and chooses the ones it thinks are most related.

<https://research.google.com/semantris/>

Inklewriter

Inkle writer is a free tool designed to allow anyone to write and publish interactive stories. It's perfect for writers who want to try out interactivity, but also for teachers and students looking to mix computer skills and creative writing.

www.inklewriter.com

ENGLISH

CLASS 10

3.43 The Tale of Custard the Dragon

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 9: The Tale of Custard the Dragon	
Name of the Book	First Flight, Class10, NCERT.	
Subject and Artificial Intelligence Integrated	Exploring AI Dungeon as an AI tool and its integration with teaching of English.	
Learning Objectives	The students will be able to: • Identify different animals using the AI Game Mystery Animal as a precursor to reading the poem. • Appreciate the poem • Identify the poetic devices • Use AI Dungeon to create their own stories. • Realize the importance of AI tools as the future of education	Introduction to AI Dungeon
Time Required	2 Periods of 40 minutes each	
Classroom Arrangement	Flexible	
Material Required	Textbook, Dictionary, white board or chalk board, markers or chalk, notebook papers, pens, smart board and laptop to access the lesson and AI integration. Internet websites for data acquisition.	
Pre – Preparation Activities	The students will be divided into pairs and given a graphic organizer (story map) to plot the poem. The students will be asked to download the tool: AI Dungeon The students are divided into pairs to play the AI game Mystery Animal.	https://play.aidungeon.io https://experiments.withgoogle.com/mytery-animal
Previous Knowledge	The students are familiar with the different elements of a story.	

Methodology	• The students will read the poem in pairs. They will plot the different elements on the graphic organizer. (story map) • They will also be shown a video on how AI Dungeon is used to create and develop stories. • They will create their own stories using the AI tool keeping the five elements of a story in mind. They will be asked to create a story with the same theme as the poem in hand. Each group will take a setting and characters of their choice. • The students will share their stories in the class. Textbook discussion: There will be an open discussion on • Difference between Custard and other characters of the poem • The poetic devices • Is the ballad different from other ballads they have read? • Appearances are sometimes deceptive. The students will be asked to give real life examples from what they see around.	
Learning Outcomes	At the end of the unit, The students will be able to: • Help students identify different animals using the AI Game Mystery Animal as a precursor to reading the poem. • Create and develop stories using the AI tool • Analyze the poem. • Discuss how they find the tool challenging as well as useful in creating their own stories	
Follow up Activities	The students will be asked to collect any such modern song or lyric that tells a story.	
Reflections	The teacher will ask them to explore Inkle writer as an alternative to AI Dungeon for creating stories	www.inklewriter.com

GLOSSARY

Mystery Animal is an AI experiment developed by Google on an open source platform which is based on Natural Language Processing domain in this game, the computer pretends to be an animal and the player needs to guess the animal by asking 20 yes/no questions. The player asks the machine questions with the help of earphones/headphones/microphone to which the machine will respond either in yes or no and according to the answers the player needs to modify his/her questions to guess the animal.

Natural Language Processing: it is the ability of a program to understand human language. Human language data can be fed to the machine in the form of text or speech. Natural language processing is one of the subfields of Artificial Intelligence wherein the machine interprets human language and produces intelligent output.

AI Dungeon is an interactive story writing tool. The list of different types of settings and the characters are suggested by the tool itself. Once the setting and characters are chosen, the students start creating their own stories. The tool suggests sentences to continue the story which the students can take or remove.

ENGLISH

CLASS 10

3.44 From the Diary of Anne Frank

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 4: From the Diary of Anne Frank	
Name of the Book	First Flight, Class 10, NCERT	
Subject and Artificial Intelligence Integrated	Integration of Artificial Intelligence & Teaching of English	
Learning Objectives	- To build an appreciation and awareness of Artificial Intelligence Tools- - Using 'Pixton' - Using 'Moral Machine'. - To work in a group and learn teamwork. - To try using Artificial Intelligence via Pixton and develop skills of imagination, creativity for creating a comic strip. - To know about WWII through the experience of Anne Frank. - Revisit the History of Nazi Rule. - To explore the Epistolary form of writing. - To explore the relevance of Autobiography, as a mode of writing.	
Time Required	4 periods 40 minute each	
Classroom Arrangement	Seating arrangement - Flexible	
Material Required	Pen, paper, blackboard, chalk, smartboard/screen and laptops.	
Pre – Preparation Activities	- The students will be divided into 4 groups comprising 5-6 members each. The teacher will distribute flashcards to each group. Each Flash card will contain cues about the important scenes from the diary. - Each group will be asked to prepare a Comic Strip using AI Tool Pixton.	
Previous Knowledge	- The students will be asked to review the events that lead to WWII. - The students will be asked to read the Autobiography of Anne Frank.	

Methodology	Introduction-Discussion on the events that lead to WWII , The Nazi Rule and the atrocities committed by Hitler on Jews . • The Teacher will give an introduction to Anne Frank's Diary of a Young Girl . • Each group will then present their Comic Strips to map the main events of Anne Frank's life. • Text Exploration-The teacher will ask the students to imagine how they would feel if they were in Anne Franks' place? • They would be asked to decipher their biggest fears/ challenges as Anne. • They would be asked to identify major conflicts that she faced in her life . • Adolescent Dilemma,and classroom situation as experienced by Anne . • Focus will be brought to the Student -Teacher relationship and classroom environment. • To explore the dynamics of moral values and decision making they will be asked to play the game Moral Machine. • Language Exploration. The excerpt will be read and discussed within the context of the Autobiography. • Autobiography and Epistolary form of writing will be discussed in detail. • The narratorial voice in both the forms will be compared and explored. • Discuss Text based questions and identify value points pertaining to the answers. • Explore the Glossary- The students can enhance their vocabulary by using another AI Tool, Semantris.	Students are encouraged to search, acquire and explore Data. Representing data in the form of Bar Graph. AI Tool -Moral Machine Semantris
Learning Outcomes	The students will be able to: • Learn to appreciate Epistolary form of writing. • The students will be encouraged to read the Autobiography of Famous Personalities. • Write the character sketch of Anne Frank and other important people in Anne Frank's life. • The students learn to create Comic Strips.. • Learn to analyse a text through the lense of History. • Learn to work in a team . • Able to identify the dynamics of morality and decision making during challenging times.	
Follow up Activities	The students will be asked to create a character map of Anne Frank using Pixton.	
Reflections	• Discussion with students on the role of AI application in enhancing Characterisation skills to make characters in the world of books more relatable. • AI as a means of giving shape to words and igniting imagination and creativity.	

GLOSSARY:

1. AI Related Terminologies Data Acquisition: Data acquisition refers to acquiring authentic data crucial for the AI model from reliable sources. The data acquired could then be divided into two categories: Training Data and Testing Data. The AI model gets trained on the basis of training data and is evaluated on the basis of testing data.

There can be various ways in which you can collect data. Some of them are: • Surveys • Web Scraping • Sensors • Cameras • Observations • Application Program Interface Data Exploration: After acquiring data there comes the need to analyze the data. For this, they need to visualize the acquired data in some user-friendly format so that they can:

- Quickly get a sense of the trends, relationships and patterns contained within the data.
- Define strategy for which model to use at a later stage.
- Communicate the same to others effectively. To visualize data, various types of visual representations can be used by the students like diagrams, charts, graphs, flows, etc.

Semantris-The students will play the game Semantris.

Semantris A Google experiment, Semantris is a word association game powered by machine learning. Each time you enter a word that is associated with the target word, the AI looks at all the words in play and chooses the ones it thinks are most related. <https://research.google.com/semantris/>

Link -<https://research.google.com/semantris/>

Moral Machine Game

Ethics in AI

Artificial intelligence is a field that is boundless in today's time. There are a lot of scenarios that tell us that ethical issues exist around AI. Hence, it is important to have an understanding of ethics in AI and to have ethical guidelines which can guide us in such conditions where there is no clear definition of what is right or wrong.

<https://www.moralmachine.net/>

ENGLISH

CLASS 10

3.45 Glimpses of India

PARAMETERS	DESCRIPTION	AI CONCEPTS INTEGRATED
Chapter Covered	Chapter 7: Glimpses of India	
Name of the Book	First Flight, Class 10, NCERT	
Subject and Artificial Intelligence Integrated	Name of Topic from the Chapter - Part I: A Baker from Goa - Part II: Coorg - Part II: Tea from Assam The subject area you are specifically targeting for the topic: - Rich culture and tradition of India Name of AI application/concept Artificial Intelligence & English - AI tool: Inkle writer / My Story Time	https://mystorytime.com/ www.inklewriter.com
Learning Objectives	The learners will be able to - understand how culture and tradition influence the society - appreciate the facts, cultures and beauty of different places in India - apprehend the location, background and historical culture of Goa, Coorg and Assam - To engage students in an interactive activity eliciting information about other cultures by working in pairs	
Time Required	4 periods of 40 minutes each	
Classroom Arrangement	Seating arrangement - Theory Sessions – regular classroom arrangement Activities Sessions – Flexible (for group / pair work)	
Material Required	- Textbook – First Flight, notebook for noting down important information related to cha - Black / White board, chalk / marker, - Smartboard /screen and projector, internet connection / Computer Lab. AI applications / tools : - Inkle writer / My Story Time	AI tools: www.inklewriter.com https://mystorytime.com/
Pre – Preparation Activities	The teacher will discuss about - - Incredible India – Rich cultures and traditions - Pictorial facts appreciating India (Video on bread making industry in Goa will be shown) - Features of Goa, Coorg and Assam would be shown through pictorial presentations.	

Previous Knowledge	• Prior knowledge of culture of India - Whole-class activity to let the students present their knowledge about different cultures and traditions of various states of India. • Students are asked to share in groups their experiences of visits to different states of India and also about specific features of the state • A representative from each group will be asked to share the unique features of the states they've learnt about.	
Methodology	Focus on enrichment of vocabulary Comprehension skills enhancement and independent reading. Pre-Reading: Introductory activity • Structured discussion in groups on the cultures of Goa, Coorg and Assam through smartboard. • Pair activity to develop questioning skills to elicit information about different cultures Quiz - The students will guess the places by perceiving the images of different places. • Flashcards to identify with different objects belonging to different states Students will research about Goa, Coorg and Assam in terms of – • Cuisines • Culture / art • Topography • Literature • History • Wildlife • Attractions While Reading: • The students are divided into groups of four and asked to read aloud • Students learn the new words and try to guess the meaning in context. • Students will watch the following links to know more about the places they've read about. It will help them have a glimpse of the real places. (Videos to enhance the learning outcomes of the students related to the chapter.) • Video 1: Goan Poder & Pao - https://www.youtube.com/watch?v=ODZMNPjT7il • Video 2: Coorg Scotland of India, Karnataka - https://www.youtube.com/watch?v=25TEOWHaUIQ • Video 3: The Legend of Tea - https://www.youtube.com/watch?v=HVDgRqzoXFE • The students try to comprehend the depth of the lesson and understand the facts presented. • There is an open discussion on the features of these places: - Food - People - Language - Main attraction - Profession	AI tool: www.inklewriter.com/ mystorytime.com/

	<u>Post Reading:</u> Open ended discussion and learning beyond books • Discussion on the text is done through short comprehension questions based on the extracts from the chapter. • A quiz is conducted as a follow-up activity to check the students' comprehension of the main points of the chapter. • Using folk tales of the places in the chapter, students will create stories through the AI tool 'Inkle writer' / 'My Story Time'.	
Learning Outcomes	The students will be able to • recognize and appreciate cultural experiences / diversity in the text and make oral and written presentations • make use of their experiences and relate with their learning. • use visual aids, and develop learning materials to complement and supplement the textbook • Apprehend how history leaves a great impact even on the present. • Students will be able to go beyond the text and have a real-life experience. • Use of AI tool 'Moral Machine' will help them imbibe the values of empathy, kindness, and generosity. • Through use of AI tool 'Inkle writer', the students will be able to write value-based stories.	
Follow up Activities	• Discussion on the cultures of Goa, Coorg and Assam through Visual classroom about plantation, major attractions, etc. • Students will give a short presentation of the places they visited recently with their family in the form of stories created using AI tool 'Inkle writer',	AI tool 'Inkle writer'
Reflections	The students will show the stories created by them using the AI tool 'Inkle writer' based on their own real-life experiences of travel to different places. They will also be asked to share their experiences of any other app / tool that could be used as a learning aid for this chapter.	

GLOSSARY:

AI Related Terminology

Inklewriter

Inkle writer is a free tool designed to allow anyone to write and publish interactive stories. It's perfect for writers who want to try out interactivity, but also for teachers and students looking to mix computer skills and creative writing
www.inklewriter.com

My Storytime:

My Storytime is a conversational Google Assistant action that lets a user record stories and make them accessible on devices that include Nest Mini, Nest Hub, and Nest Hub Max. My Storytime users can record stories (using a microphone) directly from the official website, or upload MP3 audio files with a tool within the My Storytime dashboard. The users can play the stories with Google Assistant.
<https://mystorytime.com>

CHAPTER 4

Appendix 1

AI Curriculum

ARTIFICIAL INTELLIGENCE CURRICULUM (Class 8 & 9)

OBJECTIVE

The objective of this unit is to develop a readiness for understanding and appreciating Artificial Intelligence and its application in our lives. This unit focuses on:

1. Helping learners understand the world of Artificial Intelligence and its applications through games, activities, and multisensorial learning to become AI-Ready.
2. Introducing the learners to three domains of AI in an age appropriate manner.
3. Allowing the learners to construct meaning of AI through interactive participation and engaging hands-on activities.
4. Introducing the learners to AI Project Cycle.
5. Introducing the learners to programming skills - Basic python coding language.

LEARNING OUTCOMES

Learners will be able to:

- Identify and appreciate Artificial Intelligence and describe its applications in daily life.
- Relate, apply and reflect on the Human-Machine Interactions to identify and interact with the three domains of AI: Data, Computer Vision and Natural Language Processing and Undergo assessment for analyzing their progress towards acquired AI-Readiness skills.
- Imagine, examine and reflect on the skills required for futuristic job opportunities.
- Unleash their imagination towards smart homes and build an interactive story around it.
- Understand the impact of Artificial Intelligence on Sustainable Development Goals to develop responsible citizenship.
- Gain awareness about AI bias and AI access and describe the potential ethical considerations of AI.
- Develop effective communication and collaborative work skills.
- Get familiar and motivated towards Artificial Intelligence and Identify the AI Project framework. Learn problem scoping and ways to set goals for an AI project and understand the iterative nature of problem scoping in the AI project cycle.
- Brainstorm on the ethical issues involved around the selected problem
- Foresee the kind of data required and the kind of analysis to be done, identify data requirements and find reliable sources to obtain relevant data.
- Use various types of graphs to visualize acquired data.
- Understand, create, and implement the concept of Decision Trees.
- Understand and visualize computer's ability to identify alphabets and handwritings.
- Understand and appreciate the concept of Neural Network through gamification and learn basic programming skills
- Acquire introductory Python programming skills in a very user-friendly format.

UNIT WISE DISTRIBUTION

No.	UNIT	SUB-UNIT	DURATION	MARKS	
				Theory	Practical
1	Introduction to AI	Excite	2.4 Hours (4 Periods)	10	10
		Relate	02 Hours (3 Periods)		
		Purpose	02 Hours (3 Periods)		
		Possibilities	02 Hours (3 Periods)		
		AI Ethics	3.6 Hours (6 Periods)		
2	AI Project Cycle	Problem Scoping	14 Hours (21 Periods)	10	10
		Data Acquisition	02 Hours (3 Periods)		
		Data Exploration	04 Hours (6 Periods)		
		Modelling	06 Hours (9 Periods)		
3	Neural Network		04 Hours (6 Periods)	10	10
4	Introduction to Python		70 Hours (105 Periods)	20	10
5	Co-curricular Skills				10
TOTAL			112 Hours (168 Periods)	50	50

Total: **100** Marks

COURSE OUTLINE

UNIT	SUB-UNIT	SESSION/ACTIVITY/PRACTICAL	LEARNING OUTCOMES
Introduction to AI	Excite	Session: Introduction to AI and setting up the context of the curriculum	To identify and appreciate Artificial Intelligence and describe its applications in daily life.
		Ice Breaker Activity: Dream Smart Home idea Learners to design a rough layout of floor plan of their dream smart home.	
		Recommended Activity: The AI Game Learners to participate in three games based on different AI domains. Game 1: Rock, Paper and Scissors (based on data) Game 2: Mystery Animal (based on Natural Language Processing - NLP)	To relate, apply and reflect on the Human-Machine Interactions. To identify and interact with the three domains of AI: Data, Computer

		Game 3: Emoji Scavenger Hunt (based on Computer Vision - CV)	Vision and Natural Language Processing.
		Recommended Activity: AI Quiz (Paper Pen/Online Quiz)	To undergo an assessment for analyzing progress towards acquired AI-Readiness skills.
		Recommended Activity: To write a letter Writing a Letter to one's future self Learners to write a letter to self keeping the future in context. They will describe what they have learnt so far or what they would like to learn someday	To imagine, examine and reflect on the skills required for futuristic job opportunities.
	Relate	Video Session: To watch a video Introducing the concept of Smart Cities, Smart Schools and Smart Homes	Learners to relate to application of Artificial Intelligence in their daily lives.
		Recommended Activity: Write an Interactive Story Learners to draw a floor plan of a Home/School/City and write an interactive story around it using Story Speaker extension in Google docs.	To unleash their imagination towards smart homes and build an interactive story around it. To relate, apply and reflect on the Human-Machine Interactions.
	Purpose	Session: Introduction to sustainable development goals	To understand the impact of Artificial Intelligence on Sustainable Development Goals to develop responsible citizenship.
		Recommended Activity: Go Goals Board Game Learners to answer questions on Sustainable Development Goals	
	Possibilities	Session: Theme-based research and Case Studies - Learners will listen to various case-studies of inspiring start-ups, companies or communities, where AI has been involved in real-life. - Learners will be allotted a theme around which they need to search for present AI trends and have to visualize the future of AI in and around their respective theme.	To research and develop awareness of skills required for jobs of the future. To imagine, examine and reflect on the skills required for the futuristic opportunities.
		Recommended Activity: Job Ad Creating activity Learners to create a job advertisement for a firm describing the nature of job available and the skillset required for it 10 years down the line. They need to figure out how AI is going to transform the nature of jobs and create the Ad accordingly.	To develop effective communication and collaborative work skills.

	AI Ethics	Video Session: Discussing about AI Ethics	
		Recommended Activity: Ethics Awareness Students play the role of major stakeholders and they have to decide what is ethical and what is not for a given scenario.	To understand and reflect on the ethical issues around AI.
		Session: AI Bias and AI Access - Discussing about the possible bias in data collection - Discussing about the implications of AI technology	To gain awareness around AI bias and AI access.
		Recommended Activity: Balloon Debate - Students divide in teams of 3 and 2 teams are given same theme. One team goes in affirmation to AI for their section while the other one goes against it. - They have to come up with their points as to why AI is beneficial/harmful for the society.	To let the students analyze the advantages and disadvantages of Artificial Intelligence.

AI Project Cycle	Problem Scoping	Session: Introduction to AI Project Cycle - Problem Scoping - Data Acquisition - Data Exploration - Modelling - Evaluation	Identify the AI Project Cycle framework.
		Activity: Brainstorm around the theme provided and set a goal for the AI project. - Discuss various topics within the given theme and select one. - List down/ Draw a mind map of problems related to the selected topic and choose one problem to be the goal for the project.	Learn problem scoping and ways to set goals for an AI project.
		Activity: To set actions around the goal. - List down the stakeholders involved in the problem. - Search on the current actions taken to solve this problem. - Think around the ethics involved in the goal of your project.	Identify stakeholders involved in the problem scoped. Brainstorm on the ethical issues involved around the problem selected.
		Activity: Data and Analysis - What are the data features needed? - Where can you get the data? - How frequent do you have to collect the data? - What happens if you don't have enough data? - What kind of analysis needs to be done? - How will it be validated? - How does the analysis inform the action?	Understand the iterative nature of problem scoping for in the AI project cycle. Foresee the kind of data required and the

			kind of analysis to be done.
		Presentation: Presenting the goal, actions and data.	Share what have the students discussed so far.
	Data Acquisition	Activity: Introduction to data and its types. Students work around the scenarios given to them and think of ways to acquire data.	Identify data requirements and find reliable sources to obtain relevant data.
	Data Exploration	Session: Data Visualization - Need of visualizing data - Ways to visualize data using various types of graphical tools.	To understand the purpose of Data Visualization
		Recommended Activity: Let's use Graphical Tools - To decide what kind of data is required for a given scenario and acquire the same. - To select an appropriate graphical format to represent the data acquired. - Presenting the graph sketched.	Use various types of graphs to visualize acquired data.
	Modelling	Session: Decision Tree To introduce basic structure of Decision Trees to students.	Understand, create and implement the concept of Decision Trees.
		Recommended Activity: Decision Tree To design a Decision Tree based on the data given.	
		Recommended Activity: Pixel It - To create an "AI Model" to classify handwritten letters. - Students develop a model to classify handwritten letters by dividing the alphabets into pixels. - Pixels are then joined together to analyze a pattern amongst same alphabets and to differentiate the different ones.	Understand and visualize computer's ability to identify alphabets and handwritings.
Neural Network		Session: Introduction to neural network - Relation between the neural network and nervous system in human body - Describing the function of neural network.	Understand and appreciate the concept of Neural Network through gamification.
		Recommended Activity: Creating a Human Neural Network - Students split in four teams each representing input layer (X students), hidden layer 1 (Y students), hidden layer 2 (Z students) and output layer (1 student) respectively. - Input layer gets data which is passed on to hidden layers after some processing. The output layer	

		finally gets all information and gives meaningful information as output.	
Introduction to Python		Recommended Activity: Introduction to programming using Online Gaming portals like Code Combat.	Learn basic programming skills through gamified platforms.
		Session: Introduction to Python language Introducing python programming and its applications	Acquire introductory Python programming skills in a very user-friendly format.
		Practical: Python Basics - Students go through lessons on Python Basics (Variables, Arithmetic Operators, Expressions, Data Types - integer, float, strings, using print () and input () functions) - Students will try some simple problem-solving exercises on Python Compiler.	
		Practical: Python Lists - Students go through lessons on Python Lists (Simple operations using list) - Students will try some basic problem-solving exercises using lists on Python Compiler.	

ASSESSMENT

After completion of each unit, the students can be evaluated on the basis of the following skills:

Conceptual Skills	Technical Skills	Life Skills
Conceptual understanding of AI AI applications and three domains of AI Knowledge Enhancement in 3 AI Domains: Data, Computer Vision & Natural Language Processing Mind mapping Problem Identification Data Acquisition Data Exploration Graphical Representation Neural Network	Ability to use AI Powered Tools Troubleshooting Skill Basic programming skills Basic Python	Thinking Skills Problem Solving Creative thinking Critical Thinking Decision Making Skills Social Skills - Teamwork Team Building Skills Leadership Self-Awareness Empathy Effective Communication Skills Oral & Written Presentation

Appendix 2

Artificial Intelligence Curriculum

(Class 10)

UNIT	SUB-UNIT	SESSION/ ACTIVITY/ PRACTICAL
INTRODUCTION TO AI	Foundational concepts of AI	Session: What is Intelligence?
		Session: Decision Making. - How do you make decisions? - Make your choices!
		Session: what is Artificial Intelligence and what is not?
	Basics of AI: Let's Get Started	Session: Introduction to AI and related terminologies. - Introducing AI, ML & DL. - Introduction to AI Domains (Data, CV & NLP)
		Session: Applications of AI – A look at Real-life AI implementations
		Session: AI Ethics
AI PROJECT CYCLE	Introduction	Session: Introduction to AI Project Cycle
	Problem Scoping	Session: Understanding Problem Scoping & Sustainable Development Goals
	Data Acquisition	Session: Simplifying Data Acquisition
	Data Exploration	Session: Visualizing Data
	Modelling	Session: Introduction to modelling - Introduction to Rule Based & Learning Based AI Approaches - Introduction to Supervised Unsupervised & Reinforcement Learning Models - Neural Networks
	Evaluation	Session: Evaluating the idea!
ADVANCE PYTHON	Recap	Session: Jupyter Notebook
		Session: Introduction to Python
		Session: Python Basics
DATA SCIENCES	Introduction	Session: Introduction to Data Science
		Session: Applications of Data Science
		Session: Revisiting AI Project Cycle
	Concepts of Data Sciences	Session: Python for Data Sciences
		Session: Statistical Learning & Data Visualization
		Activity: Personality Prediction

UNIT	SUB-UNIT	SESSION/ ACTIVITY/ PRACTICAL
	K-nearest neighbour model	Session: Understanding K-nearest neighbour model
COMPUTER VISION	Introduction	Session: Introduction to Computer Vision
		Session: Applications of CV
	Concepts of Computer Vision	Session & Activity: Understanding CV Concepts • Pixels • How do computers see images? • Image Features
	OpenCV	Session: Introduction to OpenCV
		Hands-on: Image Processing
	Convolution Operator	Session: Understanding Convolution operator
		Activity: Convolution Operator
	Convolution Neural Network	Session: Introduction to CNN
		Session: Understanding CNN • Kernel • Layers of CNN
		Activity: Testing CNN
NATURAL LANGUAGE PROCESSING	Introduction	Session: Introduction to Natural Language Processing
		Session: NLP Applications
		Session: Revisiting AI Project Cycle
	Chatbots	Activity: Introduction to Chatbots
	Language Differences	Session: Human Language VS Computer Language
	Concepts of Natural Language Processing	Hands-on: Text processing • Data Processing • Bag of Words • TFIDF • NLTK
EVALUATION	Introduction	Session: Introduction to Model Evaluation
	Confusion Matrix	Session & Activity: Confusion Matrix
	Evaluation Score Calculation	Session: Understanding Accuracy, Precision, Recall & F1 Score
		Activity: Practice Evaluation

Appendix 3

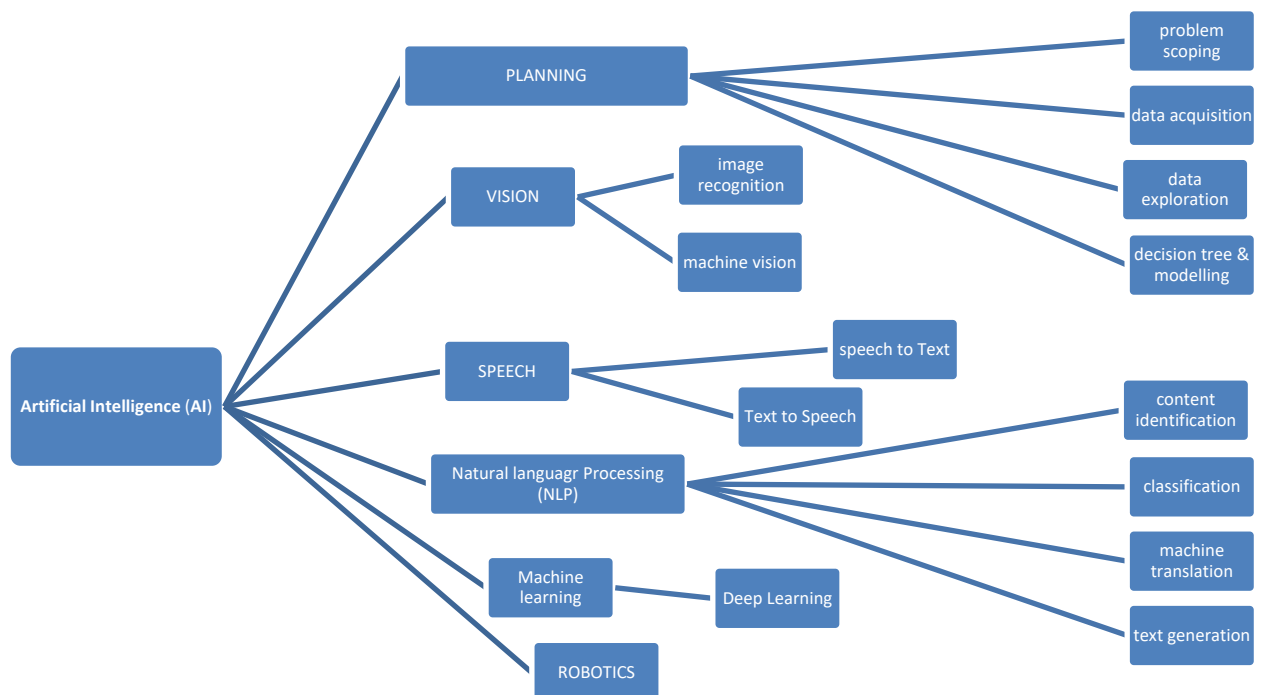
AI Learning Indicators

Areas	Class 8	Class 9/10
Knowledge Understanding AI	What is AI? Why? Pedagogy- Brainstorming/Concept maps, Venn Diagrams	Why AI /Why not AI? What other possibilities? Pedagogy- Discussion/Debate Questioning, NLR- Comparison Matrix
Skills Prerequisite skills Skills to be acquired/developed	Inquiry / Questioning Skills Generating Ideas – Critical & Computer skills	Inquiry / Questioning Skills Communicating Creative thinking Critical Thinking
Technical Competencies for Artificial Intelligence (AI) Data Computer Vision (CV) Natural Language Processing (NLP)	Through Creative games /Skills based problem solving challenges /Designing Introduction to all three domains Data CV NLP Using all three domains in different challenging games to identify AI in different context	Through Creative games /Skills based problem solving challenges /Designing Building conceptual understanding and skill development in one domain of AI - Data CV NLP- Gaining competency in NLP. Learning basics of Python
Attitude	Initiative Positive Thinking	Initiative Success Vs failure Positive Thinking
Life Skills to be developed	Thinking Skills Social Skills	Thinking Skills /Social Skills Emotional Skills
Program course to be covered	In one academic session	In one academic session
Mentoring & feedback Suggestive Activities	Face to face Online Online Newsletter for all levels on the work in AI all across participating schools	Face to face Online Online Newsletter for all levels on the work in AI all across participating schools

Appendix 4

AI Capabilities

AI has been an academic area of study for many years with lots of dips on the way to its progress; in recent times it is increasingly becoming an enabler for a variety of technologies and appliances that impact our daily lives. Also, with the *ever-increasing computing power*, *lesser cost of data storage* and *immense data available*, there is a boom of technological innovations, which should make us believe that '**AI Spring**' has arrived. So, AI is marching ahead to be the mainstream of the mainstream disciplines of study that it connects.



Appendix 5

AI Integrated Lesson - Assessment Rubric

Given below are the indicators that can be used if teacher needs to assess students' performance for their AI Integrated lesson plan activity. They may modify it suited to the needs of the lesson and student needs.

Content	30–19 Clearly shows understanding of topic content. Provides sufficient supporting evidence when needed. Understands applications of AI in subject learning.	18–7 Somewhat shows understanding of topic content. Provides some supporting evidence when needed.	6–0 Minimally shows understanding of course content. Provides little supporting evidence though needed.
Application	5–4 Clearly makes connections to other relevant ideas, concepts, texts, and/or real-world examples of AI as appropriate.	3–2 Somewhat makes connections to other relevant ideas, concepts, texts, and/or real-world examples of AI as appropriate.	1–0 Minimally makes connections to other relevant ideas, concepts, texts, and/or real-world examples of AI though needed.
Practice	5-4 Clearly demonstrates preparation & practice of AI based applications	3-2 Somewhat demonstrates preparation & practice of AI based applications	1-0 Minimally demonstrates preparation & practice of AI based applications
Participation	5-4 Fully participates in AI integrated lesson.	3-2 Somewhat participates in AI integrated lesson.	1-0 Minimally participates in AI integrated lesson.
Commitment	5-4 Initiates and experiments with AI tools.	3-2 Completes the AI based research in a timely manner.	1-0 Does not complete the AI research in a timely manner.
Total Points	/50		

Appendix 6

AI versus Virtual Reality (VR); AI versus Internet of Things (IOT);

Artificial Intelligence VS Virtual Reality

Artificial intelligence is using an artificial obsolete intelligence to function the same way as we humans want it to work. We program it the way we want to, we specify the limits, we specify the loops; it's like giving a machine an artificial human brain so it can function on those areas where human interception is difficult. AI is directly related to machine learning, it's like the things we teach to them is what we will get in return as feedback.

Virtual Reality, on the other hand is to make virtual environment a form of reality for human needs - may be for an entertainment point of view. VR is a gadget technology which focuses on 3d visualization of graphics and generating a view which tops the graphic user interface. It's like creating an environment which we've always wanted in true reality.

Artificial Intelligence VS Internet of Things

Artificial Intelligence is a field of computer science in which a machine is equipped with the ability to mimic cognitive functions of a human (or any being that is capable of cognitive thinking) that can make decisions based on its past experiences or responding to an action that it was completely unaware of until that time. It is given a goal and it continuously tries to improve its performance from its past actions to the best reach of the goal. An AI machine will be equipped with a learning mechanism and a neural network -something similar to a brain- which enables a cognitive ability, where the machine will learn by understanding and adapting to the environment that it is surrounded with and making rational decisions. You can never know what an AI machine is capable of until it actually does that.

Internet of Things is the internetworking of physical devices like vehicles, buildings, electronic devices, sensors, actuators etc. that are capable of communicating among themselves (sensor1 to sensor2, sensor2 to sensor3 and so on) or with the external environment (sensor to vehicles, vehicles to humans) that are equipped with devices capable of communicating over a network. In IoT, the devices are given a fixed set of commands like:

Switch off the lights when a person leaves the room. (let's say communication between a light and a wearable device on the person based on GPS)

Open the garage door when a car approaches (communication between a sensor 1 on garage door and a sensor 2 on the car)

In IoT, the capabilities of a machine already exist and you use it according to your feasibility.

Appendix 7

Translating AI on Ground

Creating the Mindset

The aim is to familiarize students into understanding the AI Program. The foundation on which AI is built upon is Patterning; Data Interpretation; Sorting; Comparing; Classifying; Identifying. The AI Applications that surround us are proof of innovation; we need to prepare ourselves to unlearn, learn and relearn!

Preparatory Groundwork

Reading and gathering all the information one can get about 'what is AI and what is not' - is imperative for a better understanding of the subject. We need to be prepared to connect to new learning on the basis of our previous knowledge. – Read, Research, Inquire, Ask Questions, Watch Videos, Discuss, walk through Malls, Airports, Hospitals and try to figure out where do you find AI in operation.

To be a Good Facilitator

Learning to facilitate is learning to know the difference between when to guide/suggest and when to allow students to figure out and understand for themselves, question, hypothesize and take the challenge.

Being a Facilitator is mostly about how to motivate, encourage and simplify.

Learning to use appropriate vocabulary while giving feedback, is the skill set, most required by a Facilitator. Give feedback in a positive manner to inspire students to explore and persevere in their learning.

Mentoring & Monitoring

Ensure that continuity is maintained in mentorship and monitoring the students' learning. Online feedback, Interactive discussions on problems and challenges are some of the effective ways to assist this.

Appendix 8

Artificial Intelligence Tools – a ready reference

S, No.	AI Tool	Explanation	Link
1	Autodraw	Autodraw is an AI enabled tool which is based on the domain of Computer Vision in which the machine identifies the pattern of your drawing and accordingly maps it with the most similar image. This tool shows various options trying to predict what the user is trying to draw. For example, if a user is trying to draw a tent and he starts with drawing a basic triangle, the machine will compare his/her drawing and show the possible outcomes for the same. The user can then select out of them which one is the most appropriate for him/her.	https://autodraw.com
2	Quickdraw	Quickdraw is a google experiment, an AI tool based on neural network in which the machine learns to recognize doodles/objects from the user's drawings. By playing this game, you will be adding your drawings to the world's largest doodling data set. After clicking on let's draw! the player will see the name of the object on the screen. While drawing the object within a timer of 20 seconds, the machine analyses the pattern and the shape of the drawing and simultaneously tries to guess the object that the player is trying to draw.	https://quickdraw.withgoogle.com/
3	Rock, Paper & Scissors	In this game, an artificially intelligent system learns to identify patterns of a person's behaviour by analyzing their decision strategies in order to predict future behaviour. This game is based on the AI domain " Data " where the machine collects and analyses data to predict future outcomes. Click on play the game to get started!	https://www.afiniti.com/corporate/rock-paper-scissors
4	Cosine Similarity	Words are considered to be n-dimensional entities in the AI domain of "NLP" which can have more information than we can visualize. The statements which are to be processed in an AI algorithm are considered as vectors that have an amplitude and a direction by definition of a vector. In order to compare two statements to identify how similar they are, the cosine angle between the two statements is calculated. According to the cosine similarity model, the statements whose cosine angle is the smallest are closest to each other in terms of the words used in them.	

5	Data Acquisition	Data acquisition refers to acquiring authentic data crucial for the AI model from reliable sources. The data acquired can then be divided into two categories: Training Data and Testing Data. The AI model gets trained on the basis of training data and is evaluated on the basis of testing data. There can be various ways in which students can collect data. Some of them are: • Surveys • Web Scraping – data.gov.in, kaggle.com • Sensors • Cameras • Observations • Application Program Interface	
6	Data Exploration	After acquiring data comes the need to analyze the data. For this, they need to visualize the acquired data in some user-friendly format so that they can: • Quickly get a sense of the trends, relationships and patterns contained within the data. • Define strategy for which model to use at a later stage. • Communicate the same to others effectively. Data Exploration refers to visualizing the data to determine the pattern, relationships between elements and trends in the dataset that gives a clear meaning and understanding of the dataset. Data exploration is important as it helps the user to select an AI model in the next stage of the AI project cycle. To visualize the data, various types of visual representations can be used such as diagrams, charts, graphs, flows and so on.	https://datavizcatalogue.com
7	Inkle Writer	Inkle writer is a free tool designed to allow anyone to write and publish interactive stories. It's perfect for writers who want to try out interactivity, but also for teachers and students looking to mix computer skills and creative writing.	www.inklewriter.com
8	Kuki Chatbot	Mitsuku, or Kuki the world's best conversational chat bot (according to folks like Google AI Research). It can be used to chat on any topic and see the visualized form of the subject.	https://www.pandorabots.com/mitsuku/
9	GoArt AI Photo Effects	It uses an algorithm inspired by the human brain. It uses the stylistic elements of one image to draw the content of another.	https://goart.fotor.com/

10	Mystery Animal	An AI experiment developed by Google based on the AI domain "NLP" In this game, the computer pretends to be an animal and the player needs to guess the animal by asking 20 yes/no questions. The player asks questions to the machine via microphone to which the machine will respond either in Yes or No and according to the answers, the player needs to modify his/her questions to guess the animal. Upon opening the website, click on preview it now! to start.	https://mysteryanimal.withgoogle.com/
11	Semantris	A Google experiment, Semantris is a word association game powered by machine learning. Each time you enter a word that is associated with the target word, the AI looks at all the words in play and chooses the ones it thinks are most related.	https://research.google.com/semantris/
12	Ethics in AI	Artificial intelligence is a field that is boundless in today's time. There are a lot of scenarios that tell us that ethical issues exist around AI. Hence, it is important to have an understanding of ethics in AI and to have ethical guidelines which can guide us in such conditions where there is no clear definition of what is right or wrong.	https://www.moralmachine.net/
13	AI Project Cycle	AI Project cycle is a framework which is used to design an AI project. The project cycle consists of 5 stages namely: Problem scoping, Data acquisition, Data Exploration, Modelling and Evaluation.	
14	Problem Scoping	Problem scoping refers to understanding a problem and finding out various factors that affect the problem. In this stage of the AI project cycle, 4W problem canvas method is used that helps the user answer questions related to the problem thereby arriving at a definite problem statement. The 4Ws are Who, What, When/Where and Why. The answers to these questions lead to a problem statement.	
15	AI Modelling	Data is the fuel of artificial intelligence. A machine is said to be artificially intelligent if it gets trained and can make decisions/ predictions on its own and learns from its own experience and mistakes. In the modelling stage, data is split to training set and testing set. The model is trained on the training set from which it makes its own rules that helps the machine to give an output and the model is then evaluated on the testing set.	https://teachablemachine.withgoogle.com/

16	Classification	Classification is a part of supervised learning model. Classification models work on labelled dataset and are used to predict the label/class of the testing dataset which is unknown to the machine. For example, an AI model is trained on a labelled dataset of 100 images of apples and 100 images of bananas. The machine gets trained on the dataset by extracting features from the dataset and understands what features will classify an image as an apple or a banana. To test the machine, random images of an apple/banana are fed to the AI model and the output will be classification of apples and bananas.	https://teachablemachine.withgoogle.com/
17	Possibilities in AI	To understand the possibilities that AI has to offer to us, an activity to research about various companies or organizations who are working towards incorporating AI into their respective fields.	Research Template
18	Google Map	Google Maps is a web mapping service developed by Google. It offers satellite imagery, aerial photography, street maps, 360° interactive panoramic views of streets (Street View), real-time traffic conditions, and route planning for traveling by foot, car, bicycle and air (in beta), or public transportation.	
19	My Story Time:	My Story time is a new Google Experiment web application which allows users to record stories to play back on Google assistant devices. Record stories from anywhere and play them back at home with Google assistant	https://experiments.withgoogle.com/my-storytime
20	Google Lens	Google Lens is an image recognition technology developed by Google, designed to bring up relevant information related to objects it identifies using visual analysis based on a neural network.	https://lens.google.com/
21	Emoji Scavenger Hunt	Emoji Scavenger Hunt is a browser-based game built with machine learning that uses your phone's camera and a neural network to try and guess what it's seeing. ... js, the game is built to run efficiently on your phone's web browser without needing to access backend servers.	https://emojiscavengerhunt.withgoogle.com/

22	Akinator	Akinator is a computer game and mobile app. During gameplay, it attempts to determine what fictional or real-life "character" the player is thinking of by asking a series of questions. It uses an artificial intelligence program that learns the best questions to ask through its experience with players. To begin the questionnaire, the user must press the play button and think of a popular character, object or other things that frequently come to mind (musician, athlete, political personality, video game, mother or father, actor, fictional film/TV character, Internet personality, etc.). Akinator, a cartoon genie, begins asking a series of questions (as many as required), with "Yes", "No", "Probably", "Probably not" and "Don't know" as possible answers, to hack down the potential character. If the answer is narrowed down to a single likely option before 25 questions are asked, the program will automatically ask whether the character it chose is correct. If the character is guessed wrong three times in a row (or more, usually in intervals of 25, 50, and 80), then the program will prompt the user to input the character's name, to expand its database of choices	https://en.akinator.com/
23	Google Earth	Google Earth , formerly Keyhole Earth, is a computer program that renders a 3D representation of Earth based primarily on satellite imagery. The program maps the Earth by superimposing satellite images, aerial photography, and GIS data onto a 3D globe, allowing users to see cities and landscapes from various angles. Users can explore the globe by entering addresses and coordinates, or by using a keyboard or mouse	https://www.google.com/earth/
24	Photo Creator	Photo Creator is AI enabled tool that lets creators make custom photos for their specific stories instead of searching for the ready-made images that suit their goals more or less.	https://photos.icons8.com/creator
25	Neural Network	Neural networks are loosely modelled after how the human nervous system works. A neural network is essentially a system of organising machine learning algorithms to solve problems for which the dataset is very large. Simply put, a neural network is divided into multiple layers and each layer is further divided into several blocks called nodes. The first layer is the input layer where no processing occur. The whole processing operation occur at the hidden layers. Each node of the hidden layer is a machine learning algorithm. the output from each node is then passed to the subsequent nodes	Human Neural Network activity

		in the hidden layer. Lastly, an output layer that gives a result based on the analysis conducted from the hidden layer.	
26	Loopy	Loopy is an opensource tool to understand the concept of system maps. A system map shows the components and boundaries of a system and the components of the environment at a specific point in time. With the help of system maps, one can easily define a relationship amongst different elements which come under a system. The map shows the cause & effect relationships of elements with each other with the help of arrows. The arrow-head depicts the direction of the effect and a sign (+ or -) shows their relationship. A + sign indicated positive relationship and a - sign indicates negative relationship between the elements. Considering the data features of any problem to be solved, a system map can be drawn.	http://ncase.me/loopy/
27	Evaluation	Evaluation is a stage in the AI project cycle where the performance of the model is evaluated based on certain metrics such as accuracy, precision and so on. This gives a clear idea to the user to compare the expectations with the actual results.	
28	Decision Tree	Decision Tree is a rule based AI model to solve classification or regression problems which helps the machine in predicting the element with the help of various rules fed to it. A decision tree looks like an inverted tree where root is at the top and the tree further divides into branches, nodes and leaves. Root is the starting point of a decision tree. Depending on the rules, the tree splits further into various branches that lead to an end point known as a leaf. Each leaf of the tree is labelled with a class.	
29	Infinite Drum Machine	Infinite Drum Machine is an AI experiment developed by Google to understand how unsupervised learning works. In this experiment, thousands of known sounds are fed to the machine. The sounds are not labelled and the machine does not have any information on the sounds in the dataset. The AI system analyses the data fed to it and clusters similar sounds together. These clusters are visible on the screen as different colours. The dots appearing on the screen are the sound clips and they have been clustered together on the basis of factors such as frequency, amplitude, pitch.	https://experiments.withgoogle.com/ai/drum-machine/view/

30	Quillionz	For assessing and improving the efficiency of question generation (except HOTS), this software can be used to generate questions efficiently.	https://www.quillionz.com/
31	swiggy.com	Swiggy is India's largest and most valuable online food ordering and delivery platform. Once you enter your preferences, you will get delivery of food at your doorstep. This is one of the AI tools as it takes the data from the user according to his liking and deliver the food items.	https://www.swiggy.com/
32	VOKI	Voki is an AI based educational tool for teachers and students, that can be used to enhance instruction, engagement, and lesson comprehension. Voki can be used in class (for student work), as an animated presentation tool, for student assignments, and as a virtual supervised discussion forum (Voki Hangouts).Voki characters can look like historical figures, cartoons, animals, and more	https://www.voki.com/
33	AI Dungeon	The learner should enter the link, start a new game, as a single player, with custom settings. They may not begin conversing with the AI. The facilitator prompts certain keywords that can be used by the learners, to initiate a conversation with the AI. The response from AI is noted by the learner, and discussed with the facilitator	https://play.aidungeon.io/
34	Virtual Mirror	Virtual mirror/Virtual trial room: Globally, the fashion industry is a huge industry so it's no surprise that AI technologies are being used across a wide range of applications from helping design clothes, optimizing manufacturing, and hyper personalized marketing.	https://www.veromoda.in/upto-50-vm?gclid=CjwKCAjwk_dL6BRAREiwA-kiczPCPI0wlaRgEZEsk1Wvl4r6jq6vPVCuKEf0PI1GNOB7ruNTUr0e5KhoCcXEQAvD_BwE
35	AI Thing Translator	This experiment lets you take a picture of something to hear how to say it in a different language. It's just one example of what you can make using Google's machine learning API's, without needing to dive into the details of machine learning.	https://thing-translator.appspot.com/
36	Google Assistant	It is an AI powered virtual assistant which can engage in two-way conversation. Users can interact with this tool through natural voice. It offers voice commands,	

		voice searching letting you complete a number of tasks by saying “OK Google” or “Hey. Google” wake words.	
37	Quizlet	It can be used to display hints about a pet animal and the children have to guess it and then the correct option may be viewed by them to check.	https://quizlet.com/en-gb/features/live
38	Poem Portraits	POEMPORTRAITS is an experimental, collective artwork, woven at the intersection of AI and human creativity - combining poetry, design and machine learning - conceived by artist and designer Es Devlin in collaboration with Google Arts & Culture Lab and creative technologist Ross Goodwin. In this, the user is required to feed in a word to begin the interaction after which the tool gives out two lines which can be used by the users to continue writing a poem.	https://artsexperiments.withgoogle.com/poemportraits
39	Imaginary Soundscape	“Imaginary Soundscape” is a web-based sound installation, focusing on this unconscious behavior, where viewers can freely walk around Google Street View and immerse themselves into imaginary soundscapes generated with deep learning models. The soundscapes generated by the AI sometimes amaze us by meeting our expectation, but occasionally ignore the cultural and geographical context (the sound of waves on an icy field of Greenland for instance). These differences and mistakes lead us to contemplate how the imagination works and how fertile the sound environments surrounding us are. By externalizing our synesthetic thinkings, we tried to shed lights on the power of imagination we all share.	http://www.imaginarysoundscape.net/
40	Scribbling Speech	Language and images are closely intertwined: We think in pictures and we explain facts as spatial constellations. What if the spoken word could be transformed into dynamic visual worlds in real time? Speech input, machine learning and recurrent neural networks for image generation allow computers to generate complex imaginary worlds that follow the narrator and thus create complex animations controlled by linguistic structures.	https://experiments.withgoogle.com/scribbling-speech