

LESSON PLAN[2019 -- 2020]



DLF Public School

THE LEARNING ACADEMY
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Teacher Name	Class	Subject	Time slot	Date	Lesson	Topic
	IX	Biology	35 min. Pd1	April	Cell- The fundamental unit of life	Introduction of the lesson

Expected Learning Outcome:

Students will be able to-

- * Define and explain the term cell.
- *Explore and identify the discovery of a dead and living cell.
- *Enlist the postulates of the cell theory
- *Identify various types of cell and correlate their shape with function.

Expected skill development:

- * Reading skills while comprehending the question asked.
- *Comprehension of the text while asking questions and writing answers.
- *Developing scientific vocabulary and its proper usage.
- *Critical thinking through open ended questions.

FLOW OF LESSON WITH RESPECT TO TIME (Introduction/warm-up, Content, Think Line, Closure)

Introduction-

- What is a cell?

Students would give responses which would be noted on the board and then the conclusion of actual definition of cell with justification. [5 min]

Content

- Discovery of the cell by Robert Hooke and his observations in cork slice would be discussed.[15 min]
- Discovery of living cell by Leuwenhoek.
- Proposal of cell theory and its postulates.
- Discussion of types of cells –longest/ smallest/largest
- Co-relation of shape and size of cell with their functions(the students would be asked to give examples of animal and plant cells)

Teaching methodology- Discussion through examples from life Question answer through open ended situations

Think line- Can there be a cell which does not arise from pre- existing cell?

Closure- The concept will be summarized with the recap of concepts learnt through questionnaire-

Proposed Questions [5 min] Q1. Cell is the structural and functional unit of the body. Justify the statement. Q2. Which is the longest cell of human body? Q3. Correlate the structure and function of guard cells. Q4. Why are cells of different shapes and sizes?	
Evaluation/Assessment: *Oral questionnaire	
Learners on the way *Individual attention within the class. *Extra input time outside the class. *Peer learning through appropriate seating arrangement. Q. How does a neuron structure correlate with its function?	Advanced Learners Assist the peers in comprehending the questions and writing answers with scientific vocabulary. Q. Find out the size of the smallest cell and largest cell?
Materials needed/Resources: *Class IX NCERT textbook *Blackboard, chalk	
Common Misconceptions: Structure and function of a cell can only be studied in an animal cell.	Addressing the misconceptions: Asking the students to give examples of plant cells and co relate with their functions.(guard cells)

- Home Assignments:
 - Q1. Define the term cell. [5 min]
 2. Why is cell called as the structural and functional unit of life?
 3. Who first observed the cell and how?
 4. Who proposed the cell theory? Enlist its postulates.
 5. Name the following-
 - a) longest cell of the human body
 - b) smallest cell of the human body
 - c) largest cell
 - d) smallest cell

**LESSON PLAN [2019 -- 2020]**

Teacher Name	Class	Subject	Time slot	Date	Lesson	Topic
	IX	Biology	35 min. Pd2	April	Cell- The fundamental unit of life	Parts of cell, cell wall and cell membrane

Expected Learning Outcome:

*Students will be able to Compare the composition, location and functions of cell wall and cell membrane.

Expected skill development: Reading skills while comprehending the question asked.

*Comprehension of the text while asking questions and writing answers.

*Developing scientific vocabulary and its proper usage.

*Critical thinking through open ended questions .

FLOW OF LESSON WITH RESPECT TO TIME (Introduction/warm-up, Content, Think Line, Closure)

Introduction-

Students would be asked a few questions to review their concepts taught in the last class as-[5 min]

Q1. Why is cell called as the structural and fundamental unit of life?

Q2. Do All new cells arise from pre- existing cells?

Q3. Who proposed the cell theory?

Content- [15 min]

- Parts of a cell- Cell membrane/ nucleus/ cytoplasm
- Presence of additional membrane in few cells (plant/ bacteria/ fungi)- cell wall
- Comparison of cell wall and cell membrane on the basis of- ,Composition, location, function and permeability.

Teaching methodology- discussion through examples from life , lecture method, Question answer through open ended situations

Thinkline- Is there any organism without any cell membrane? [5 min]

Are there more organism which possess cell wall? Do they have any advantage?

Closure-The concepts would be summarized asking students questions about the difference between cell membrane and cell wall.

Proposed Questions [5 min] Q1. Why do plant possess a cell wall while animal cells don't? Q2. Will cell wall allow all substances to pass through it? Q3. Compare the cell wall of plant and fungi.	
Evaluation/Assessment: *Oral questionnaire	
Learners on the way *Individual attention within the class. *Extra input time outside the class. *Peer learning through appropriate seating arrangement. Q. Why is plasma membrane called as selectively permeable?(CW)	Advanced Learners Assist the peers in comprehending the questions and writing answers with scientific vocabulary. Q. Find out the cell wall composition of fungi and bacteria
Materials needed/Resources: *Class IX NCERT textbook *Blackboard, chalk	
Common Misconceptions: Cell wall is present in plant cell while cell membrane is present only in animal cells.[5min]	Addressing the misconceptions: Cell membrane is present in all cells.

Q1. Compare cell membrane and cell wall.

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Teacher Name	Class	Subject	Time slot	Date	Lesson	Topic
	IX	Biology	35 min. Pd3	April	Cell- The Fundamental unit of life	Osmosis- endosmosis, exosmosis

Expected Learning Outcome:

*Students will be able to –

- Compare diffusion and osmosis and identify different types of osmosis with respect to the concentration of cell.

*Classify various solutions as hypertonic/ hypotonic and isotonic.

* Acknowledge the importance of osmosis in living organisms.

Expected skill development: Reading skills while comprehending the question asked.

*Comprehension of the text while asking questions and writing answers.

*Developing scientific vocabulary and its proper usage.

*Critical thinking through open ended questions.

FLOW OF LESSON WITH RESPECT TO TIME (Introduction/warm-up, Content, Think Line, Closure)

Introduction-. [5 min]

Students would be asked a few questions to review their concepts taught in the last class as-

Q1. Differentiate between the composition of cell wall and cell membrane.

Q2. Does the cell membrane allow all substances to pass through?

Q3. Can size of a molecule of any substance be a criteria to control the entry or exit of substances through cell membrane?

Content- [15 min]

- Definition of osmosis
- Differentiation of osmosis with diffusion
- Types of osmosis- endosmosis, exosmosis
- Comparison between Types of solutions- Hypertonic, hypotonic, isotonic on the basis of their solute concentration, type of osmosis, change in the nature of cells.
- Importance of osmosis with examples from everyday life.

Teaching methodology- discussion through examples from life , Question answer through open ended situations

Think line- Why does the vegetable vendor keeps spraying water on his vegetables after some time in summers? (C.W) [5 min]

What will happen to our hands if they are put in detergent water for long? (c.w)

Q. Take two potatoes, one raw and one boiled. Keep both of them in sugar solution. Allow the set up to stand for a while and observe? What could be the possible observations and why?

Closure-The concepts would be summarized asking students questions about types of solution and differentiating between exosmosis and endosmosis.

Proposed Questions [5 min] Q1 Is spraying deodorant an example of osmosis or diffusion? Q2.Isotonic solutions are dynamic in nature. Is it true? Q3.Can we observe osmosis in animal cells?	
Evaluation/Assessment: *Oral questionnaire Think line question	
Learners on the way *Individual attention within the class. *Extra input time outside the class. *Peer learning through appropriate seating arrangement. Q. Define osmosis.	Advanced Learners Assist the peers in comprehending the questions and writing answers with scientific vocabulary. Q. Are there any artificial semi permeable branes? Where can they be used?
Materials needed/Resources: *Class IX NCERT textbook *Blackboard, chalk	
Common Misconceptions: Osmosis and diffusion are same.	Addressing the misconceptions: Specific words with mentioning of semi permeable membrane to be mentioned.

- Home Assignments: [5 min]

Q1. Compare hypotonic, hypertonic and Isotonic solutions.

Q. Define- osmosis, diffusion, endosmosis

Pg 67 Q 7-Q. How does an amoeba obtain its food?

**LESSON PLAN [2019 -- 2020]**

Teacher Name	Class	Subject	Time slot	Date	Lesson	Topic
	IX	Biology	35 min. Pd4	April	Cell- The fundamental unit of life	NUCLEUS OF THE CELL

Expected Learning Outcome:

Students will be able to –

*Identify various parts of a nucleus and represent them with a diagram.

Expected skill development: Reading skills while comprehending the question asked.

*Comprehension of the text while asking questions and writing answers.

*Developing scientific vocabulary and its proper usage.

*Critical thinking through open ended questions .

*Exhibiting creativity and accuracy of diagrams

FLOW OF LESSON WITH RESPECT TO TIME (Introduction/warm-up, Content, Think Line, Closure)

Introduction-.
min]

[5

Students would be asked a few questions to review their concepts taught in the last class as-

Q1. Differentiate between hypotonic and hypertonic solutions.

Q2. Does the semi permeable membrane allow solute particles to pass through?

Q3. If we continuously swim in water for long, what changes can we observe in the cells of our skin?

Content-

[20 min]

- Nucleus- brain of the cell.
- Identify parts of nucleus- nuclear membrane, nucleoplasm, chromatin network, nucleopore, nucleolus.
- Function of each part of nucleus.
- Importance of chromatin network(DNA , gene)
- Represent diagram of nucleus.

Teaching methodology- discussion through examples from life , lecture method,
Question answer through open ended situations

Think line - Is the nuclear membrane composition same as cell membrane?
[5 min]

What happens to chromatin fibres of a cell during cell division?

Closure- The concepts would be summarized asking students questions about structure and location of nucleus.[5 min]

Proposed Questions Q1 Can a cell have only one Chromatin fibre? Q2.Why do we need nuclear pores if substance can pass through the nuclear membrane? Q3. What is the importance of nuclear membrane?	
Evaluation/Assessment: *Oral questionnaire Illustration of the structure of nucleus	
Learners on the way *Individual attention within the class. *Extra input time outside the class. *Peer learning through appropriate seating arrangement. Q. Why is nucleus called as the brain of the cell?	Advanced Learners Assist the peers in comprehending the questions and writing answers with scientific vocabulary. Q. What is the fate of a denucleated cell?
Materials needed/Resources: *Class IX NCERT textbook *Blackboard, chalk	
Common Misconceptions: . Chromosomes are the heredity material. Genes and DNA is similar.	Addressing the misconceptions: For better understanding with the aid of diagrams.

- Home Assignments:
- Q1. Draw a well labeled diagram of nucleus and enlist functions of all its parts.
- Q2. Differentiate between DNA, Gene and chromosome.

**LESSON PLAN [2019 -- 2020]**

Teacher Name	Class	Subject	Time Slot	Date	Lesson	Topic
	IX	Biology	35 min. Pd5	April	Cell- The fundamental unit of life	Prokaryotes and Eukaryotic cells, cytoplasm

Expected Learning Outcome:

*Students will be able to –

• Differentiate between prokaryotes and eukaryotes on the basis of structure of nucleus

*Understand the meaning of cytoplasm and cell organelles

Expected skill development: Reading skills while comprehending the question asked.

*Comprehension of the text while asking questions and writing answers.

*Developing scientific vocabulary and its proper usage.

*Critical thinking through open ended questions .

FLOW OF LESSON WITH RESPECT TO TIME (Introduction/warm-up, Content, Think Line, Closure)

Introduction-

Students would be asked a few questions to review their concepts taught in the last class as-[5 min]

Q1. Differentiate between gene and DNA.

Q2. Does the nuclear membrane allow all substance to pass through?

Q3. Which part of nucleus allows exchange of materials in and out of nucleus?

Content-Such developed nucleus are called Eukaryotic cells. [15 min]

Compare prokaryotic and Eukaryotic cells on the basis of their-

- Nuclear membrane
- Number of chromosomes
- Type of DNA- circular/ Linear
- Number of cells

- Membrane bound cell organelles

Teaching methodology- discussion through examples from life, Question answer through open ended situations

Thinkline- Q. How do prokaryotes photosynthesize? [5 min]

Q. How do they release energy if they have no have no membrane bound organelles?

Closure-The concepts would be summarized by asking students to differentiate between prokaryote and eukaryotic cell..

• Proposed Questions [5 min] Q1 What name is given to the nuclear arrangement in prokaryotes? Q2.Amoeba is Eukaryotic or prokaryotic? Q3.Do prokaryotes have ribosomes?	
• Evaluation/Assessment: *Oral questionnaire Written assignment	
Learners on the way *Individual attention within the class. *Extra input time outside the class. *Peer learning through appropriate seating arrangement. Q. Give two examples of prokaryotic cells.	Advanced Learners Assist the peers in comprehending the questions and writing answers with scientific vocabulary. Q. Compare the size of a prokaryotic and eukaryotic cells
Materials needed/Resources: *Class IX NCERT textbook *Blackboard, chalk	
Common Misconceptions: Eukaryotes are always multicellular. [5min]	Addressing the misconceptions: Eukaryotes can be unicellular or multicellular, clarifying with the help of examples.

- Home Assignments: Q1. How is a prokaryotic cell different from Eukaryotic cell?

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Teacher Name	Class	Subject	Time slot	Date	Lesson	Topic
	IX	Biology	35 min. Pd6	April	Cell- The fundamental unit of life	Cytoplasm, cell organelles- Mitochondria.

Expected Learning Outcome:

*Students will be able to –

*Differentiate between cytoplasm and cell organelles.

Compare cytoplasm with protoplasm

• Identify the structure, function and location of mitochondria.

Expected skill development: Reading skills while comprehending the question asked.

*Comprehension of the text while asking questions and writing answers.

*Developing scientific vocabulary and its proper usage.

*Critical thinking through open ended questions .

*Exhibiting creativity and accuracy of diagrams

FLOW OF LESSON WITH RESPECT TO TIME (Introduction/warm-up, Content, Think Line, Closure)

Introduction-

Students would be asked a few questions to review their concepts taught in the last class as-[5 min]

Q1. Which type of organisms show absence of nuclear membrane?

Q2. What could be the possible consequences if the nuclear membrane is removed from the cell?

Q3. What is cytoplasm?

CONTENT- [15 min]

- Understand the nature and importance of cytoplasm.
- Differentiate cytoplasm from protoplasm.
- Define Cell organelles.
- Mitochondria (powerhouse of the cell)- structure, function and location.
- Structure of cristae and its importance, semi- autonomous nature

Teaching methodology- discussion through examples from life , lecture method,
Question answer through open ended situations

Think line- Q. Compare the structure and function of inner membrane of mitochondria
with structure of villi and alveoli in human lungs [5 min]

Which cells will possess more number of mitochondria- skin cell or nerve cell?

Closure-The concepts would be summarized by asking students questions -

Proposed Questions [5 min] Q1 Why is mitochondria called as the brain of the cell? Q2.Can a cell exist without mitochondria? Name them. Q3.How do these cells obtain energy for themselves? Q4. Differentiate between protoplasm and cytoplasm.(c.w) Q5. Expand ATP.	
Evaluation/Assessment: *Oral questionnaire *Asking to summarize at the end of each class	
Learners on the way *Individual attention within the class. *Extra input time outside the class. *Peer learning through appropriate seating arrangement. Q. Why is mitochondria a semi- autonomous cell organelle?	Advanced Learners Assist the peers in comprehending the questions and writing answers with scientific vocabulary. Q. Which other cell organelle/ structure helps mitochondria to form proteins?
Materials needed/Resources: *Class IX NCERT textbook *Blackboard, chalk	

Common Misconceptions:	Addressing the misconceptions:
Unable to comprehend the presence of cell organelles.	Show the structure with the aid of diagram or model..

- Home Assignments: [5 min]

Q1. Define cytoplasm.

Q2. Draw a well labeled diagram of mitochondria and mention the importance of cristae.

Q3. NCERT pg 67, Q 5- Q. Which cell organelle is known as the powerhouse of the cell and why?

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Teacher Name	Class	Subject	Time slot	Date	Lesson	Topic
	IX	Biology	35 min. Pd7	April	Cell- The fundamental unit of life	Cell organelle- Plastid

Expected Learning Outcome:

*Students will be able to –

- Classify various types of plastids
- Illustrate the structure of chloroplast
- Compare the function and location of various types of Plastids.

Expected skill development: Reading skills while comprehending the question asked.

*Comprehension of the text while asking questions and writing answers.

*Developing scientific vocabulary and its proper usage.

*Critical thinking through open ended questions.

*Exhibiting creativity and accuracy of diagrams

FLOW OF LESSON WITH RESPECT TO TIME (Introduction/warm-up, Content, Think Line, Closure)

Introduction-.

Students would be asked a few questions to review their concepts taught in the last class as-[5 min]

Q1. Which part of the cell is called as the power house of the cell?

Q2. Which structure of mitochondria is responsible for cellular respiration?

Q3. Why is it semi -autonomous in nature?

Q4. In which form is energy released in the cell?

Q5. Do you know any other cell organelle which is semi- autonomous in nature?

Content- [15 min]

Another semi-autonomous cell organelle is- PLASTIDS

- Structure- importance of various parts and types- chloroplast, chromoplast, leucoplast
- Function
- Location
- Diagram representation

Teaching methodology- discussion through examples from life , Question answer method

Think line- Q. Which type of flowers will have more number of chromoplast- one which is pollinated by wind or by insects? [5 min]

Closure-Comparison of types of plastids would be summarized using a questionnaire

Proposed Questions [5 min] Q1 Why is chloroplast called as the kitchen of the cell? Q2. What is the role of plastids in roots? Q3 Which type of plastids are present in flowers?	
Evaluation/Assessment: *Oral questionnaire Illustration of the structure of chloroplast.	
Learners on the way *Individual attention within the class. *Extra input time outside the class. *Peer learning through appropriate seating arrangement. Q. Name two cell organelles which are semi autonomous in nature.	Advanced Learners Assist the peers in comprehending the questions and writing answers with scientific vocabulary. Q. Can the pigments present in chromoplast also perform photosynthesis? Q. Give examples where chloroplast changes to chromoplast on maturity.
Materials needed/Resources: *Class IX NCERT textbook *Blackboard, chalk	
Common Misconceptions: * Unable to represent thylakoid and grana in the diagram. *A plant may contain more than one type of plastid.	Addressing the misconceptions: Clarify with diagram of a granum. Give examples of variegated leaves and explain the various types of plastids in it.

- Home Assignments: [5 min]

Q1. Draw a well labeled diagram of chloroplast and mention the importance of grana and stroma.

Q2. NCERT page 65, Q1- Can you name two organelles that we have studied that contain their own genetic material.

LESSON PLAN[2019 -- 2020]



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Teacher Name	Class	Subject	Time slot	Date	Lesson	Topic
	IX	Biology	35 min. Pd8	April	Cell- The fundamental unit of life	Cell organelle- Endoplasmic reticulum, Golgi bodies.

Expected Learning Outcome:

*Students will be able to –

Identify the structure function, and location of cell organelle- Endoplasmic reticulum and Golgi bodies and represent them with well labeled diagrams.

Expected skill development: Reading skills while comprehending the question asked.

*Comprehension of the text while asking questions and writing answers.

*Developing scientific vocabulary and its proper usage.

*Critical thinking through open ended questions.

FLOW OF LESSON WITH RESPECT TO TIME (Introduction/warm-up, Content, Think Line, Closure)

Introduction-

Students would be asked a few questions to review their concepts taught in the last class as-[5 min]

Q1. Which part of the cell is called as the kitchen of the cell?

Q2. Which structure of plastid is responsible for the absorption of light?

Q3. Why is it semi -autonomous in nature?

Q4. Differentiate between thylakoid and grana?

Q5. Where would you look for leucoplast in a plant?

Content- 10 min]

Cell organelle-

ENDOPLASMIC RETICULUM-

- Structure- importance of various parts and types- rough and smooth
- Function
- Location
- Diagram representation

GOLGI BODIES-

- Structure- importance of various parts and types- rough and smooth
- Function
- Location
- Diagram representation

Teaching methodology- discussion through examples from life , question answer through open ended situations

Thinkline- Q.What would happen to the life of a cell if there were no golgi bodies ?
(c.w) [5min]

Closure-The class would be summarized asking student questions about structure and role of endoplasmic reticulum and Golgi bodies

• Proposed Questions [5min] Q1 Which cell organelle is responsible for storage and packaging in the cell? Q2. Which cell organelle is involved in membrane biogenesis? Q3 What is the role of endoplasmic reticulum in the cell?	
• Evaluation/Assessment: *Oral questionnaire	
Learners on the way *Individual attention within the class. *Extra input time outside the class. Q.Differentiate between rough and smooth endoplasmic reticulum	Advanced Learners Assist the peers in comprehending the questions and writing answers with scientific vocabulary. Q. If there is no endoplasmic reticulum; can it affect the repair of plasma membrane?
Materials needed/Resources: *Class IX NCERT textbook *Blackboard, chalk	
Common Misconceptions: * Only one Endoplasmic reticulum/ Golgi body is present in the cell. * A cell can have either RER or SER not both.	Addressing the misconceptions: Each cell has ER/ GB depending on its function. Example- Sweat glands / oil glands have more Golgi Bodies.

- Home Assignments: [5 min]

Q1. Draw a well labeled diagram of Endoplasmic reticulum and mention the importance for the cell.

Q2. NCERT page 65, Q4- Where are proteins synthesized inside the cell?

LESSON PLAN[2019 -- 2020]



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Teacher Name	Class	Subject	Time slot	Date	Lesson	Topic
	IX	Biology	35 min. Pd9	May	Cell- The fundamental unit of life	Cell organelle- Lysosomes, vacuoles and Ribosomes.

Expected Learning Outcome:

*Students will be able to –

- Identify the structure and state the function and location of Lysosomes, vacuoles and Ribosomes and represent their diagrams.

Expected skill development: Reading skills while comprehending the question asked.

*Comprehension of the text while asking questions and writing answers.

*Developing scientific vocabulary and its proper usage.

*Critical thinking through open ended questions.

FLOW OF LESSON WITH RESPECT TO TIME (Introduction/warm-up, Content, Think Line, Closure)

Introduction-

Students would be asked a few questions to review their concepts taught in the last class as-[5 min]

Q1.Which part is responsible for storage and packaging in the cell?

Q2.Which cell organelle is responsible for membrane biogenesis

Q3. Name two semi- autonomous cell organelles.

Q4.What happens to the cell organelles after they get damaged?

Content- Organelle which is involved in this process is Lysosome [15 min]

- Structure,
- Function – suicidal bags
- Location
- Diagram representation

VACUOLE-

- Structure- types(few)
- Function – storage units
- Location
- Diagram representation

RIBOSOMES-

- Structure- types(few)
- Function – storage units
- Location
- Diagram representation

Teaching methodology- discussion through examples from life , , Question answer through open ended situations

Think line- Q1. Can we call lysosomes as the cleaning squad of the cell? [5 min]

Pg 65- Q2- If the organization of a cell is destroyed due to some physical influence, what will happen? (H.W)

Closure -The concepts would be summarized asking students- Questions as mentioned in the proposed questions.

• Proposed Questions [5min] Q1. Why are lysosomes called as suicidal bags?(C.W) Q2. What is the function of vacuole? Q3. What is the role of contractile vacuole and food vacuole in an Amoeba? Q4. Are there any cells which are without ribosomes? Q5. Name the cell organelle which doesn't have a membrane.	
• Evaluation/Assessment: *Oral questionnaire	
Learners on the way *Individual attention within the class. *Extra input time outside the class. *Peer learning through appropriate seating arrangement. Q. Enlist the functions of a vacuole.	Advanced Learners Assist the peers in comprehending the questions and writing answers with scientific vocabulary. Q. Why do plant cell possess a large vacuole while animal cells have small ones. Q2.Can a cell survive without ribosomes/vacuole?
Materials needed/Resources: *Class IX NCERT textbook	

*Blackboard, chalk	
Common Misconceptions: * Vacuoles are only present in plants.	Addressing the misconceptions: Give examples of lower animals like amoeba to explain importance of food/contractile vacuole in animals.

- Home Assignments: [5 min]

Q1. Enlist the functions of vacuole and ribosomes in a cell.

LESSON PLAN[2018 -- 2019]



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Teacher Name	Class	Subject	Time slot	Date	Lesson	Topic
	IX	Biology	35 min. Pd 10	May	Cell- The fundamental unit of life	Differentiation between plant cell and Animal cell

Expected Learning Outcome:

Students will be able to –

- * Differentiate between plant cell and animal cell and represent them using diagrams

Expected skill development:

*Exhibiting creativity and accuracy of diagrams of organelles.

FLOW OF LESSON WITH RESPECT TO TIME (Introduction/warm-up, Content, Think Line, Closure)

Introduction-.

Students would be asked a few questions to review their concepts taught in the last class as-[5min]

Q1. What is the function of ribosomes?

Q2. How does the size of vacuole affect the position of nucleus in the cell?

Q3.Can lysosomes destroy your cell?

Content- - Students will be differentiating plant and animal cell on their own(as discussed in earlier topics) on the basis of following parameters- [20 min]

- Shape/size,
- presence of cell wall,
- position of nucleus,
- presence of plastids,
- size of vacuole,
- number of golgi bodies,
- lysosomes.

The teacher would draw the diagrams for plant and animal cell adjacent to each other , while the students would be asked to label the diagram on their own first and then the teacher would label them.

Teaching methodology- discussion, Question answer through open ended situations

Closure-The concepts would be summarized by differentiating between plant cell and animal cell on the basis of illustrations drawn

Proposed Questions [5 min] Q1 Do all plant cells have plastids? Q2. Which type of plastids would find in an onion bulb? Q3. Do all plant cells have a centrally placed large vacuole? Q4. Why do you think the cell organelles are pushed towards the periphery in a plant cell?	
Evaluation/Assessment: Through illustrations of plant and animal cell	
Learners on the way *Individual attention within the class. *Extra input time outside the class. Q. Name two structures found only in plant cell.	Advanced Learners Assist the peers in comprehending the questions and writing answers with scientific vocabulary. Q. Do you think lysosomes will be found in plant cell?
Materials needed/Resources: *Class IX NCERT textbook *Blackboard, chalk	
Common Misconceptions: * Position of various cell organelles.[5 min]	Addressing the misconceptions: . Clarify with diagrams.

- Home Assignments:

Q1. Differentiate between plant cell and animal cell with well labeled diagrams.

LESSON PLAN[2019 -- 2020]



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Teacher Name	Class	Subject	Time slot	Date	Lesson	Topic
	IX	Biology	35 min. Pd11	May	Cell- The fundamental unit of life	Cell Division.

Expected Learning Outcome:

*Students will be able to –

- Identify and state the importance of cell division for our body.
- Differentiate between the types of cell division.

Expected skill development: Reading skills while comprehending the question asked.

*Comprehension of the text while asking questions and writing answers.

*Developing scientific vocabulary and its proper usage.

*Critical thinking through open ended questions .

*Exhibiting creativity and accuracy of diagrams

FLOW OF LESSON WITH RESPECT TO TIME (Introduction/warm-up, Content, Think Line, Closure)

Introduction-.

Students would be asked a few questions to review their concepts taught in the last class as-[5min]

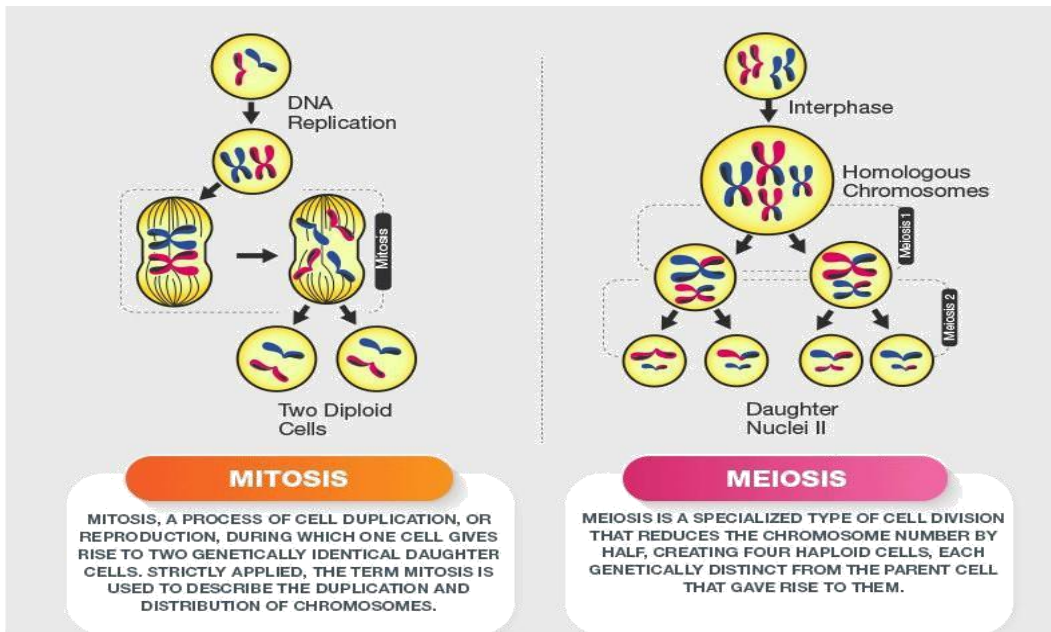
Q1.Which cell will display the location of vacuole towards periphery?

Q2.What provides rigidity to the plant cell?

Q3. Which cell organelle is important for cell division in animal cells?

Content- Cell division [15 min]

- Meaning (to be related with the cell theory)
- Importance for the body
- Types- Mitosis and meiosis with diagram representation(as in NCERT)
- Differentiation between the types.



Teaching methodology- discussion through examples from life , lecture method,
Question answer through open ended situations

Think line- Q1.Why do the numberof chrmosomes reduce to half during gamete formation?

Q2.Which type of cell division is responsible for reproduction in our body? [5 min]

Closure-The students would be asked to differentiate between mitosis and meiosis and state importance of cell division.

- Proposed Questions [5 min]
 - Q1. What is cell division?(c.w)
 - Q2. New skin cells are formed by which type of cell division?
 - Q3. How many new cells are formed after mitotic division?
 - Q4. Differentiate between mitosis and meiosis?

- Evaluation/Assessment:
 - *Oral questionnaire
 - *Illustrations

Learners on the way *Individual attention within the class. *Extra input time outside the class. *Peer learning through appropriate seating arrangement. Q. Which cell division is responsible for growth?	Advanced Learners Assist the peers in comprehending the questions and writing answers with scientific vocabulary. Q. Why do meiosis division takes place in two Steps?
Materials needed/Resources: *Class IX NCERT textbook *Blackboard, chalk	
Common Misconceptions: * Reproduction involves only meiosis.	Addressing the misconceptions: On discussion key words to be written on the board. Explain the meaning of names for better understanding. Reproduction involves both the types of division.

- Home Assignments:.[5min]

Q1.What is cell division? Why is it important for our body?

Q2. Differentiate between mitosis and meiosis with diagrams.