



Master Lesson Plan

For

Reaching the Age of Adolescence

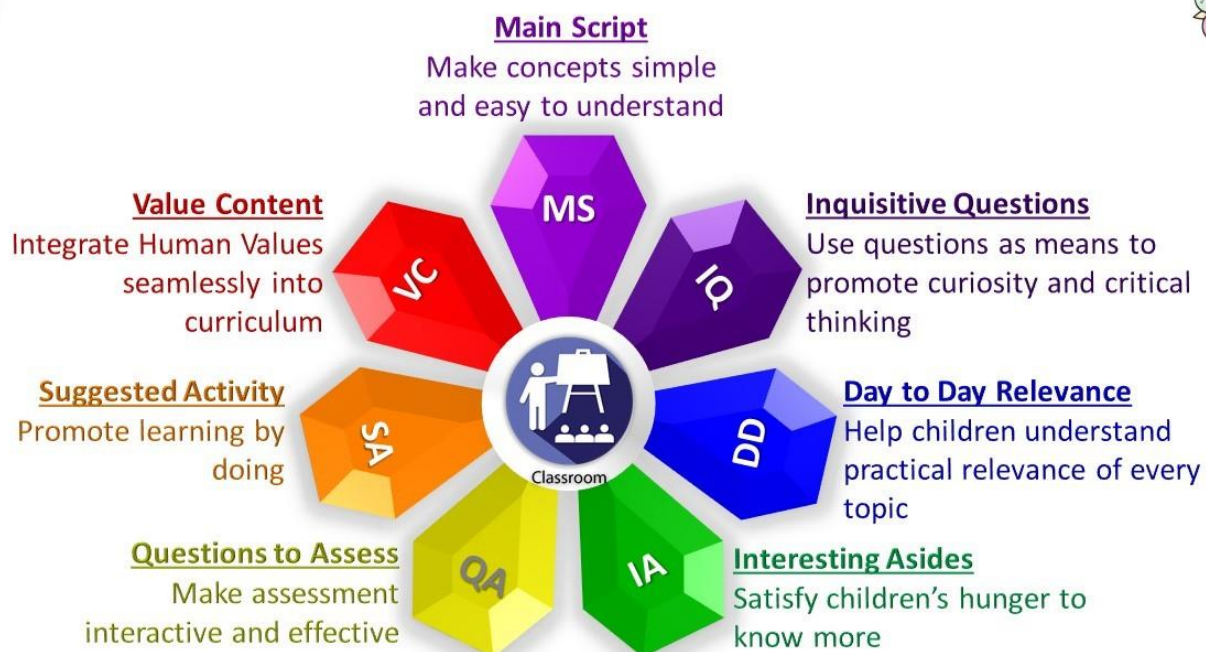
Board	Standard	Subject	Chapter	Language	Reference Link	Creation
CBSE	STD VIII	Science	Reaching the Age of Adolescence	English	Reaching the Age of Adolescence	2020-12

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Master Lesson Plan (MLP) - Covers the entire chapter with the help of these 7 asset types



For more information on how to use the lesson plan effectively, please scroll to the guidelines at the end of this document.

Reaching the Age of Adolescence

1. MS_ Objectives_ Reaching the age of adolescence

Notes to the teacher: This asset lays down the proposed plan for transacting this chapter. It states the asset objectives of the MLP. This asset is for teacher's reference and need not be taught to the students:

Students will be able to...

- chart the average height and weight of class8 students through graphical representation
- identify the changes that take place during the time of puberty
- examine the various stages of Menstrual cycle
- have the advantage of knowing the reason for voice change in boys during adolescence
- describe ductless glands
- explain the role of hormones in reproduction
- identify abnormalities of sex chromosomes
- realize the reason behind the birth of a boy or a girl child
- recognize the role of different nutrients in our lives
- adapt to the new practices of keeping their reproductive system healthy
- recommend the benefits of healthy food
- discuss about child sexual abuse
- stop gender discrimination
- recall the consequences and cure for substance abuse
- have the advantage of knowing the value of mother's womb
- associate the harmful effects of alcohol
- relate to the concept of fitness
- revise the topic 'Reaching the age of adolescence'

Time to teach	Asset Type	Theme	Sub Theme
5 Minutes	Main Script	The Adolescence period	Sex determination, Secondary characters, Role of hormone health, Reproduction phase, intellectual maturity, Physical exercise, hygiene, Development of sex Changes at puberty, Change in body shape,

2. SA_ Height and weight of students!

Aim - To find out height and weight of students for class 8.

Materials required:

Weighing machine, inch tape, paper/book, pencil, graph paper.

Setting for the Activity [Indoor]

Indoor (classroom activity)

Type of Activity: [Group activity]

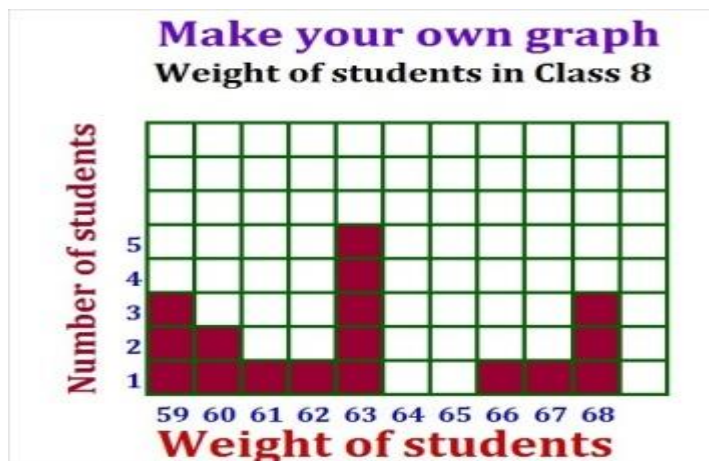
Procedure-

1. Teacher divides the class into 4 groups.
2. Each group has to measure the height and weight of all the students of class8 and note down in their books
3. They have to note the readings accurately with no mistake or carelessness.
4. The students have to depict the growth pattern using a graph as shown below.

Observation-

Students will be able to note that the heights and weights of all students were different and showed a pattern in it.

Height of students**Weight of students**



Conclusion- Thus the students will be able to infer the average height and weight of class 8 students.

Questions to ponder over:

Based on the graph.

1. How many students are between 165 & 185 cm height in the class?

Answer: 8.

2. How many students have identical height?

Answer: 2.

3. What is the average height of the students?

Answer: 167 cms.

4. What should be the ideal height for students in the age group of 13-14 years?

Answer: 150 cms to 160 cms.

5. What is the maximum weight of the student in the class as shown in the graph?

Answer: 68.

6. What is the ideal weight for students in the age of 13 – 14 years?

Answer: 45 to 50 kgs.

7. Till what age does the body show growth in terms of height?

Answer: 18 to 19 years of age.

8. What type of food has to be taken for building the body?

Answer: A balanced diet comprising carbohydrates, protein, fats and minerals.

Instructions to Teacher include:

- ✓ The activity is team-based.
- ✓ The teacher has to help the students to chart the growth pattern on the graph.

Troubleshooting:

- ✓ The activity should not disturb the other regular classes and has to be conducted only when the classes are free or during break.

Discussion Question**Why are the characteristics of height and weight different for each individual?**

Answer : Characteristics of height, weight, complexion etc are all based on the genes inherited from the parents.

Original contribution - rushmish@gmail.com Original contribution - jai.sai.sudar@gmail.com

Time to teach	Asset Type	Theme	Sub Theme
20 Minutes	Suggested Activity	The Adolescence period	Increase in height, Changes at Puberty Adolescence and puberty

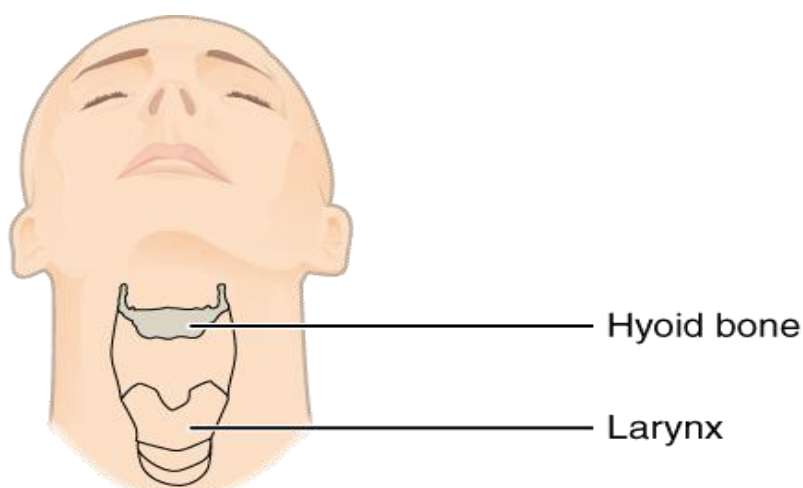
3. IQ_ The Growing Child

[Notes to the teacher - Teacher may enable the students to think and come out with as many answers as possible before giving out the right answer/ answers]

1. Rohit, a 13 year old boy, has noticed that his voice is changing. What is responsible for this change?

Suggested Answer: Rohit must have reached the stage of puberty.

The larynx, also called the voice box, is responsible for the production of noise. When the child is young the larynx is small and thin but as he/she grows and reaches the stage of puberty, the larynx grows larger and thicker, so the voice becomes deeper. This change is seen both in girls and boys but it is more prominent in boys. When boys try to adjust to these new changes, the voice cracks. Once the larynx has grown sufficiently, the voice becomes normal.



2. Suraj is studying in 8th standard. He is worried about the pimples on his face. Could you please explain the reason for this change?

Suggested Answer:

Pimples are formed because of the hormonal changes taking place in the body. When the child reaches puberty the body undergoes a lot of hormonal changes and as a result of this the androgens increase in both boys and girls during puberty. Androgens make the skin's oil glands get larger and make more sebum causing the formation of pimples.



3. What are the emotional changes in the body that occur during puberty?

Suggested Answer:

Feeling overly sensitive. They feel uncomfortable and get irritated or lose their temper quickly or feel depressed.
Tries to spend more time with friends than with family members.
Self conscious about looks.
Starts thinking about career, relationship and marriage..
Wants to be more independent and wants to control own life.
Mood swings.
Peer pressure.

Image Source:

Voice box-https://en.wikipedia.org/wiki/Neanderthal_behavior#/media/File:Hyoid_in_throat.jpg – CC BY 3.0 - By OpenStax College –

<https://commons.wikimedia.org/w/index.php?curid=60006291>

Pimples- <https://pixabay.com/da/illustrations/acne-ansigt-ansigtsbehandling-unge-4254911/>

Time to teach	Asset Type	Theme	Sub Theme
5 Minutes	Inquisitive Questions	The Adolescence period	Changes at puberty, Change in voice, Adolescence and puberty

4. MS_ Menstrual Cycle

Women between the ages 12-50 years undergo a monthly cycle in which the uterus prepares for pregnancy



At the beginning of this cycle, ovulation starts and usually one egg is released from the ovary. The egg then moves to the fallopian tube. The uterus gets ready in expectation of a possible pregnancy. It prepares for a fertilized egg to settle and develop into a baby. The uterine wall becomes thick, to implant the embryo.

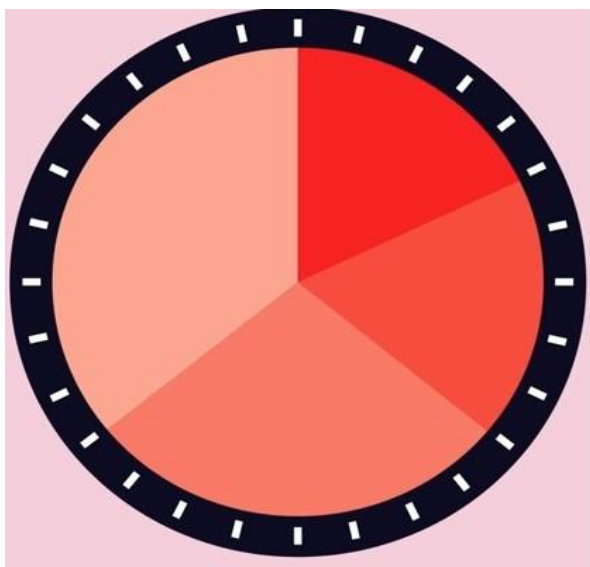
What happens if the egg is not fertilised?

If fertilization does not take place, then the uterine thickening breaks down and is shed off in small fragments.

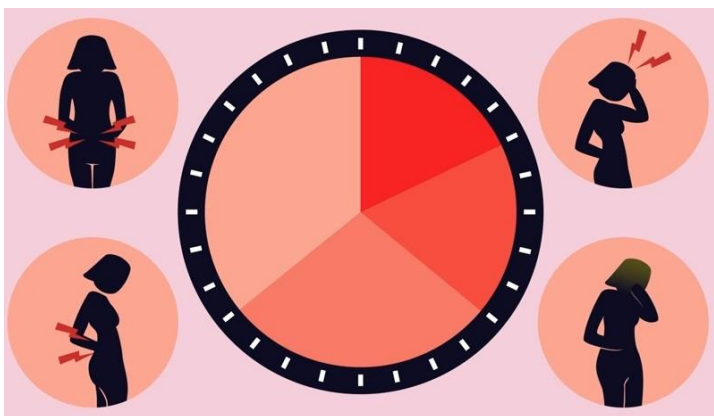


The fragments of the uterine lining and the egg are thrown out through the vagina, along with some blood. The flow of blood through the vagina is called as menstruation.

The menstrual cycle usually lasts about 28 to 30 days.



During the menstruation period women undergo extreme hormonal fluctuations as well as physical discomforts such as abdominal cramps, headaches, backaches and nausea.

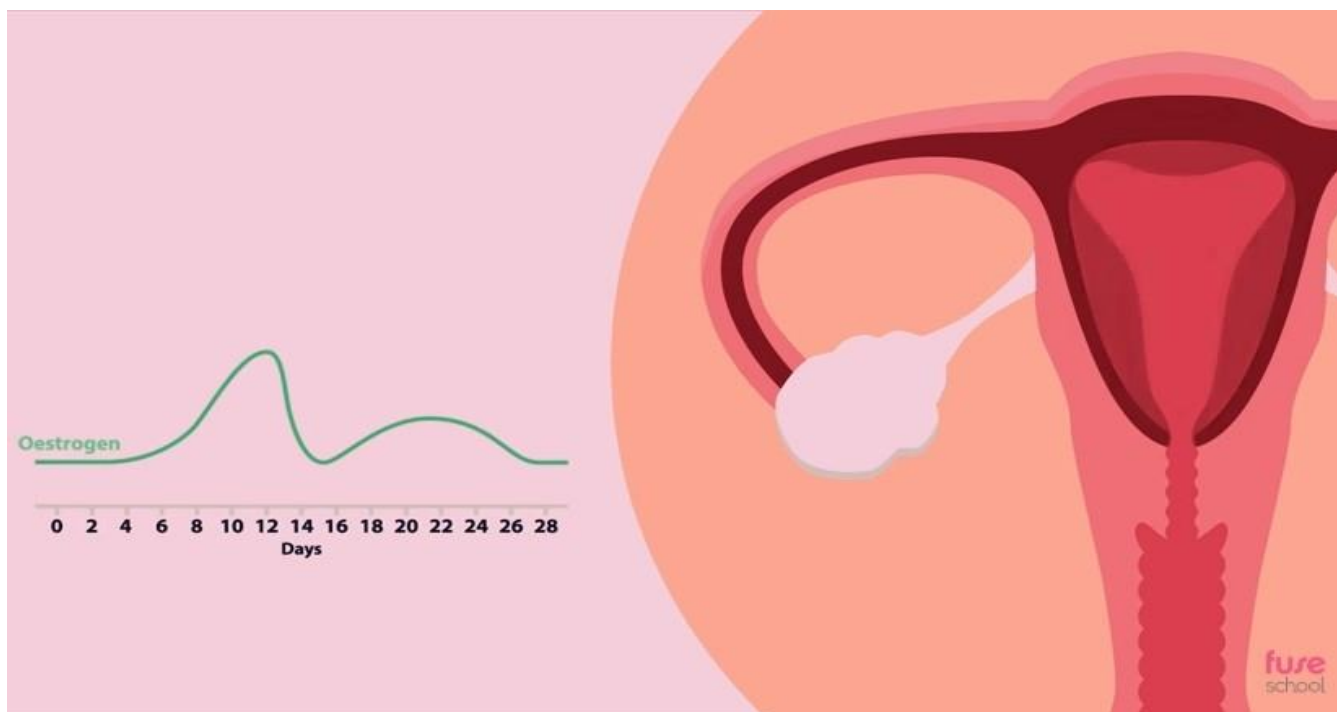


Menstruation occurs if the egg does not get fertilized and lasts between 3-7 days and is commonly called as a period. Since the egg has not been fertilised, the uterus lining called the endometrium is not needed and hence breaks down and is lost through the vaginal canal with some blood.



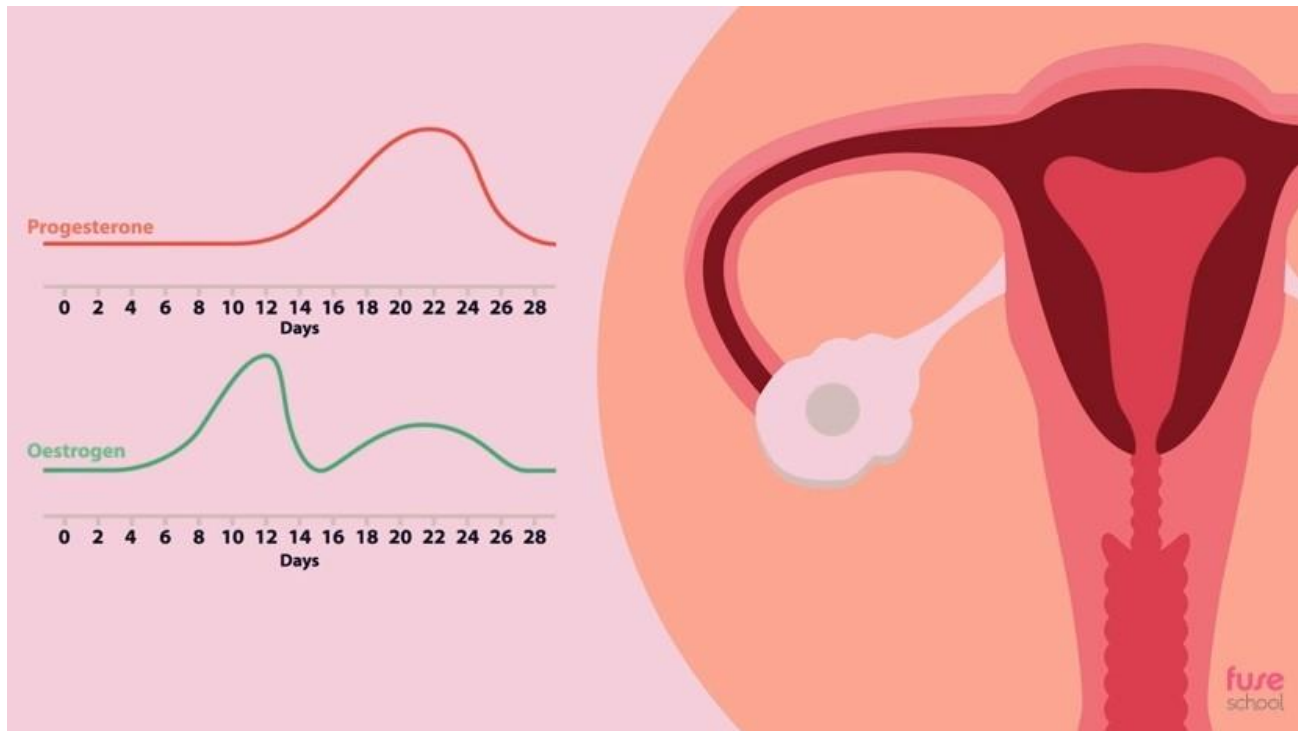
The next stage is called as *ovulation*.

It is the time when the woman is most fertile. After menstruation, the lining of the uterus thickens up again in preparation for a fertilized egg and inside the ovary a follicle develops. At about 14 days of the cycle an egg is released from the follicle in the ovaries. At this stage, fertilization could take place. If the egg is fertilized and fixes itself in the thick uterine lining, the lining is not shed and thus menstruation does not occur and the woman becomes pregnant. If it doesn't manage to fix, then the lining will break down and menstruation occurs and the cycle is repeated. The menstrual cycle is controlled by two main hormones oestrogen and progesterone.

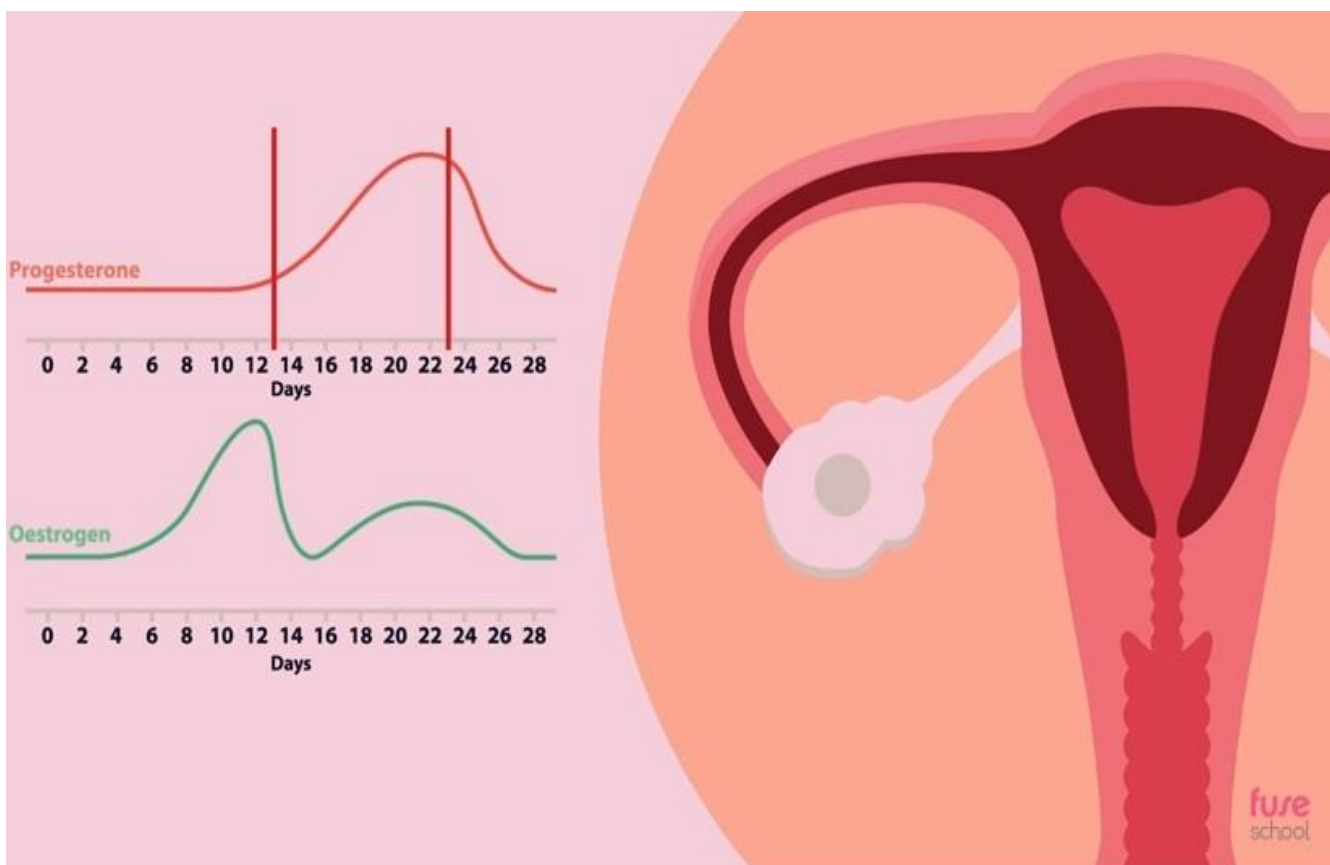


Oestrogen is produced by the ovaries and causes the uterus lining in the endometrium to thicken again after menstruation, so that it is ready to receive an embryo.

Progesterone is produced by the anti follicle in the ovary.



See how it is produced in the ovary. After the egg has been released, it drops of fifthe egg is not embedded, in the uterus or the egg is unfertilised.



But if the egg is fertilized and fixed, then the progesterone levels stay high for the first 6 1/2 (six and a half) months of the pregnancy, the follicle continues to produce it and the placenta is formed.

Menarche and Menopause

Menarche: The first menstrual flow is called as menarche. It happens at the onset of puberty.

Menopause: The cessation of menstrual flow in the life time is called menopause. Menopause happens at around 45-50 years of age in females and marks the end of the reproductive phase in females.

Images from:

https://commons.wikimedia.org/wiki/File:Female_reproductive_system_-_anterior_view.svg– CC0 Mikael Häggström

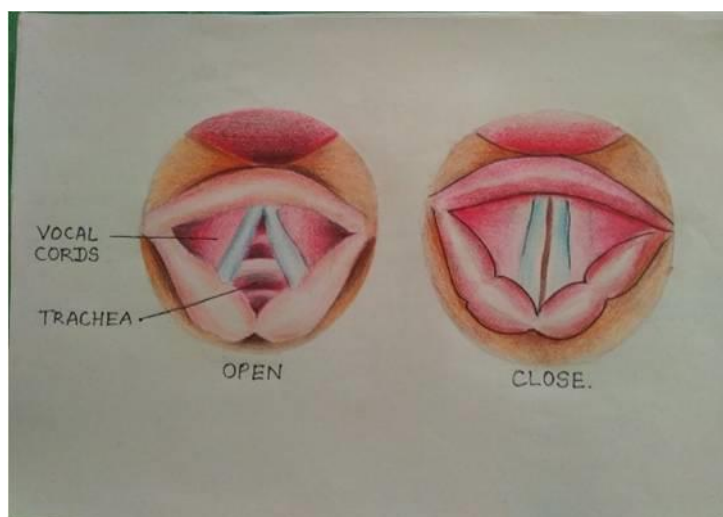
<https://www.youtube.com/watch?v=Vl2wRbO8LZU&t=116s> (Attribution- FuseSchool - Global Education)

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Time to teach	Asset Type	Theme	Sub Theme
10 Minutes	Main Script	The Adolescence period	Reproduction phase in human

5. IA_ Know your body



In adolescent boys, the voice begins to crack and then becomes deeper and more resonant.

An increase in testosterone is responsible for this change.

The larynx or the voice box is located at the upper end of the trachea or the windpipe in the throat.

There are two tiny muscles in the larynx, the vocal cords.

The vocal cords control the passage of air into the larynx.

As we breathe out, the vocal cords vibrate. The vibration causes sound.

During adolescence the vocal cords show a 60% increase in length and thickness.

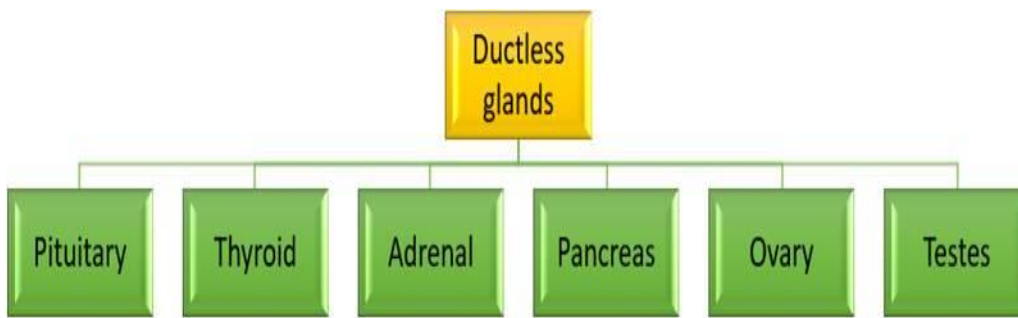
This causes a vibration at a lower frequency.

Hence the change of voice in boys during adolescence.

Image source: https://www.srisathyaivaividyaahini.org/alfresco/d/direct/workspace/SpacesStore/1e12c3ab-b622-4fbc-826e-7072c0446f54/vocal-cords-6583?ticket=TICKET_23f1329eb2ec9aa21ead10ffdc95374c19322648

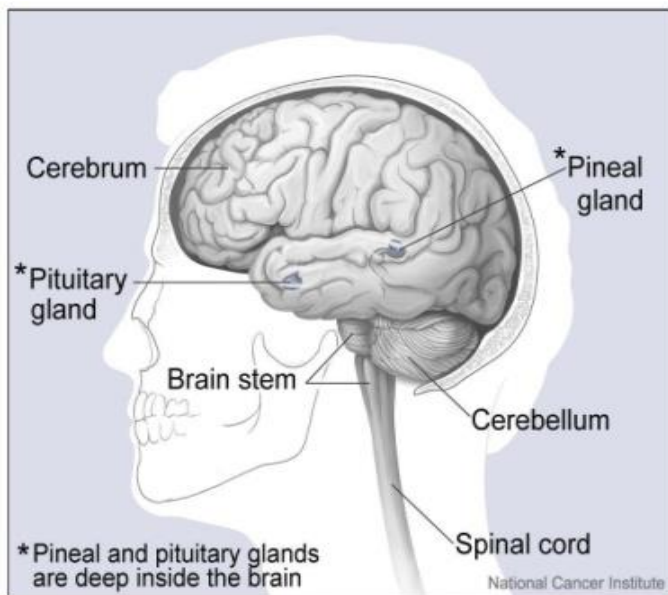
Time to teach	Asset Type	Theme	Sub Theme
3 Minutes	Interesting Asides	The Adolescence period	Change in voice Change in Adolescence and puberty, Change in body shape

6. MS_ Ductless glands

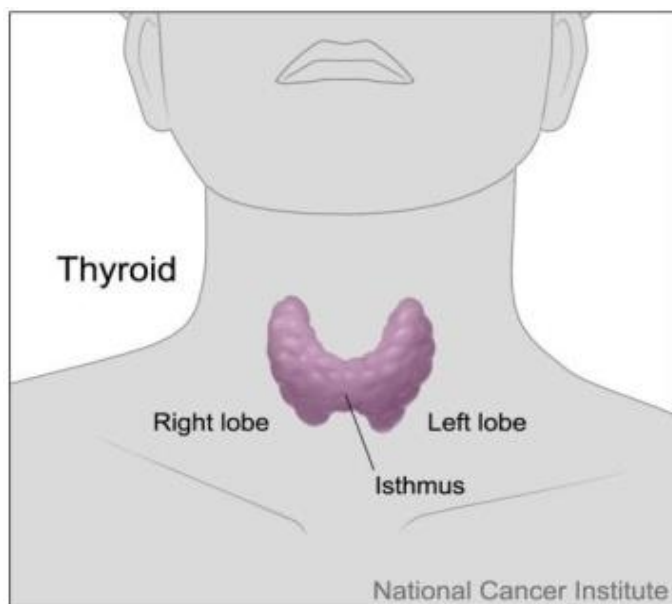


Pituitary gland

- Pituitary gland is also called the master gland.
- It is situated just below the brain.
- It is a very tiny gland.
- It secretes hormones.
- These hormones travel throughout our body controlling certain processes taking place in the body.
- This gland also stimulates other endocrine glands to release hormones and so it is called the master gland.

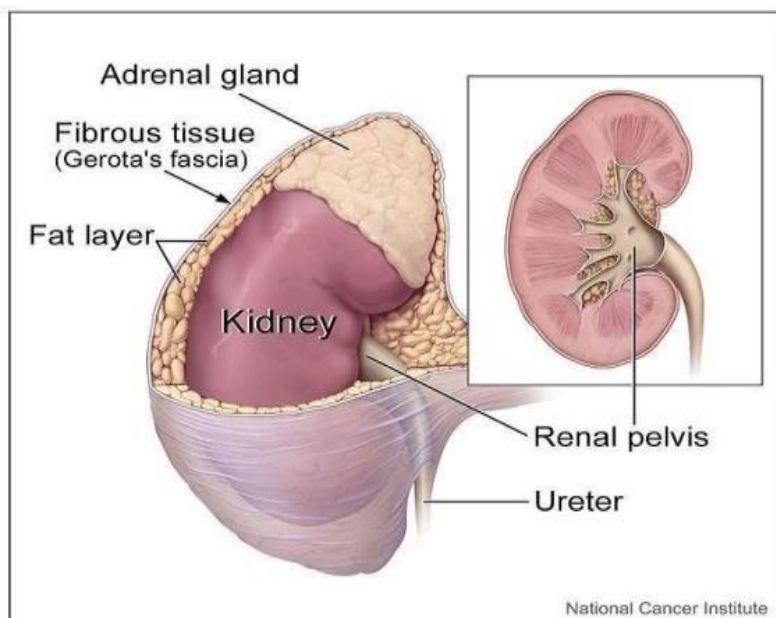


Thyroid Gland



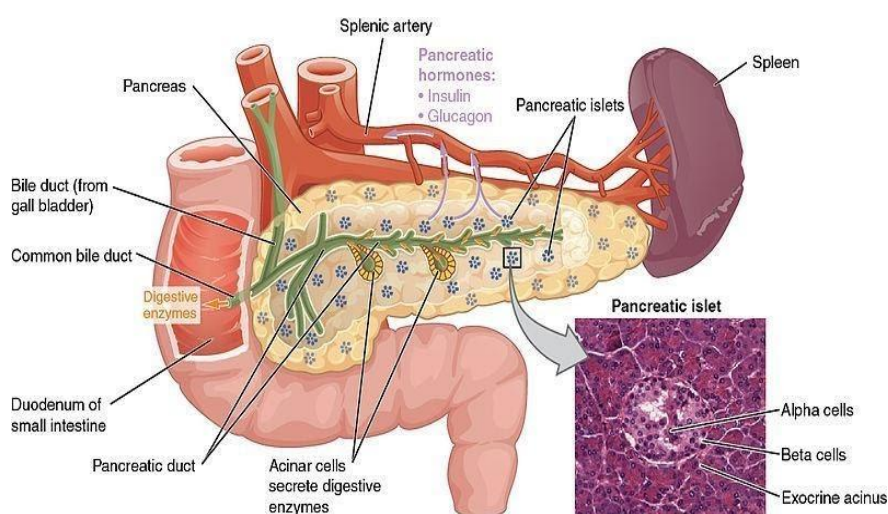
- Thyroid gland is a butterfly shaped gland.
- It is situated in the throat region at the base of the neck.
- Thyroid gland secretes thyroid hormones tri iodo thyronine (T_3) and thyroxine(T_4).
- These hormones influence the metabolic rate and protein synthesis.

Adrenal Gland



- Adrenal glands are also called as suprarenal glands.
- They are located on the top of the kidneys.
- They secrete a variety of hormones.
- The most important hormone is the adrenaline hormone.
- Adrenaline hormone is also called epinephrine.
- The primary function of this hormone is to cope up with stress.
- Strong emotions such as fear or anger cause adrenaline to be released into the blood stream, which causes an increase in heart rate, muscle strength, blood pressure, and sugar metabolism.

Pancreas



- Pancreas is a gland that is situated behind the stomach.
- It is both the exocrine and the endocrine gland.
- The pancreas has two main functions: an exocrine function that helps in digestion and an endocrine function that controls blood sugar.
- The exocrine part produces enzymes and the endocrine part produces the hormones.
- Two of the main pancreatic hormones are insulin, which acts to lower blood sugar, and glucagon, which acts to raise blood sugar.

Testes

- Testes are the male reproductive glands.
- They are mainly responsible for the production of sperms and androgens, mainly the male sex hormone known as testosterone.
- They are also responsible for secondary sexual characteristics in males.

Ovaries

- Ovaries play an important role in the female reproductive system.
- They are responsible for the production of a female sex hormone called as oestrogen.
- This hormone plays an important role in menstruation and fertility in women.
- They are also responsible for secondary sexual characters in women.

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Creator:

Don Bliss (Illustrator)

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The Web site of the National Cancer Institute (<https://www.cancer.gov>).

https://commons.wikimedia.org/wiki/File:Kidney_and_adrenal_gland.jpgAlanHoofring(Illustrator).

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Time to teach	Asset Type	Theme	Sub Theme
10 Minutes	Main Script	The Adolescence period	Endocrine glands

7. IA_ Abnormalities of Sex Chromosomes

Normally each cell in human beings contains 23 pairs of chromosomes, for a total of 46. 22 pairs are autosomes that have the same chromosomes, while one pair is allosome, that is a different chromosome. The male gamete has XY chromosome and the female gametes have XX chromosomes. But if there are some changes/mutations in the cells, the number of chromosomes changes. Some people may have an extra chromosome or one less chromosome. If such mutations occurs, it causes sex chromosome abnormalities.

Below are few of the sex chromosome abnormalities that are seen in humans.

Sex Chromosome Abnormalities			
Genotype	Gender	Syndrome	Physical traits
XXY, XXYY, XXXY	male	Klinefelter syndrome	1. They are sterile. 2. They have small testicles. 3. The breasts are enlarged.
XO	female	Turner syndrome	1. People who have this abnormality their sex organs do not mature at adolescence. 2. They are sterile. 3. They have a short stature.
XXX	XXX	Trisomy X	1. They have a tall stature 2. They face difficulty in learning. 3. They have limited fertility.

Kline felter syndrome is a disorder in which males have an extra X chromosome. The genotype for males with this disorder is XXY. These individuals are sterile, and have small testicles and enlarged breasts.

Males have extra X Chromosomes

The genotype for males with this disorder is XXY.

People with Klinefelter syndrome may also have more than one extra chromosome resulting in genotypes which include XXYY, XXXY, and XXXXY.

Turner syndrome is a condition that affects females. Individuals with this syndrome, also called Monosomy X, have a genotype of only one X chromosome (XO). These individuals are short, sterile and their sex organs do not mature at adolescence.

A condition that affects females.

Individuals with this syndrome, also called Monosomy X, have a genotype of only one X chromosome (XO).

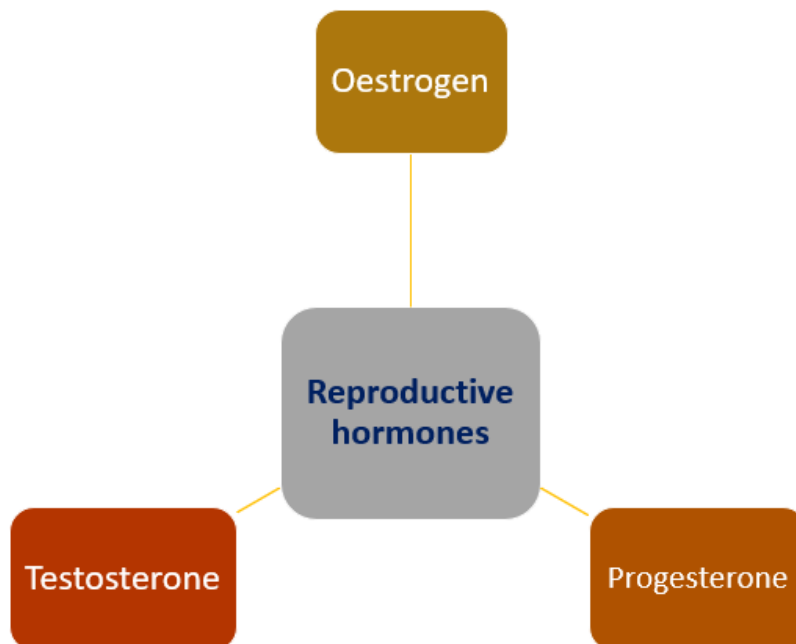
Trisomy X females have an additional X chromosome and are also referred to as meta females (XXX). These females are tall and have poor learning abilities and limited fertility.

Trisomy X females have an additional X chromosome and are also referred to as metafemales (XXX).

Time to teach	Asset Type	Theme	Sub Theme
3 Minutes	Interesting Asides	The Adolescence period	Reproduction phase in human

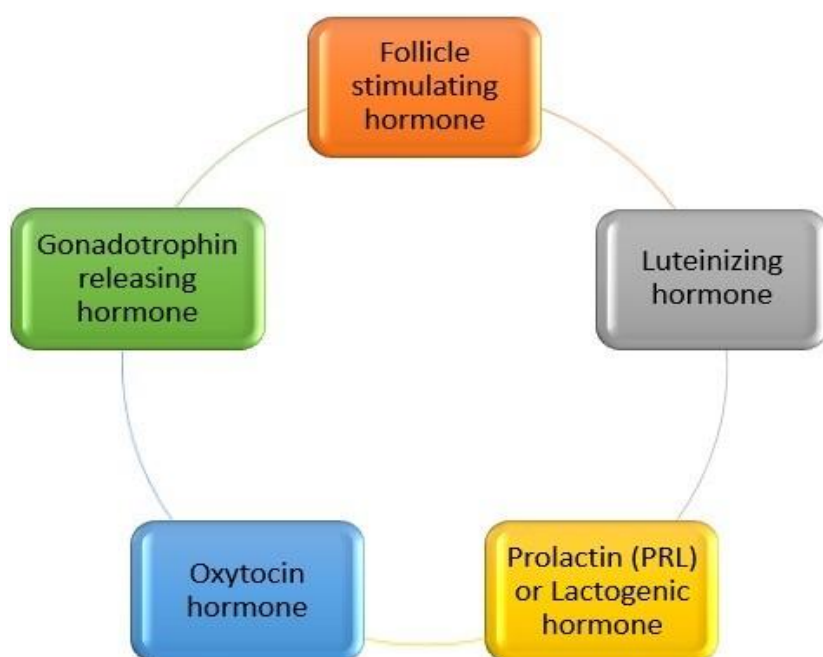
8. MS_ Role of Hormones in Reproduction

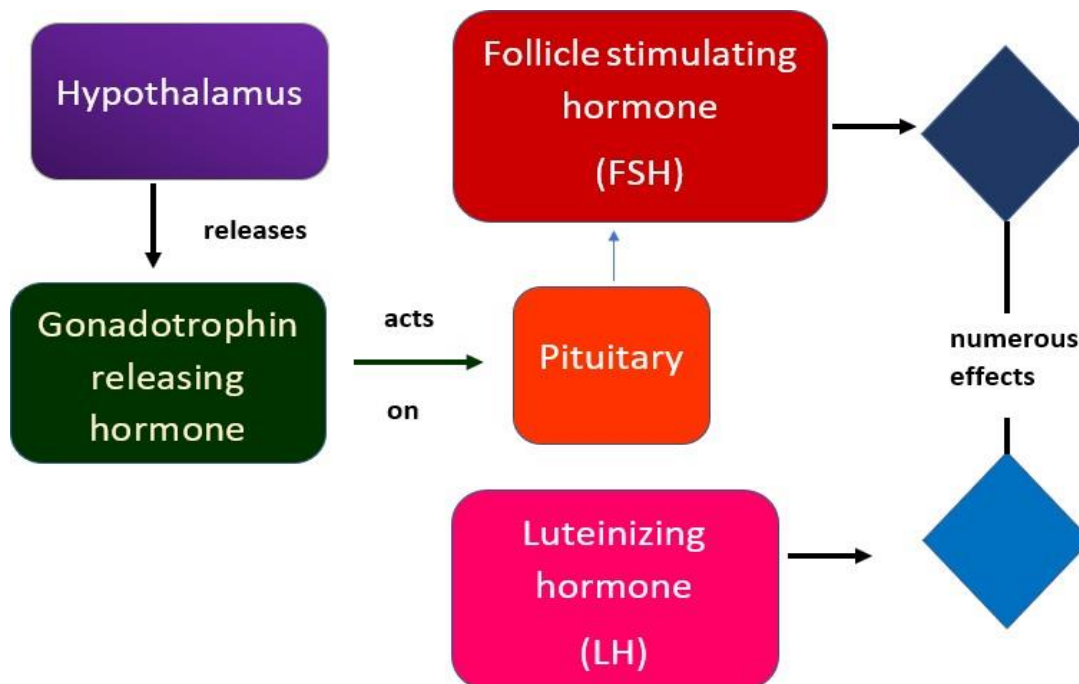
The most important hormones of the reproductive system are:



These hormones are produced by the gonads. Oestrogen and Progesterone are produced by the ovaries and testosterone is produced by the testes. The secretion of these hormones is regulated by the anterior pituitary (adenohypophysis).

Apart from these hormones there are few other hormones that play an important role in reproduction.





The hypothalamus releases the Gonadotrophin releasing hormone. GnRH acts on the pituitary causing it to release follicle stimulating hormone (FSH) and luteinizing hormone. These hormones have numerous effects within our body.

Female sex hormones

Oestrogen:

- Oestrogen is the main female sex hormone.
- It promotes the development of female secondary sexual characteristics.
- It is also involved in regulating the menstrual cycle.
- It is synthesized in the ovarian follicles of the ovary.

Progesterone:

- It is an important female sex hormone.
- It is involved in the menstrual cycle, pregnancy and in the development of the embryo.
- Progesterone is produced in the ovaries, and some of the progesterone is also produced by the adrenal glands and by the placenta during pregnancy.

Male sex hormone

Testosterone:

- It is an important male sex hormone.
- It plays an important role in the development of male reproductive tissues such as testis and prostate.
- It also promotes secondary sexual characteristics in males.
- This hormone is secreted by the testis.
- It is also secreted in the ovaries of females.

All three hormones are present in both the sexes, however, daily production of testosterone is much higher in males than females. The daily production of progesterone and oestrogen is more in females than males.

Follicle stimulating hormone:

- In females, FSH helps ovarian follicle to develop and promotes oestrogen secretion.
- In males, FSH promotes sperm development.

Luteinising hormone:

- In females, LH stimulates ovulation and promotes secretion of oestrogen and progesterone by the ovaries.
- In males, LH stimulates the production of testosterone.

Prolactin (PRL) or Lactogenic Hormone

- Prolactin is another hormone released by the anterior pituitary but is not affected by GnRH secretion. Prolactin promotes milk production by mammary glands.

Oxytocin hormone:

- Oxytocin is known as the 'cuddle hormone'.
- The two main actions of oxytocin in the body are contraction of the womb (uterus) during child birth and lactation.

Time to teach	Asset Type	Theme	Sub Theme
10 Minutes	Main Script	The Adolescence period	Role of hormones

9. VC_ Stop Gender Discrimination

Learning domain : Classroom



My name is Kalpana and I am proud to be a girl. Today, I want to share my experiences with all of you. My world changed when Kala didi, a social worker, visited our village. In our village all boys were given an opportunity to go to school while the girls were not. The girls were expected to be at home helping their mothers with daily chores.



All the girls of my age wished that they should also get an opportunity to be educated. However, when we asked our parents, they made us quiet by telling us that there was no use of educating girls, when they get married they would only be cooking and taking care of the family. Therefore, we were deprived of going to school. Our village celebrates a festival exclusively for women with sons. Those who do not have any sons were not allowed to be a part of the celebrations.



One day, it so happened as if GOD had finally heard our prayers. We saw some volunteers coming to our village. These volunteers had come to create awareness against female infanticide, education for females, etc. They spoke on the importance of education for everyone, irrespective of gender.



The villagers argued at first, giving the same old reason, but Kala didi and other volunteers convinced the villagers explaining that girls are as important as boys.

They gave a few examples of women who have achieved great heights like Geeta Phogat and Babita Phogat. They had proved that nothing was impossible for girls and they excelled in the field of wrestling against all odds with the encouragement of their parents.

Kala didi told the village elders that girls/women can achieve anything if the encouragement is given to them by their families. These words of Kala didi finally changed the attitude of the village. She said, “We adore and worship the goddess and say that she is a mother, protector, and guardian, but when it comes to a girl or a woman why is there cruelty against them?” She further explained and gave instances where young girls and women were ill treated in the society.



She even explained to them that women were not at fault for delivering a girl baby. She gave them the scientific reason of how the chromosomes in a male determine the gender of a child and that women were not to be blamed for giving birth to a baby girl. She continued saying that every woman has the right to be treated with dignity and respect and no one should humiliate or abuse her.



Finally, she said that girls and boys need education, not only to earn a livelihood but also to have the awareness and understanding of their individuality and their social responsibilities, because it is said that the end of education is character.



Our joy knew no bounds, because from then on we were also given an opportunity to go to school. I am proud to be a girl and when I grow up would like to help all my sisters who are deprived of their basic human rights.

Dear friends, we should respect everyone for what they are as all of us have come from the same GOD.

Note to the teacher: https://www.youtube.com/watch?v=L_PcasHhZkA

Category: [Entertainment](#)

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The video is 3 minutes 24 seconds

Image Source

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Time to teach	Value Type	Value Sub Type	Value Attribute
10 Minutes	Right Action	Love all	Quotation

10. MS_ Boy or Girl!

Sex determination in humans:

Every human cell has 46 pairs of chromosomes arranged in 23 pairs in its nucleus of which 22 pairs are called 'autosomes' and they control the expression of general characteristics of the body.



The 23rd pair of chromosomes are known as 'sex chromosomes' as they determine the sex of an individual.



In human females, both sex chromosomes are of same type. They are 'X' and 'X'.



Human males have 'X' and 'Y' as their sex chromosomes.



Human sex cells (sperm cells and egg cells) have only 23 chromosomes i.e. 22 autosomes and one sex chromosome. The egg cells always carry 'X'-chromosome, while the sperm cell carries either 'X' or 'Y' of the two sex chromosomes. If the sperm cell carrying 'X' chromosome fertilizes the egg cell, the zygote formed is with 'X' and 'X' combination. This results in the birth of a female child. When the sperm cell with 'Y' chromosome fertilizes the egg cell a male child is born. So the sex of the child is decided by the type of the sperm cells and not by the egg cell.

Sex determination in Humans

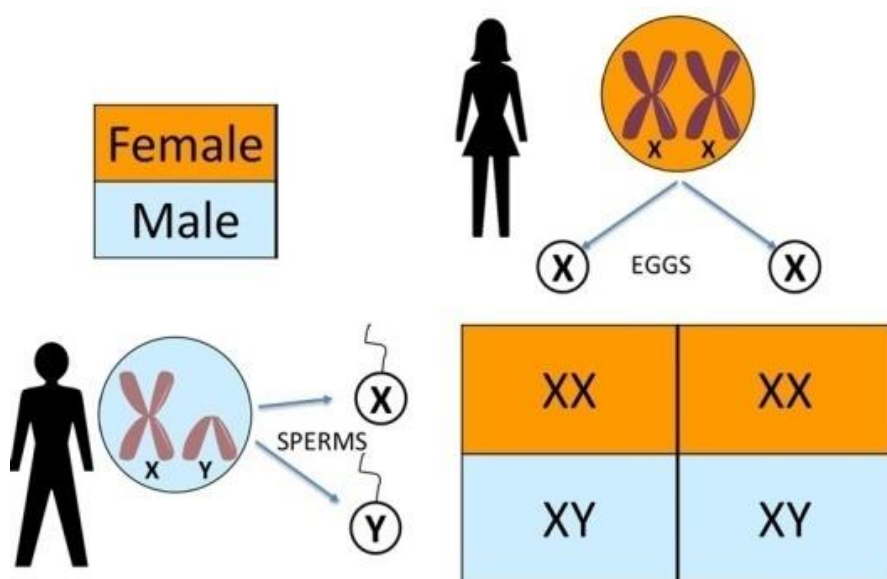


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Category: Education

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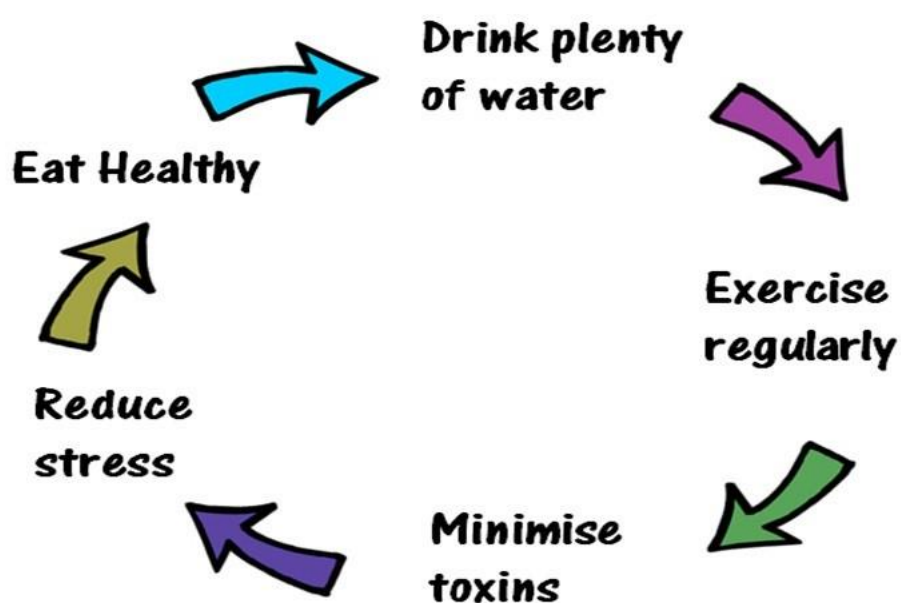
Time to teach	Asset Type	Theme	Sub Theme
5 Minutes	Main Script	The Adolescence period	Sex determination

11. DD_ Health and Nutrition

Nutrition deals with the interaction of nutrients and other substances in food in relation to maintenance, growth, reproduction, health and disease of an organism. Nutrition deals with a wide areas of study as shown below.



How to be healthy?



Components of a Healthy Diet

A balanced diet should include foods in the following ways:

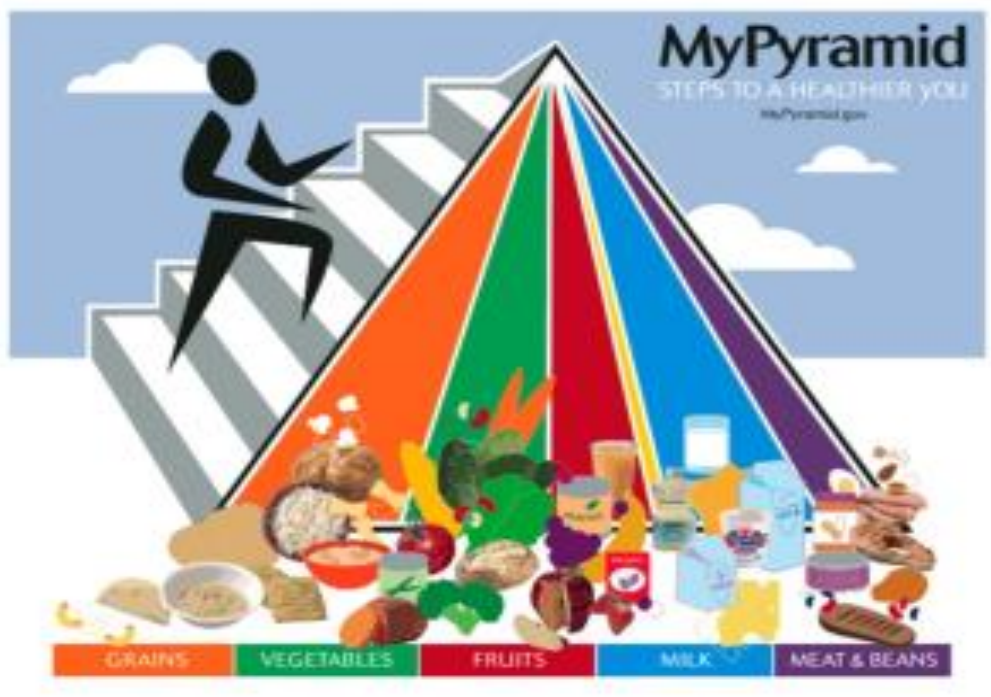
2-3 Servings Dairy

2-4 Servings Proteins

Servings Fruits

3-5 Servings Vegetables

6-11 Servings Grains

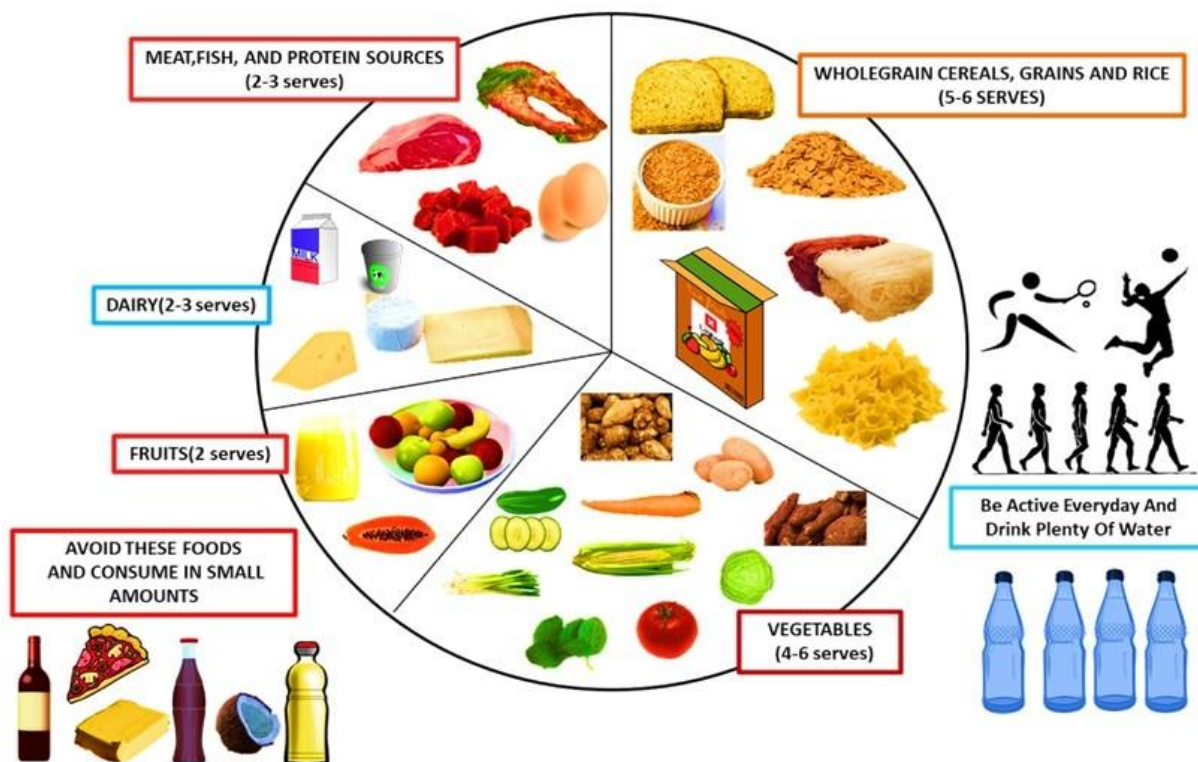


NO JUNK FOOD

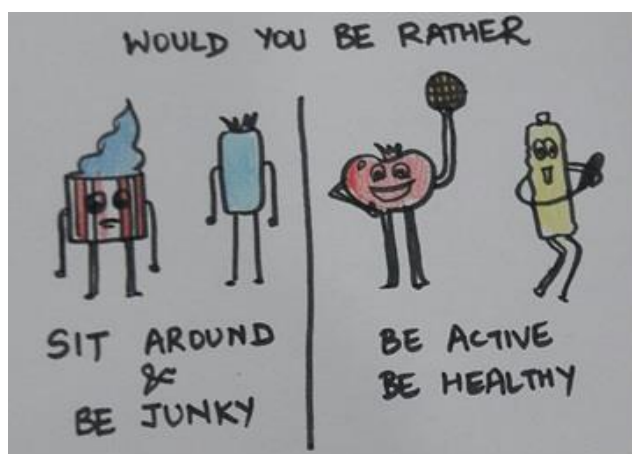


- Go Natural
- Avoid processed food
- Say no to Junk food
- Reduce Sugar intake
- Avoid too much salt
- Have fibrous diet

FOOD GUIDE FOR HEALTHY EATING



Supplement healthy diet with Exercise for healthy living



- Be active
- Don't be lazy
- Prefer outdoor activities
- Physical workout is a key to health
- Run/Jog/Walk
- Swim
- Yoga /Athletics

Image urls:

Vegetables:

1. Tomato – CC – Public Domain -<http://www.freestockphotos.biz/stockphoto/17058>
2. Potatoes – CC – Public Domain -<https://pixabay.com/en/potatoes-brown-close-up-food-fresh-2795/>
3. Tapioca – CC BY 2.0 -<https://www.flickr.com/photos/bpheonix/375291214/sizes/o/>
4. Cabbage – CC- Public Domain -<https://pixabay.com/en/vegetables-col-cabbage-power-678539/>
5. Carrots – CC – Public Domain -<https://pixabay.com/en/isolated-federal-carrots-vegetables-1083235/>
6. Spinach – CC BY 2.0 -<https://www.flickr.com/photos/richardnorth/7804918922/sizes/l>
7. Corn – CC- Public Domain -<https://pixabay.com/en/corn-cob-food-vegetables-667678/>
8. Spring onions – CC- Public Domain -<https://pixabay.com/en/spring-onions-vegetable-salad-food-3678921/>
9. Arbi – CC 3.0 -https://commons.wikimedia.org/wiki/File:Starr_070730-7885_Colocasia_esculenta.jpg
10. Cucumber – CC- Public Domain- <https://www.goodfreephotos.com/vector-images/cucumber-vector-clipart.png.php>
11. CucumberSlice–CC–PublicDomain-<https://pixabay.com/en/cucumber-slice-hydrate-skin-eye-1687628/>

FRUITS:

1. Fruitbowl–CC-PublicDomain-<https://pixabay.com/en/fruit-fruit-bowl-fruits-shell-3128683/>
2. Papaya – CC – Public Domain -<https://pixabay.com/en/fruit-papaya-food-653553/>
3. Orange juice – CC – Public Domain -<https://pixabay.com/en/juice-orange-juice-water-bottle-868868/>

DAIRY:

1. Milkcarton–CC-PublicDomain-<https://pixabay.com/en/alphabet-word-images-beverage-1295664/>
2. Cream cheese – CC – Public Domain -<https://pixabay.com/en/k%C3%A4seplatte-cheese-semi-hard-cheese-668516/>
3. Yoghurt–CC–PublicDomain-<https://pixabay.com/en/yoghurt-yogurt-yoghurt-container-156133/>
4. Cheese slice – CC – Public Domain -<https://pixabay.com/en/cheese-cheesy-closeup-close-up-1238395/>

Proteins :

1. Fish – CC – Public Domain -<https://pixabay.com/en/salmon-fish-grilled-fish-grill-2997240/>
2. Egg – CC – Public Domain -<https://pixabay.com/en/egg-oval-food-round-157224/>
3. Beef – CC – Public Domain -<https://pixabay.com/en/beef-ribeye-steak-food-meat-1814638/>
4. Meat – CC – Public Domain -https://commons.wikimedia.org/wiki/File:Fresh_meat.jpg

Whole Grains:

1. Bread – CC – Public Domain -<https://pixabay.com/en/bread-slices-food-healthy-wheat-682618/>
2. Oats – CC – Public Domain -https://commons.wikimedia.org/wiki/File:Food_oat_oats.JPG
3. Brown Rice – CC BY 2.0 -<https://www.flickr.com/photos/30478819@N08/37404801794/sizes/l>
4. Ricenoodles–CC-PublicDomain-<https://pixabay.com/en/red-rice-noodle-rice-noodle-cooking-2679059/>
5. Cereal box - CC – Public Domain -<https://pixabay.com/en/cereal-box-bananas-strawberries-41319/>
6. Pasta – CC – Public Domain -<https://pixabay.com/en/farfalle-pasta-food-italian-495748/>

Foods to be avoided:

1. Alcohol–CC–PublicDomain-<https://pixabay.com/en/red-wine-wine-bottle-wine-bottle-312731/>
2. Pizza–CC–PublicDomain-<https://pixabay.com/en/pizza-food-slice-cheese-mushroom-23477/>
3. Coconut–CC–PublicDomain-<https://pixabay.com/en/coconut-brown-food-ingredient-1123738/>
4. Butter–CC–PublicDomain-<https://pixabay.com/en/butter-butter-dish-breakfast-snack-186909/>
5. Soda – CC – Public Domain -<https://pixabay.com/en/bottle-coke-drink-soda-1300161/>
6. Cooking oil – CC – Public Domain -<https://pixabay.com/en/bottle-food-oil-160993/>

Exercises:

1. Walking – CC – Public Domain - <https://pixabay.com/en/people-walking-silhouette-black-33483/>
2. Tennis – CC – Public Domain - <https://pixabay.com/en/tennis-sports-pictogram-logo-40795/>
3. Volleyball – CC – Public Domain- <https://www.publicdomainpictures.net/en/view-image.php?image=241690&picture=volleyball>
4. Waterbottle-CC –PublicDomain-<https://pixabay.com/en/bottle-mineral-water-1295207/>

CC: <https://pixabay.com/en/children-playing-exercise-play-310223/> - CC0

Original contribution – jai.sai.sudar@gmail.com

Reference - CC: <http://wikieducator.org/File:-image.Nutrition.gif>

Image complied by -

sairam_sang@yahoo.comOriginal contribution

– putty.revankar@gmail.com

<https://pixabay.com/en/fast-food-junk-food-industrial-food-154556/> CC0

CC: <https://commons.wikimedia.org/wiki/File:MyPyramidFood.svg>public domain

<https://www.publicdomainpictures.net/en/view-image.php?image=184385&picture=arrow-32>

License: CC0

Time to teach	Asset Type	Theme	Sub Theme
5 Minutes	Day-to-day Relevance	The Adolescence period	Nutritional needs of adolescents

12. SA_ Role of different nutrients in our lives

Aim - To find out various nutrients present in given food samples and their significant role in our lives.

Materials required- Paper and pens, milk, cabbage, pulses, (anything available at that time) cereals (available at that period), carrot, butter, ghee, green leafy vegetables, mango, guava, banana, grapes, orange and lemon



Procedure-

- The above samples are placed on the table and the children were asked to name the items and against them mark the nutrients they are rich in and the usefulness of the same.
- The students will write the names of the food, the nutrients and their role in the functioning of the human body on the paper given to each of them.

Observation-

Food	Nutrient	Function
Milk	Rich in protein	Helps in growth
Cabbage	Vitamin K	Helps in clotting of blood
Pulses	Rich in protein	Growth
Carrot	Vitamin A	Good vision
Butter and Ghee	Rich in fats	Formation of new cells and production of heat in the body
Green leafy vegetables	Rich in iron	Formation of haemoglobin
Mango	Vitamin A	Good vision
Orange and lemon	Vitamin C	Strengthening of bones and in absorption of iron
Grapes	Vitamin C	Strengthening of bones
Banana	Rich in carbohydrates and Vitamin A	Strength

Conclusion – Thus from the above activity it is understood that these items are of nutritional value and play a vital role in humans. These foods must be included in the diet of adolescents to help in the rapid growth and development that takes place at this stage.



Note to the teacher: Teacher has to discuss the 'observation' after every student has completed writing their observation.

Image Source:

Milk bottle: <https://pixabay.com/en/milk-carton-drink-white-beverage-25176/>

Cabbage: <https://pixabay.com/en/col-cabbage-vegetable-cabbages-1356960/>

Pulses: <https://www.publicdomainpictures.net/en/view-image.php?image=187439&picture=pulses-particles-2>

Carrot: <https://pixabay.com/en/carrots-lying-carrot-yellow-beet-2667337/>

Ghee: <https://www.pxfuel.com/en/free-photo-jcbls>

Time to teach	Asset Type	Theme	Sub Theme
10 Minutes	Suggested Activity	The Adolescence period	Nutritional needs of adolescents

13. DD_ Healthy Reproductive System

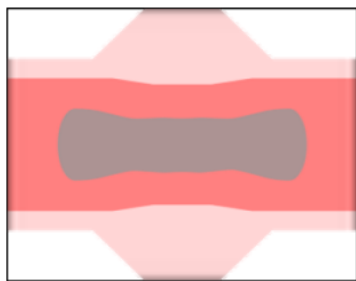
Eat the right kind of food and maintain a balanced diet



Fruits, vegetables, home made food, plenty of water, etc.



Junk food, soda, etc



You will be comfortable, relaxed and clean.

Girls have to change their sanitary napkins once in every 4 hours. It may vary according to the quality of the napkin and the amount of flow.

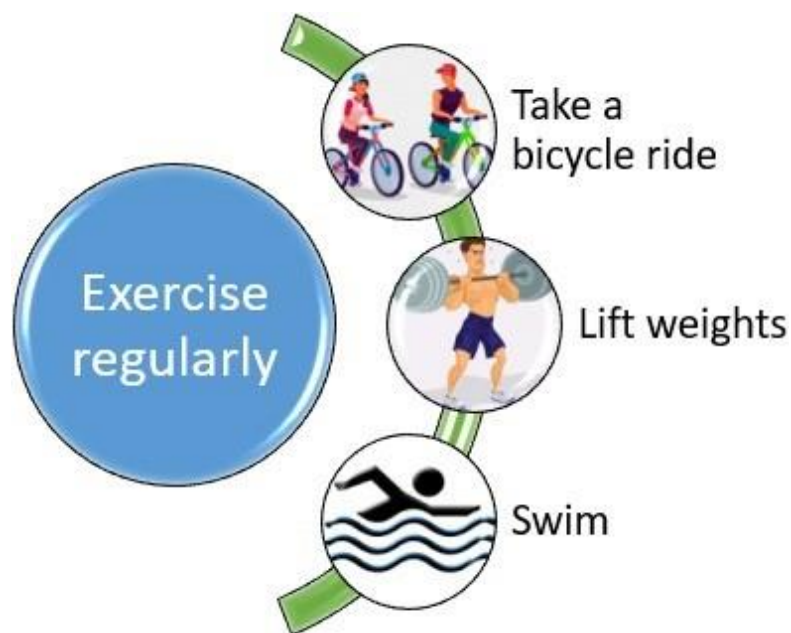


Visit the doctor regularly for checkups so that he can detect any irregularity or disease involving your reproductive health and can immediately cure it.

Do not wear too tight jeans



Wearing skin tight jeans can raise the body heat and can cause yeast or bacterial infections in the genital organs.



Say no to alcohol and cigarette



Image urls:

<https://pixabay.com/illustrations/you-finger-pointing-finger-smilli-2386968/>

<https://publicdomainvectors.org/en/free-clipart/Dont-drink-alcohol/66003.html>

<https://pixabay.com/photos/jeans-blue-detail-denim-mobile-2604889/>

<https://pixabay.com/illustrations/thumbs-up-smiley-face-emoji-happy-4007573/>

<https://pixabay.com/vectors/smiley-face-bad-sad-3189737/>

Doctor: Above Image is from gallery

http://www.publicdomainfiles.com/show_file.php?id=13527799816184

https://www.freepik.com/free-vector/young-boy-girl-riding-bicycles_1215599.htm

https://www.freepik.com/free-vector/vector-illustration-weightlifter_1215556.htm

<https://www.publicdomainpictures.net/en/view-image.php?image=28520&picture=swimming-symbol>

<https://pixabay.com/vectors/calendar-monthly-office-schedule-23684/>

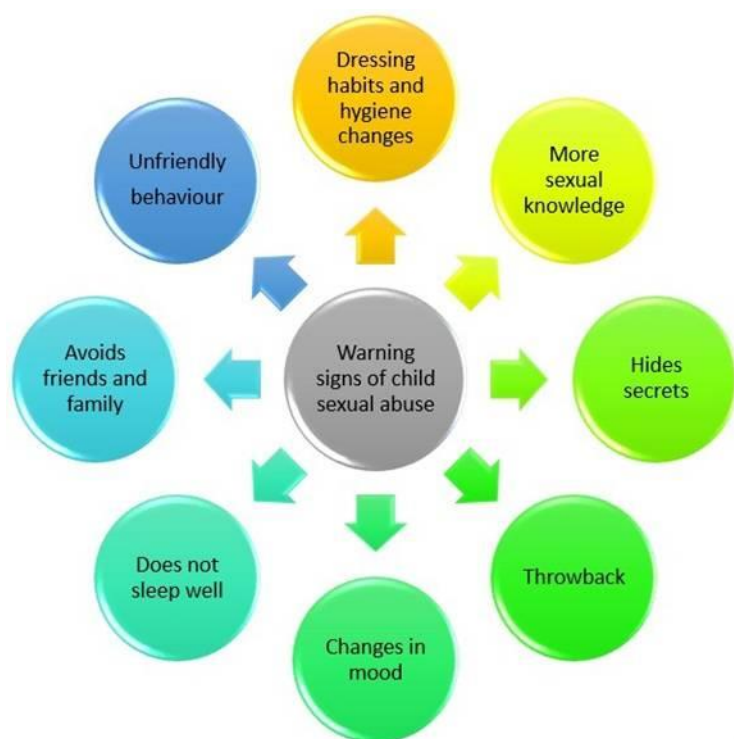
Time to teach	Asset Type	Theme	Sub Theme
5 Minutes	Day-to-day Relevance	The Human Body	Reproductive health

14. MS_ Warning Signs of Sexual Abuse



As parents it's hard to imagine the unthinkable. But it's important to consider.

Warning signs child sexual abuse



1. Dressing habits and hygiene changes

- Child wants to look less appealing
- Dresses shabbily
- Does not take bath
- Does not brush teeth
- Does not comb hair

2. More sexual knowledge

Child's language and their behaviour.

Child has more sexual knowledge beyond their age or begins to touch themselves or others in an inappropriate way.

3. Hides secrets

Child purchases toys, money or candy without the knowledge of the parent or if they talk about secrets a new friend told them to keep, it's a matter of concern.

4. Throwback

Children suddenly have habits such as thumb sucking, baby talk or bed wetting.

5. Changes in mood

We can notice depression, anxiety, poor performance in school or disinterest in activities the child normally enjoys, then this is a matter of great concern.



6. Do not sleep well

Being afraid of sleeping alone at night can be signs of abuse. The child is afraid.

7. Avoids friends and family

The child does not want to interact with the family members and stays away.

**8. Unfriendly behaviour**

Child reacts to every situation aggressively.

Image source:

<https://www.youtube.com/watch?v=Mq5cnTd3WTA>

Child Sexual Abuse Warning Signs by [Wax Worse](#)

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Mood Changes: <https://www.flickr.com/photos/dominicpics/6303257965> – CC BY 2.0 - [Dominic Alves](#)

Avoiding family: <https://pixabay.com/en/girl-teenager-human-woman-window-3141445/> - CC0

Time to teach	Asset Type	Theme	Sub Theme
5 Minutes	Main Script	The Adolescence period	Reaching mental, intellectual maturity

15. IA_ Mother's Womb



- Mammals have wombs.
- A womb is a special reproductive structure in the mother's body. The womb allows the foetus to develop in a safe environment over a pre-determined period of time known as the gestation period.
- During the gestation period a sac of fluid called the amniotic sac protects the foetus.
- All the materials needed for the growth of the foetus are provided from the mother by means of a sac of blood vessels called the placenta.
- Half of the placenta belongs to the young and the other half belongs to the mother.
- Within the placenta, blood capillaries of the young lie against the blood capillaries of the mother, so that the exchange of gases, nutrients and waste can take place. It is important to understand that during development some substance within the blood can cross between the mother and the young but the blood between the two never mixes.

CCO: Baby in womb: <https://www.goodfreephotos.com/vector-images/baby-in-womb-vector-clipart.png.php>

Time to teach	Asset Type	Theme	Sub Theme
3 Minutes	Interesting Asides	The Adolescence period	Reproductive health, Reproductive Phase in humans

16. MS_ Substance abuse, its consequences and cure

- Substance abuse is often considered a form of substance used disorder.
- Substance abuse consuming drugs or alcohol in amounts that are harmful to humans.
- People develop addiction and become crazy if they do not get these substances regularly.
- It can lead to many health problems that harm individuals and the society itself.
- People who are dependent on these substances experience a high risk of disease such as cancer, HIV or AIDS.
- Their social life is also affected.

- If they have the habit of continuously using these substances they may lose their jobs, relationships, respect, etc.
- They may develop few other mental disorders like depression or social anxiety.
- This has a negative effect on the society. Facing such impact on health and social consequences can cause the government billions of rupees.



So, what can we do for these individuals?

- We can educate the people and create awareness, to make a significant difference and help those who suffer from it.
- An effective rehabilitation programme can help individuals struggling to detox and begin a new journey to recovery.
- Prevention programmes can spread education on the signs and symptoms of substance abuse.
- In this way we can help society to help begin its journey towards recovery as well.

Note to the teacher:

Please play the video

<https://www.youtube.com/watch?v=WttQVYeCnPI>

The video is 2 minutes and 2 seconds.

Category: [Education](#)

License: [Creative Commons Attribution license \(reuse allowed\)](#)

Effect of substance abuse on the addict: <https://pixabay.com/en/depression-depressed-forlorn-1251619/>

Reject cigarettes when offered : <https://pixabay.com/en/non-smoking-cigarette-box-cigarettes-2383236>

No drugs sign: <https://pixabay.com/en/no-drugs-sign-healthy-forbidden-156771/>

Time to teach	Asset Type	Theme	Sub Theme
5 Minutes	Main Script	The Adolescence period	No to drugs

17. DD_ What alcohol does to our body

Let's see what alcohol does to your body.

This is Michael, he loves hanging out and drinking in the weekend, sometimes he drinks a little more. But he is also concerned about his health as he feels alcohol might be affecting his health. Let's see what exactly is alcohol doing to him?



Michael knows that beer is a type of drink that contains alcohol. Most of these alcohols are stronger depending on the amount and volume percentage of alcohol contained in them! The strong effects of alcohol are mainly caused because ethanol enters the blood stream faster than the liver can break it down. When this happens the signals sent from the brain to the body are changed. So the drunk person has a bliss full and relaxed experience. When Michael takes less alcohol, he starts losing his sense of balance and is not able to make decisions. This makes him feel sick because alcohol irritates his stomach and also affects his inner ear. If he takes higher doses of alcohol, the areas which are responsible for controlling breathing, heart rate, temperature control in the brain, stop functioning. If Michael continues to drink on a regular basis, then he becomes an addict. He may suffer from liver disease, high blood pressure, and cancer. If his central nervous system is affected then he may enter coma and eventually die. To prevent such conditions and for the well being of all the people, every country has its own laws on alcohol. The laws regulate how much amount is safe

before driving a car on the road. The guidelines tell how much alcohol is safe to drink each day. Michael now knows the dangers of alcohol and how it affects his body.

Note to the teacher: Please play the video

It is 2 minutes and 5 seconds. The video is attached

<https://www.youtube.com/watch?v=-oN2emCHMIg>

Category: [Nonprofits & Activism](#)

License: [Creative Commons Attribution license \(reuse allowed\)](#)

CC : What Alcohol Does to Your Body

Attribution: by simples how foundation

Image Source:

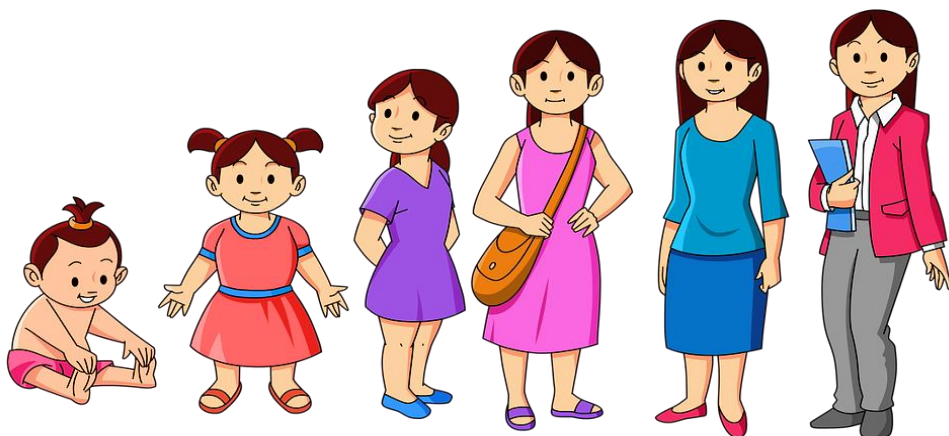
Drunk Man: <https://pixabay.com/en/drunkard-man-guy-drinking-alcohol-40577/>

Time to teach	Asset Type	Theme	Sub Theme
5 Minutes	Day-to-day Relevance	The Adolescence period	Alcohol creates imbalance

18. VC_ Nutrition and Exercise for Adolescence

Learning Domain- Classroom

Adolescence is a stage of rapid growth and development. The young adolescents not only cope up with physical changes in the body but are also willing to exercise some responsibility. Infact, adolescence is often the time in one's life when the brain has the greatest capacity for learning.



So train your brain towards positive and constructive thinking like, responsible actions, leadership, innovative thinking etc.

The world needs children to grow up to be responsible citizens and good people. Children must pursue their own well-being, while also being considerate of the needs and feelings of others.

But, to achieve this you need **“Healthy Body and Healthy Mind”**

Quote:

Take care of your body. It is the only place you have to live in.

“Health is a state of physical, mental, and social well being and not merely the absence of disease or infirmity”. As a teenager, there are some things you should pay special attention to for your physical and mental health.



Physical health

1. Eating fatty, fast foods will result in obesity.

Healthy eating is an important part of your growth and development. Eat plenty of fruits and vegetables, whole grains, a variety of protein foods, and low-fat dairy products.

2. Set yourself a physical goal no matter what your current fitness level is.

Exercise provides a mood boost and a more energized outlook. Participating in a sport or reaching a personal physical goal promotes a sense of mastery, accomplishment and increases self-esteem.

3. Teens need about 8 to 10 hours of sleep each night to function best.

Some children typically stay up late watching various programmes on media and sleep late, which can affect their biological clocks and the quality of their sleep.

Mental health

1. Learn ways to manage anxiety and stress – Practising yoga and meditation techniques will calm your mind.
2. Study and do your best in school.
3. Try to maintain a good relationship with your parents. Love them more.

Dear children , ally our favourite role models as sports personnel, celebrities, etc, have a healthy and fit body. Healthy foods and fit body are trendy!!!

Social well being

1. Adolescents must be under the guidance of parents / elders in developing the qualities of character that are valued by their families and by the communities they live in.
2. It is only through guidance that children learn to be honest and thoughtful, to stand up for their principles, to care for others, to act responsibly and to make sound moral choices.



Image Source:

1. Stages of Growth- <https://www.maxpixel.net/Fashion-Ladies-Girls-Female-Woman-Lady-Women-3273200>
2. Reaching the stage of Adolescence: <https://pixabay.com/en/sports-athletics-collage-baseball-150518/>
3. Parents Guidance: <https://pixabay.com/en/grandparent-family-child-2656412/>

Time to teach	Value Type	Value Sub Type	Value Attribute
5 Minutes	Peace	Quality Life	Stories

19. QA_ Reaching the age of Adolescence - A quiz

I. Multiple choice questions

1. The following secondary sexual characteristics do not appear in an adolescent female.
 - a. Secretion of sebaceous glands increases
 - b. More fat is added to their legs than to their arms
 - c. The cartilage in the voice box grows larger and thicker
 - d. Increase in height and weight

Suggested Answer: c. The cartilage in the voice box grows larger and thicker

2. Which endocrine gland secretes the growth hormone?

- a. Thyroid gland
- b. Pituitary gland
- c. Pancreas
- d. Adrenal glands

Suggested Answer: b. Pituitary gland



3. The period during which foetus remains within the mother's womb.

- a. Ovulation
- b. Puberty
- c. Gestation
- d. Adolescence

Suggested Answer: c. Gestation

4. Which of the following is the female hormone that helps in the development of female sex characteristics?

- a. Adrenaline
- b. Testosterone
- c. Calcitonin
- d. Oestrogen

Suggested Answer: d. Oestrogen

5. Fresh endometrium is formed every month in

- a. Ovary
- b. Ureter
- c. Urethra
- d. Uterus

Suggested Answer: d. Uterus

6. The stage when the reproductive organs reach sexual maturity and are capable of reproduction is called

- a. Menstruation
- b. Menarche
- c. Puberty
- d. None of these

Suggested Answer: c. Puberty

7. The hormone released by ovary is

- a. Testosterone
- b. Growth hormone
- c. Insulin
- d. Oestrogen

Suggested Answer: d. Oestrogen

8. Where does fusion of the ova with the sperm take place in a human female?

- a. Uterus
- b. Ovary
- c. Fallopian tubes
- d. Urethra

Suggested Answer: c. Fallopian tubes

9. Offspring produced by sexual reproduction have the characteristics of both the parents because

- a. The parents transmit their genes to the offspring through the gametes
- b. Internal fertilisation takes place
- c. Implantation takes place in the uterus
- d. Both parents take care of the offspring

Suggested Answer: a. The parents transmit their genes to the offspring through the gametes.

10. An adolescent needs more – than a grown – up man

- a. Fats
- b. Carbohydrates
- c. Protein
- d. None of these

Suggested Answer: b. Carbohydrates

II. Answer the following questions:

1. Differentiate between endocrine glands and exocrine glands?

Suggested Answer:

Endocrine gland	Exocrine gland
They are ductless glands and do not discharge their secretions through ducts.	They possess ducts for discharging their secretions.
They discharge directly into the bloodstream.	They secrete their secretions on the body surface.
The secretions are called as hormones.	They secrete enzymes.

2. Differentiate between menarche and menopause.**Suggested Answer:**

Menarche	Menopause
Beginning of menstrual cycle	Cessation of menstrual cycle
Start of reproductive phase	End of reproductive phase

3. What is a balanced diet?

Suggested Answer: A diet consisting of a variety of different types of food and providing adequate amounts of the nutrients necessary for good health.

4. Which organ gets damaged by consuming alcohol and name the disease thus caused?

Suggested Answer: Liver cirrhosis and liver failure.

5. Where are sebaceous glands, salivary glands and sweat glands found?

Suggested Answer: Sebaceous glands- face, salivary glands - on either side of cheeks, sweat glands - palm, sole of foot, and skin.

6. What do you think will happen if the thyroid gland of a tadpole is removed?

Suggested Answer: If the thyroid gland is removed from a tadpole, it would not grow into a frog and also could lead to death.

7. Name a gland known as heterocrine gland.

Suggested Answer: Pancreas

8. What is the glucose level in 100ml of blood?

Suggested Answer: 120mg/100ml of blood

9. Name the gland known as emergency gland and the speciality of its hormone.

Suggested Answer: Adrenal gland. It's known as flight, fright and fight hormone.

10. Why is it said that an obese person suffers from the lack of thyroxine hormone?

Suggested Answer: Thyroxine helps in carbohydrate metabolism and when the secretion is less, the time taken for digestion of food takes longer than in a normal person. So he puts on weight.

III. Give Reasons:

1. Cigarette smoking is dangerous to health.

Suggested Answer: Cigarette smoking is dangerous to health because it causes lung cancer.

2. Reproduction is an important life process for living organisms.

Suggested Answer: Reproduction is an important life process for living organisms because it keeps a species alive generation after generation.

3. Why are a few teenagers moody, and sometimes feel insecure?

Suggested Answer: Hormonal changes in their body, create mood swings.

IV. Say true or false and provide the right answer, if false.

1. Human body cells contain 23 chromosomes.

Suggested Answer: False, human body cells contain 23 pairs of chromosomes or 46 chromosomes.

2. Hormones are carried around in the body by blood.

Suggested Answer: False, hormones are carried around in the body by the nerves

3. A woman's first menstruation is called menarche.

Suggested Answer: True.

4. A male gamete in human beings is carried in the ovum.

Suggested Answer: False, the male gamete in human beings is carried in semen.

V. Fill in the blanks

1. Adolescents are also called_____.

2. The release of sex hormones is under the control of_____.

3. Diabetes is caused due to the deficiency of_____in the body.

4. Cessation of menstruation in women is the onset of_____stage.

Suggested Answers:

1. Teens
2. Pituitary gland
3. Insulin
4. Menopause

VI. Match the following:

1. Thyroxine	a) Acne
2. Teenage	b) HIV
3. Stress hormones	c) Diabetes
4. Oil glands	d) Iodine
5. Aids	e) Adolescence
6. Insulin	f) Adrenaline
	g) Goitre

Suggested Answer:

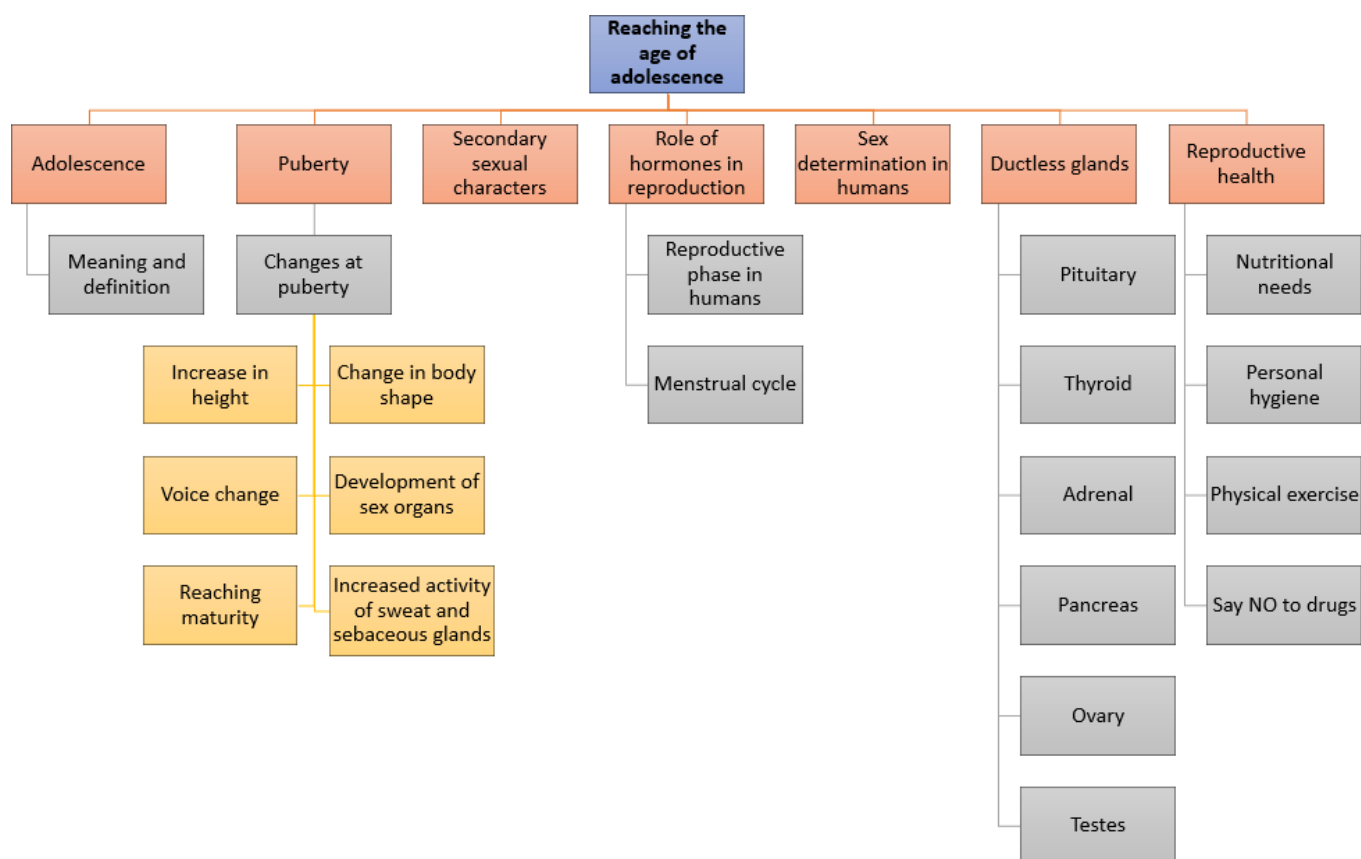
1. Iodine 2. Adolescence 3. Adrenaline 4. Acne 5. HIV 6. Diabetes

Image Source:

Pituitary gland - <https://publicdomainvectors.org/en/free-clipart/Pituitary-gland-image/80719.html>

Time to teach	Asset Type	Theme	Sub Theme
15 Minutes	Assessments	The Adolescence period	Hormonal changes

20. MS_ Summary_ Reaching the age of adolescence



Time to teach	Asset Type	Theme	Sub Theme
5 Minutes	Main Script	The Adolescence period	Sex determination, Secondary characters, Role of hormone on health, Reproductive phase, Reaching mental, intellectual maturity, Physical exercise, Physical and Personal hygiene, Nutritional needs, No to drugs, Development of sex hormones, Changes at puberty, Change in body shape, Adolescence, puberty, Sex determination, sexual characters

Master Lesson Plan

Seven Asset Methodology for MLP	
What is the purpose of this Master lesson Plan?	This Master Lesson Plan (MLP) prepared by Sri Sathya Sai Vidya Vahini, covers the entire chapter for the given board. The chapter given in the textbook is broken down into smaller modules known as assets. One of seven teaching methods is applied to each asset. Several different assets together complete the entire chapter. Each asset is supported by a teaching aid such as animated presentation, audio, video, worksheet; that the teacher can use in the class, while teaching that module. The MLP is for the teacher's preparation and the teaching aids are for use in the classroom.
How to use it?	You can prepare for your class with this MLP by following 3 simple steps:1. Read your textbook; 2. Go through the information given in the assets (document & multimedia); 3. Prepare your teaching notes. Great! Now you are ready to transact the chapter.
Duration	Kindly note the duration given for each asset. Due care has been taken in planning the assets, to ensure the chapter is completed within the time specified by the Board. Note: Preparation time is not included in the asset duration. The teaching time depends on the duration of the teaching aids and is not impacted by the length of the MLP.
What is a 'Main Script' (MS) Asset?	The Main Script asset is there for explaining the main concepts of the chapter clearly. The information given in the textbook is simplified, organised and structured to give more clarity. Additionally, you may find a video or mnemonics or a graphic organiser to deepen the understanding of the concept.
How to teach using the MS asset?	Please use the blackboard, slides and interaction to develop the concept.
What is an 'Inquisitive Questions' (IQ) asset?	The Inquisitive Questions asset uses questions to promote higher order thinking like the n^{th} why, what-if, new perspectives, cause-effect, and others, creating curiosity.
How to teach using the IQ asset?	You may use the questions to connect with the students, encourage exploration to engage them in the learning process. You may allow multiple responses and instead of rejecting any of the responses, ask why, before revealing the suggested answer or hints.
What is a 'Day to day Relevance' (DD) Asset?	The Day to Day Relevance asset helps students understand the practical relevance of every topic, making them eager participants in the classroom. If students connect the concepts to their environment, they would learn meaningfully without dislike or simply memorizing for exams.

How to teach using the DD asset?	You may use the asset by asking questions about their experience and use it to establish why they are learning the topic. If necessary you may substitute with a recent or local example.
What is an 'Interesting Aside' (IA) asset?	The Interesting Aside asset uses attention grabbing titbits or anecdotes to bring joy and satisfy the child's hunger to know more. This is a quick/short asset intended to bring attention back to the main concept being taught.
How to teach using the IA asset?	You may use this asset to give a piece of interesting information relevant to the topic, without prolonged explanation/discussion. You may suggest appropriate books for further reading.
What is a 'Suggested Activity' (SA) Asset?	The Suggested Activity asset provides a detailed step by step procedure for the teacher to conduct a hands-on activity. This promotes Activity Based Learning.
How to teach using the SA asset?	You may use this asset to energise your students to learn by doing simple, fun-filled activities based on the topic. The asset includes - preparation, activity, and follow-up. You may engage the students in the preparation and follow-up stages to develop collaboration and responsibility. You could try it once, yourself, before the actual delivery to be more comfortable with it. Note: The duration mentioned in the asset is usually for the activity part only.
What is a 'Value Content' (VC) Asset?	The Value Content asset integrates Universal Human Values (such as empathy, inclusivity, respect for nature that translates into responsible behaviour) seamlessly into the curriculum, as the "End of education is character".
How to teach using the VC asset?	You may use this asset to engage with the students to bring out their innate values and connect with the intrinsic values in the topic/concept. The asset includes pointers on the specific pedagogical technique followed.
What is a 'Questions to Assess' (QA) asset?	The Questions to Assess asset uses an interactive approach to check learning of different types of learners, and provides feedback to the teacher for appropriate action. The questions cater to all the levels of Bloom's Taxonomy. Questions from 'Apply' level and above enable students to reflect on their learning.
How to teach using the QA asset?	You may go through the slides to understand its flow and know when to click for the answer (slides include suggested answers). While presenting in the class, you may display the question and encourage multiple responses, before revealing the answer. In some cases, this asset may include extra questions/worksheet that can be given as homework.