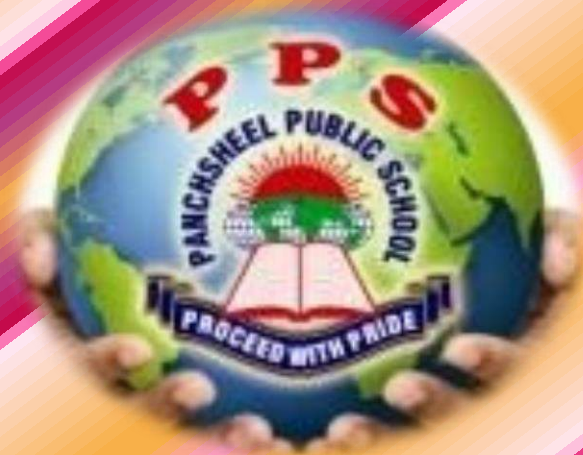


PANCHSHEEL PUBLIC SCHOOL
SESSION 2024-25
ENTRANCE EXAMINATION



CLASS - 8
SYLLABUS
STUDY MATERIAL
SAMPLE PAPER

SCIENCE

SYLLABUS

CLASS-VIII

1) Soil to Plate

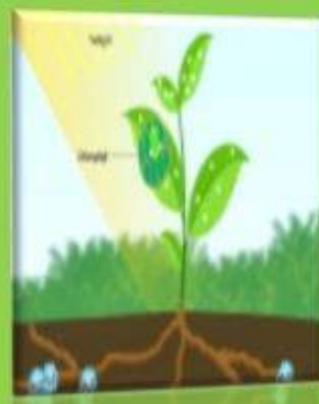
(Everyday Nutrition in Plants)

2) Breathing Easy

(Everyday insights into Respiration)

3) Illuminating everyday Moments:

(A closer look at lights in our lives)





PANCHSHEEL PUBLIC SCHOOL

10+2 Senior Secondary School (Affiliated & Recognized by CBSE)

Jaitpur, Badarpur, New Delhi-44

SESSION - 2024-25

ENTRANCE EXAM

STUDY MATERIAL AND SAMPLE PAPER

FROM SOIL TO PLATE

LESSON NOTES - KEY WORDS, SUMMARY AND FACTS

KEYWORDS:

- **Autotrophic nutrition:** Mode of nutrition in which organisms prepare their own food.
- **Chlorophyll:** Green pigment present in the leaves of plants.
- **Heterotrophic nutrition:** Mode of nutrition in which organisms do not prepare their own food; they derive their food from plants, or animals, or both.
- **Host:** The living organisms from which a parasite derives its food.
- **Nutrition:** The process, of obtaining, and utilising, food by a living organism.
- **Nutrients:** Carbohydrates, proteins, fats, vitamins and minerals are components of food. These components of food are necessary for our body and are called nutrients.
- **Parasitic nutrition :** The mode of nutrition in which non-green plants live on other living organisms and obtain their food from them.
- **Photosynthesis:** The process through which green plants prepare their own food.
- **Saprotrophic nutrition:** Mode of nutrition in which some plants feed on dead and decaying matter.
- **Stomata:** Tiny pores that are present on the surfaces of leaves; useful for exchange of gases.

SUMMARY:

- All organisms need food and utilise it to get energy for growth and maintenance of their body.
- Green plants synthesize food for themselves by the process of photosynthesis. They are autotrophs.
- Plants like Cuscuta are parasites. They take food from the host plant.
- Plants use simple chemical substances like carbon dioxide, water and minerals for the synthesis of food.
- Chlorophyll, water, carbon dioxide and sunlight are the essential requirements for photosynthesis.
- Complex chemical substances such as carbohydrates are the products of photosynthesis.
- Solar energy is absorbed by the chlorophylls present in leaves/plants.
- Oxygen is produced during photosynthesis.
- Oxygen released in photosynthesis is utilised by living organisms for their survival.
- Many fungi derive nutrition from dead and decaying matter. They are saprotrophs.



FACTS:

- Euglena is an organism that shows both autotrophic and heterotrophic modes of nutrition. It has both plant and animal-like features.



- Some plants have leaves that are not green in colour. Such leaves contain chlorophyll, but the green colour is masked due to the presence of other coloured pigments. The presence of additional pigments causes other leaf colours, such as red in coleus and purple in red cabbage. However, such leaves can still perform photosynthesis. However, some variegated leaves have yellow patches. Such yellow areas on the leaf do not contain any chlorophyll and hence, cannot perform photosynthesis.



- Both deer and lion depend on plants. If there were no plants, deer would not survive and if there were no animals, like deer, lions, too, would die. Plants, in turn, depend on solar energy. Hence, solar energy is the ultimate source of energy for all living Organisms.

You must have observed:

- ✓ A white cottony growth on leather articles in humid weather
- ✓ Mushrooms growing on rotting wood and

Greenish-blue patches on rotting fruits. A cottony growth, developing into coloured patches, is a common occurrence on stale bread. These organisms belong to the group of fungi and bacteria, and they exhibit the saprotrophic mode of nutrition.





Breathing easy: Everyday insight into respiration

LESSON NOTES – KEY WORDS, SUMMARY AND FACTS

KEY WORDS:

RESPIRATION: It is the process of taking in oxygen, using it for the release of energy by breakdown of food and removing carbon dioxide.

Aerobic Respiration: The breakdown of food into carbon dioxide and water to release energy in the presence of oxygen is called aerobic respiration.

Anaerobic Respiration: The breakdown of food into alcohol and carbon dioxide with the release of energy in the absence of oxygen is called anaerobic respiration.

Inhalation: The taking in of air, rich in oxygen into the body is called inhalation.

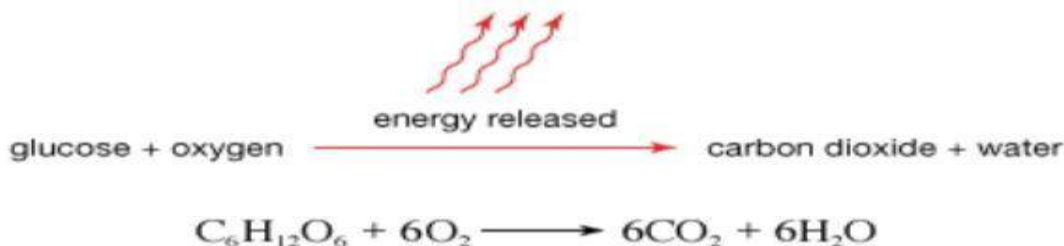
Exhalation: The giving out of air, rich in carbon dioxide outside the body is called Exhalation.

Ribs: The bony framework of the thoracic cavity is known as the ribs.

Spiracles: Respiration in Insects such as cockroaches, houseflies etc occurs through a tracheal system.

SUMMARY:

- All the living organisms are made up of small, microscopic units called the cells.
- These cells have different functions to perform in these organisms such as digestion, respiration, transportation, and excretion.
- The cells can perform this function only if they get the energy to do so.
- Hence, all living organisms need food which gives them the required energy.
- The energy present in the food gets released when the organisms respire or breathe.
- As we breathe, we take in the air that contains oxygen in it and breathe out air which contains carbon dioxide. This oxygen when transported to our cells helps in breaking down the food and we get energy.
- The release of energy during respiration



- Breathing rate can be defined as the number of times a person breathes in a minute. A breath can be defined as an inhalation followed by an exhalation.
- The breathing rate is not always constant in human beings. We generally breathe faster when our body needs more energy for example while exercising.



- This is so because the body needs more oxygen that can break down the food and produce more energy.
- An average adult human being breathes 15 to 18 times in a minute. While exercising, this rate can change up to 25 times a minute.

FACTS:

Why do we sneeze?

- As we inhale the air present in the surroundings sometimes various unwanted elements such as smoke and dust are also included in it.
- Normally, they get stuck in the hair in our nostrils but some of them can get through the nasal cavity.
- They thus cause irritation in the nasal cavity which makes us sneeze.
- This helps in getting rid of the unwanted particles out of the nasal cavity.



Respiration in Woody stems:

All the parts of the plants can independently respire, that is they can take in carbon dioxide and release oxygen on their own. The leaves of the plants have tiny pores called stomata through which exchange of respiratory gases takes place. In herbaceous plants exchange of gases takes place through stomata but in the woody stems of the plants there is presence of special tissue called Lenticels.





illuminating everyday moments"

(A closer look at light in our lives)

LESSON NOTES – KEY WORDS, SUMMARY AND FACTS

KEY WORDS:

Light: Light is a form of energy which enables us to see the world around us.

Reflection of light: The phenomenon of sending back the light rays that fall on the surface of an object is called reflection of light.

Incident Ray: The light ray that falls on the reflecting surface is called an Incident Ray.

Reflected Ray: The light ray that gets reflected from a reflecting surface is called a Reflected Ray.

Normal: It is a line that is perpendicular to the reflected plane at the point of incidence of Incident Ray.

Concave Mirror: It is a spherical mirror whose reflecting surface is curved inwards.

Convex Mirror: It is a spherical mirror whose reflecting surface is curved outwards.

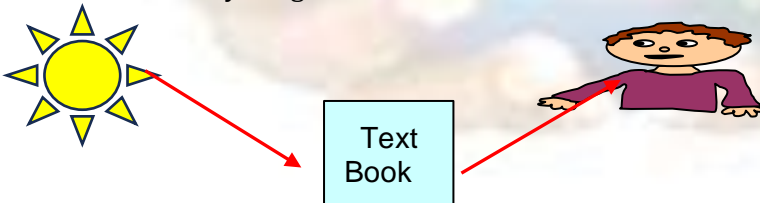
Convex Lens: A Convex Lens is curved outwards. It is thicker in the centre and narrows down at the edges. It merges the light rays passing through it at a certain point. Therefore, it is also called a Converging Lens.

Concave Lens: A Concave Lens is curved inwards. It has wider edges and a thinner centre. It reflects the light that travels through it in different directions. Therefore, it is also called a **Diverging** Lens.

SUMMARY:



We cannot see anything in dark room. There is no reflection.



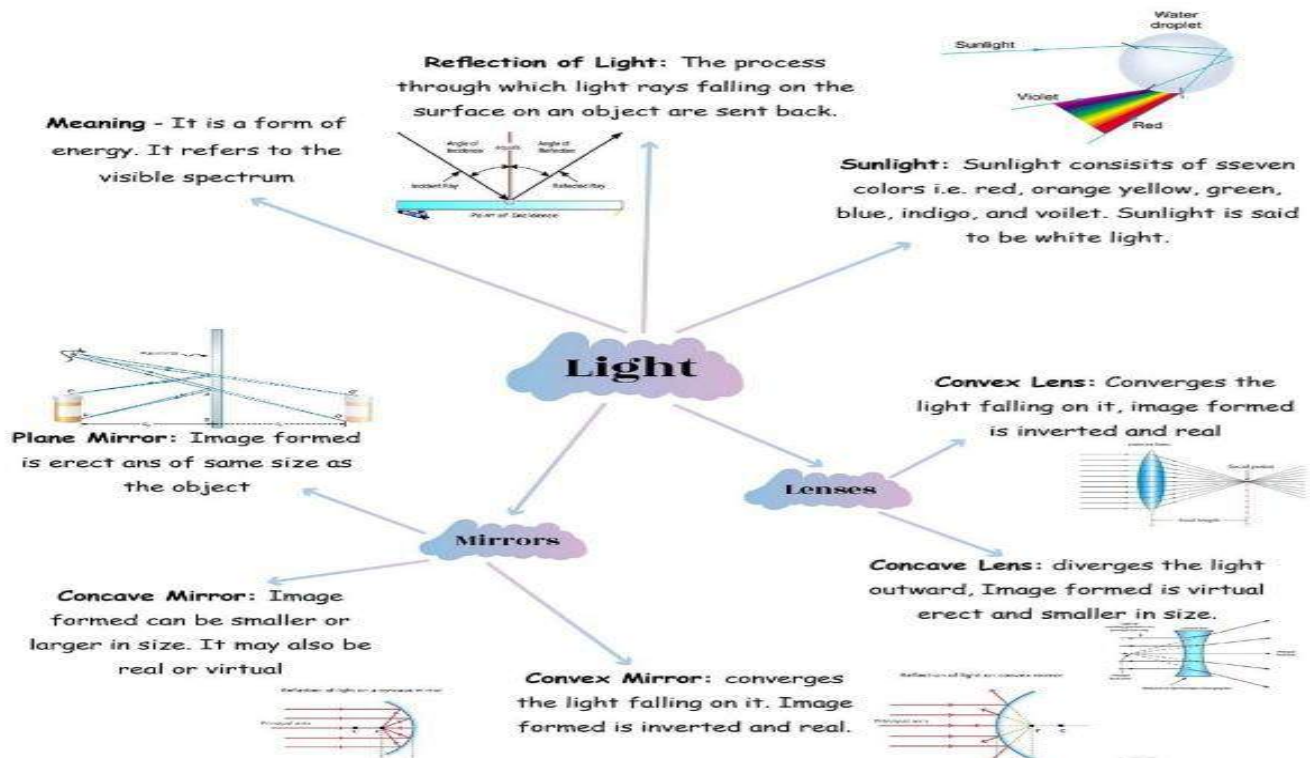
Here, we see things as they reflect light into our eyes as shown in the figure .

- Light is a radiation or a form of energy that our eyes can detect. Light enables us to view our surroundings. Light travels from one place to another in a straight line.





I



FACTS:

- Why is the word 'AMBULANCE' painted on an ambulance left-right inverted?



This is because of the left-right inversion of the image.

on a mirror. The word ambulance written as left-right inverted would, therefore, be read easily by the driver of the vehicle ahead of the ambulance in its rear-view mirror. The rear-view mirror will again invert the word left-right wise.

- Security mirrors near an ATM are convex so that the user can detect easily if anyone else is watching from behind or not.





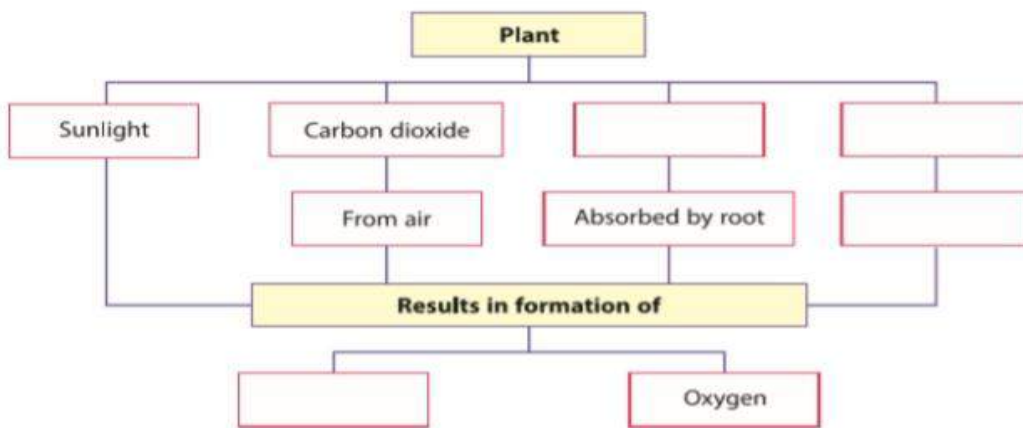
SAMPLE QUESTION PAPER

Q.1. Palak wants to be a great cyclist. She cycles daily for about 2 hours followed by some exercises. Today, she thought she will cycle for longer and managed it for 4 1/2 hours. Now she is feeling cramped up and her breathing is disturbed. Her mother takes her to hospital where the doctor examined and tell her not to push herself more than necessary. Palak understands and promises herself to move slow and steadily.

(a) Why did Palak have cramps in her legs? 2

(b) Is breathing rate also affected after doing long hour of exercise? Why?

Q.2. Complete the web chart.



Q.3 Namit was driving a car and suddenly became aware of a loud sound coming from behind. He looked through his rear-view mirror and saw an ambulance. He recalled reading that such emergency vehicles often have their name written with lateral inversion. 2

He quickly made way for the ambulance, murmuring a quick prayer for the speedy recovery of the patient inside the ambulance.

(a) Name the type of mirror which is used as a rear-view mirror and why?

(b) Can you use Plane mirror as a rear-view mirror?

Q.4. Answer the following Questions. (2×3=6)

(a) What will happen if all the plants disappear from the earth?

(b) How does sneezing protect us from germs.?

(c) A person standing 6m away from a plane mirror moves 3m towards the mirror. Can you tell the distance between the person and the image?

Q.5. Multiple choice Questions. (1×3=3)

a) If you are given three lenses -convex ,plane and concave, to read a dictionary ,which lens would you choose?

(i) Concave (ii) Convex (iii) Plane

b) Alcohol is formed by which type of respiration.

(i) Aerobic (ii) Anaerobic (iii) Cellular (iv) Leaf

c) The portion of leaf that is not exposed to sunlight ,will not make

(i) Fats (ii) Protein (iii) Glucose (iv) Starch