

Dawood Public School
Course Outline 2019-20
Science
Grade V

Book and Work book:

- Marshall Cavendish Science (pupil's Book 5)
- Marshall Cavendish Science (Activity Book 5)

Months	Contents	Pages
August	Changing States	2-29
September	Investigating Plant Growth	30-47
	Human Digestive System (Science Smart)	
October	The Earth and Beyond	124-149
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December	Mid-Year Examination	
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February	The Way We See Things	86-103
March	Shadows	104-123
April	Revision for Final Examination	
May	Final Examination	

Contents	Learning Objectives
<p>Matter</p> <p>Matter is any substance that has mass and takes up space by having volume.</p> <p>Mass and Volume are the two basic characters of matter.</p>	<ul style="list-style-type: none"> Define 'matter'. Differentiate between mass and volume.
<p>States of Matter</p> <p>There are three states of matter:</p> <ul style="list-style-type: none"> solids liquids gases 	<ul style="list-style-type: none"> Compare the properties of three states of matter. List the differences and similarities of three states of matter. Draw the particle arrangement of solids, liquids and gases.
<p>Changes of state</p> <ul style="list-style-type: none"> Heat gain or heat loss can cause changes in state. 	<ul style="list-style-type: none"> Understand that heating or cooling is needed for a change of state to take place from one state of matter to another.
<p>Boiling and Melting</p> <ul style="list-style-type: none"> Boiling is a change of liquid into a gas. Melting is a change of solid into a liquid. 	<ul style="list-style-type: none"> Define 'boiling.' Define 'melting'. State the boiling point of water. State the melting point of ice. Identify the different states of water at different temperatures.
<p>Evaporation</p> <p>Is a change of liquid into a gas below its boiling point.</p> <p>Factors affecting the rate of evaporation are;</p> <ul style="list-style-type: none"> The temperature of surrounding The presence of wind The surface area Humidity 	<ul style="list-style-type: none"> Describe the process of evaporation. List the factors which affect the rate of evaporation. Recognise that solid is obtained when a liquid evaporates from a solution. Compare the similarities and differences of evaporation and boiling.
<p>Freezing and Condensation</p> <ul style="list-style-type: none"> Freezing is change of a liquid into a solid. Condensation is the change of a gas into a liquid. 	<ul style="list-style-type: none"> Define 'freezing.' Define 'condensation.' Identify the pictures showing process of condensation. Recognise that condensation is the reverse of evaporation. Recognise that freezing is the reverse of melting.
<p>The Water Cycle</p> <p>It is the continuous movement of water from the Earth's surface to the air and back to the Earth's surface.</p> <p>Different processes involved in water cycle are;</p> <ul style="list-style-type: none"> evaporation transpiration condensation precipitation collection 	<ul style="list-style-type: none"> Understand how the water cycle works. Explain the processes involved in the water cycle. Label the diagram of water cycle. Describe the importance of water cycle.

Key words:

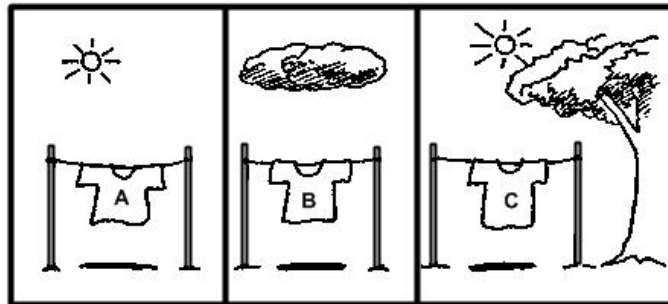
matter, mass, volume, solid, liquid, gas, steam, boiling point, freezing point, melting point, evaporation, water vapour, perspire, variable, solution, soluble, crystals, temperature, evaporation, transpiration, precipitation, condensation, droplets, clouds, water cycle

Types of Questions:

- Multiple Choice Questions.
- Structural Questions.
- Short Reasoning Questions.
- Descriptive Questions.

Sample Questions:

1. Three similar T-shirts, A, B and C, were sprayed with equal amounts of water and left to dry in three different places as shown in the diagram below.



2. Which one of the following shows the arrangement of the three T-shirts in order of the rate of drying, starting with the T-shirt that would dry in the shortest time?

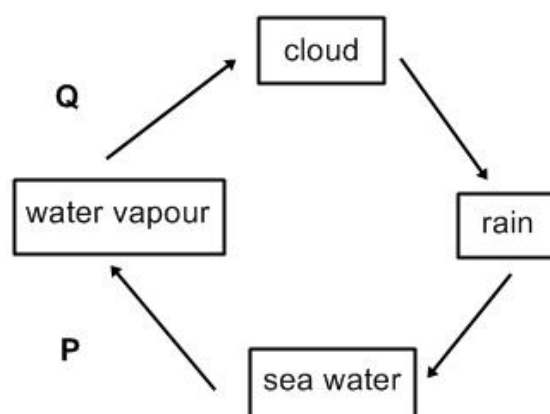
- A. A, B, C
- B. A, C, B
- C. B, C, A
- D. C, B, A

3. Jonathan had three substances A, B and C. He wanted to find out if they were a solid, liquid or gas. He tested the substances and recorded his results in the table below.

Test	A	B	C
Does it have mass?	Yes	Yes	Yes
Does it occupy space?	Yes	Yes	Yes
Can it flow?	Yes	Yes	No
Can it be compressed?	No	Yes	No

- a) What is the state of matter for substance B? Explain your answer.
- b) What is the state of matter for substance C? Explain your answer.

3. The diagram below represents a water cycle.



4. Based on the diagram above, answer the following questions:

- a) Name the process(es) which take(s) place at:
 i) P ii) Q
 b) Describe how sea water becomes water vapour.

Workbook Activities:

- Worksheets # 1-7

Creative Applications:

- To find the melting point of ice.
- To find out whether evaporating slowly or quickly will result in salt crystals of different sizes.
- To visualize the phenomenon of condensation in hot and cold water in a closed system.
- To construct a virtual water cycle in laboratory by using hot water and ice cubes in order to understand the phenomenon of water cycle.

IT Surf :

- <https://www.youtube.com/watch?v=C33Wdl64FiY>
- https://www.youtube.com/watch?v=Nzs_Oc_dzps
- <https://www.youtube.com/watch?v=yjJ3eSD77zE>
- https://www.youtube.com/watch?v=r8M7mah_QaY

September

Chapter 2: Investigating Plant Growth

Pages no: 30 - 47

Contents	Learning Objectives
<p>Germination The development of seeds into young plants is called germination.</p> <p>Conditions for Germination of Seed</p> <ul style="list-style-type: none"> • water • warmth • air <p>Stages of Germination</p> <ul style="list-style-type: none"> • Seed absorbs water. • Water cracks the seed coat activating growth. • Root begins to grow downward. • Shoot begins to grow upward. • Green leaves begin to develop. • Normal growth continues. <p>Parts of Bean seed</p> <ul style="list-style-type: none"> • seed coat • cotyledon • embryo 	<ul style="list-style-type: none"> • Understand that many plants reproduce from seeds. • Identify the conditions necessary for germination. • Describe the life cycle of most plants. • List the different stages of germination, from seed to adult plant. • Discover what is inside a seed. • Label, distinguish and state the functions of parts of bean seed.
<p>Conditions for Plant Growth</p> <ul style="list-style-type: none"> • light <p>water warmth air</p> <p>Measuring of plant growth Plant growth can be measured to understand rate of growth and the factors which influence growth.</p>	<ul style="list-style-type: none"> • List the necessary conditions required for plant growth. • Learn to measure the plant growth by calculating the height or mass of plant on 'Line graph' or 'Bar chart'.

Photosynthesis

The process by which green plants make their own food from carbon-dioxide and water in the presence of sunlight and chlorophyll is called photosynthesis.

- Define 'photosynthesis'.
- Describe the process of photosynthesis.
- Write the word/chemical equation for the process of photosynthesis.

Key words:

seeds, germination, energy, growth, reliable, water, warmth, seed coat, embryo, photosynthesis

Types of Questions:

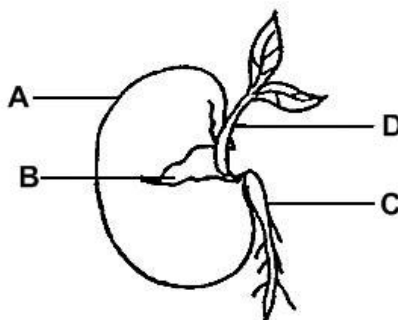
- Multiple Choice Questions.
- Structural Questions.
- Short Reasoning Questions.
- Labelling Questions.

Sample Questions:

1. Predict and explain whether a plant will be able to grow in these conditions.

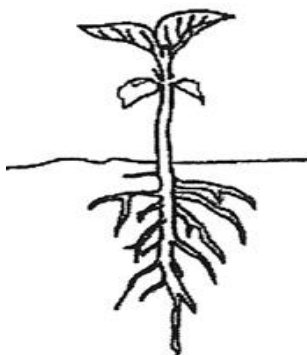
- Without light
- without water
- Without air

2. Study the diagram below.



- Which part, A, B, C or D, provides food for the seedlings?
- Identify the part, A, B, C and D, which comes out first during germination.
- State the conditions required for germination.
- When will the seedling start to make its own food?

3. The diagram below shows a young plant.



Which one of the following statements about the young plant at its stage of its life cycle is correct?

- It is now able to reproduce.
- It can start to make its own food.
- It depends only on its seed leaves for food.
- It does not only depend on its roots to take in water.

Workbook Activities:

- Worksheets # 1-4

Creative Applications:

- To perform a Benedict's test to detect the presence of sugar.
- To prepare a slide of plant cell (stem) by performing section cutting.

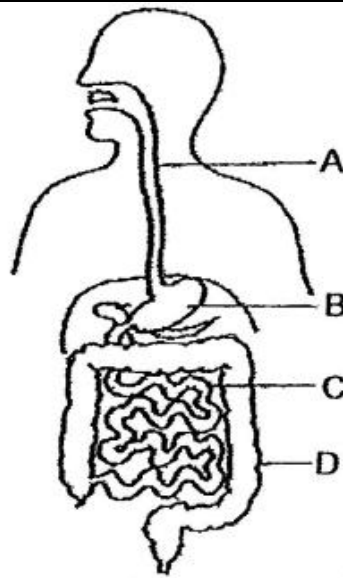
- To perform paper chromatography in order to separate chlorophyll from leaf.
- To observe that plants contain air.

IT Surf :

- <https://youtu.be/paQFnx85oxQ>
- <https://youtu.be/tdNhqGpUbn0>

The Human Digestive System

Contents	Learning Objectives
<p>Digestion The process of breaking down food into simpler substances that the body can use. The digestive system is divided into two major parts;</p> <ul style="list-style-type: none"> • The alimentary canal It is a continuous tube with two openings: the mouth and the anus. It includes the mouth, pharynx, esophagus, stomach, small intestine, and large intestine. • Accessory organs It includes the teeth and tongue, salivary glands, liver, gallbladder, and pancreas. 	<ul style="list-style-type: none"> • Understand the concept of digestion. • Identify the various parts of the digestive system. • Relate parts of the digestive systems to their functions. • Describe the alimentary canal. • List the accessory organs.
<p>The main stages of food processing The digestive system acts in stages to digest our food.</p> <ul style="list-style-type: none"> • ingestion: act of eating or feeding. • digestion: the process of breaking down food into small molecules the body can absorb. • absorption: water and nutrients are taken in (absorbed) • elimination: removal of undigested solid wastes from the body. 	<ul style="list-style-type: none"> • Define the following terms: <ul style="list-style-type: none"> ➤ ingestion ➤ absorption ➤ elimination • Describe the stages involved in the process of digestion. • Differentiate between 'ingestion' and 'digestion'.
<p>Diagram of the digestive system.</p>	<ul style="list-style-type: none"> • Draw the digestive system. • Label, distinguish and state the functions of different parts of digestive system.
<p>Importance of digestion It is important for breaking down food into nutrients, which the body uses for energy, growth, and cell repair.</p>	<ul style="list-style-type: none"> • Understand the main purpose of digestive system and importance of digestion in body. • State the benefits to the human body when digestive processes are completed.
<p>Key words: digestion, mouth, stomach, oesophagus, intestine, anus, alimentary canal</p> <p>Types of Questions:</p> <ul style="list-style-type: none"> • Multiple Choice Questions. • Structural Questions. • Short Reasoning Questions. • Labelling Questions. <p>Sample Questions:</p> <p>1. The diagram below shows the digestive system of a human.</p>	



- i. In which two parts (A, B, C, D) will the digestion of food take place?
- ii. Pick a part of the digestive system and describe its function.

Workbook Activities:

- Worksheets # 1-2

IT Surf :

- <https://youtu.be/kurlbBqUI2g>
- <https://youtu.be/VwrsL-ICZYo>

October

Chapter: The Earth and Beyond

Pages no: 124 - 149

Contents	Learning Objectives
<p>The Earth as a planet</p> <p>The Earth is the only planet of the Solar system that has life on it.</p> <p>It is special because it consists of:</p> <ul style="list-style-type: none"> ➤ land ➤ water ➤ air 	<ul style="list-style-type: none"> • State that the Earth is the only planet of the Solar System that has life on it. • Develop awareness that combination of land, water and air makes the Earth special.
<p>Movement of Earth</p> <p>The Earth spins on its axis that causes day and night is called rotation.</p> <p>The Earth revolves around the Sun. This movement is called revolution.</p>	<ul style="list-style-type: none"> • Differentiate between 'rotation' and 'revolution'. • Describe the rotation of Earth. • Describe the movement of Earth on its axis that causes day and night. • Describe revolution of Earth around the Sun. • Describe the movement of Earth around the Sun that completes in one year or 365 ¼ days.
<p>The Sun</p> <p>The Sun is a star because it has its own light. It gives out heat energy and light energy.</p>	<ul style="list-style-type: none"> • State the importance of Sun's heat and light energy in our lives.
<p>The Solar System</p> <p>It consists of</p> <ul style="list-style-type: none"> • Sun • eight planets <p>A planet is a very large object that moves around a Sun. The earth and planets are all part of a Solar System where they move around the sun.</p>	<ul style="list-style-type: none"> • Define 'Solar System'. • Describe how planets are a part of the solar system. • Label and learn the names of eight planets in the solar system.

<p>Asteroids, Comets and Galaxy</p> <ul style="list-style-type: none"> • Asteroids are irregular shaped rocks that are smaller than the planets. Most of them are found between Mars and Jupiter. • Comets are objects made up of ice, dust and rocks. They form dust tails as the heat up when nearing the Sun. • Galaxy is a collection of star system such as the Solar system, gas and dust. 	<ul style="list-style-type: none"> • Differentiate between Asteroids and Comets. • Describe the Milky Way. • State that the Solar System belongs to a galaxy called the Milky Way. • State what comprises comets. • Describe where most asteroids are found.
<p>Timeline of Space Discoveries using Telescopes</p> <p>Many scientists have explored the Solar System and stars over the years with the help of tools such as telescopes.</p>	<ul style="list-style-type: none"> • Differentiate between a binocular and a telescope. • State that the invention of tools such as binoculars and telescopes help scientists to see much further and cleaner.
<p>Satellite, Space Probes and Rovers</p> <ul style="list-style-type: none"> • An artificial body placed in orbit round the earth or moon or another planet in order to collect information or for communication is called satellite. • Space probes are unmanned spacecraft that carry instruments such as cameras, computers and robots to the outer space. • Rovers are robotic vehicles that explore the surface of a planet. 	<ul style="list-style-type: none"> • Define 'satellite'. • Name the large artificial satellite orbiting the Earth. • Differentiate between space probes and rovers.

Key Words:

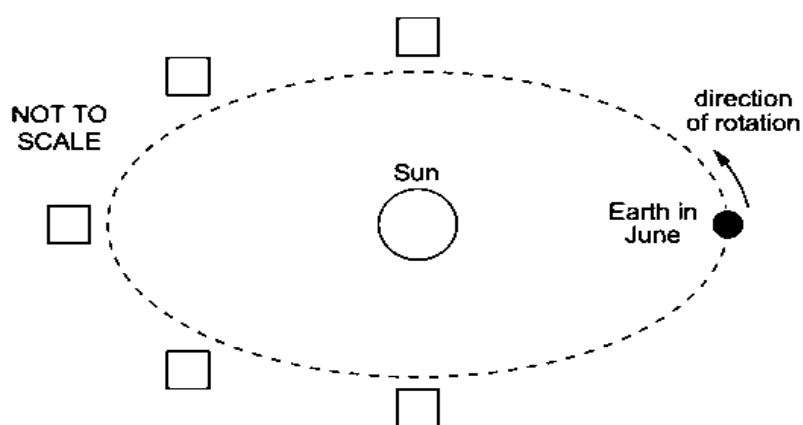
rotation, revolution, asteroids, comets, satellite, galaxy, solar system, milky way, binoculars, telescopes, space probes, rovers, astronauts, scientist, space station, space craft

Types of Questions:

- Multiple Choice questions
- Differences
- Short reasoning questions
- Labeling
- Structural questions

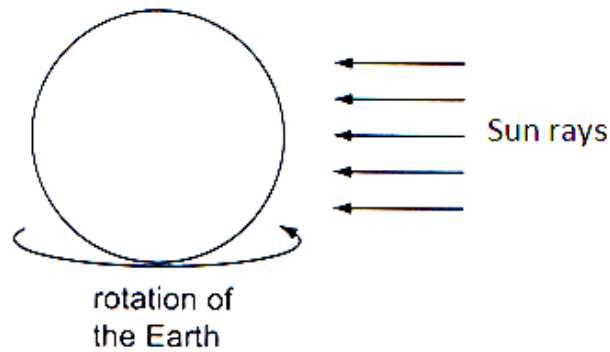
Sample Questions:

- Lily draws a diagram to show the position of the Earth in the month of June.
 - Put number 6 in the correct box to show where the Earth will be 6 months later.
 - Put number 9 in the correct box to show where the Earth will be 9 months later.



- The diagram shows the Earth with rays of light reaching it from the Sun,
 - Shade in that part of the Earth that is experiencing night time.
 - Write the letter N at any point on the diagram where the time will be approximately noon and a

letter M where the time will be approximately midnight.



Workbook activities:

- Activities: # 1-7

Activities/Experiments:

- Students will use a globe, a tennis ball and a torch light to observe the movement of rotation and revolution of the Earth around the Sun.
- Students will work in groups to identify and learn the names of planets in the Solar System.

Creative Applications:

- To observe that air can be consumed.
- To find out that cereals/ beans (plants) contain water.
- To observe the conduction of heat in different materials (plastic, paper, glass and cloth).
- To investigate that air is present all around.

Surf IT:

- <http://www.kidsastronomy.com/earth.htm>
- <http://earthobservatory.nasa.gov/>
- <http://www.esa.int/esaKIDSen/Planetsandmoon.html>

November:

Revision for Mid Year Examination

December:

Mid Year Examination

January

Chapter 3: Reproduction in Flowering Plants

Pages no: 48 - 82

Contents	Learning Objectives
<p>Why do plants produce flowers? Plants produce flowers for reproduction.</p>	<ul style="list-style-type: none"> • Define 'reproduce'. • Develop awareness that flowering plants produce flowers with male and female parts to reproduce.
<p>Processes involved in the reproduction of flowering plants. Plants undergo the following processes for its reproduction;</p> <ul style="list-style-type: none"> • pollination • fertilization • seed production • seed dispersal • germination 	<ul style="list-style-type: none"> • List the different processes involved in the reproduction of flowering plants. • Describe the process of pollination. • List the various forms of seed dispersal. • Describe how seed dispersal influences reproduction. • Describe the process of germination. • Differentiate between 'germination' and 'fertilization'.
<p>Flowers Flowers are the parts of the plants responsible for reproduction; they turn into fruit after fertilization.</p>	<ul style="list-style-type: none"> • Describe the functions of the flower. • Identify and label the different parts of flower.

<p>They following parts of the flower play an important role in reproduction;</p> <ul style="list-style-type: none"> • petal • sepal • pedicel • pistil <ul style="list-style-type: none"> ➤ stigma ➤ style ➤ ovary ➤ ovule ➤ eggs/female reproductive cells • stamen <ul style="list-style-type: none"> ➤ pollen ➤ anther ➤ filament 	<ul style="list-style-type: none"> • State the functions of the different parts of the flower. • Identify the male and female parts of the flower. • Predict what would happen in the absence of different parts of the flower. • Define the following: <ul style="list-style-type: none"> ➤ unisexual flower ➤ bisexual flower • Differentiate between unisexual and bisexual flower. • List the different parts which make up the 'pistil'. • List different parts which make up the 'stamen'.
<p>Pollination It is the transfer of pollen from the anther of a flower to the stigma of the same flower.</p> <p>Types of pollination</p> <ul style="list-style-type: none"> • self pollination • cross pollination <p>Pollinators</p> <ul style="list-style-type: none"> • animals like birds, bats and insects • wind 	<ul style="list-style-type: none"> • Explain the process of pollination. • Differentiate between self and cross pollination. • Illustrate the processes of self and cross pollination. • Differentiate between wind pollinated and insect pollinated flowers. • Give examples of the wind and insect pollinated flower. • List some pollinators and identify the flowers' pollinator on the basis of their specific features.
<p>Fertilization The fusion of the male reproductive cell with the egg to form a fertilised cell.</p> <p>Steps involved in the process of fertilisation are;</p> <ul style="list-style-type: none"> • pollination • fusion of male and female reproductive cells • fertilisation • development of ovules into seeds 	<ul style="list-style-type: none"> • Develop awareness that seeds are formed after fertilisation takes place. • List the steps involved in the process of fertilization. • Illustrate the process of fertilization. • Describe what happens to each of the following parts of a flower after fertilization: <ul style="list-style-type: none"> ➤ petal ➤ sepal ➤ pedicel ➤ pistil ➤ stamen
<p>Fruits Fruits are defined as the parts of plants that develop from the ovaries of flowers after fertilisation.</p> <p>Fruits and their types</p> <ul style="list-style-type: none"> • edible or inedible • fleshy or non-fleshy • juicy or dry 	<ul style="list-style-type: none"> • Identify the fruits on the basis of their specific characteristics. • State the importance of fruits in plant growth. • Name some edible and inedible fruits. • Name some fruits that are regarded as vegetables.
<p>Seed dispersal Seed dispersal is the movement or transport of seeds away from the parent plant.</p> <p>Seed dispersal methods</p> <ul style="list-style-type: none"> • wind • animals • water • splitting open 	<ul style="list-style-type: none"> • Suggest various ways in which seeds can be dispersed. • Describe the different methods of seed dispersal with examples of fruits.

Germination

The development of seeds into young plant is called germination.

Conditions required for germination;

- water
- oxygen in air
- warmth

Life cycle of plant

The different stages of growth and development, from a seed to an adult plant, make up the life cycle of a flowering plant.

- List the necessary conditions required for seed germination and plant growth.
- Describe the life cycle of flowering plants.
- Observe that flowering plants have life cycles.

Key Words:

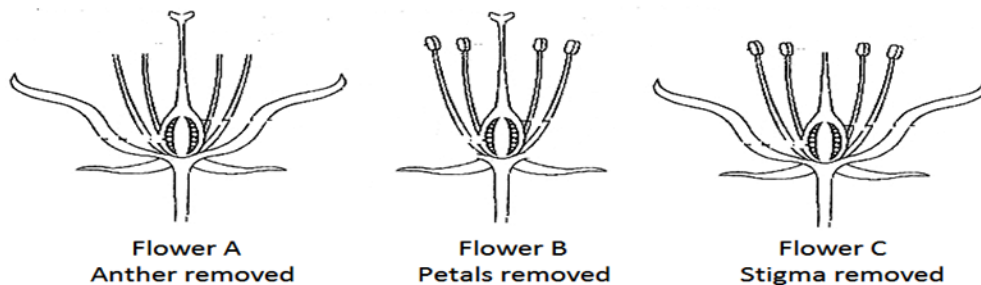
flower, fruits, reproduction, petal, sepal, pedicel, pollen, anther, filament, stamen, pistil, carpel, stigma, style, ovary, ovule, female reproductive cells/eggs, pollination, fertilization, unisexual, bisexual reproduction, pollination, fertilization, seed dispersal, germination, nectar, pollinators, nutrients, overcrowding

Types of Questions:

- Multiple Choice questions
- Differences between different processes
- Questions with illustrations
- Descriptive questions
- Labeling and drawing of diagrams
- Short reasoning questions

Sample Questions:

1. Hazel has carried an experiment with 3 bright colored flowers and removed certain parts of the flower as shown in the diagram.



Hazel dusted the pollen on the flower A, B and C.

- a. Which of the flower(s) will not be able to turn into the fruit? Give reason.
- b. Flower B is most likely to have the least number to attract the insects. Give reason.

2. The picture below shows two fruits, grapes and mango.



- a) State the difference between the grapes and the mango with respect to seed dispersal.
- b) Grapes have a higher chance of reproduction. Explain why?

Workbook activities:

- Activities: # 1-9

Activities/Experiments:

- Identify different parts of flower.
- Be engaged in 'Cheetos' pollination activity with finger puppet.
- Have fun with fruits and vegetables.
- Sow seeds.

Creative Applications:

- To prepare oxygen gas in laboratory by using yeast.
- To prepare and observe the slides of pollen grains.
- To investigate which type of soil has the highest air content and water holding capacity.
- To analyze your physical health by measuring your body mass index. (BMI)

IT Surf :

- <http://www.neok12.com/Pollination.htm>
- <http://theseedsite.co.uk/dispersal.html>
- <http://www.crickweb.co.uk/ks2science.html#lcycles5b>
- <http://www.teachersdomain.org/asset/lsp07-int-plantmovies/>

February**Chapter 4: The way we see things****Pages no: 86 - 103**

Contents	Learning Objectives
<p>What is light? Light is a form of energy that enables us to see. The path in which light travels is called a light ray and a bundle of light rays makes up a beam of light.</p> <p>Sources of light Objects that give off light are called light sources. There are two types of light sources.</p> <ul style="list-style-type: none"> • natural sources • man-made sources <p>Intensity of light The strength or the amount of light falling on an area is called light intensity. Light intensity can be measured with a light meter or light sensor with a data logger in the unit of lux.</p>	<ul style="list-style-type: none"> • Define 'light'. • Recognize that we see a light source because its light enters in our eyes. • Identify and name examples for the following: <ul style="list-style-type: none"> ➤ natural light sources ➤ man-made light sources • Differentiate between a ray and a beam of light. • Recognize that we can measure the intensity of light. • Identify the areas with dim light and the areas with bright light. • Draw a light ray to show how light from the light source travel and enters the eyes. • Describe what is meant by 'intensity' of light. • Suggest how light intensity may be measured.
<p>What is the reflection of light? The bouncing of light off a surface is called the reflection of light. When light is reflected it changes direction.</p> <p>Law of reflection Angle of incidence is always equal to angle of reflection.</p> <p>Where can we see our reflection? The objects with smooth surface reflect light well and they appear shiny and bright when light falls on them. We can see our reflection in them.</p> <p>Types of mirror</p> <ul style="list-style-type: none"> • plane mirror • concave mirror 	<ul style="list-style-type: none"> • Define the following terms: <ul style="list-style-type: none"> ➤ reflection ➤ incident ray ➤ reflected ray ➤ normal ray • Observe how a surface can reflect light. • Investigate why a beam of light changes direction when it is reflected from a surface. • Recognize that we can see an object that does not give off light because it reflects light into our eyes. • State the law of reflection. • Draw light rays to show how the eyes see an object that does not give off light. • Draw light rays to show the reflection of light on the following different surfaces:

<ul style="list-style-type: none">• convex mirror	<ul style="list-style-type: none">➤ rough surface➤ smooth surface• List some objects in which our reflection can be formed.• Investigate how mirrors and other shiny surfaces are good reflectors of light.• Name different types of mirrors.• Suggest some uses of the following types of mirrors:<ul style="list-style-type: none">➤ plane mirror➤ convex mirror➤ concave mirror• Describe the working of a periscope.• Describe how we may see our own reflection in water or in a mirror.
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Key words:

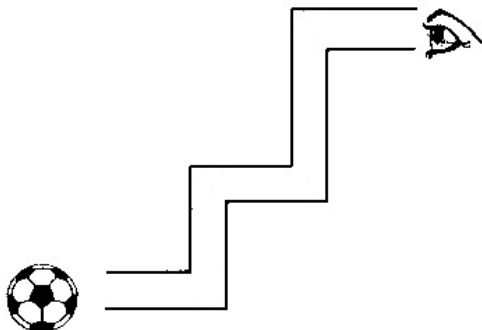
light, ray, beam, light source, light intensity, object, mirror, surface, reflect, reflection, bounce off, concave, convex, periscope, direction

Types of Questions:

- Multiple Choice Questions
- Structural Questions
- Short Reasoning Questions
- Labelling Questions
- Drawing

Sample Questions:

1. Study the diagram below carefully.



Mirrors should be placed in the tube in order to see the football at the other end.

- a) What is the least number of mirrors needed?
- A. Three
 - B. Four
 - C. Five
 - D. Six
- b) Draw the required number of mirrors on the correct positions in the above diagram.
- c) Draw a ray of light in the above picture to show how light travels through the path.

Workbook Activities:

- Worksheets # 1-6

Creative Applications:

- To observe the reflection of light by a mirror.
- To find out which surfaces reflect light well.
- To observe that small pictures look very large.
- To observe that can we see without light.

Surf it:

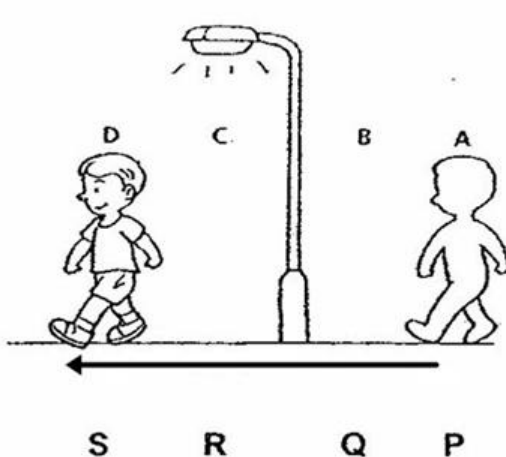
- <https://www.youtube.com/watch?v=d7yTlp4gBTI>
- <https://www.youtube.com/watch?v=vt-SG7Pn8UU>

March

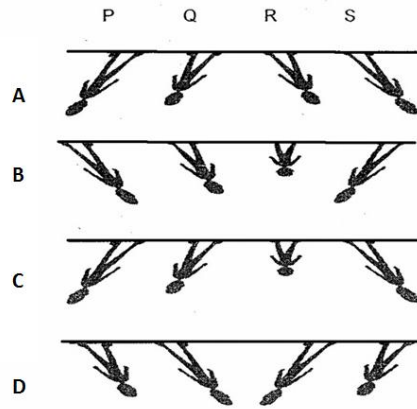
Chapter 5: Shadows

Pages no: 104 - 123

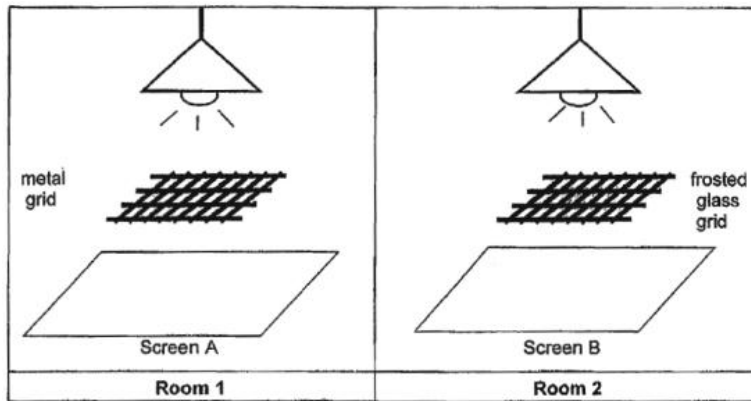
Contents	Learning Objectives
<p>Do all the materials allow light to pass through them?</p> <p>Transparent materials allow most of the light to pass through them.</p> <p>Translucent materials allow only some light to pass through them.</p> <p>Opaque materials do not allow any light to pass</p>	<ul style="list-style-type: none">• Investigate the relationships between light and materials.• Define the following terms:<ul style="list-style-type: none">➤ transparent➤ translucent➤ opaque

<p>through them.</p>	<ul style="list-style-type: none"> List a variety of objects in the following categories: <ul style="list-style-type: none"> ➤ transparent ➤ translucent ➤ opaque Suggest why a certain object should be made with a particular material.
<p>How are shadows formed?</p> <p>A shadow is an area of darkness formed when light is totally or partially blocked by an object.</p>	<ul style="list-style-type: none"> Define 'shadow'. Describe how shadows are formed. Observe that shadows are formed because light travels in straight lines. Differentiate between reflections and shadows. Observe and record the different shapes of shadows that can be formed by some objects. Develop awareness that a 'solar eclipse' is a phenomenon of shadow formation. Describe the process of solar eclipse. Plan, predict and carry out investigations into shadow formation and how it changes through the day.
<p>How do shadows change?</p> <p>Shadows change in length and position when the position of the light source changes.</p> <p>The closer the light source to the object, the longer the shadow produced.</p>	<ul style="list-style-type: none"> Develop awareness that the length and position of shadows change throughout the day. Investigate how the position of an object affects the size of its shadow. Observe that the length of the shadow changes as the distance between the light source and the object is varied.
<p>Key words: shadow, transparent, translucent, opaque, block, eclipse, position, opposite</p> <p>Types of Questions:</p> <ul style="list-style-type: none"> Multiple Choice Questions Structural Questions Short Reasoning Questions Labelling Questions Drawing <p>Sample Questions:</p> <p>1. Wilson walked from point A to point D.</p> 	

a) Which of the following shows the shadows cast at points P, Q, R and S?



2. Cindy placed two grids of the same size made of different materials directly under a ceiling lamp in 2 identical dark rooms.



a) Which of the following shadows would be observed on each screen?

	<u>Screen A</u>	<u>Screen B</u>
A		
B		
C		
D		

Creative Applications:

- To find whether all objects form shadows
- To find out that different shape of shadows can be formed by same objects.
- To find that shadows can wander due to the change of directions of the light source.

Surf it:

- https://www.youtube.com/watch?v=2nwK78F_4eA

April

Revision for Final Examination

May

Final Examination

