

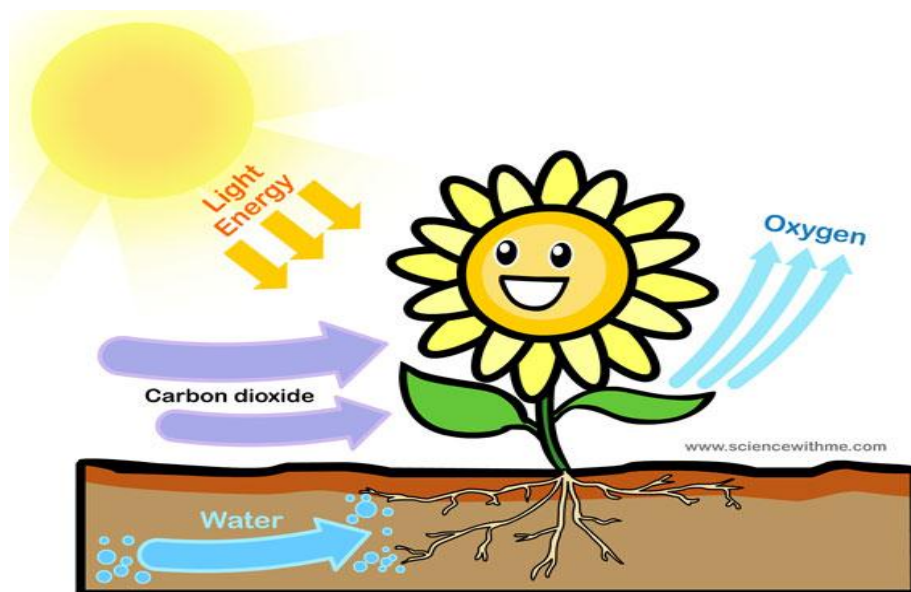
<b>Subject: Science</b>	<b>Level B1 (VII)</b>	<b>Lesson: Nutrition in plants</b>
		<b>Worksheet 1</b>

Skill focused	Target Learning Outcomes	Suggested strategies
<ul style="list-style-type: none"> <li>• Observation</li> <li>• Analysis</li> <li>• Critical thinking</li> <li>• Inquiring</li> </ul>	Explores surrounding and shares experience with others – Understands the requirements of photosynthesis	Individual/ Group Task

Sample Activity -1

Target Learning Outcome	Learns and understands - <ul style="list-style-type: none"> <li>• About process of photosynthesis</li> <li>• The raw materials needed for the process</li> </ul>
Activity	<ul style="list-style-type: none"> <li>• Study the given picture and answer the questions based on it.</li> </ul>

Picture activity based on photosynthesis



1. What is the source of energy in the process of photosynthesis ?
2. Name the gas that is used by the plants in photosynthesis.
3. Which gas is the waste product of photosynthesis?
4. What is the source of water for the plants for photosynthesis?
5. Which part of the plant helps it to absorb water and minerals?

Sample Activity -2

Target Learning Outcome	Understands - <ul style="list-style-type: none"> <li>About process of photosynthesis</li> <li>Presents logical explanations</li> </ul>
Activity	<ul style="list-style-type: none"> <li>Comprehension – Read the given passage and answer the questions based on it</li> </ul>

Read the following passage and answer the questions-

### PHOTOSYNTHESIS — FOOD MAKING PROCESS IN PLANTS

Leaves are the food factories of plants. The synthesis of food in plants occurs in leaves. Therefore, all the raw materials must reach there.

Water and minerals present in the soil are absorbed by the roots and transported to the leaves.

Carbon dioxide from air is taken in through the tiny pores present on the surface of the leaves. These pores are surrounded by 'guard cells'. Such pores are called stomata.

The leaves have a green pigment called chlorophyll. It helps leaves to capture the energy of the sunlight. This energy is used to synthesize (prepare) food from carbon dioxide and water. Since the synthesis of food occurs in the presence of sunlight, it is called photosynthesis (Photo: light; synthesis: to combine).

. The solar energy is captured by the leaves and stored in the plant in the form of food. Thus, sun is the ultimate source of energy for all living organisms.

1. The green pigment present in leaves is called \_\_\_\_\_.
2. The function of chlorophyll is to capture \_\_\_\_\_ in the process of photosynthesis.
3. \_\_\_\_\_ is called the ultimate source of energy.
4. Water and minerals are absorbed by the roots from the \_\_\_\_\_.
5. Stomata are surrounded by \_\_\_\_\_ cells.

**Suggested activities for other learning outcomes-** activities like quiz, jumbled words, demonstrations can be performed in the class.

**Pedagogical tools for achieving learning indicators-** Picture of photosynthesis, Discussion, Comprehension passage, Questioning,

#### Evaluation test for learning indicators-

I. Tick the correct option

1. Which of these are necessary for photosynthesis to take place?

- i) Carbon dioxide ii) Chlorophyll. iii) Water iv) All of these

II, Give scientific reasons-

- i) Photosynthesis cannot take place in night.
- ii) Algae are green in colour.

III. i) What is autotrophic mode of nutrition?

ii) Why is sun called the ultimate source of energy?

iii) What is the function of stomata,

IV. Fill in the blanks-

1. Tiny pores on the surface of leaves are called \_\_\_\_\_.
2. Photo means \_\_\_\_\_ and synthesis means \_\_\_\_\_.
3. \_\_\_\_\_ and \_\_\_\_\_ are the two raw materials needed for photosynthesis.
4. Carbon dioxide is taken in from the \_\_\_\_\_ by the leaves for photosynthesis
5. Water and minerals are transported to the leaves by the \_\_\_\_\_ which run like pipes throughout the root, the stem, the branches and the leaves.

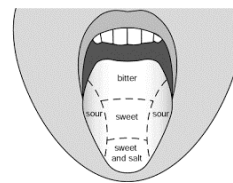
<b>Subject: Science</b>	<b>Level B1 (VII)</b>	<b>Lesson: Nutrition in animals</b>
<b>Worksheet 2</b>		

Skill focused	Target Learning Outcomes	Suggested strategies
<ul style="list-style-type: none"> <li>• Observation</li> <li>• Analysis</li> <li>• Critical thinking</li> </ul>	Explores surrounding and shares experience with others – Identifies various parts of human digestive system	Individual

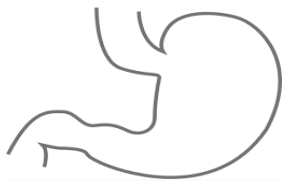
Sample Activity -1

Target Learning Outcome	Understands -
Activity	<ul style="list-style-type: none"> <li>• About process of digestion in human beings</li> <li>• Study the given picture and answer the questions based on it.</li> </ul>

- Picture activity- Write the names of the organs of the digestive system and arrange them in correct order by drawing arrows



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Sample Activity -2

Target Learning Outcome	Understands - <ul style="list-style-type: none"> <li>About the various concepts about nutrition in animals</li> </ul>
Activity	<ul style="list-style-type: none"> <li>Study the given picture and answer the questions based on it.</li> </ul>

Find the given words related to “Nutrition in animals” from the word maze and write one sentence about it.

e a a n x d e n j o k t p d o  
 s m s n o i t s e g i d m e p  
 o o s d s i e j o m s j s u d  
 l e i p h x t g c a u o s g r  
 u b m v u s r s e w p r e r x  
 l a i n f g s r e h r h l q e  
 l s l b f b c q a g p x i h f  
 e d a r z n i g m z n j b q r  
 c k t l a d u d r a w i s c s  
 f o i p i s e g e s t i o n l  
 h f o t e v t v y p r y i i o  
 r k n x k z a h v s t b v p r  
 p p w h m x h e s v y e i j a  
 i l l i v j h t f x r p j v x  
 k x q o i o v z p q f c m k w

- |                |                  |               |               |
|----------------|------------------|---------------|---------------|
| (1) Amoeba     | (2) Assimilation | (3) bile      | (4) cellulose |
| (5) Digestion  | (6) egestion     | (7) ingestion | (8) liver     |
| (9) Oesophagus | (10) pancreas    | (11) rumen    | (12) saliva   |
| (13) villi     |                  |               |               |

**Suggested activities for other learning outcomes-** activities like quiz, jumbled words, diagram based activities, class room discussion.

**Pedagogical tools for achieving learning indicators-** Pictures of various organs of human digestive system, Word maze

**Evaluation test for learning indicators-**

I) Match the following

3

**A**

**B**

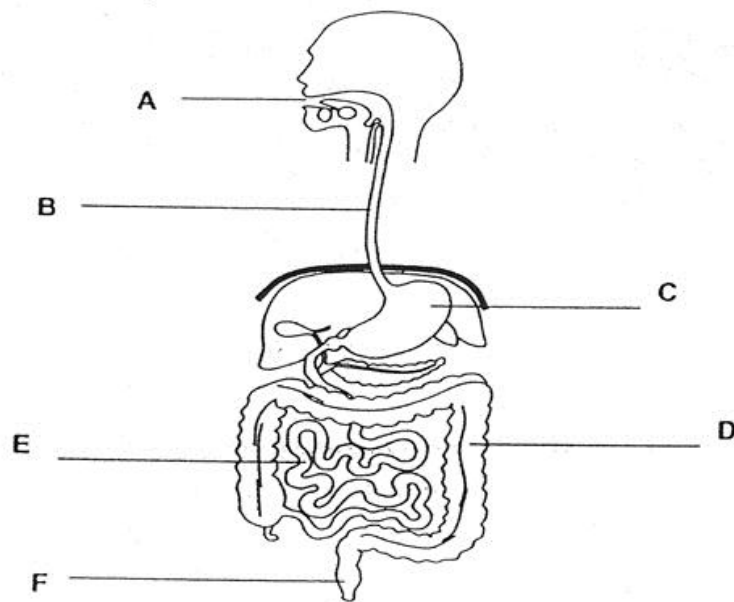
- |      |            |                 |
|------|------------|-----------------|
| i.   | Ingestion  | large intestine |
| ii.  | Absorption | mouth           |
| iii. | Egestion   | small intestine |

II) Name the following

- i. Largest gland present in human body
- ii. Food pipe through which food passes from the mouth to stomach
- iii. The acid present in the stomach
- iv. The sac like structure in which bile is stored
- v. The finger like projections present in the inner lining of small intestine

III) Draw a neat diagram of the tongue and show the different regions of taste present on it

IV) Label the diagram of human digestive system



Skill focused	Target Learning Outcomes	Suggested strategies
<ul style="list-style-type: none"> <li>• Observation</li> <li>• Analysis</li> <li>• Critical thinking</li> </ul>	Explores surrounding and shares experience with others – understands about the different types of wool	Individual

**Sample Activity -1**

Target Learning Outcome	<ul style="list-style-type: none"> <li>• Acquires knowledge about types of wool and the states where they are found</li> </ul>
Activity	<ul style="list-style-type: none"> <li>• Map work</li> </ul>

In the table, names of some Indian breeds of sheep and the states where they are found. Mark the information on a political map of India

S.No.	Name of breed	Quality of wool	State where found
1	Lohi	Good quality wool	Rajasthan, Punjab
2	Rampur bushair	Brown fleece	Uttar Pradesh, Himachal Pradesh
3	Nali	Carpet wool	Rajasthan, Haryana, Punjab
4	Bakharwal	For woollen shawls	Jammu and Kashmir
5	Marwari	Coarse wool	Gujarat
6	Patanwadi	For hosiery	Gujarat

## Sample Activity -2

Target Learning Outcome	<ul style="list-style-type: none"><li>• Learns about the life cycle of silk worm</li></ul>
Activity	<ul style="list-style-type: none"><li>• Diagram based activity</li></ul>

Study the diagram given and label it.



**Suggested activities for other learning outcomes-** activities like quiz, , diagram based activities, class room discussion on ‘Whether shearing harms the sheep’, different types of wool.

**Pedagogical tools for achieving learning indicators-** Explanation, Discussion, Charts, Diagrams

**Evaluation test for learning indicators-**

1. Name some animals other than sheep which yield wool.
2. Shearing does not hurt the sheep. Why?
3. Why is ‘Sericulture’?
4. Explain, how a cocoon is formed?
5. Which is the most common silk worm?
6. Name the region in India where angora goats are found
7. Silk fibers are made of-
  - i. Protein
  - ii. Fats
  - iii. Carbohydrates
  - iv. Minerals
  - v. Silkworms feed on-
  - vi. Bamboo
  - vii. Mulberry leaves
  - viii. Pea
  - ix. none of these
8. Name any two kinds of silk produced in India.
9. What is the term used for soft hair present on the body of a sheep or yak?
10. What is reeling of silk?



### Achievement test based on Lessons 1, 2 and 3

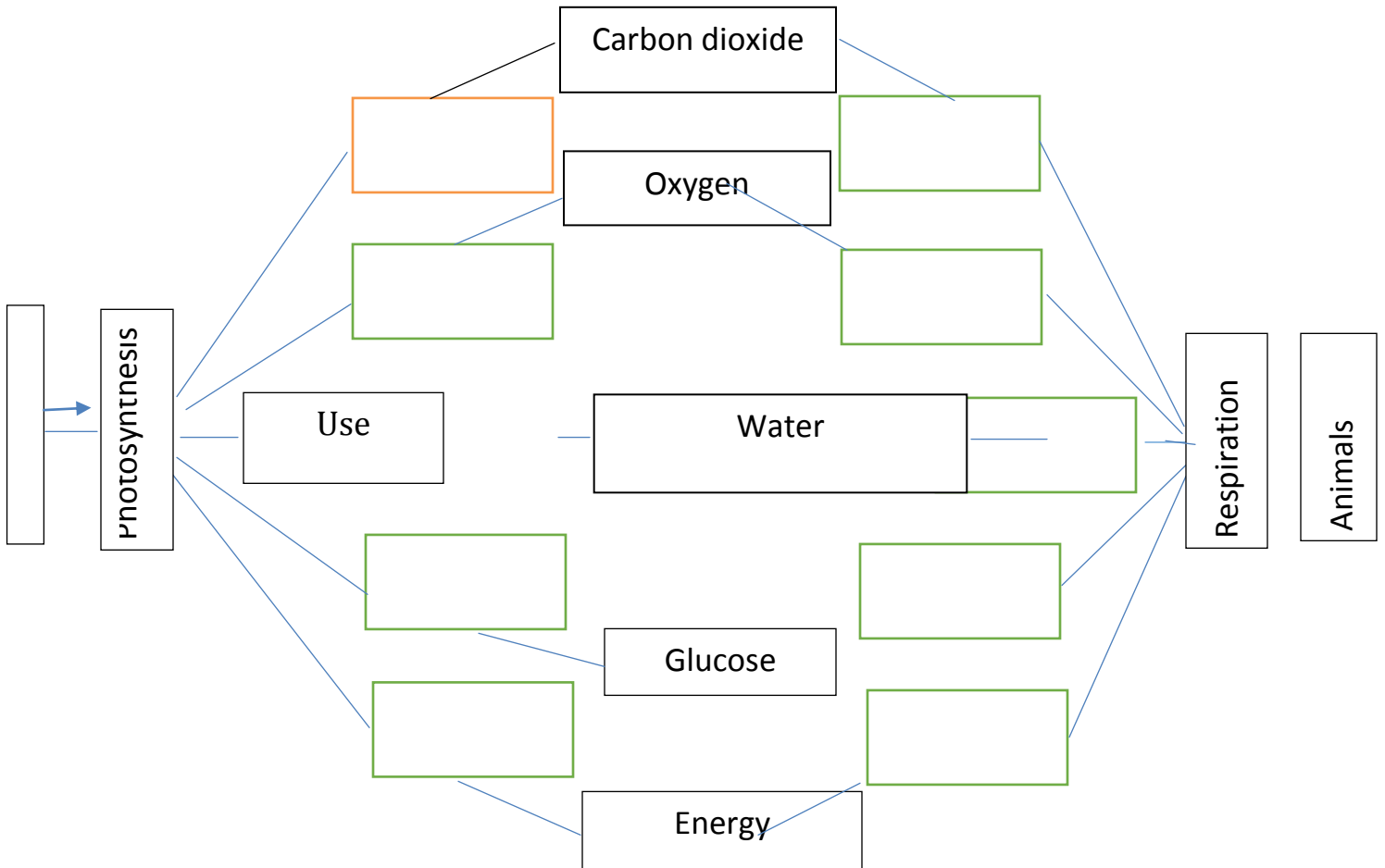
1. When we observe the lower surface of a leaf through a magnifying lens we see numerous small openings. Which of the following is the term given to such openings?
  - (a) Stomata
  - (b) Lamina
  - (c) Midrib
  - (d) Veins
2. The general process that takes place at a sheep shearing shed is
  - (a) removal of fleece.
  - (b) separating hair of different textures.
  - (c) washing of sheep fibre to remove grease.
  - (d) rolling of sheep fibre into yarn.
3. Selective breeding is a process of
  - (a) selecting the offspring with desired properties.
  - (b) selecting the parents with desired properties.
  - (c) selecting an area for breeding.
  - (d) selecting fine hair for good quality wool.
4. Two organisms are good friends and live together. One provides shelter, water, and nutrients while the other prepares and provides food. Such an association of organisms is termed as
  - (a) saprophyte
  - (b) parasite
  - (c) autotroph
  - (d) symbiosis
5. The swallowed food moves downwards in the alimentary canal because of
  - (a) force provided by the muscular tongue.
  - (b) the flow of water taken with the food.
  - (c) gravitational pull.
  - (d) the contraction of muscles in the wall of food pipe.
6. The finger-like outgrowths of Amoeba helps to ingest food. However, the finger-like outgrowths of human intestine helps to
  - (a) digest the fatty food substances.
  - (b) make the food soluble.
  - (c) absorb the digested food.
  - (d) absorb the undigested food.
7. Nitrogen is an essential nutrient for plant growth. But farmers who cultivate pulse crops like green gram, bengal gram, black gram, etc. do not apply nitrogenous fertilizers during cultivation. Why?
8. Choose the odd one out from each group and give reasons.
  - (i) liver, salivary gland, starch, gall bladder
  - (ii) stomach, liver, pancreas, salivary gland
  - (iii) tongue, absorption, taste, swallow
  - (iv) oesophagus, small intestine, large intestine, rectum
9. Various steps involved to obtain wool from fleece are given here.

- (i) Picking out the burrs (ii) Dyeing in various colours (iii) Shearing
- (iv) Scouring (v) Sorting

Write the above steps in the correct sequence in which they are carried out.

11. How do the hair of certain animals help in keeping their bodies warm?

12. (i) Fill in the boxes with the words use/give out (ii) Draw the correct directions of arrow



Skill focused	Target Learning Outcome	Suggested strategies
1.Experimentation 2. observation 3.conclusion	Performs activity to understand and critically examines	Individual/group Task

### Sample Activity

TLO	Understands the modes of transfer of heat.
ACTIVITY	To study the modes of transfer of heat

Conduction: Heat a metal strip

Convection: Movement of rice grain in hot boiling water

Radiation: Heat from the sun

Some other activities to identify the materials as good conductors of heat and poor conductors of heat may demonstrated to achieve the other learning outcomes.

**Pedagogical tools** for achieving learning indicators: to observe the natural processes and phenomena, and experimentation and observation and drawing conclusions.

### EVALUATING THE LEARNING OUTCOME:

1. If you were going to build a structure to try to keep heat out, which materials would work best? Why?
2. The sun is common to all places on Earth. Is the radiation from the sun stronger in some areas versus others?
3. If hot air rises because it expands, what does cold air do?
4. Why can't sun's heat reach the earth through conduction or convection?

In the table below, fill in your definition and a real-life example.

	<b>Your Definition</b>	<b>Real-Life Example</b>
<b>Convection</b>		
<b>Conduction</b>		
<b>Radiation</b>		

<b>Subject: Science</b>	<b>Level B1 (VII)</b>	<b>Lesson : Acids, Bases and Salts Worksheet 5</b>
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<b>Skill focused</b>	<b>Target Learning Outcomes</b>	<b>Suggested strategies</b>
Gathering data Classification	Explores surrounding and shares experience with others –Identifies presence of acid or base in different edible substances	Individual/ Group Task

### Sample Activity -1

<b>Target Learning Outcome</b>	Learns the properties of acids and bases
<b>Activity</b>	<b>Making red cabbage juice as indicator to test edible substances for presence of acids or bases eg. Lemon, curd, baking soda, tomato etc</b>

**Suggested activities for other learning outcomes; making a volcano using baking soda and vinegar, writing invisible message with lemon.**

**Pedagogical tools for achieving learning indicators; demonstration lesson showing properties of acids and bases, observing the changes, analyzing the data,**

### Evaluation test for learning indicators

I.

Fill in the blanks:

- 1) Acids are-----in taste.
- 2) Bases are-----to touch.
- 3) \_\_\_\_ is used as window cleaner.
- 4) \_\_\_\_ is used as an antacid.

II. Match the items given in column A with that in column B

	Column A	Column B
1	Litmus	Methanoic acid
2	Common salt	Natural indicator
3	Ant bite	Hydrochloric acid
4	Stomach	Neutral

III. Mark True or False:

- 1) Tamarind contains base.
- 2) Acids are bitter in taste.
- 3) Vinegar contains acetic acid
- 4) Toothpaste is basic

Skill focused	Target Learning Outcomes	Suggested strategies
Experiment Observation Conclusion	Understands that Physical changes are reversible and chemical changes are irreversible	Individual Group Task

**Sample Activity -1**

<b>Target Learning Outcome</b>	Understands Physical and Chemical changes
<b>Activity</b>	Origami to study Physical change Vermicomposting vegetable peels and studying the change

**Suggested activities for other learning outcomes – Burning Candles and studying changes, rusting of iron, Displacement reactions**

**Pedagogical tools for achieving learning indicators-** Choose the right answer, Quiz, Experiments

**Evaluation test for learning indicators**

I) Fill in the blanks:

- 1) Burning of Paper is a \_\_\_\_\_ change.
- 2) Physical change is \_\_\_\_\_.
- 3) Filling air in a balloon is a \_\_\_\_\_ change.
- 4) Formation of crystals is a \_\_\_\_\_ change.
- 5) Rotting is a \_\_\_\_\_ change.

II) True or False :

- 1) Cutting of vegetables is a Physical change. ( )
- 2) Rusting can be prevented by Painting. ( )
- 3) Brown colour on a slice of apple is an Irreversible change. ( )
- 4) Lime water turns milky is an example of physical change.( )
- 5) Depositing a layer of silver on iron is called galvanisation. ( )

## Achievement test based on Chapters 4,5,6

### I. Answer the following question:

- 1) Why does a tile feel cold when we touch it?
- 2) How does the heat of the Sun reach the Earth?
- 3) How will you clean a table if some acid has fallen on it?
- 4) Why is Baking soda Basic?
- 5) Why is drying of clothes a physical change?
- 6) Why does a clinical thermometer have a kink?
- 7) Why are handles of metal kettles made of Bakelite or Wood?
- 8) Why should you brush your teeth after eating food?
- 9) Heating of a frying pan is a physical or a chemical change?
- 10) Why should you not store pickle in a metal container?

### II. State whether True or False :

- 1) Beating silver into silver foil is a chemical change. ( )
- 2) Water gets heated faster than land.( )
- 3) Using two blankets joined together will give you more warmth.( )
- 4) Litmus is obtained from hibiscus.( )
- 5) Green colour on copper vessels is a chemical change. ( )

### III. Differentiate between

- 1) clinical thermometer and laboratory thermometer
- 2) land breeze and sea breeze
- 3) acid and base
- 4) physical and chemical change



**Subject: Science**

**Level B1(VII)**

**Lesson: Weather Climate and adaptations of animals to climate  
Worksheet 7**

<b>Skill focused</b>	<b>Target Learning Outcomes</b>	<b>Suggested strategies</b>
Gathering data Classification Analysis Conclusion	Records , reports and analyses the findings- learns about the different factors affecting weather	Individual Group Task

### **Sample Activity -1**

<b>Target Learning Outcome</b>	Learns to identify different factors affecting weather.
<b>Activity</b>	Measuring humidity , temperature , wind speed etc. over a period of 1 month and comparing it with a collection of weather reports from the newspaper.

**Suggested activities for other learning outcomes-**Making Cobalt Chloride flowers. PPT on adaptation of animals to different climatic conditions, PPT on Migratory birds. Marking the regions of different climates on map of India.

**Pedagogical tools for achieving learning indicators-** Surveys, field studies, observation, data collection etc.

### **Evaluation test for learning indicators**

I. Fill in the blanks:

- 1) Red eyed frog has \_\_\_\_\_ pads on its feet.
- 2) Polar bear has a layer of \_\_\_\_\_ under its skin to keep it warm.
- 3) The bird Toucan has a \_\_\_\_\_ beak to reach fruits on branches.
- 4) Tropical rainforests are found in \_\_\_\_\_ and \_\_\_\_\_ in India.
- 5) Reindeers are found in \_\_\_\_\_ region.

II. Differentiate between:

- 1) Climate and weather
- 2) Animals of Polar and Desert region.

III. List the adaptations of:

- 1) Red eyed tree frog
- 2) Lion tailed Macaque
- 3) Polar bear
- 4) Toucan



<b>Subject: Science</b>	<b>Level B1(VII)</b>	<b>Lesson: Winds , Storms and Cyclones Worksheet 8</b>
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<b>Skill focused</b>	<b>Target Learning Outcomes</b>	<b>Suggested strategies</b>
Records findings Organizes concludes	Records, reports and analyses the findings – Activities to show properties of air and formation of Tornado	Individual Group Task

### **Sample Activity -1**

<b>Target Learning Outcome</b>	Identifies relationships in the findings
<b>Activity</b>	To show air exerts pressure : 1) Take an empty tin, make one hole on the lid & many holes in the bottom 2) Keep this in a bowl of water, put one finger on the top hole and lift it. Water will not fall through the holes at the bottom due to the upward air pressure 3) Remove the finger from the top hole, water will fall down in the form of shower since the downward air pressure is equal to the upward air pressure & water falls due to its weight

### **Suggested activities for other learning outcomes-**

i) Tornado in a jar

Take 3 cups of tap water in a jar

Add 1 tsp of dish soap

1 tsp of Vinegar and some glitter

Swirl the mixture, a Vortex is formed which appears like a tornado

ii) Making a cloud in a jar using chalk powder and water

**Pedagogical tools for achieving learning indicators-** Activities given in the book, pictures of cyclones, storms etc. ; Video of these Natural disasters.

## Evaluation test for learning indicators

I) Fill in the blanks :

1. \_\_\_\_\_ heating causes wind movement.
2. High speed winds and air pressure difference cause \_\_\_\_\_.
3. Air exerts \_\_\_\_\_.
4. Moving air is called \_\_\_\_\_.
5. Air \_\_\_\_\_ on heating.

II) Chose the Right answer:

1. Winds flow from land towards ocean in summer/ winter.
2. This is used to measure wind speed : hygrometer/anemometer.
3. A cyclone is called hurricane/ typhoon in Japan.
4. The calm central area of a cyclone is called eye / hole.
5. Increased windspeed is accompanied by increased/reduced air pressure.

Skill focused	Target Learning Outcomes	Suggested strategies
Explores surroundings and shares experiences with others	Explores surrounding and shares experience with others – finds out about the different layers of soil and the different types of soil	Individual Group Task

**Sample Activity -1**

<b>Target Learning Outcome</b>	Learns more about soil and its types
<b>Activity</b>	Taking pot A having “sandy soil” , pot B “clayey soil” and pot C with “loamy soil” Growing plants in all the three pots and studying the water retaining capacities

**Suggested activities for other learning outcomes-**

Making a bottle Terrarium, making pots out of soil, marking the different types of soil found in India on a map and also the crops grown in different regions

**Pedagogical tools for achieving learning indicators-** Field studies, group activities, essay on soil pollution and erosion.

**Evaluation tests for Learning indicators:**

I) define the terms:

1) Humus 2) Weathering 3) Soil profile 4) Percolation 5) Soil erosion

II) Fill in the blanks :

1) Pulses requires \_\_\_\_\_ soil.

2) Wheat is grown in \_\_\_\_\_ soil.

3) Top soil is rich in \_\_\_\_\_.

4) Grass prevents soil \_\_\_\_\_.

5) Soil is formed by the \_\_\_\_\_ of rocks.

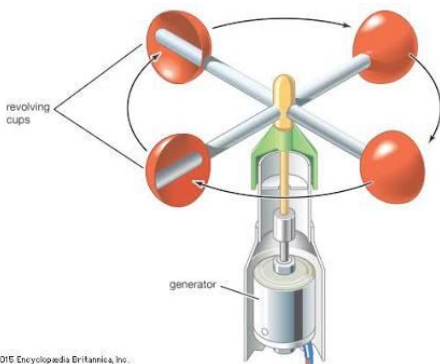
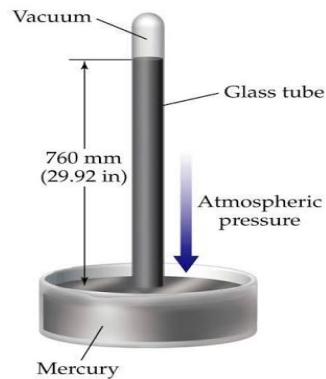
III) Draw and label the zones of the soil profile

## Achievement test based on chapters 7, 8 & 9

I) answer the following questions:

- 1) What is the difference between climate and weather?
- 2) Name the headquarter of the meteorological observatories of India.
- 3) Where are the tropical rainforests found in India?
- 4) What is a thunderstorm?
- 5) Give some safety measures to be followed during a cyclone.
- 6) Name the crops grown in loamy soil and clayey soil.

II) Identify the pictures



III) Fill in the blanks :

1) Temperature and humidity are called \_\_\_\_\_ of the weather.

2) Maximum temperature of the day occurs in the \_\_\_\_\_.

3) Minimum temperature of the day occurs in the \_\_\_\_\_.

4) The word monsoon is derived from the Arabic word \_\_\_\_\_.

5) Warm air is \_\_\_\_\_ than cold air.

<b>Subject: Science</b>	<b>Level B1 (VII)</b>	<b>Lesson: Respiration in animals</b>
		<b>Worksheet 10</b>

Skill focused	Target Learning Outcomes	Suggested strategies
<ul style="list-style-type: none"> <li>• Experimentation</li> <li>• Observation</li> <li>• Analysis</li> <li>• Critical thinking</li> </ul>	<ul style="list-style-type: none"> <li>• Performs activities- makes hypothesis and plans activities to test it</li> <li>• Understands the process of Anaerobic respiration in yeast</li> <li>• Records. Reports and analyses and analyses the findings</li> </ul>	Individual/Group

**Activity 1** - Fermentation in Yeast to show anaerobic respiration

Take some dry yeast powder used for making bread in a bowl and add some warm water to it. Also add some sugar to this mixture and record your observations

Materials used	Any bubbles right at the beginning?	Observations After 10 minutes.	Depth of Foam Layer (mm) at 15 minutes
Living yeast in plain water			
Living yeast in sugar water			

If yeast cells carry out alcoholic fermentation, would you expect CO<sub>2</sub> to be produced by:

- yeast cells in sugar water? yes\_\_\_ no \_\_\_
- yeast cells in plain water (without sugar)? yes\_\_\_ no \_\_\_

Explain your reasoning

**Suggested activities for other learning outcomes-** activities like quiz, breathing rate, diagram based activities, class room discussion on ‘harmful effects of smoking’, respiratory organs of other organisms.

**Pedagogical tools for achieving learning indicators-** Experimentation, Discussion, Analysis of observations.

**Evaluation test for learning indicators-**

1. Differentiate between Aerobic and Anaerobic respiration.



2. What are the organisms that breathe without Oxygen called?
3. Which gas present in air is essential for aerobic respiration? What is the role of oxygen during respiration?
4. After a 1000 m race an athlete had mixed had cramps in her leg muscles. After a massage she was relieved of the pain.

Answer the following questions related to the situation.

- (i) What can be the possible reasons for the pain in her legs?
  - (ii) Why did she feel comfortable after a massage?
5. A food stall owner was preparing dough for making bhaturas . He added a pinch of yeast and sugar to the dough and left it in a warm place. After few hours, the dough had risen. There was a sour smell too.
- (i) Why did the dough rise?
  - (ii) Why did the dough smell sour?
  - (iii) Why was sugar added to the dough?
  - (iv) What would have happened if the dough was kept in the refrigerator, soon after it was prepared?

Skill focused	TARGET LEARNING OUTCOME	SUGGESTED STRATEGIES
1. Questions. 2.Experimentation 3.Analysis 4.Drawing and labeling.	Asks questions and investigates and experiments.	Individual Task/group task

**Sample Activity 1**

<b>TLO</b>	Asks questions
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Students answer the following questions:

- ★ Why do you need to have a heart? Why do you need to have blood circulate to all the parts of your body?
- ★How does your heart pump blood? What is a heart beat?
- ★Does your heart always beat at the same rate?
- ★List some activities or stimuli that you think may increase a person's heart rate. An activity is something a person does, and a stimulus is an input from the environment around a person.
- ★Why would it be useful for the heart to beat faster during these activities or in response to these stimuli?
- ★Are there any activities or stimuli that you think may decrease a person's heart rate?

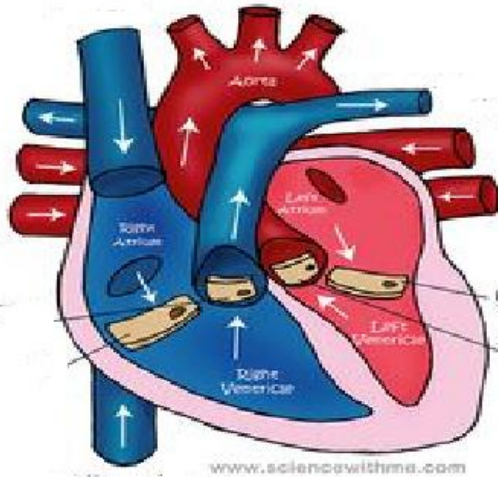
After this perform the activity of measuring the pulse rate or heart beat.they may also make a model of a stethoscope.

**Other activities** like keeping a wilted plant in water and seeing it rejuvenate or labeling a diagram of human heart can be performed to learn the other learning outcomes.

**Pedagogical tools** for achieving learning indicators : . Class room discussion , experimenting and powerpoint presentations.

**EVALUATING THE LEARNING OUTCOME:**

1. Label the given diagram of heart.



2. Write the functions of Aorta and Vena cava.

3. When you go to a path lab for a blood test, do you know the technician takes blood from artery or vein? what are the differences between the two.

Skill focused	TARGET LEARNING OUTCOME	SUGGESTED STRATEGIES
1.Observation 2.Experimentation 3. Drawing and labeling.	Explores the surrounding in and shares experience with others	Individual Task/group task

### Sample Activity 1

TLO	Understands plants reproduce through asexual methods too.
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Students collect various samples of asexually reproducing plants like potato tuber, onion bulb, ginger rhizome, runners of mint and stolons of grass or strawberry and identify these pictures.





**Other activities** like dissecting a flower, collecting fruits to study the seeds can be conducted to test the learning outcomes like asking questions leading to investigations and analysis of findings.

**Pedagogical tools** for achieving learning indicators : . Class room discussion , experimenting and powerpoint presentations.

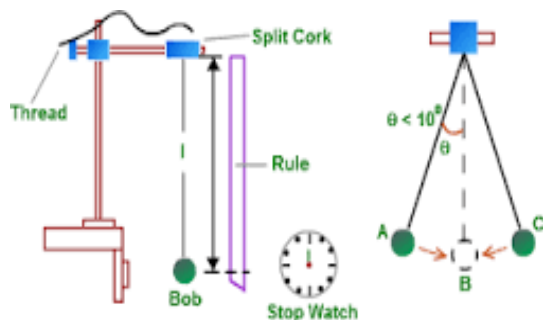
### **EVALUATING THE LEARNING OUTCOME:**

Take a potato tuber and keep it in water in a plastic cup with the help of toothpicks. Let the roots and shoots grow and keep changing the water if required. Once the roots are long enough transfer it to the flower pot and let it grow. Similar activity may be given with onion bulbs too.

Skill focused	Target Learning Outcome	Suggested strategies
1.Experimentation 2. observation 3.conclusion	Performs activity to understand and records, reports and analyses the findings.	Individual/group Task

## Sample Activity

TLO	Understands the time period of a simple pendulum.
ACTIVITY	To measure the time period of a simple pendulum



Students will perform the activity and note the time period for different effective lengths of pendulum.

other activities like to measure the speed of a ball ,plot distance-time graph may demonstrated to achieve the other learning outcomes.

**Pedagogical tools** for achieving learning indicators: to prove the hypothesis by performing activities, experiments.

**EVALUATING THE LEARNING OUTCOME:**

1. A simple pendulum takes 40 s to complete 20 oscillations. Calculate the time period of the pendulum.
2. Does the time period of the simple pendulum depend mass of the bob?
3. What type of motion a simple pendulum execute?

Skill focused	Target Learning Outcome	Suggested strategies
1.Experimentation 2. observation 3.conclusion	Performs activity to understand and records, reports and analyses the findings, provides justification in support of evidences, makes efforts to acquire further knowledge.	Individual/group Task

### Sample Activity

TLO	Understands the heating effect of electric current
ACTIVITY	To study the heating effect of electric current

A simple electric circuit comprises a battery, nails, a key and a piece of metallic wire can be constructed. Switch on the current for some time. Heating effect due to the application of current can be observed.

**other activities** like observation of heating effect in electric hot plate, electric iron ,glowing filament of an electric bulb ,fuse used in buildings, miniature circuit breaker to achieve the other learning outcomes.

**Pedagogical tools** for achieving learning indicators: to prove the hypothesis by performing activities, experiments.

## **EVALUATING THE LEARNING OUTCOME:**

**1. An electric wire connected in a circuit gets heated up when current is allowed to flow through it . This is due to**

- a. Heating effect of current
- b. Electrical effect of current
- c. Musical effect of current
- d. Optical effect of current

**2. A glowing filament will be**

- a. At a low temperature
- b. At a high temperature
- c. At atmospheric temperature
- d. At the temperature of ice

**3. The heat energy produced by a glowing bulb can be minimised by using in place of ordinary electric bulbs**

- a. A candle
- b. CFL bulbs
- c. Torch
- d. Kerosene lamp

**4. Electric fuse works on the principle ----- effect of electric current.**



Skill focused	Target Learning Outcome	Suggested strategies
1.Experimentation 2. observation 3.conclusion	Explores the surroundings, Performs activity, connects scientific concepts to everyday life	Individual/group Task

### Sample Activity

TLO	Understands the light phenomenon refraction
ACTIVITY	To study the formation of images using convex and concave lens.

Using a candle, lens stand and a metre scale images formed by a convex lens at different Positions of the object and also the image formed by a concave lens can be studied.

**other activities** like formation of images by plane and spherical mirrors, observation of white light using a prism, observation of a rainbow may be conducted to achieve the other learning outcomes.

**Pedagogical tools** for achieving learning indicators: to prove the hypothesis byperforming activities, experiments.

### EVALUATING THE LEARNING OUTCOME:

#### Fill in the blanks:

- The image formed by a concave lens is -----.
- An image that cannot be obtained on a screen is called -----.
- Convex lens is a ----- lens.
- In a magnifying glass ----- lens is used.
- The light phenomenon in lens is -----.

## LEARNER'S ACHIEVEMENT TEST

1. You are travelling in a bus which moves with constant speed. Draw a position time graph for this..
2. Calculate 2 km/h in m/s.
3. Name the meter that measures the distance moved by a vehicle.
4. A truck travels 540 km in 4.5 hrs. Find the speed of truck.
5. What type of energy conversion takes place in an electric bell?

6. Match the following:

Column A

- a. Switch
- b. Electric cell
- c. Rubber
- d. Copper
- e. Electric heater

Column B

- i. Heating effect
- ii. Insulator
- iii. Produce electricity
- iv. Close and open the circuit.
- v. Conductor

7. You use an electric heater. Identify the nature of material of the wire used in it.
8. You are going to a market with your father in a bike. What type of mirror is used as a rear view mirror in the bike?
9. Rearrange the letters to form meaning full words related to light.
  - a. LETCREFION
  - b. MAIEG
  - c. CAVECON
  - d. TPECSTRMU
  - e. SENCL
10. How does focal length of a mirror varies with curvature?

Skill focused	TARGET LEARNING OUTCOME	SUGGESTED STRATEGIES
1. Questions. 2.Experimentation 3.Analysis 4.Drawing and labeling.	Explores,asks questions and investigates and experiments,interest in environmental issues	Individual Task/group task

### Sample Activity 1

<b>TLO</b>	Understands the water cycle and its significance.
<b>Activity</b>	WATER CYCLE

Put a tumbler inside a mixing bowl and pour in a small amount of boiling water (the tumbler must be in centre and not float). Cover the mixing bowl completely with cling film and place small pebble in the centre to create a slight slope to drain any condensation into the tumbler.

As the water evaporates children can see it condensing on the cling film and collecting in the tumbler. Students can measure total quantities of water involved, use sea/salty water to create pure water etc. **Other activities** like studying 1. the water distribution map of India, 2.amount of water usage in various states ,poster and slogan writing related to water conservation can be done to achieve the other learning outcomes.

**Pedagogical tools** : . Class room discussion , experimenting and making models and chart.

#### EVALUATING THE LEARNING OUTCOME:

Answer the following.

A.How do we use water everyday?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

B. In the uses given above how might we waste water sometimes. Write for each use.

Skill focused	TARGET LEARNING OUTCOME	SUGGESTED STRATEGIES
1. Questions. 2. Experimentation 3. Analysis 4. Drawing and labeling.	Explores, asks questions demonstrates values.	Individual Task/group task

**Sample Activity 1**

<b>TLO</b>	Understands that forest and its products are being used everyday
<b>Activity</b>	From the Forest to Your House

We use many things from trees that may surprise you. With an adult, search around your home to find out how many items you use that come from trees. Place a check mark next to the items that you find. Have fun searching!

- cherries (fruit)
- cinnamon
- toilet paper
- charcoal
- rolling pin
- wrapping paper
- almonds (nut)
- bay leaves
- newspaper
- nutmeg (fruit)
- chewing gum (sap)
- clothes made with rayon
- couch
- apples (fruit)
- suntan lotion
- crayons (sap)



Some images of forest.

**Other activities** like identifying producers, consumers and decomposers in a forest can be done to achieve the other learning outcomes.

**Pedagogical tools:** . Class room discussion, ppts and crossword can be used.

### **EVALUATING THE LEARNING OUTCOME:**

- A. Say true or false. and if false correct the statement
- i. Forest protect the soil from erosion.
  - ii. The plants and animals in a forest are not dependent on another.
  - iii. Forest influence the climate and watercycle.
  - iv. Soil does not help forest to grow and regenerate.

Skill focused	TARGET LEARNING OUTCOME	SUGGESTED STRATEGIES
1. Questions. 2. Discusses 3. Concludes 4. communicates	Explores, asks questions demonstrates values, applying scientific concepts in day to day life.	Individual Task/group task

**Sample Activity 1**

<b>TLO</b>	Understands the significance of waste water treatment.
<b>Activity</b>	Visiting a waste water plant.

Visit a sewage treatment plant. It could be as exciting and enriching as a visit to a zoo, a museum, or a park. To guide your observation here are a few suggestions.

Record in your notepad:

Place \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Name of the official at the plant \_\_\_\_\_ Guide/Teacher \_\_\_\_\_.

- The location of the sewage plant.
- Treatment capacity.
- The purpose of screening as the initial process.
- How is air bubbled through the aeration tank?
- How safe is the water at the end of the treatment? How is it tested?
- Where is the water discharged after treatment?
- What happens to the plant during heavy rains?
- Is biogas consumed within the plant or sold to other consumers?

(i) What happens to the treated sludge?

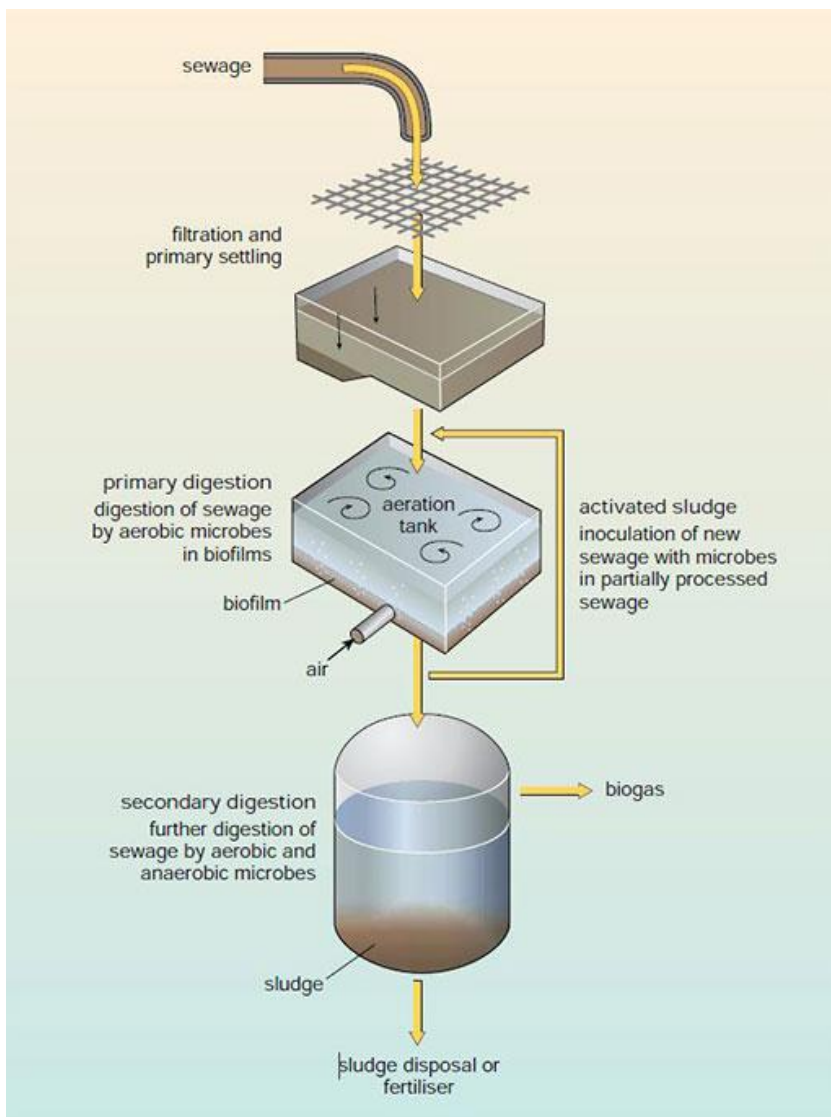
(j) Is there any special effort to protect nearby houses from the plant?

(k) Other observations.

**Other activities** like identifying wastes which are being thrown in water and should not be and identifying better sanitation practices can be conducted to achieve other outcomes.

**Pedagogical tools** : . Class room discussion,ppts and crossword can be used.

### EVALUATING THE LEARNING OUTCOME:



Identify the different steps studied by you in this diagram.

Learner achievement test for chapter 16 ,17 and 18

1. Why forests are called green lungs?
2. How much water is recommended by UN per person per day?
3. A forest officer checks the footprints and droppings in a forest. What can he know by checking them?
4. Forests are the lifeline for forest dwelling communities. What does this mean?
5. Arrange the following components of a food chain in proper sequence—grass, frog, eagle, insects, snake.
6. You have been asked to maintain a garden. How will you minimize the use of water?
7. Why should the oils and fats used in kitchen be not thrown in the drain?
8. What is your role in maintaining sanitation and cleanliness and how can you contribute to our Prime Minister's "Swatcha Bharata Mission".
9. Differentiate between sewage and sewerage.
10. Name the gas obtained in a WWTP which can be used as a fuel.