

Teacher Companion Book

classklap
BY Eupheus



EVS - I (Science)

Name of teacher: _____

Section(s) taught: _____

Class **5**

Part **1**

Annual Academic
Calendar

Curriculum to
Learning Objectives

Vision-to-Action
Plans

Exit
Assessments



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Textbook Features

Let Us Learn About

Contains the list of learning objectives to be achieved in the lesson

Understanding

Explains the aspects in detail that form the basis of the concept
Includes elements to ensure that students are engaged throughout

Think

Introduces the concept/subtopic and arouses curiosity among students

Remembering

Introduces new concepts to build on the prerequisite knowledge/skills required to understand and apply the objective of the topic

Application

Connects the concept to real-life situations by enabling students to apply what has been learnt through the practice questions

Amazing Facts

Fascinating facts and trivia related to the concept



Higher Order Thinking Skills (H.O.T.S.)

Encourages students to extend the concept learnt to advanced application scenarios



Inside the Lab

Provides for hands-on experience with creating, designing and implementing something innovative and useful

Workbook Features

Remembering

Questions aimed at helping students to recollect critical information regarding the 'who', 'what', 'when' and 'where' of the concept



Understanding

Questions aimed at helping students engage with the 'how' and 'why' of the concept



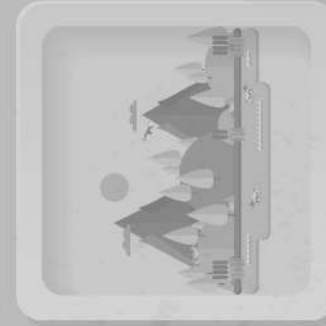
Application

Applying the understanding of the concept to questions related to real-life scenarios



Higher Order Thinking Skills (H.O.T.S.)

Extending the application of the concept to more advanced and challenging questions that meet the criteria of higher order thinking skills



Pedagogical Plan – Explainer

Indicates the class

Knowledge that learners are expected to have in order to understand the concept better. This is acquired from the previous lessons or classes.

Indicates the lesson name

Indicates how the concept taught is related to concepts covered in the previous, current and next class(es)

| A – Curriculum to Learning Objectives: My Body | | | | |
|---|--------|---|-------------|--|
| Prior Knowledge | | • <i>different parts of the body and its functions, how to take care of the parts of the body</i> | | |
| Class | L. No. | Lesson Name | L. Obj. No. | Learning Objectives |
| 3 | 3 | Organ Systems | 3.a | • organs inside the body |
| | | | 3.b | • different organ systems and their parts |
| | | | 3.c | • the effect of daily activities on organ systems |
| | | | 3.d | • the position of different organs inside the body |
| 3 | 4 | Skeletal System | 4.a | • the skeletal system |
| | | | 4.b | • the functions of the skeletal system |
| | | | 4.c | • keeping our bones healthy |
| | | | 4.d | • the skeletal system in animals |
| 4 | 2 | Digestive System | 2.a | • digestion and the digestive system |
| | | | 2.b | • the process of digestion |
| | | | 2.c | • the importance of the digestive system |
| | | | 2.d | • hunger and famine |
| 4 | 3 | Excretory System | 3.a | • excretion and the excretory system |
| | | | 3.b | • the process of excretion |
| | | | 3.c | • the importance of the excretory system |
| | | | 3.d | • kidney stones |
| 5 | 1 | Muscular System | 1.a | • muscles and the muscular system |
| | | | 1.b | • the functions of our muscles |
| | | | 1.c | • keeping our muscles healthy |
| | | | 1.d | • injuries related to muscles |
| 5 | 2 | Respiratory System | 2.a | • respiration and the respiratory system |
| | | | 2.b | • steps of respiration |
| | | | 2.c | • breathing rate and how blowing air can warm up or cool down things |
| | | | 2.d | • the importance of a stethoscope |
| 5 | 3 | Nervous System | 3.a | • parts of the nervous system |
| | | | 3.b | • working of the nervous system |
| | | | 3.c | • role of our sense organs |
| | | | 3.d | • how the brain works with closed eyes |

LIST OF ABBREVIATIONS USED

- L. No. - Lesson number
- KC No. - Key concept number
- TB - Textbook
- WB - Workbook
- THK - Think
- REM - Remembering
- UND - Understanding
- APP - Application
- AF - Amazing Facts
- HOTS/H.O.T.S. - Higher Order Thinking Skills
- ITL - Inside the Lab
- CW/HW - Classwork & Homework
- PSV - Program Success Visit
- RS – Revise Smart
- PTM - Parent Teacher Meeting
- FA - Formative Assessment
- SA - Summative Assessment

Teaching period for each lesson and the actual date on which the chapter is taught

Indicates the textbook page numbers and key competency covered on each teaching period

The class level outcomes or enabling objectives for the period

Teaching strategies for the period

The list of teaching resources to be procured/arranged before the class


The suggested CW/HW for the teaching period

Space for teacher's notes

| B – Vision-to-Action Plan: 3 Organ Systems | | | | | | | | |
|--|--------------------------------|-------------|--|--|---|------------------------|----------------------------|----------------|
| Period and Planned Date | TB Page No. and Key Competency | L. Obj. No. | Learning Outcome(s) | Teaching Strategies | Resources | Practice | | Areas to Focus |
| | | | | | | CW | HW | |
| 1 DD/MM/YYYY | 9, 10 – THK, REM | 3.a | <ul style="list-style-type: none"> Define 'organ' Name the important organs inside our body | <ul style="list-style-type: none"> Interactive Discussion | <ul style="list-style-type: none"> IMAX chart 'Organs and Organ Systems of the Human Body' | WB: Pg. 11 (Q. 1-3) | WB: Pg. 11 (Q. 4-6) | |
| 2 DD/MM/YYYY | 10 – REM | 3.a | <ul style="list-style-type: none"> Define 'organ system' List the important organ systems inside our body | <ul style="list-style-type: none"> Interactive Discussion | <ul style="list-style-type: none"> IMAX chart 'Organs and Organ Systems of the Human Body' | WB: Pg. 12 (Q. 7) | | |
| 3 DD/MM/YYYY | 10, 11 – UND | 3.b | <ul style="list-style-type: none"> Describe the need for organ systems in our body Describe the function of some organ systems | <ul style="list-style-type: none"> Real-life Connect | <ul style="list-style-type: none"> IMAX chart 'Organs and Organ Systems of the Human Body' | WB: Pg. 12 (Q. 8-11) | WB: Pgs. 12, 13 (Q. 12-14) | |
| 4 DD/MM/YYYY | 11 – APP, AF | 3.c | <ul style="list-style-type: none"> Interpret the effect of daily activities on the organ systems | <ul style="list-style-type: none"> Real-life Connect | – | WB: Pg. 13 (Q. 15, 16) | WB: Pg. 14 (Q. 17-19) | |














Questions to test the learning objective(s) for suggested periods or for revising the concepts taught

Space for the teacher to write approximately how many learners answered correctly

|  C – Exit Assessment | | | |
|--|---|---|---|
| | Suggested questions to test the learning objective(s) | Learning objective(s) | Number of learners who answered correctly |
| 1 | Which organ connects the mouth to the stomach? (Ans. food pipe) | Period 1 - organs inside the body | |
| 2 | What is the function of the heart? (Ans. It pumps blood to all the parts of the body.) | Period 3 - different organ system and their parts | |
| 3 | Say right or wrong: Heart rate is always the same. (Ans. wrong) | Period 4 - the effect of daily activity on organ system | |
| 4 | Which organ is present inside our head? (Ans. brain) | Period 5 - the position of different organs inside the body | |

Space to track TB and WB completion; also to reflect on the learners' understanding of a concept

Space for the teacher to write the names of learners who need handholding or learners who need to be challenged

| Post-lesson Reflection | | | | | |
|--------------------------------------|--|--|--|--|--|
| TB completed | Yes <input type="checkbox"/> | No <input type="checkbox"/> | WB completed | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| Enthusiastic participation |  <input type="checkbox"/> |  <input type="checkbox"/> |  <input type="checkbox"/> |  <input type="checkbox"/> |  <input type="checkbox"/> |
| Concept clarity in the classroom |  <input type="checkbox"/> |  <input type="checkbox"/> |  <input type="checkbox"/> |  <input type="checkbox"/> |  <input type="checkbox"/> |
| Concept clarity through the workbook |  <input type="checkbox"/> |  <input type="checkbox"/> |  <input type="checkbox"/> | | |

| | Handhold Learners | Challenge Learners |
|------------------------|----------------------------------|---------------------------------|
| Names | | |
| Exam Revision Strategy | Reteach <input type="checkbox"/> | Revise <input type="checkbox"/> |
| App Report | Number _____ | Signature _____ |

Helps the teacher identify if the concept is to be retaught, revised or practised for exams

Teaching Strategies

Interactive Discussion

What?

- ✓ Engages learners in a discussion and share their inputs

Why?

To involve learners in a conversation to discuss the concept/related example/scenario with the class

Teacher

How to use?

- ✓ Ask questions to check previous knowledge.
- ✓ Introduce a new concept by asking questions/ sharing an example/describing a scenario.
- ✓ Initiate a discussion among learners either in groups, pairs or individually.
- ✓ Capture learners' responses on the blackboard using appropriate graphic organisers (GOs).
- ✓ Conclude the discussion by arriving at the expected learning outcome.

Learners

- ✓ Respond to the questions.
- ✓ Have doubts clarified.

Sample

Ask the following questions to check learners' previous knowledge.

- Where do insects live?
- Do they have their own house?

Introduce the topic social insects:

- Initiate a discussion on whether the learners have seen honeybees and ants.
- Ask if they move individually or in groups.
- Ask where have they seen them
- Ask if they know of any uses of ants and honeybees.

Explain social insects:

- Introduce the term 'social insects'.
- Use the 'Be Amazed' section to elaborate on how social insects live in colonies.
- List the uses of honey and beeswax.
- Mention how they can be kind to butterflies and honeybees

Use a graphic organiser to summarise:

- Use a Venn diagram (Refer to the Graphic Organisers on sub-section 5 of this book.) to list the uses of honeybees and insects.
- Show the overlap of uses and the individual uses of each of them clearly.

Real-life Connect

What?

- ✓ Connects learning in the classroom to the real-life tasks, or simulated tasks

Why?

To involve the learners and allow them to experience and practice concepts; build application and creative skills

Teacher

How to use?

Learners

- ✓ Ask questions related to their real life, such as examples/experiences related to the concept.
- ✓ Connect the answers to the concept to be learnt.
- ✓ Plan for experiments/demonstrations/activities according to the learning outcomes.
- ✓ Give an opportunity for the learners to interact and present information.
- ✓ Ask application/higher order thinking skills based questions.

- ✓ Observe and listen to the teacher.
- ✓ Answer questions based on one's real-life experiences.
- ✓ Clarify doubts if any.

Sample

Learning outcome: Describe a few common birds seen in the surroundings, their features and eating habits

- Ask the following questions to connect learners to their real life:
 - Name some birds you have seen in the school.
 - Name some birds you have seen near your home.
- Let each child name two common birds.
- Discuss the following features.
 - Size: small (e.g. sparrow), slightly big (e.g. crow), etc.
 - Colour of the beak.
 - Colour of the feathers.
 - Knowledge about what they eat.
- Capture learners' responses on the blackboard in a table format.
- Relate it to the information given in the textbook.

Peer Learning (Group/Pair)

What?

- ✓ Helps learners interact with each other and learn from each other

Why?

To engage and involve all types of learners and build cooperative learning, in order to collaborate, work in a team and build confidence among learners

Teacher

- ✓ Plan for the peer learning as per learning outcome (consider: concept/problem to be solved/tasks to be completed).
- ✓ Group learners as a team or a pair with complementary strengths.
- ✓ Instruct the group with the expected learning and the time frame in which it has to be completed.
- ✓ Supervise and moderate the discussions in the groups.
- ✓ Ensure that learners have learnt from their peers by asking questions, helping them write, or solving the problems in the notebooks or on the blackboard.

How to use?

Learners

- ✓ Understand the question to be solved and one's role in peer learning.
- ✓ Contribute according to one's individual strength in the group.
- ✓ Help all the members to understand and learn.
- ✓ Present information as asked in the notebook/on the blackboard to demonstrate learning.

Sample

- Group learners into pairs.
- Write down the following questions on the blackboard.
 - What happens when we walk/sit in places where there is a lot of dust/smoke? (Talk about breathing, dust on the body and so on)
 - Why do some people wear masks while travelling?
- Let each group present two points for each of the questions.
- Write down all the relevant points on the blackboard under the heading, "Harmful effects of air pollution".

Outdoor Learning

What?

- ✓ Uses outdoor resources such as parks, community services such as a post office or a hospital and excursions to relate concepts to real-life applications

Why?

To help explore and apply concepts outside the classroom

Teacher

How to use?

- ✓ Plan a relevant outdoor activity for a concept.
- ✓ Brief learners on the learning expected. Be very specific about the points to observe.
- ✓ Instruct them to take a notebook to note down their observations.
- ✓ Give learners pointers to observe in the outdoor environment.
- ✓ Help learners observe, state and write down their observations specific to the learning.
- ✓ Reinforce and summarise the learning immediately after the outdoor activity. Ensure minimal time lapse.

Learners

- ✓ Follow the guidelines set by the teacher for the outdoor activity.
- ✓ Ask questions to clarify and know more about the points observed.
- ✓ Note down the observations.
- ✓ Relate the concept to the observations.

Sample

Give the following instructions to learners:

- At the park, observe plants and their fruits and seeds.
- Count the number of seeds seen in each fruit/plant.
- Feel the weight of the seeds of each plant. For example, basil: seeds are very light; mango: seeds are not as light.
- Find out whether a seed is dispersed by air, by animals, by hand or by water.
- On the next day, make a list of the seeds observed, their number, their weight and their dispersing mechanism on the blackboard.

Reinforcement

What?

- ✓ Reteaches the concepts taught using different teaching techniques such as graphic organisers, questioning, etc.

Why?

To remember and recollect the information; bridge gaps in learning, if any; cater to different learning styles

Teacher

- ✓ Plan and execute the type of reinforcement strategy to be adopted.
- ✓ Ask appropriate questions.
- ✓ Reward those giving correct answers.

How to use?

Learners

- ✓ Participate in the activity as instructed.
- ✓ Clarify doubts, if any.

Sample

- Draw a diagram of the hibiscus flower on the blackboard.
- Mislabel the parts.
- Ask learners individually to correct the labels.
- Name a few parts of the flower and let the learners draw them.
- Correct the responses to ensure that all learners can draw and label the parts of a flower.

Quiz

What?

- ✓ Asks well-prepared questions after the completion of any particular concept

Why?

**To assess the learning outcome;
build cooperation among learners**

Teacher

How to use?

Learners

- ✓ Prepare the questions based on the learning outcomes to be assessed.
- ✓ Give instructions to the class for participation.
- ✓ Conduct the quiz.
- ✓ Build cooperation and team spirit by awarding the points as planned.

- ✓ Be attentive to the instructions and questions.
- ✓ Answer only if one knows the answer.

Sample

- Group learners into two teams.
- Conduct a quiz on food components and their sources. Ask questions such as:
 - Which component is also known as 'energy bank'?
 - Which vitamin is present in oranges and lemons?
 - Give one example each for:
 - energy giving food
 - bodybuilding food
 - protective food
 - Categorise the following food items as energy giving, bodybuilding or protective:
 - rice
 - dal
 - butter

Flipped Classroom

What?

- ✓ Engages learners in a self-learning activity inside/outside the classroom and lets them prepare and present their learnings

Why?

To help in building higher order thinking skills in learners; to gain knowledge at their own pace

Teacher

- ✓ Choose a topic on which the learners can read or watch a video at home or in the classroom.
- ✓ Ask them to read/watch the video and prepare to present their learnings.
- ✓ Let the learners present.
- ✓ Ask questions of higher order thinking skills.
- ✓ Guide and help the learners answer the questions.

How to use?

Learners

- ✓ Read/Watch the video and prepare to present.
- ✓ Ask questions to clarify doubts.
- ✓ Present the topic to the class.
- ✓ Understand and answer the higher order questions based on the topic.

Sample

- Form 3 groups from the total strength of the class.
- Divide 'The adaptations in plants' into 3 topics: 'Adaptations of plants in deserts', 'Adaptations of plants in swampy areas', 'Adaptation of plants in coastal areas'.
- To each member of the group assign one of the topics.
- Give them the following table format with headings.

| Habitat (Where the plants are found) | Examples of plants | Size of the leaf | Size of the plant | Features of the leaf (if it has thorns, is it slippery to touch and so on) |
|--------------------------------------|--------------------|------------------|-------------------|--|
| | | | | |

- Let each group present the information.
- Frame questions which will help the learners understand that the features of the plant they have observed are adaptations for its particular habitat.

Summarising

What?

- ✓ Presents the most important ideas in the chapter/concept in the form of a graphic organiser using keywords or key phrases

Why?

To help learners to remember and understand the most important information, and integrates the central ideas in a meaningful way

Teacher

- ✓ Make a list of the main points for a concept.
- ✓ Ensure the keywords and phrases are highlighted.
- ✓ Use an appropriate graphic organiser to present the information.

How to use?

Learners

- ✓ Underline the keywords and phrases.
- ✓ Revise the summarised points.

Sample

- Show the 'Properties of Air' chart.
- Summarise the three key points mentioned.
- Underline the keywords 'weight', 'space', 'expands on heating'.
- Ask the learners to make a mind map to show the properties of air.

Note: Descriptions provided for samples of teaching strategies may vary from the content in the 'Transactional Tips' section of the lesson plan. Teachers need to plan on the same lines.

Graphic Organisers (Blackboard Information Organising Tips)

- Graphic organisers mostly use words or phrases and drawings at times. They help learners see and think about information in a more systematic and connected way.
- Different organisers serve different functions. Describing processes, comparing, sequencing, arranging, showing relationships are some of the functions that graphic organisers have.
- Using these helps learners to process, store and recall information and discover new relationships.

Mind map

Word splash

KWL chart

Tip chart

Table

Venn diagram

**Bubble
diagram**

Star diagram

Timeline

Process chart

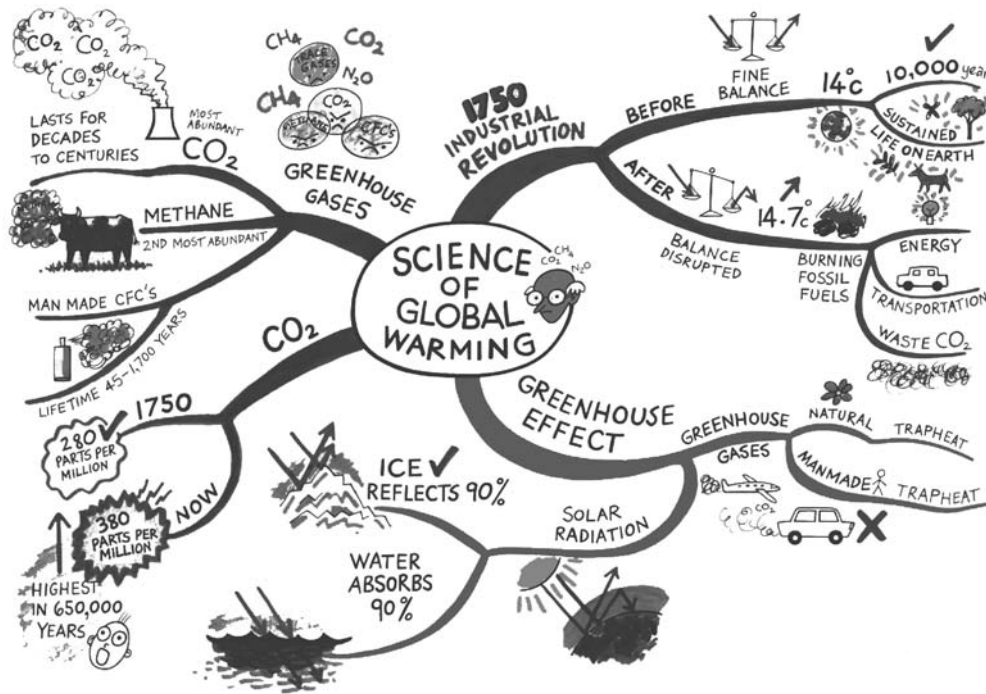
Cycle chart

Tree diagram

**Spider
diagram**

**Layered
triangle/
Pyramid**

Mind map

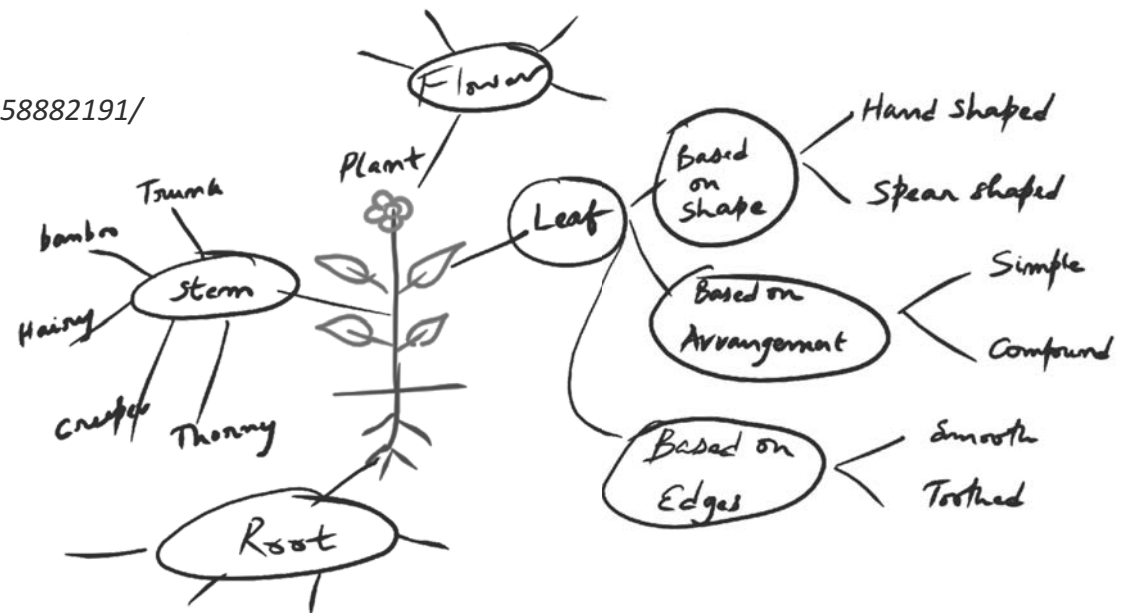


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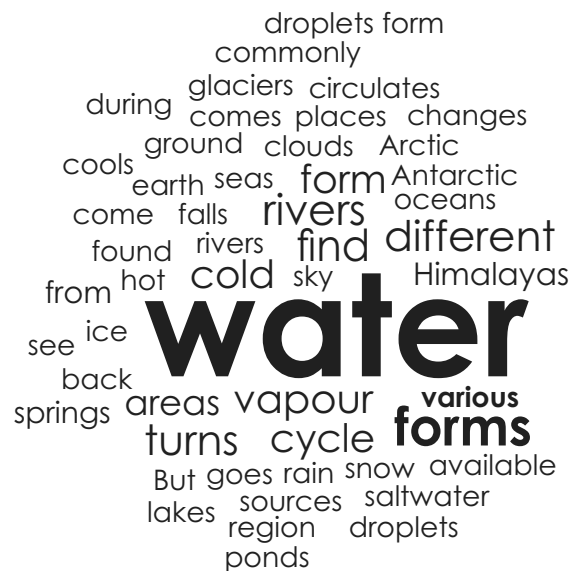


- Useful to build connections between concepts
- Helps in understanding information and discovering new relationships

Sample blackboard illustration:



Word splash

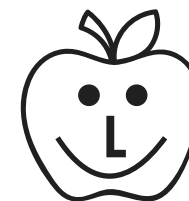
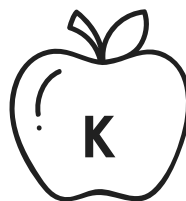


- Makes learning terminology easier for learners
- Helps make connections
- Keywords discussed can be written on the board and learners can be asked to make the connections

KWL chart

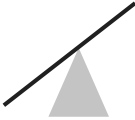
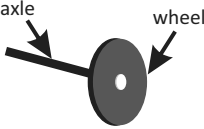


Builds outcome orientation and help learners/teachers to organise information before, during and after a lesson/activity



| I know | I want to know | I have learned |
|--------------------|---------------------|---|
| Air is everywhere. | Why do we need air? | <ul style="list-style-type: none"> • We need air to breath. • Air helps in burning. |

TIP chart

| <u>Term</u> | <u>Information</u> | <u>Picture</u> |
|-----------------------|--|---|
| Lever | A lever is a bar, rod or platform that can move about a fixed point. |  |
| Wheel and axle | Wheel and axle make work easier by reducing friction. A wheel helps things to move. The axle helps the wheel turn. |  |



Helps learners to remember and understand complex terms with the help of pictures and information

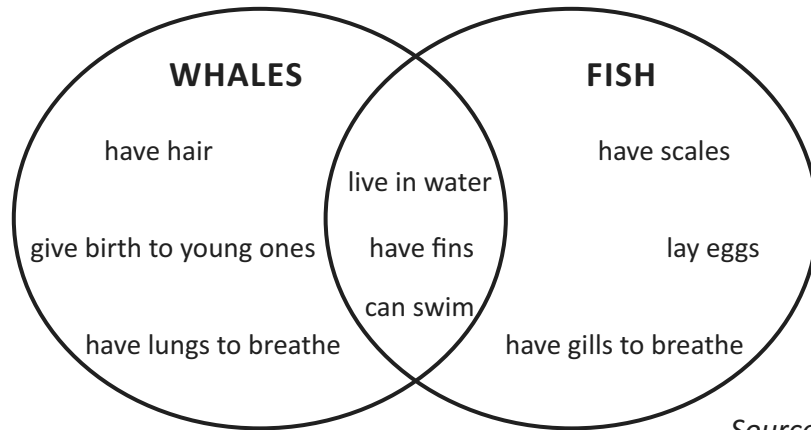
Table



- Useful to note down information after discussions and clearly bring out points about different things from different perspectives
- Helps build modular thinking ability in learners

| Planet | Key Feature | No. of Moons | Position from the Sun |
|---------------|--------------------|---------------------|------------------------------|
| Mercury | Smallest planet | Zero | 1 st |
| Venus | --- | --- | --- |
| Earth | --- | --- | --- |

Venn diagram



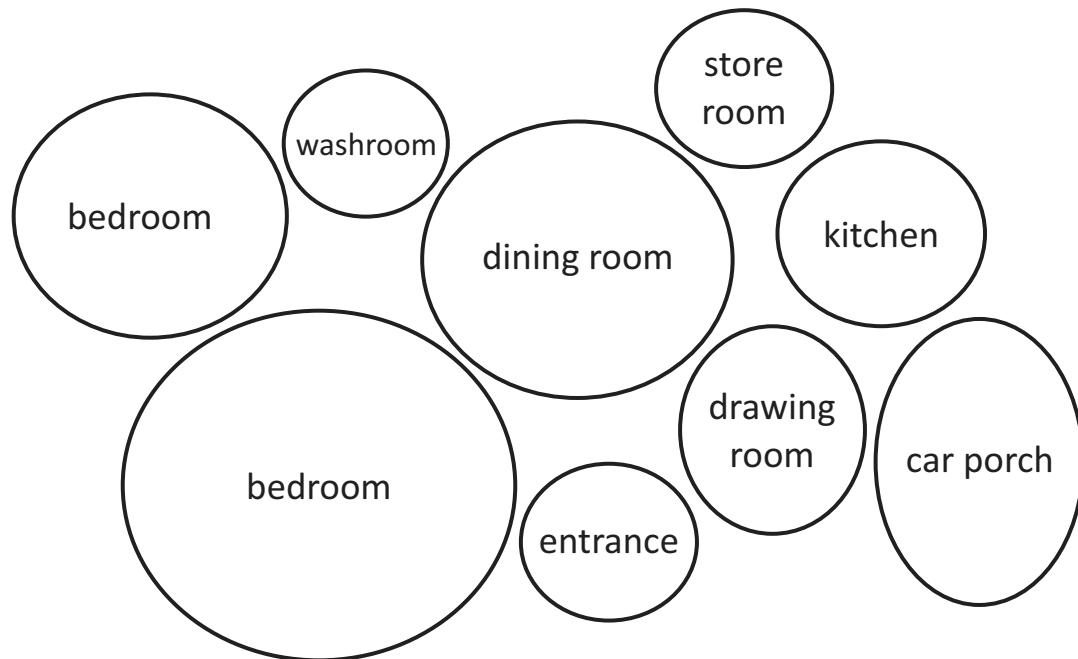
- Useful for remembering logical relationships between groups of things
- Can be used to indicate what is common and what is different between two things or groups of things

Source: <http://www.learnnc.org/lp/pages/2646>

Bubble diagram



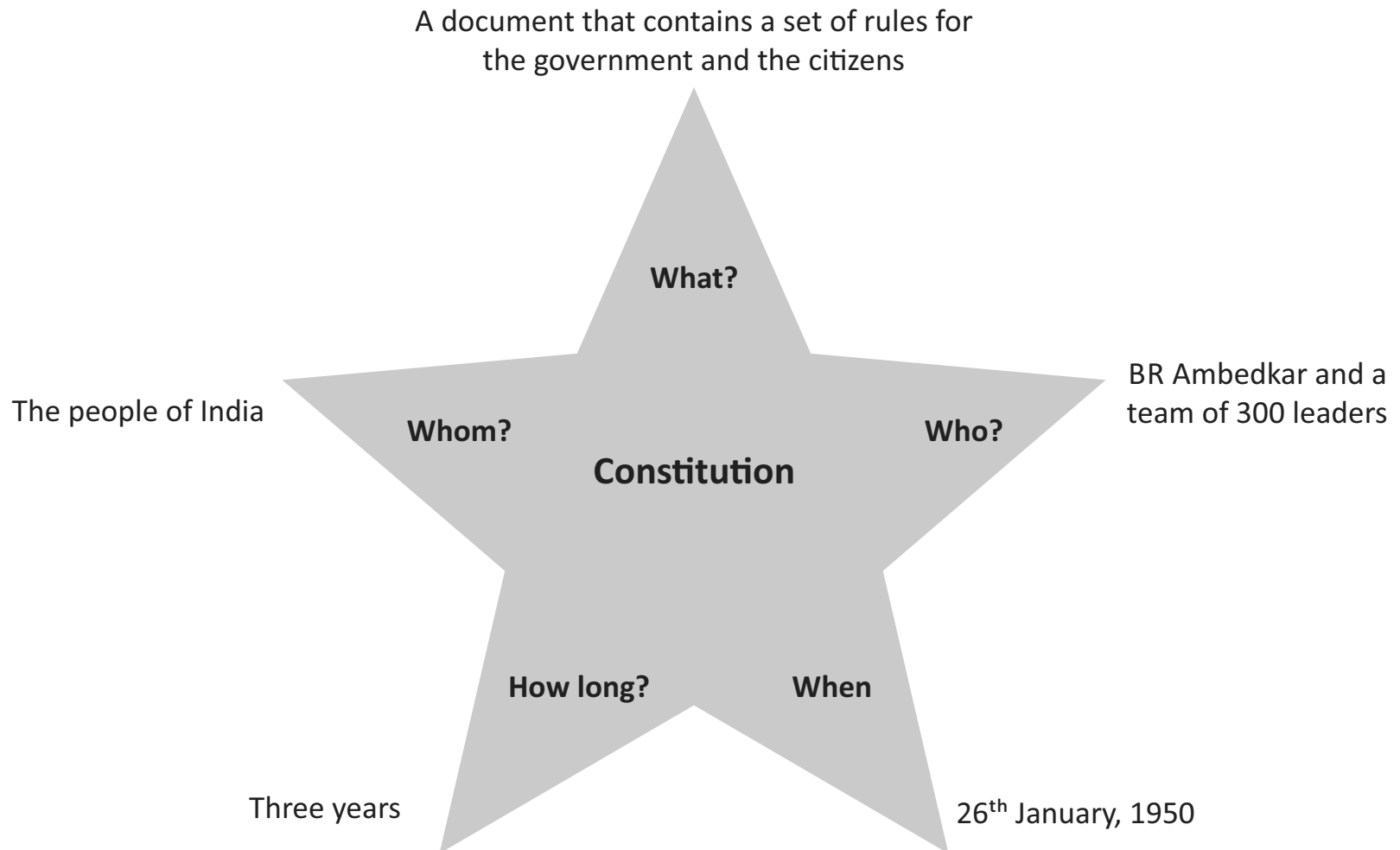
Can be used to visualise the components of a concept along with their relative sizes, quantity and connections between them



Star diagram



Can be used to describe the key points of a story or event using the 5Ws

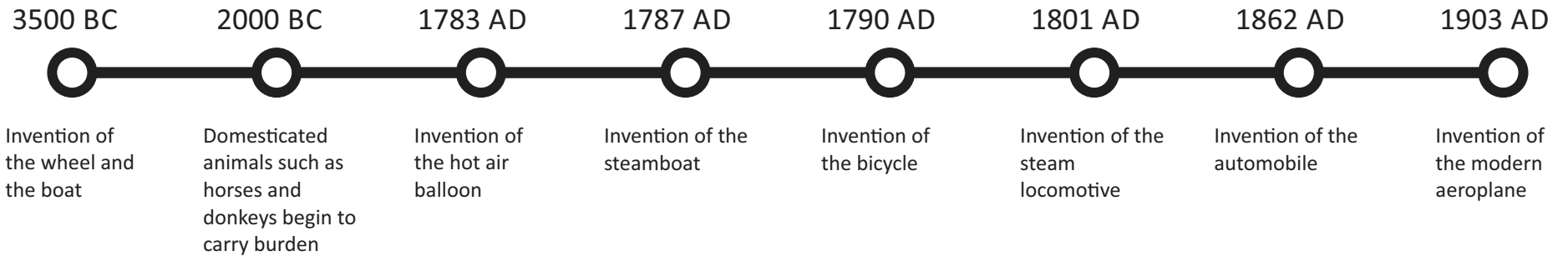


Timeline

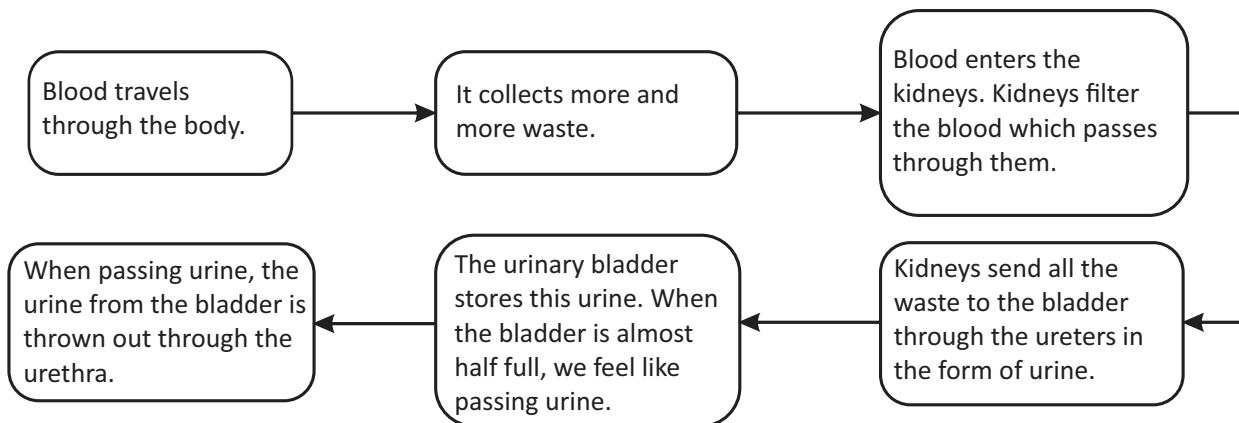


Useful to recall events in chronological order with dates

Timeline of evolution of transportation

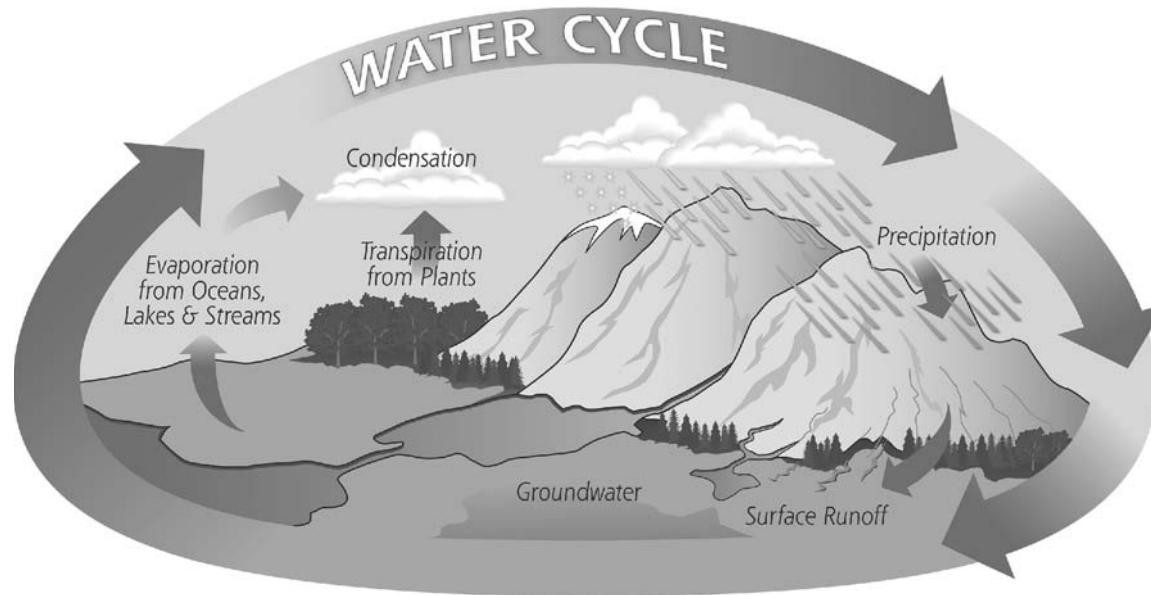


Process chart



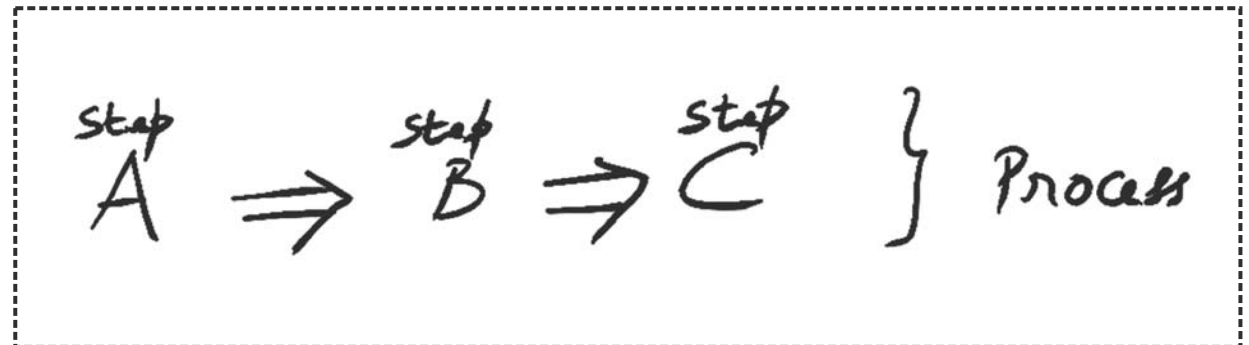
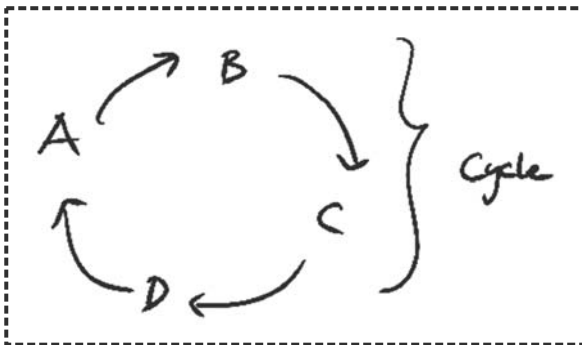
Useful to represent and remember information that follows a particular sequence

Cycle chart

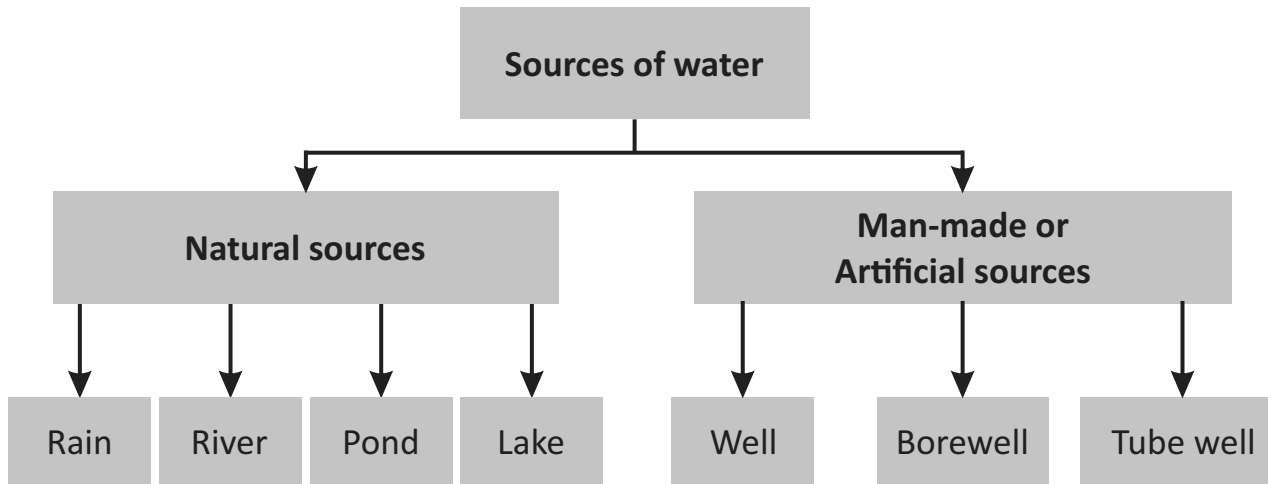


- Useful to represent and remember information that follows a particular sequence
- Both open-ended simple process or closed cycles can be used

Sample blackboard illustrations:



Tree diagram

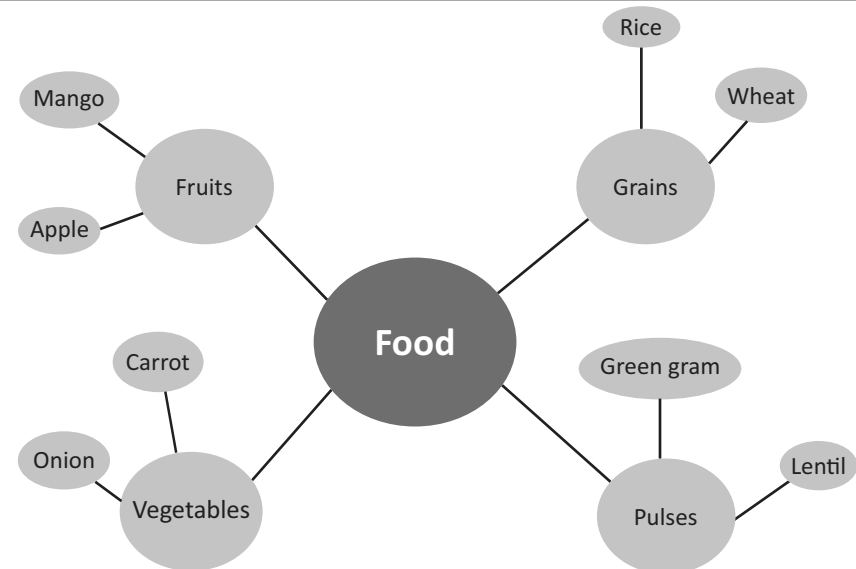


Helps in classifying or categorising information

Spider diagram



- Useful to represent and remember complex topics
- Useful to build connections within a concept or between concepts

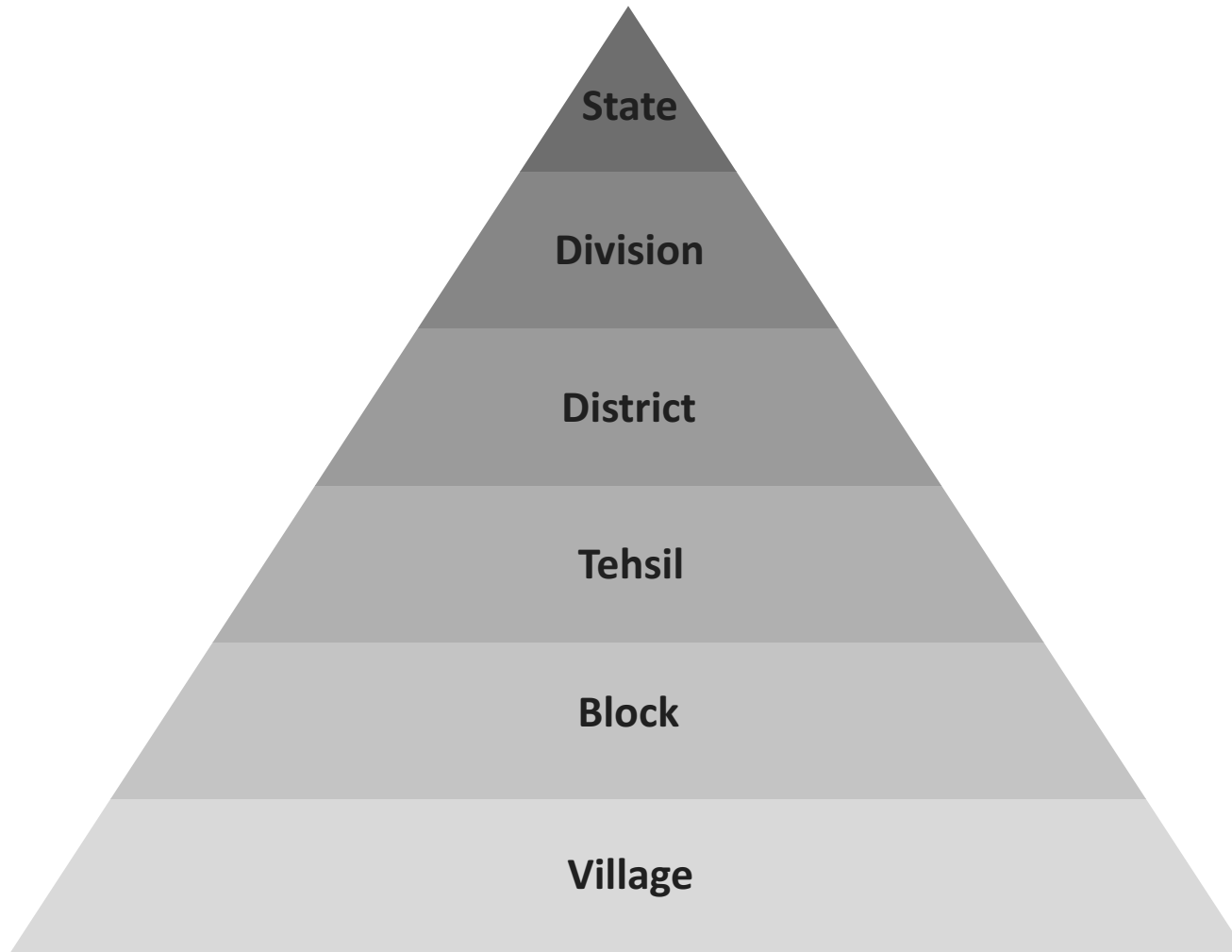


Layered triangle/Pyramid

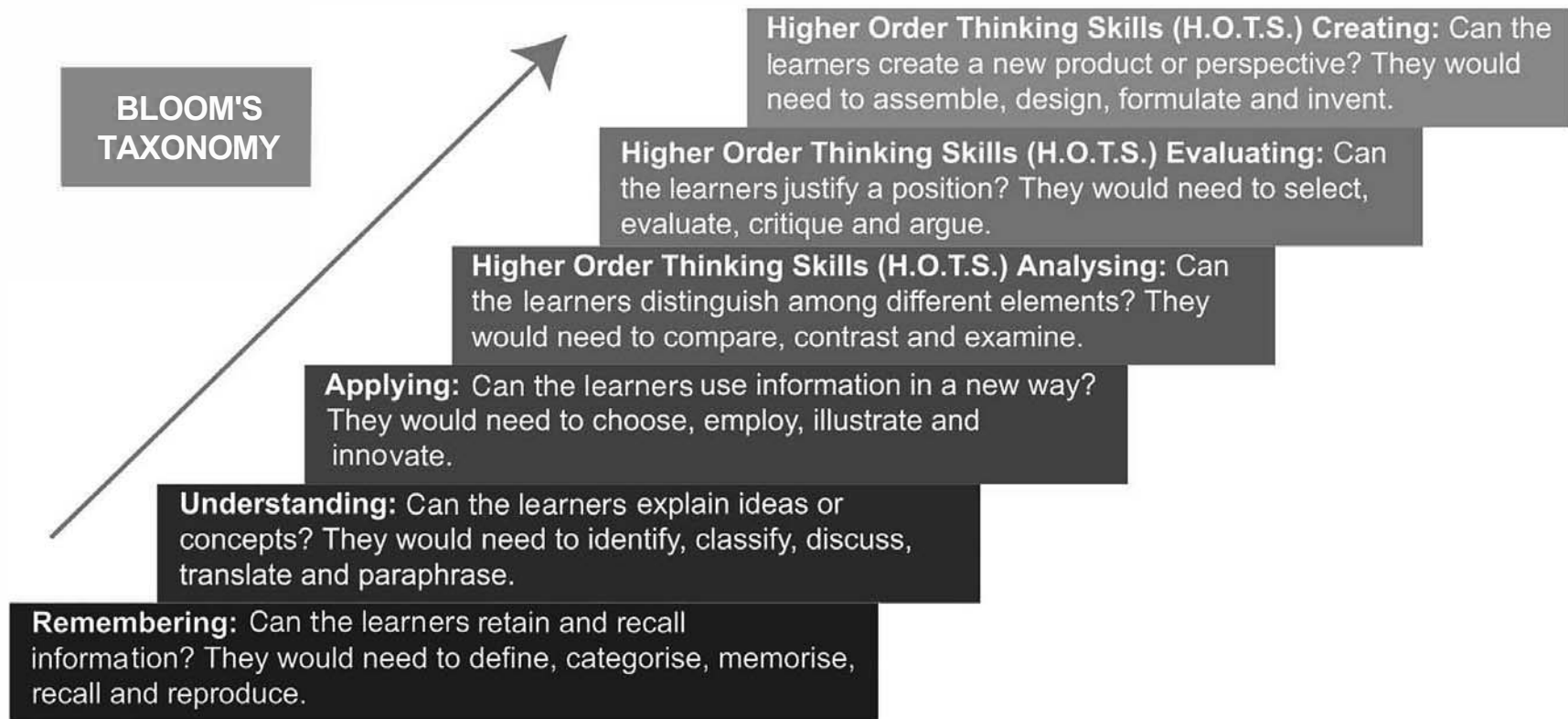


- Can be used to start with a broad topic and move to a more focussed or complex topic
- Can be used to start with a basic topic and move to a more evolved/complex topic

Structure of State Administration



Bloom's Taxonomy in Class



| Grade 5 Science 2 Part | | | | | | |
|------------------------|-----------|--|---------------|---------------|-------------|-------------|
| Part | Lesson No | Lesson Name | Teaching Days | Exam Syllabus | | |
| | | | | FA Coverage | SA Coverage | PA Coverage |
| 1 | 1 | Muscular System | 5 | FA1 | SA1 | PA1 |
| 1 | 2 | Respiratory System | 5 | FA1 | SA1 | PA1 |
| 1 | 3 | Nervous System | 5 | FA2 | SA1 | PA1 |
| 1 | 4 | Floats, Sinks and Mixes | 5 | FA2 | SA1 | X |
| 1 | | Inside the Lab – A Activity A1: Respiratory System Activity A2: Water as a Universal Solvent | 2 | | | |
| 1 | 5 | Fruits and Seeds | 5 | X | SA1 | X |
| 1 | 6 | Plants and Environment | 6 | X | SA1 | X |
| 2 | 7 | Food for Animals | 3 | FA3 | SA2 | PA2 |
| 2 | 8 | Food Production | 5 | FA3 | SA2 | PA2 |
| 2 | 9 | Forests as Shelter | 4 | FA4 | SA2 | PA2 |
| 2 | | Inside the Lab – B Activity B1: Seed Germination Activity B2: Food Web | 2 | | | |
| 2 | 10 | Space Travel | 3 | FA4 | SA2 | PA2 |
| 2 | 11 | Wildfire | 4 | FA4 | SA2 | X |
| 2 | 12 | Cyclones and Floods | 3 | X | SA2 | X |
| 2 | 13 | Earthquakes and Tsunami | 3 | X | SA2 | X |

Note: SA1=MYA, SA2=AA

| Grade 5 Science 2 Part | | | | | | |
|------------------------|-----------|--|---------------|---------------|-------------|-------------|
| Part | Lesson No | Lesson Name | Teaching Days | Exam Syllabus | | |
| | | | | FA Coverage | SA Coverage | PA Coverage |
| 2 | 14 | Simple Machines | 3 | X | SA2 | X |
| 2 | | Inside the Lab – C Activity C1: Simple Machine Activity C2: Catapult | 2 | | | |

Note: SA1=MYA, SA2=AA

Annual Planning Tool for Teachers (to be filled as per Term/Semester)

| Month | No of Working Days in School | Assessments (if Any) | Other Non-Teaching Events if Any | No of Teaching Days in School | No of "Teaching Periods" based on the Subject Time-Table (Referred to as "Teaching Days" going forward) | Lesson/Concept List to be Covered | CK Teaching Days Total | Days Allocated for CK PRS | Buffer Days |
|--------------|------------------------------|----------------------|----------------------------------|-------------------------------|---|-----------------------------------|------------------------|---------------------------|-------------|
| Sample Month | 20 | None | Opening PTM (1 Day) | 19 | 25 | 1, 2, 3 | 16 | 7 | 2 |
| April | | | | | | | | | |
| May | | | | | | | | | |
| June | | | | | | | | | |
| July | | | | | | | | | |
| August | | | | | | | | | |
| September | | | | | | | | | |
| October | | | | | | | | | |
| November | | | | | | | | | |
| December | | | | | | | | | |
| January | | | | | | | | | |
| February | | | | | | | | | |
| March | | | | | | | | | |

Assessment Blueprint - EVS-I - Beginner - FA_20M

| Question Source | Summary |
|-----------------|---|
| DIRECT | Direct questions from TB/WB |
| DIRECT PLUS | DIRECT questions with minor changes. |
| MODIFIED | DIRECT questions with changes in skill and/or question type |
| MODIFIED PLUS | MODIFIED questions with increased difficulty |
| TWISTED | NEP/BOARD question types based on TB/WB content |

EVS-I - Class 5

| | | | <i>Beginner</i> | <i>Values</i> |
|--------------------|-----------------------------|------------------------|------------------|---------------|
| | | | 20M | |
| <i>Section</i> | <i>Section Heading</i> | <i>Question Source</i> | No. of Questions | Marks |
| A | Multiple Choice Questions | Direct | 1 | 1 |
| | | DirectPlus | 2 | 2 |
| | | Modified | 1 | 1 |
| B | Very Short Answer Questions | Direct | 2 | 2 |
| | | DirectPlus | 2 | 2 |
| | | Modified | 1 | 1 |
| | | Twisted | 1 | 1 |
| C | Short Answer Questions | Direct | 1 | 2 |
| | | DirectPlus | 1 | 2 |
| | | Modified | | |
| D | Graphic Organiser | Direct | | |
| | | Modified | 1 | 2 |
| E | Long Answer Question | DirectPlus | | |
| | | Modified | 1 | 4 |
| Grand Total | | | 14 | 20 |

1. This exam blueprint is for reference only. Actual exam pattern may vary slightly.
2. In most cases, there is external choice for long answers type questions.

Assessment Blueprint - EVS-I - Beginner - PA_40M

EVS-I - Class 5

| | | | <i>Beginner</i> | <i>Values</i> |
|--------------------|-----------------------------|------------------------|-------------------------|---------------|
| | | | 40M | |
| <i>Section</i> | <i>Section Heading</i> | <i>Question Source</i> | <i>No. of Questions</i> | <i>Marks</i> |
| A | Multiple Choice Questions | Direct | 2 | 2 |
| | | DirectPlus | 2 | 2 |
| | | Modified | 3 | 3 |
| | | Twisted | 1 | 1 |
| B | Very Short Answer Questions | Direct | 2 | 2 |
| | | DirectPlus | 3 | 3 |
| | | Modified | 6 | 6 |
| | | Twisted | 1 | 1 |
| C | Short Answer Questions | Direct | 1 | 2 |
| | | DirectPlus | 2 | 4 |
| | | Modified | 2 | 4 |
| D | Graphic Organisers | Direct | 1 | 4 |
| | | Modified | 1 | 2 |
| E | Long Answer Questions | Direct | 1 | 0 |
| | | DirectPlus | 1 | 4 |
| Grand Total | | | 29 | 40 |

1. This exam blueprint is for reference only. Actual exam pattern may vary slightly.
2. In most cases, there is external choice for long answers type questions.

Assessment Blueprint - EVS-I - Beginner - MYA/AA_40M

EVS-I - Class 5

| | | | <i>Beginner</i> | <i>Values</i> |
|--------------------|-----------------------------|------------------------|------------------|---------------|
| | | | 40M | |
| <i>Section</i> | <i>Section Heading</i> | <i>Question Source</i> | No. of Questions | Marks |
| A | Multiple Choice Questions | Direct | 2 | 2 |
| | | DirectPlus | 3 | 3 |
| | | Modified | 2 | 2 |
| | | Twisted | 1 | 1 |
| B | Very Short Answer Questions | Direct | 4 | 4 |
| | | DirectPlus | 2 | 2 |
| | | Modified | 5 | 5 |
| | | Twisted | 1 | 1 |
| C | Graphic Organiser | Modified | 1 | 2 |
| D | Short Answer Questions | Direct | 1 | 2 |
| | | DirectPlus | 3 | 6 |
| | | Modified | 1 | 2 |
| E | Diagram Based Question | Modified | 1 | 4 |
| F | Long Answer Questions | Direct | 1 | 4 |
| | | Modified | 1 | 0 |
| Grand Total | | | 29 | 40 |

1. This exam blueprint is for reference only. Actual exam pattern may vary slightly.

2. In most cases, there is external choice for long answers type questions.

Assessment Blueprint - EVS-I - Beginner - MYA/AA_50M

EVS-I - Class 5

| | | | <i>Beginner</i> | <i>Values</i> |
|--------------------|-----------------------------|------------------------|------------------|---------------|
| | | | 50M | |
| <i>Section</i> | <i>Section Heading</i> | <i>Question Source</i> | No. of Questions | Marks |
| A | Multiple Choice Questions | Direct | 1 | 1 |
| | | DirectPlus | 3 | 3 |
| B | Very Short Answer Questions | Direct | 4 | 4 |
| | | DirectPlus | 5 | 6 |
| | | Modified | 5 | 6 |
| C | Graphic Organisers | Modified | 2 | 4 |
| D | Short Answer Questions | Direct | 2 | 4 |
| | | DirectPlus | 3 | 6 |
| | | Modified | 4 | 8 |
| E | Long Answer Questions | Direct | 1 | 4 |
| | | DirectPlus | 1 | 0 |
| | | Modified | 2 | 4 |
| Grand Total | | | 33 | 50 |

1. This exam blueprint is for reference only. Actual exam pattern may vary slightly.
2. In most cases, there is external choice for long answers type questions.

Assessment Blueprint - EVS-I - Beginner - MYA/AA_80M

EVS-I - Class 5

| | | | <i>Beginner</i> | <i>Values</i> |
|--------------------|-----------------------------|------------------------|------------------|---------------|
| | | | 80M | |
| <i>Section</i> | <i>Section Heading</i> | <i>Question Source</i> | No. of Questions | Marks |
| A | Multiple Choice Questions | Direct | 4 | 4 |
| | | DirectPlus | 4 | 4 |
| | | Modified | 1 | 1 |
| | | Twisted | 1 | 1 |
| B | Very Short Answer Questions | Direct | 5 | 5 |
| | | DirectPlus | 7 | 8 |
| | | Modified | 5 | 5 |
| C | Graphic Organisers | Modified | 2 | 4 |
| D | Short Answer Questions | Direct | 6 | 12 |
| | | DirectPlus | 5 | 10 |
| | | Modified | 4 | 8 |
| | | Twisted | 1 | 2 |
| E | Diagram Based Questions | Modified | 2 | 8 |
| F | Long Answer Questions | Direct | 1 | 0 |
| | | DirectPlus | 1 | 0 |
| | | Modified | 2 | 8 |
| Grand Total | | | 51 | 80 |

1. This exam blueprint is for reference only. Actual exam pattern may vary slightly.
2. In most cases, there is external choice for long answers type questions.

Assessment Blueprint - EVS-I - Proficient - FA_20M

EVS-I - Class 5

| | | | <i>Proficient</i> | <i>Values</i> |
|--------------------|-----------------------------|------------------------|-------------------------|---------------|
| | | | 20M | |
| <i>Section</i> | <i>Section Heading</i> | <i>Question Source</i> | <i>No. of Questions</i> | <i>Marks</i> |
| A | Multiple Choice Questions | DirectPlus | 1 | 1 |
| | | ModifiedPlus | 1 | 1 |
| | | Twisted | 2 | 4 |
| B | Very Short Answer Questions | DirectPlus | 2 | 2 |
| | | Modified | 2 | 2 |
| | | ModifiedPlus | 2 | 2 |
| C | Short Answer Questions | DirectPlus | 2 | 4 |
| D | Long Answer Questions | Modified | 1 | 4 |
| | | ModifiedPlus | 1 | 4 |
| Grand Total | | | 14 | 24 |

1. This exam blueprint is for reference only. Actual exam pattern may vary slightly.
2. In most cases, there is external choice for long answers type questions.

Assessment Blueprint - EVS-I - Proficient - PA_40M

EVS-I - Class 5

| | | | <i>Proficient</i> | <i>Values</i> |
|--------------------|-----------------------------|------------------------|-------------------------|---------------|
| | | | 40M | |
| <i>Section</i> | <i>Section Heading</i> | <i>Question Source</i> | <i>No. of Questions</i> | <i>Marks</i> |
| A | Multiple Choice Questions | DirectPlus | 2 | 2 |
| | | ModifiedPlus | 2 | 2 |
| | | Twisted | 2 | 4 |
| B | Very Short Answer Questions | Direct | 1 | 1 |
| | | DirectPlus | 4 | 4 |
| | | Modified | 1 | 1 |
| | | ModifiedPlus | 4 | 4 |
| C | Short Answer Questions | DirectPlus | 4 | 8 |
| | | Modified | 1 | 2 |
| | | ModifiedPlus | 2 | 4 |
| | | Twisted | 1 | 2 |
| D | Diagram Based Question | Modified | 1 | 2 |
| E | Long Answer Questions | Modified | 1 | 0 |
| | | ModifiedPlus | 1 | 4 |
| Grand Total | | | 27 | 40 |

1. This exam blueprint is for reference only. Actual exam pattern may vary slightly.
2. In most cases, there is external choice for long answers type questions.

Assessment Blueprint - EVS-I - Proficient - MYA/AA_40M

EVS-I - Class 5

| | | | <i>Proficient</i> | <i>Values</i> |
|--------------------|-----------------------------|------------------------|-------------------|---------------|
| | | | 40M | |
| <i>Section</i> | <i>Section Heading</i> | <i>Question Source</i> | No. of Questions | Marks |
| A | Multiple Choice Questions | DirectPlus | 2 | 2 |
| | | ModifiedPlus | 2 | 2 |
| | | Twisted | 2 | 4 |
| B | Very Short Answer Questions | Direct | 1 | 1 |
| | | DirectPlus | 4 | 4 |
| | | Modified | 1 | 1 |
| | | ModifiedPlus | 4 | 4 |
| C | Short Answer Questions | DirectPlus | 4 | 8 |
| | | Modified | 1 | 2 |
| | | ModifiedPlus | 2 | 4 |
| | | Twisted | 1 | 2 |
| D | Diagram Based Question | Modified | 1 | 2 |
| E | Long Answer Questions | Modified | 1 | 0 |
| | | ModifiedPlus | 1 | 4 |
| Grand Total | | | 27 | 40 |

1. This exam blueprint is for reference only. Actual exam pattern may vary slightly.
2. In most cases, there is external choice for long answers type questions.

Assessment Blueprint - EVS-I - Proficient - MYA/AA_50M

EVS-I - Class 5

| | | | <i>Proficient</i> | <i>Values</i> |
|--------------------|-----------------------------|------------------------|-------------------|---------------|
| | | | 50M | |
| <i>Section</i> | <i>Section Heading</i> | <i>Question Source</i> | No. of Questions | Marks |
| A | Multiple Choice Questions | DirectPlus | 2 | 2 |
| | | ModifiedPlus | 2 | 2 |
| | | Twisted | 3 | 5 |
| B | Very Short Answer Questions | Direct | 1 | 1 |
| | | DirectPlus | 6 | 6 |
| | | ModifiedPlus | 3 | 3 |
| | | Twisted | 1 | 1 |
| C | Short Answer Questions | Direct | 1 | 2 |
| | | DirectPlus | 4 | 8 |
| | | Modified | 2 | 4 |
| | | ModifiedPlus | 2 | 4 |
| | | Twisted | 1 | 2 |
| D | Diagram Based Question | Modified | 1 | 2 |
| E | Long Answer Questions | Modified | 3 | 4 |
| | | ModifiedPlus | 1 | 4 |
| Grand Total | | | 33 | 50 |

1. This exam blueprint is for reference only. Actual exam pattern may vary slightly.
2. In most cases, there is external choice for long answers type questions.

Assessment Blueprint - EVS-I - Proficient - MYA/AA_80M

EVS-I - Class 5

| | | | <i>Proficient</i> | <i>Values</i> |
|--------------------|-----------------------------|------------------------|-------------------|---------------|
| | | | 80M | |
| <i>Section</i> | <i>Section Heading</i> | <i>Question Source</i> | No. of Questions | Marks |
| A | Multiple Choice Questions | DirectPlus | 3 | 3 |
| | | ModifiedPlus | 4 | 4 |
| | | Twisted | 5 | 7 |
| B | Very Short Answer Questions | Direct | 1 | 1 |
| | | DirectPlus | 6 | 6 |
| | | Modified | 3 | 3 |
| | | ModifiedPlus | 7 | 7 |
| | | Twisted | 1 | 1 |
| C | Graphic Organiser | Modified | 2 | 4 |
| D | Short Answer Questions | Direct | 1 | 2 |
| | | DirectPlus | 6 | 12 |
| | | Modified | 3 | 6 |
| | | ModifiedPlus | 4 | 8 |
| | | Twisted | 1 | 2 |
| E | Diagram Based Question | Modified | 1 | 2 |
| F | Long Answer Questions | DirectPlus | 2 | 4 |
| | | Modified | 4 | 8 |
| Grand Total | | | 54 | 80 |

1. This exam blueprint is for reference only. Actual exam pattern may vary slightly.
2. In most cases, there is external choice for long answers type questions.

Teaching Aids List (For Planning)

| Types of Teaching Aids | Names of the Teaching Aids | Lessons Used in |
|------------------------|---|----------------------------|
| Kivoo Resources | Chart 'The Muscular system' | 1) Muscular System |
| | Chart 'The Respiratory System' | 2) Respiratory System |
| | Chart 'Our Senses and the Nervous System' | 3) Nervous System |
| Learners to bring | a balloon, sticky tape or string | 1) Muscular System |
| | different types of seeds | 5) Fruits and Seeds |
| Teacher to arrange | stopwatch, stethoscope | 2) Respiratory System |
| | placards (sender, postman, receiver and scooter, brain, nerves, organ/body part, spinal cord) | 3) Nervous System |
| | a glass of water, sugar, two glasses, water, ink or neel, paper, piece of chalk, cooking oil, salt, three glasses, hot water, cold water, normal water, spoon | 4) Floats, Sinks and Mixes |
| | three balloons, scissors, knife, large plastic bottle, two straws (that can be bent), clay and rubber band, duct tape | Activity A1 |
| | four glasses of clean water, spoons, baking soda, pepper, flour, soap | Activity A2 |
| | A4 sheets, sprouted seeds | 5) Fruits and Seeds |
| | A4 sheets, video of an insectivorous plant trapping insects, chart papers cut to resemble flash cards | 6) Plants and Environment |
| Storyweaver resources | Avani and the pea plant, Let's go seed collecting | 5) Fruits and Seeds |

Teaching Aids List (For Planning)

| Types of Teaching Aids | Names of the Teaching Aids | Lessons Used in |
|---|---|-----------------------------|
| Teacher to arrange | samples of food items, pictures of animals, pictures/cut-outs of arrows | 7) Food for Animals |
| | A4 sheets, colouring material | 8) Food Production |
| | A4 sheets, colouring material | 9) Forests as Shelter |
| | bean seeds (15–20 per bowl), five clean and empty beakers (one for each condition), paper towels, water to wet the towels, masking tape to label the beakers | Inside the Lab – B1 |
| | scissors, gum, chart papers, pictures of different plant or plant parts such as grass, vegetables, fruits, cereals, pulses and so on, pictures of animals (Example: earthworm, grasshopper, rabbit, deer, elephant, wolf, lion, tiger, eagle, frog, fish, snake, hen, crow, crane, duck, squirrel, cow, cat, dog, mouse, human being) | Inside the Lab – B2 |
| | candle, matchstick, glass to cover the candle | 11) Wildfire |
| | glass of water, spoon, few small-sized seeds | 12) Cyclones and Floods |
| | few cardboard pieces, few pencils, pens, erasers, sharpener, thin plastic tray | 13) Earthquakes and Tsunami |
| | popsicle sticks, wooden blocks, glue | 14) Simple Machines |
| | one brick per group, 10 pencils per group | Inside the Lab – C1 |
| nine craft sticks or ice cream sticks, six good quality rubber bands, one plastic spoon | Inside the Lab – C2 | |
| Storyweaver resources | Who Ate All That Up? | 7) Food for Animals |
| | Ammachi's Amazing Machines | 14) Simple Machines |



**LESSON PLANS
AND
TEACHER
REFERENCE
MATERIAL**

A – Curriculum to Learning Objectives: My Body

| Prior Knowledge | | • parts of the body and their functions, how to take care of different parts of the body | | |
|-----------------|--------|--|-------------|--|
| Class | L. No. | Lesson Name | L. Obj. No. | Learning Objectives |
| 3 | 3 | Organ Systems | 3.a | • organs inside the body |
| | | | 3.b | • different organ systems and their parts |
| | | | 3.c | • the effect of daily activities on organ systems |
| | | | 3.d | • the position of different organs inside the body |
| 3 | 4 | Skeletal System | 4.a | • the skeletal system |
| | | | 4.b | • the functions of the skeletal system |
| | | | 4.c | • keeping our bones healthy |
| 4 | 2 | Digestive System | 2.a | • digestion and the digestive system |
| | | | 2.b | • the process of digestion |
| 4 | 3 | Excretory system | 3.a | • excretion and the excretory system |
| | | | 3.b | • the process of excretion |
| 4 | 4 | Diseases | 4.a | • diseases and prevention |
| | | | 4.b | • types of diseases |
| | | | 4.c | • the prevention of various types of diseases |
| | | | 4.d | • epidemics |
| 5 | 1 | Muscular System | 1.a | • muscles and the muscular system |
| | | | 1.b | • the functions of our muscles |
| | | | 1.c | • keeping our muscles healthy |
| | | | 1.d | • injuries related to muscles |
| 5 | 2 | Respiratory System | 2.a | • respiration and the respiratory system |
| | | | 2.b | • steps of respiration |
| | | | 2.c | • breathing rate and how blowing air can warm up or cool down things |
| | | | 2.d | • the importance of a stethoscope |
| 5 | 3 | Nervous System | 3.a | • parts of the nervous system |
| | | | 3.b | • working of the nervous system |
| | | | 3.c | • role of our sense organs |
| | | | 3.d | • how the brain works with closed eyes |

B – Vision-to-Action Plan: 1 Muscular System

| Period and Planned Date | TB Page No. and Key Competency | L. Obj. No. | Learning Outcome(s) | Teaching Strategies | Resources | Practice | | Areas to Focus |
|-------------------------|--------------------------------|-------------|---|--|--|-----------------------|---|----------------|
| | | | | | | CW | HW | |
| 1 DD/MM/YYYY | 1, 2 – THK, REM | 1.a | <ul style="list-style-type: none"> Define ‘muscles’ and ‘muscular system’ List the different types of muscles | <ul style="list-style-type: none"> Real-life Connect | <ul style="list-style-type: none"> chart ‘The Muscular System’ | WB: Pg. 1 (Q. 1–4) | WB: Pg. 1 (Q. 5–7) Ask a learner to bring a balloon, sticky tape or string for the next class. | |
| 2 DD/MM/YYYY | 2 – UND | 1.b | <ul style="list-style-type: none"> Demonstrate the spring-like action of muscles during movement | <ul style="list-style-type: none"> Real-life Connect | <ul style="list-style-type: none"> a balloon sticky tape or string | – | – | |
| 3 DD/MM/YYYY | 3 – UND | 1.b | <ul style="list-style-type: none"> Describe the functions of muscles | <ul style="list-style-type: none"> Interactive Discussion | – | WB: Pg. 2 (Q. 8–13) | WB: Pg. 2 (Q. 14) | |
| 4 DD/MM/YYYY | 3, 4 – APP, AF | 1.c | <ul style="list-style-type: none"> Identify the practices that keep muscles healthy and strong | <ul style="list-style-type: none"> Interactive Discussion | – | WB: Pg. 3 (Q. 15, 16) | WB: Pg. 3 (Q. 17–19) | |

| Period and Planned Date | TB Page No. and Key Competency | L. Obj. No. | Learning Outcome(s) | Teaching Strategies | Resources | Practice | | Areas to Focus |
|-------------------------|--------------------------------|-------------|---|---|-----------|----------|-------------------|----------------|
| | | | | | | CW | HW | |
| 5 DD/MM/YYYY | 4, 5 – HOTS | 1.d | <ul style="list-style-type: none"> Discuss muscle injuries and their treatment methods | <ul style="list-style-type: none"> Real-life Connect | – | – | WB: Pg. 4 (Q. 20) | |

Annual Day:
1/33

Day:
1/5

Actual Date:

Page(s)
1



Lesson 1 Muscular System

Let Us Learn About

- ① muscles and the muscular system.
- ① the functions of our muscles.
- ④ keeping our muscles healthy.
- ① injuries related to muscles.



Think

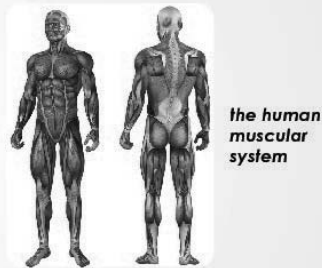
While playing *kabaddi* with friends, Raghav injured his hand. His mother took him to a doctor. After checking his hand, the doctor said that it was a muscle injury and not a fracture. Raghav wondered what a muscle is and how it looked. Do you know about muscles?



Remembering

Make a fist and fold your hand at the elbow. Touch your upper arm with your other hand. Can you feel a soft and spongy material inside? Now, while still touching it with your fingers, slowly unfold the arm. Can you feel some movement inside the upper arm?

These are **muscles**. Muscles are present all over our body. All the muscles together form an organ system called the **muscular system**.



Important Words

Duration: 1 min

- **Today:** muscles, muscular system, skeletal muscle, smooth muscle, cardiac muscle

Transactional Tip(s)

Duration: 27 min



Real-life Connect :

- Read aloud the 'Think' section and ask learners about the term 'muscles'.
- Demonstrate the activity on pg. 1 of the textbook in the 'Remembering' section. Let the learners try out the activity. Ask the learners, "Can you feel a soft and spongy material inside? Can you feel some movement inside your upper arm?"
- Show the Classlap chart 'The Muscular System' and elaborate on muscles and the muscular system.
- Show the images of three types of muscles given on pg. 2 of the textbook. Use a tree diagram to describe the types of muscles and their features.

Class Pulse Check

Duration: 2 min

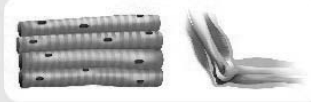


- 1) What are muscles?
- 2) Name the muscles that are found only in the heart.

According to the place where muscles are, they can be of three different types. They are:

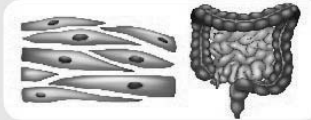
1

Skeletal muscles: These are muscles which are attached to the bones. They pull the bones to make movements of hands and legs. We can control these muscles.



2

Smooth muscles: These are muscles on the walls of internal organs. For example, the muscles of the stomach, intestines and so on. They are not attached to the bones.



3

Heart (Cardiac) muscles: These muscles are found only in the heart.



Both the smooth and the heart muscles are not controlled by us. They work throughout the day on their own with the help of our brain.



Understanding

Why do we have muscles in our body?

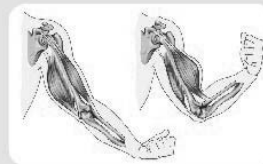
The main function of the muscular system is the movement of different body parts.

Try this:

Make a fist. Tighten the fist. Then loosen the fist. What do you feel?

We can feel the muscles moving. They help in movement by becoming **tight** and **loose** like a spring or a rubber band.

For example, to bend our hand, some muscles will become tight and some will become loose.



muscles becoming
loose and tight

Important Words

Duration: 1 min

- **Last class:** muscles, muscular system, skeletal muscle, smooth muscle, cardiac muscle
- **Today:** fist, tighten, loosen, movement

Transactional Tip(s)

Duration: 27 min



Real-life Connect :

- Ask the learners, “Why do we have muscles in our body?”
- Guide the learners to perform the ‘Try this’ activity given on pg. 2 of the textbook.
- Show the images of ‘muscles becoming tight and loose’ given on pg. 2 of the textbook to explain the spring-like movement of muscles that help in body movements.
- Tie or attach a partially inflated balloon on the inside of the arm. Demonstrate by moving your arm to explain the tightening of the muscle by showing the compressed balloon. Explain that the muscle loosens when the arm is moved back by showing the inflated balloon

Class Pulse Check

Duration: 2 min



- 1) How do muscles help in movements?
- 2) What is the main function of the muscular system?

Let us see some movements using muscles.

The muscles attached to the bones help in movements of hands, legs and so on. Example: walking, running, writing and so on



muscles help in movement

Heart muscles help the heart to pump blood.

Muscles around the lungs (the rib cage muscles and a dome-shaped muscle at the base of the chest cavity) help in breathing. When these muscles contract and relax, air flows in and out of the lungs.



muscles help to breathe

Did you know that your lips and tongue are made up of muscles too? These muscles help us while talking and eating.



lips and tongue are made of muscles

Muscles help us to maintain body posture. They help to keep us upright and erect.

Smooth muscles of the stomach and intestines help in the movement and digestion of food.



muscles help in digestion

Muscles also provide heat to our body. When we feel cold, our muscles vibrate rapidly to generate body heat. This is the reason why we shiver when we feel cold.



muscles vibrate in cold weather



Application

Muscles are an important part of our body, so they should be healthy. Healthy food and regular exercise make the muscles stronger and healthier.

We should follow these practices to keep our muscles healthy and strong:

- 1) **Warm up** → **exercise** → **cool down**: Exercise for 15–20 minutes every day. Warm up the different body parts with a brisk walk or a light jog before starting with exercise. After the exercise, let the body cool down slowly. Doing warm up before exercise prepares the body for the exercise. This is because the heart pumps more blood to the muscles. So, the chance of injury due to exercising is reduced.



brisk walk



light jog

Important Words

Duration: 1 min

- **Last class:** fist, tighten, loosen, movement
- **Today:** pump, rib cage muscles, dome-shaped muscles, chest cavity, contract, relax, smooth muscles, postures, upright, erect, vibrate, rapidly, generate, shiver

Transactional Tip(s)

Duration: 27 min



Interactive Discussion:

- Ask the learners about the functions of the body (breathing, eating, talking, etc.) and the organs involved in these functions. List them on the blackboard using a table.
- Elaborate on the fact that all these body functions are assisted by muscles. Show the images on pg. 3 of the textbook to explain the functions of muscles and the functions of the body. Explain the different types of internal and external body movements that muscles help to perform.

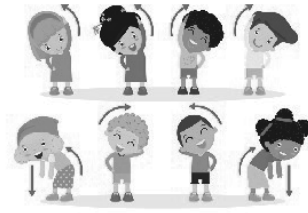
Class Pulse Check

Duration: 2 min



- 1) Which muscles help in breathing?
- 2) Which muscles help the heart to pump blood?

- 2) **Stretch:** Stretch all body parts every day. It improves the strength of muscles.
- 3) **Drink a lot of water:** We should drink at least two litres of water every day. It keeps the muscles and other internal organs healthy.
- 4) **Balanced diet:** Our food helps our muscles strengthen, repair themselves and function properly. It is important to include all the nutrients like minerals and vitamins in our diet.



stretching all parts of body



Amazing Facts

Our heart muscles never get to rest. They work non-stop till we die!



Higher Order Thinking Skills (H.O.T.S.)

We often hear of sportspersons getting injured. Do you know that most of their injuries are related to muscles? Let us learn about some common muscle injuries.

- 1) **Strain:** When a muscle has stretched too much, it causes muscle strain. For example, if we lift something too heavy like a big bucket of water, we might strain our muscle. It also happens when a muscle is used too much without rest. The treatment for strain includes applying an ice pack to the affected area.



muscle strain in different parts of the body



ice pack on sprained leg

- 2) **Cramp:** Sometimes a painful tightening of a muscle happens suddenly. This is a cramp. For example, if we play in warm or hot weather without drinking enough water, we get a cramp. It lasts from a few seconds to several minutes. It often occurs in the legs. Treatment for cramps is the massage of the affected area.



cramp in leg

Important Words

Duration: 1 min

- **Last class:** pump, rib cage muscles, dome-shaped muscles, chest cavity, contract, relax, smooth muscles, postures, upright, erect, vibrate, rapidly, generate, shiver
- **Today:** warm up, exercise, cool down, brisk walk, light jog, injury, stretch, balanced diet, strengthen

Transactional Tip(s)

Duration: 27 min



Interactive Discussion:

- Show the images on pg. 3 of the textbook.
- Ask the learners, "Why do people go for a walk or a jog?"
- Explain how different activities make our muscles strong.
- Ask the learners to stand in their places. Help them do some stretching or warm-up exercises that help to keep the muscles healthy and strong.
- Elaborate on the importance of drinking water and following a balanced diet plan.
- Read aloud the 'Amazing Facts' section. Recall the functions of the heart muscles. Describe why the heart muscles need to work non-stop.

Class Pulse Check

Duration: 2 min



- 1) State one practice we should follow to keep our muscles healthy.
- 2) Name one nutrient that should be included in our diet.

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3) Bruises: Bruises happen if our body hits any hard object. The area swells up. It forms a red mark that is painful, and movement becomes difficult. For example, when we fall from a bicycle or get hurt while playing football, we get bruises.

Children mostly get their knees and elbows bruised while playing. We should wash the bruise properly and put a bandage on it.

Do you know what a **hamstring injury** is? Find out.

(Hint: Hamstrings are a group of leg muscles.)



example of bruises while playing



bandage on bruises



hamstring muscles

Important Words

Duration: 1 min

- **Last class:** warm up, exercise, cool down, brisk walk, light jog, injury, stretch, balanced diet, strengthen
- **Today:** sportspersons, strain, muscle strain, treatment, ice pack, affected area, cramp, tightening, massage, bruises, object, bandage, hamstring injury

Transactional Tip(s)

Duration: 27 min



Real-life Connect :

- Ask the learners, "Have you ever felt a sudden pain in your legs while playing or while trying to lift something heavy? What did your parents or teacher do to help you get some relief? Have you ever heard or seen any sports person getting injured?"
- Show pictures of muscle injuries given on pg. 4, 5 of the textbook.
- Describe strain, cramp and bruises and the treatment options.
- Show the image of hamstring muscles on pg. 5 of the textbook and explain about the hamstring injury.

Class Pulse Check

Duration: 2 min



- 1) What is the cause of muscle strain?
- 2) What is a cramp?



C – Exit Assessment

| | Suggested questions to test the learning objective(s) | Learning objective(s) | Number of learners who answered correctly |
|---|---|--|---|
| 1 | How many types of muscles are there? (Ans. three) | Period 1 - muscles and the muscular system | |
| 2 | Name the type of muscles that help in the movement and digestion of food. (Ans. smooth muscles) | Period 3 - the functions of our muscles | |
| 3 | Tell one benefit that muscles get from exercising. (Ans. exercise helps heart to pump more blood to the muscles) | Period 4 - keeping our muscles healthy | |
| 4 | What are hamstrings? (Ans. they are a group of leg muscles) | Period 5 - injuries related to muscles | |

| Post-lesson Reflection | | Handhold Learners | Challenge Learners |
|---|--|-----------------------------------|---------------------------------|
| TB completed Yes <input type="checkbox"/> No <input type="checkbox"/> WB completed Yes <input type="checkbox"/> No <input type="checkbox"/> | | | |
| Enthusiastic participation <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | | |
| Concept clarity in the classroom <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | | |
| Concept clarity through the workbook <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | | |
| Names | | | |
| Exam Revision Strategy | | Reteach <input type="checkbox"/> | Revise <input type="checkbox"/> |
| App Report | | Practise <input type="checkbox"/> | |
| | | Number _____ | Signature _____ |

Lesson 1: Muscular System



Think

- 1) While playing kabaddi with friends, Raghav injured his hand. His mother took him to a doctor. After checking his hand, the doctor said that it was a muscle injury and not a fracture. Raghav wondered what a muscle is and how it looked. Do you know about muscles?

Ans. Muscles are the soft material under the skin. They help in movement by becoming tight and loose. They also maintain body posture and help in the digestion of food.



Higher Order Thinking Skills (H.O.T.S.)

- 1) Do you know what a hamstring injury is? Find out.
- Ans.** A hamstring is a group of muscles in the back of our thigh. It allows us to bend our leg at the knee. A hamstring injury is a strain or tear to these large muscles. It happens during activities that involve a lot of running and jumping or sudden jerking movements.

Muscular System



Remembering

Multiple Choice Questions

- 1) All the muscles together form the organ system called the: [B]
 (A) bruise (B) muscular system
 (C) digestive system (D) skeletal system
- 2) The activity of which type of muscles can be controlled? [C]
 (A) muscles of the stomach (B) heart muscles
 (C) skeletal muscles (D) muscles of the intestine

Fill in the Blanks

- 3) _____ **Cardiac** _____ muscles are found only in the heart.
- 4) _____ **Smooth** _____ muscles are found on the walls of internal organs.

Very Short Answer Questions

- 5) Name the muscles which are attached to the bones.

Ans. skeletal muscles

- 6) Which type of muscles are found in our stomach?

Ans. smooth muscles

Short Answer Question

- 7) Name the type of muscle shown in the picture.
Where do we find these muscles?



Ans. The muscles shown in the picture are cardiac muscles. These muscles are found in our heart.



Understanding

True or False

- 8) Heart muscles help the heart to pump blood. [True]
- 9) When the muscles around the lungs contract, air flows out of the lungs. [False]
- 10) The main function of the muscular system is digestion of food. [False]
- 11) Skeletal muscles help in movements of hands and legs. [True]

Short Answer Questions

- 12) What are our lips and tongue made of? How do they help us?

Ans. Our lips and tongue are made of muscles. They help us in talking and eating.

- 13) How do muscles help in body movements?

Ans. Muscles help in movement by becoming tight and loose like a spring or a rubber band.

Long Answer Question

- 14) Why do we shiver when we feel cold?

Ans. Muscles provide heat to our body. When we feel cold, our muscles vibrate rapidly to generate body heat. Hence, we shiver.



Application

Multiple Choice Questions

- 15) What should Neha do if she wants healthy muscles? [C]
- (A) She should not do any type of activity.
(B) She should eat junk food.
(C) She should exercise for 15–20 minutes every day.
(D) She should strain her muscles continuously.
- 16) Which of the following exercises our muscles? [B]
- (A) playing mobile games for hours (B) playing outdoors in the evening
(C) watching television (D) eating junk food

Short Answer Questions

- 17) Write two ways to make our muscles strong and healthy.

Ans. Learner's response (**Hint:** 1) Stretch every day 2) Drink a lot of water 3) Have a balanced diet (any two))

- 18) Why is it important to do warm-up before exercise?

Ans. Warming-up before exercise prepares the body. When we warm-up, the heart pumps more blood to muscles. It reduces the chances of injury.

Long Answer Question

- 19) Why should we have a balanced diet for healthy muscles?

Ans. Learner's response (**Hint:** Our diet helps our muscles strengthen, repair themselves and function properly. A balanced diet has all the nutrients that our body needs in required amounts. So, we should have a balanced diet for healthy muscles.)



Long Answer Question

20) Name any two common muscle injuries. Explain how they are treated.

Ans. Muscle strain and cramp are two common muscle injuries.

The treatment for a muscle strain includes applying an ice pack to the affected area.

Treatment for a cramp involves massaging the affected area.

A – Curriculum to Learning Objectives: My Body

| Prior Knowledge | | <ul style="list-style-type: none"> parts of the body and its functions, taking care of different parts of the body | | |
|-----------------|--------|---|-------------|--|
| Class | L. No. | Lesson Name | L. Obj. No. | Learning Objectives |
| 3 | 3 | Organ Systems | 3.a | <ul style="list-style-type: none"> organs inside the body |
| | | | 3.b | <ul style="list-style-type: none"> different organ systems and their parts |
| | | | 3.c | <ul style="list-style-type: none"> the effect of daily activities on organ systems |
| | | | 3.d | <ul style="list-style-type: none"> the position of different organs inside the body |
| 3 | 4 | Skeletal System | 4.b | <ul style="list-style-type: none"> the functions of the skeletal system |
| 4 | 3 | Excretory System | 3.b | <ul style="list-style-type: none"> the process of excretion |
| | | | 3.c | <ul style="list-style-type: none"> the importance of the excretory system |
| 5 | 1 | Muscular System | 1.a | <ul style="list-style-type: none"> muscles and the muscular system |
| | | | 1.b | <ul style="list-style-type: none"> the functions of our muscles |
| 5 | 2 | Respiratory System | 2.a | <ul style="list-style-type: none"> respiration and the respiratory system |
| | | | 2.b | <ul style="list-style-type: none"> steps of respiration |
| | | | 2.c | <ul style="list-style-type: none"> breathing rate and how blowing air can warm up or cool down things |
| | | | 2.d | <ul style="list-style-type: none"> the importance of a stethoscope |
| 5 | 3 | Nervous System | 3.a | <ul style="list-style-type: none"> parts of the nervous system |
| | | | 3.b | <ul style="list-style-type: none"> working of the nervous system |
| | | | 3.c | <ul style="list-style-type: none"> role of our sense organs |
| | | | 3.d | <ul style="list-style-type: none"> how the brain works with closed eyes |

B – Vision-to-Action Plan: 2 Respiratory System

| Period and Planned Date | TB Page No. and Key Competency | L. Obj. No. | Learning Outcome(s) | Teaching Strategies | Resources | Practice | | Areas to Focus |
|-------------------------|--------------------------------|-------------|---|--|--|----------------------------|--------------------------|----------------|
| | | | | | | CW | HW | |
| 1 DD/MM/YYYY | 6, 7 – THK, REM | 2.a | <ul style="list-style-type: none"> Define ‘respiration’ and ‘respiratory system’ Name various parts of the respiratory system | <ul style="list-style-type: none"> Interactive Discussion | <ul style="list-style-type: none"> chart ‘The Respiratory System’ | WB: Pg. 5 (Q. 1–4) | WB: Pg. 5 (Q. 5–7) | |
| 2 DD/MM/YYYY | 7 – UND | 2.b | <ul style="list-style-type: none"> Describe the steps involved in the process of breathing | <ul style="list-style-type: none"> Interactive Discussion | <ul style="list-style-type: none"> chart ‘The Respiratory System’ | WB: Pgs. 5, 6 (Q. 8–11) | WB: Pg. 6 (Q. 12–14) | |
| 3 DD/MM/YYYY | 7, 8 – APP | 2.c | <ul style="list-style-type: none"> Describe breathing rate Identify the factors that affect the breathing rate of a person | <ul style="list-style-type: none"> Real-life Connect | <ul style="list-style-type: none"> stopwatch | WB: Pg. 7 (Q.15, 16) | WB: Pg. 7 (Q. 17, 18) | |
| 4 DD/MM/YYYY | 8 – APP, AF | 2.c | <ul style="list-style-type: none"> Conclude that blowing air can warm up or cool down things | <ul style="list-style-type: none"> Interactive Discussion | – | – | WB: Pg. 7 (Q. 19) | |

| Period and Planned Date | TB Page No. and Key Competency | L. Obj. No. | Learning Outcome(s) | Teaching Strategies | Resources | Practice | | Areas to Focus |
|-------------------------|--------------------------------|-------------|---|--|---|----------|-------------------|----------------|
| | | | | | | CW | HW | |
| 5 DD/MM/YYYY | 8 – HOTS | 2.d | <ul style="list-style-type: none"> Analyse the uses of a stethoscope | <ul style="list-style-type: none"> Interactive Discussion Quiz | <ul style="list-style-type: none"> stethoscope | – | WB: Pg. 8 (Q. 20) | |

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Lesson 2 **Respiratory System**

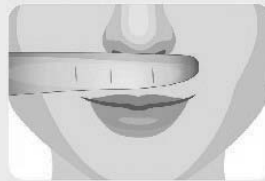
Let Us Learn About

- respiration and the respiratory system.
- steps of respiration.
- breathing rate and how blowing air can warm up or cool down things.
- the importance of a stethoscope.



Think

Hold your finger under your nose. What do you feel on your finger?



Remembering

Have you ever noticed someone breathe? What does the person do? He or she breathes in and breathes out. This continues throughout the day.

Taking in oxygen from the air and giving out carbon dioxide is called **respiration**.

The organ system that helps in respiration is called the **respiratory system**.

This system has the following parts:

- 1) A **nose** with a pair of openings called **nostrils**.

Important Words

Duration: 1 min

- **Today:** oxygen, respiration, organ system, respiration, respiratory system, carbon dioxide, nostrils, windpipe, trachea, lungs, sac-like, rib cage, elastic, diaphragm, dome-like

Transactional Tip(s)

Duration: 27 min



Interactive Discussion:

- Ask the learners to hold a finger under their nose for some time (Activity from the 'Think' section).
- Ask them, "What do you feel on your finger? What do you do while breathing? Do you breathe continuously or for a short time only?"
- Collect responses on the blackboard. Define 'respiration' and the 'respiratory system'.
- Describe the structure and position of the various parts of the respiratory system using the Classlap chart 'The Respiratory System'.

Class Pulse Check

Duration: 2 min

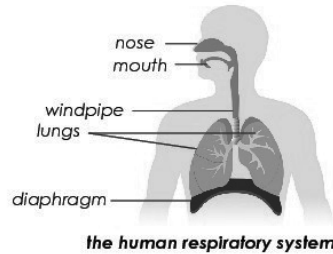


- 1) What do we call the process of taking in oxygen and giving out carbon dioxide?
- 2) What are the openings in the nose called?

2) **Windpipe (Trachea)**

3) A pair of **lungs**: The sac-like lungs are located in the chest. They are protected by the rib cage. They occupy most of the space in the chest. Both lungs are not of the same size. The left lung is smaller than the right.

4) An elastic **diaphragm**: It is a dome-like muscle below the lungs. It separates the lungs from the stomach and intestine.



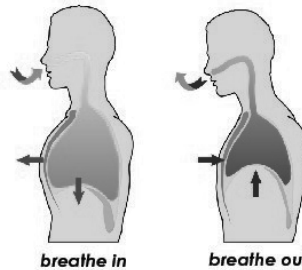
Understanding

How does respiration take place?

There are two main steps of respiration:

- 1) breathing in (inhale) oxygen into the lungs
- 2) breathing out (exhale) carbon dioxide from the lungs

The diaphragm has an important role. Breathing in and breathing out happen due to the up and down movement of the diaphragm. It moves down to take in oxygen. It moves up to release the carbon dioxide from the lungs.



Application

BREATHING RATE

Place your hands on your chest as you breathe. What is the pace of your breathing? Now stand and jump for five minutes. Keep your hands again on your chest. You are breathing hard and fast now. Why does this happen?

We need to breathe because we need oxygen for many of our body functions. When we run, jump or play, we need more oxygen. So we breathe faster than usual.

According to the difficulty level of the activity, the number of times we breathe also increases. The faster we move, the faster we breathe.



Important Words

Duration: 1 min

- **Last class:** oxygen, respiration, organ system, respiratory system, carbon dioxide, nostrils, windpipe, trachea, lungs, sac-like, rib cage, elastic, diaphragm, dome-like
- **Today:** breathing in, inhale, breathing out, exhale

Transactional Tip(s)

Duration: 27 min



Interactive Discussion:

- Ask the learners to name the organs of the respiratory system. Collect the responses using a process chart as per the sequence of the presence of organs starting from the nose.
- Demonstrate breathing in and breathing out, let the learners repeat the same. Point out the movement of the chest.
- Ask them, "What happens to the chest when we breathe in? What happens when we breathe out?"
- Display the Classklap chart 'The Respiratory System' to describe the process of respiration. Elaborate on the role of the diaphragm during breathing.

Class Pulse Check

Duration: 2 min



- 1) Name the dome-like muscle that helps in breathing.
- 2) What do you breathe out when you exhale?

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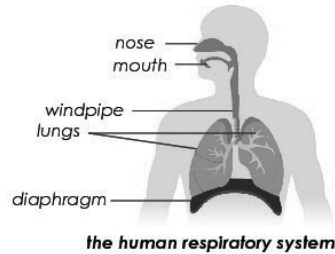
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2) Windpipe (Trachea)

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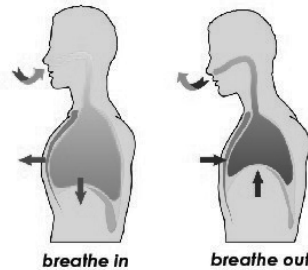
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According to the difficulty level of the activity, the number of times we breathe also increases. The faster we move, the faster we breathe.



Important Words

Duration: 1 min

- **Last class:** blowing air, warm up, fuels, withstand up
- **Today:** breathing rate, pace, body functions

Transactional Tip(s)

Duration: 28 min



Real-life Connect :

- Read aloud the content in the 'Application' section on pg. 7 of the textbook. Guide the learners to perform the activity given in the textbook.
- Ask them, "Is your breathing pace the same before and after jumping? Why is it different?"
- Build on the responses to explain the breathing rate.
- Ask one learner to operate the stopwatch. Start the stopwatch and count your breathing rate per minute. In the same way, ask two or three more volunteer learners to measure their breathing rate. Note the breathing rates using a table to summarise the change in breathing depending on age and the type of activity done.

Class Pulse Check

Duration: 1 min



- 1) Name any one activity that makes us breathe faster.

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Usually, adults breathe about 18 times in a minute. Children breathe even faster. Count how many times you breathe in a minute.

BLOWING AIR TO WARM UP OR COOL DOWN THINGS

Your mother has given you hot milk to drink. But you are getting late for school. What does she do? She blows into the glass of milk to cool it faster.

We blow to cool the hot food or drink. The air from the mouth is cooler than the food. So it cools down the food.

Does blowing always make things cold? Think, what will happen if you blow on an ice cream? Will it become colder? Try it.

Why is the woman in the picture blowing on the fire? Wood or fuels need air to burn. So, blowing into the fire makes the fire to burn faster and hotter.



a woman blowing into a chulha



Amazing Facts

Our body can withstand up to three weeks without food and one week without water. But, we can live only for three to four minutes without oxygen.



Higher Order Thinking Skills (H.O.T.S.)

Whenever we go to doctors, they keep a **stethoscope** on our chest. Then he or she asks us to take long breaths. Do you know why?

A stethoscope is an instrument used to hear sounds of heartbeats and breathing. Doctors use it to check the health of our body. Our breathing and heartbeats change when we are unwell.



stethoscope

Important Words

Duration: 1 min

- **Last class:** breathing in, inhale, breathing out, exhale
- **Today:** blowing air, warm up, fuels, withstand up

Transactional Tip(s)

Duration: 28 min



Interactive Discussion:

- Ask the learners, “What do you do when the food or milk is too hot to consume? Why do people blow into their closed palms during cold weather?”
- Discuss with the learners how blowing air cools the hotter things and warms the things that are cold. Use the examples given on pg. 8 of the textbook to elaborate.
- Show the image of ‘a woman blowing into a chulha’ and ask them “Why is the woman in the picture blowing on the fire?” Note responses from the learners and explain how blowing air into the fire makes it burn faster.
- Describe the ‘Amazing Facts’ section given on pg. 8 of the textbook.

Class Pulse Check

Duration: 1 min



- 1) What makes a fire hotter?

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Usually, adults breathe about 18 times in a minute. Children breathe even faster. Count how many times you breathe in a minute.

BLOWING AIR TO WARM UP OR COOL DOWN THINGS

Your mother has given you hot milk to drink. But you are getting late for school. What does she do? She blows into the glass of milk to cool it faster.

We blow to cool the hot food or drink. The air from the mouth is cooler than the food. So it cools down the food.

Does blowing always make things cold? Think, what will happen if you blow on an ice cream? Will it become colder? Try it.

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stethoscope

Important Words

Duration: 1 min

- **Last class:** breathing rate, pace, body functions
- **Today:** stethoscope, long breaths, instrument, heartbeats, unwell

Transactional Tip(s)

Duration: 27 min



Quiz:

- Form groups of learners and conduct a quiz on all the topics learnt in the lesson.

Interactive Discussion:

- Ask the learners, "What does the doctor do during a checkup?" Drive the discussion towards the usage of the stethoscope.
- Display a stethoscope. Ask one learner to act as a doctor and check the breathing and heart rate of another learner. The learner acting as the doctor will inform the class about the sound of the heartbeat and breathing.
- Explain the uses of the stethoscope to the learners.

Class Pulse Check

Duration: 2 min



- 1) When do our breathing rate and heartbeats change?
- 2) What is a stethoscope?



C – Exit Assessment

| | Suggested questions to test the learning objective(s) | Learning objective(s) | Number of learners who answered correctly |
|---|---|---|---|
| 1 | Correct the given sentence. Both the lungs are of the same size. (Ans. The right lung is bigger than the left one.) | Period 1 - respiration and the respiratory system | |
| 2 | What happens due to the upward movement of the diaphragm? (Ans. carbon dioxide is released from our lungs) | Period 2 - steps of respiration | |
| 3 | Say true or false: If we blow on an ice cream it will become colder. (Ans. false) | Period 4 - breathing rate and how blowing air can warm up or cool down things | |
| 4 | How can a stethoscope detect that we are unwell? (Ans. by detecting the change in our heartbeat and breathing rate) | Period 5 - the importance of a stethoscope | |

| Post-lesson Reflection | | Handhold Learners | Challenge Learners |
|---|--|----------------------------------|---|
| TB completed Yes <input type="checkbox"/> No <input type="checkbox"/> WB completed Yes <input type="checkbox"/> No <input type="checkbox"/> | | | |
| Enthusiastic participation <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | | |
| Concept clarity in the classroom <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | | |
| Concept clarity through the workbook <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | | |
| Names | | | |
| Exam Revision Strategy | | Reteach <input type="checkbox"/> | Revise <input type="checkbox"/> Practise <input type="checkbox"/> |
| App Report | | Number _____ | Signature _____ |

Lesson 2: Respiratory System



Think

1) Hold your finger under your nose. What do you feel on your fingers?

Ans. We feel the movement of warm air.



Application

1) Place your hands on your chest as you breathe. What is the pace of your breathing?

Ans. Learner's response (**Hint:** It is 17–23 breaths per minute.)

2) Does blowing always make things cold? Think, what will happen if you blow on an ice cream? Will it become colder?

Ans. Blowing will not always make things cold. Our breath is warmer than the ice cream. So, when we blow on it, the layer of chilled air around the ice cream gets replaced with the air from our mouth. Thus, the ice cream will melt when we blow on it.



Remembering

Multiple Choice Questions

- 1) Which of the following is not a part of the respiratory system? [D]
(A) nose (B) windpipe (C) lungs (D) intestine
- 2) What is/are protected by the rib cage? [B]
(A) nose (B) lungs (C) windpipe (D) mouth

Fill in the Blanks

- 3) _____ **Diaphragm** _____ separates the lungs from the stomach and intestine.
- 4) We take in _____ **oxygen** _____ from the air.

Very Short Answer Questions

- 5) Name the organ system in the body that helps in respiration.

Ans. Respiratory system

- 6) Name any one organ that helps in respiration.

Ans. Nose, lungs, windpipe, diaphragm (any one)

Short Answer Question

- 7) What is respiration?

Ans. Respiration is the process of taking in oxygen from the air and giving out carbon dioxide.



Understanding

True or False

- 8) Breathing in and out happen due to the up and down movement of the lungs. [False]

- 9) While breathing out, oxygen is given out. [False]
- 10) When the diaphragm moves down, the elastic walls of the lungs expand. [True]
- 11) We exhale carbon dioxide from the lungs. [True]

Short Answer Questions

- 12) State the role of the diaphragm in respiration.

Ans. Breathing in and out happens due to the up and down movement of the diaphragm.

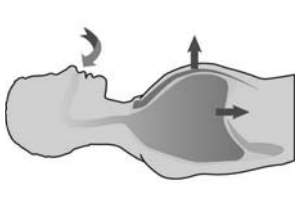
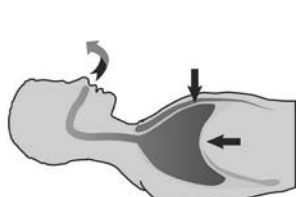
- 13) What are the two steps of respiration?

Ans. The two steps of respiration are:

- 1) breathing in (inhale) oxygen into the lungs.
- 2) breathing out (exhale) carbon dioxide from the lungs.

Long Answer Question

- 14) Label the activity shown in the figures. Write the steps involved in both the activities.

| | Label | Steps involved |
|--|---|---|
| a)  | <u>breathe in or inhaling</u> <hr/> <hr/> | <u>The diaphragm moves down to take in oxygen from the nose into the lungs.</u> <hr/> <hr/> |
| b)  | <u>breathe out or exhaling</u> <hr/> <hr/> | <u>The diaphragm moves up to release carbon dioxide from the lungs through the nose.</u> <hr/> <hr/> |



Application

Multiple Choice Questions

- 15) Which of the following activity will mostly make us breathe the fastest? [B]
 (A) eating (B) swimming (C) sitting steady (D) studying
- 16) Which of the following statements is correct? [D]
 (A) Usually, adults breathe about 24 times in an hour.
 (B) Children breathe about 18 times in a minute.
 (C) Adults breathe about 18 times in a day.
 (D) Usually, adults breathe about 18 times in a minute.

Short Answer Questions

- 17) Why do we need to breathe?



Ans. We need to breathe because we need oxygen for many of our body functions.

- 18) Explain: The faster we move, the faster we breathe.

Ans. According to the difficulty level of the activity, the speed of breathing also increases.
 Therefore, the faster we move, the faster we breathe.

Long Answer Question

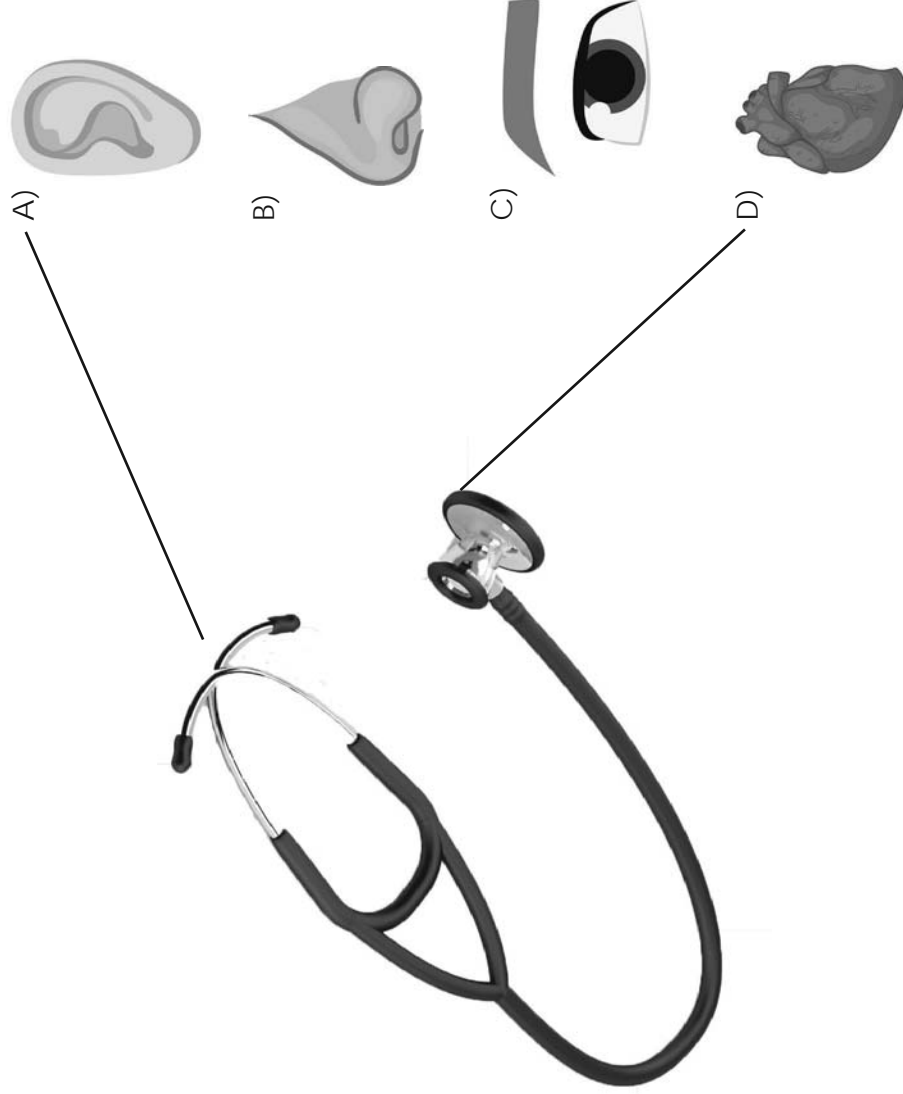
- 19) What happens when we blow air on the following food items? Give reasons.

| | |
|---|---|
| <p>a)</p>  | <p>The hot food item will cool down because the air from the mouth is cooler than the food.</p> <hr/> <hr/> |
| <p>b)</p>  | <p>The cold food item will become warm (melt) because the air from the mouth is warmer than the food.</p> <hr/> <hr/> |



Long Answer Question

20) a) Match the parts of the following stethoscope with the suitable body part.



b) How does a stethoscope help doctors?

Ans. Doctors use stethoscope to hear sounds of heartbeats and breathing. This helps the
doctor check our health.

A – Curriculum to Learning Objectives: My Body

| Prior Knowledge | | • <i>parts of the body and its function, how to take care of different parts of the body</i> | | |
|-----------------|--------|--|-------------|--|
| Class | L. No. | Lesson Name | L. Obj. No. | Learning Objectives |
| 3 | 3 | Organ Systems | 3.a | • organs inside the body |
| | | | 3.b | • different organ systems and their parts |
| | | | 3.c | • the effect of daily activities on organ systems |
| | | | 3.d | • the position of different organs inside the body |
| 3 | 4 | Skeletal System | 4.a | • the skeletal system |
| | | | 4.b | • the functions of the skeletal system |
| | | | 4.c | • keeping our bones healthy |
| | | | 4.d | • the skeletal system in animals |
| 4 | 2 | Digestive System | 2.a | • digestion and the digestive system |
| | | | 2.b | • the process of digestion |
| | | | 2.c | • the importance of the digestive system |
| | | | 2.d | • hunger and famine |
| 4 | 3 | Excretory System | 3.a | • excretion and the excretory system |
| | | | 3.b | • the process of excretion |
| | | | 3.c | • the importance of the excretory system |
| | | | 3.d | • kidney stones |
| 5 | 1 | Muscular System | 1.a | • muscles and the muscular system |
| | | | 1.b | • the functions of our muscles |
| | | | 1.c | • keeping our muscles healthy |
| | | | 1.d | • injuries related to muscles |
| 5 | 2 | Respiratory System | 2.a | • respiration and the respiratory system |
| | | | 2.b | • steps of respiration |
| | | | 2.c | • breathing rate and how blowing air can warm up or cool down things |
| | | | 2.d | • the importance of a stethoscope |
| 5 | 3 | Nervous System | 3.a | • parts of the nervous system |
| | | | 3.b | • working of the nervous system |
| | | | 3.c | • role of our sense organs |
| | | | 3.d | • how the brain works with closed eyes |

B – Vision-to-Action Plan: 3 Nervous System

| Period and Planned Date | TB Page No. and Key Competency | L. Obj. No. | Learning Outcome(s) | Teaching Strategies | Resources | Practice | | Areas to Focus |
|-------------------------|--------------------------------|-------------|--|--|--|---------------------------|-------------------------------|----------------|
| | | | | | | CW | HW | |
| 1 DD/MM/YYYY | 9, 10 – THK, REM | 3.a | <ul style="list-style-type: none"> Define ‘nervous system’ Describe the various parts of the nervous system | <ul style="list-style-type: none"> Interactive Discussion | <ul style="list-style-type: none"> chart ‘Our Senses and the Nervous System’ | WB: Pg. 9 (Q. 1–4) | WB: Pgs. 9, 10 (Q. 5–7) | |
| 2 DD/MM/YYYY | 10, 11 –UND | 3.b | <ul style="list-style-type: none"> Demonstrate the working of the nervous system Identify the functions of the brain | <ul style="list-style-type: none"> Real-life Connect | <ul style="list-style-type: none"> placards (sender, postman, receiver, scooter, brain, nerves, organ/body part, spinal cord) | WB: Pg. 10 (Q. 8–11) | WB: Pgs. 10, 11 (Q. 12–14) | |
| 3 DD/MM/YYYY | 11 – APP | 3.c | <ul style="list-style-type: none"> Identify the sense organs and their functions | <ul style="list-style-type: none"> Interactive Discussion | – | WB: Pg. 11 (Q. 15) | WB: Pg. 12 (Q. 16, 17) | |
| 4 DD/MM/YYYY | 11, 12 – APP, AF | 3.c | <ul style="list-style-type: none"> Describe the coordination between the sense organs and the brain | <ul style="list-style-type: none"> Interactive Discussion | <ul style="list-style-type: none"> chart ‘Our Senses and the Nervous System’ | WB: Pg. 12 (Q. 18, 19) | – | |

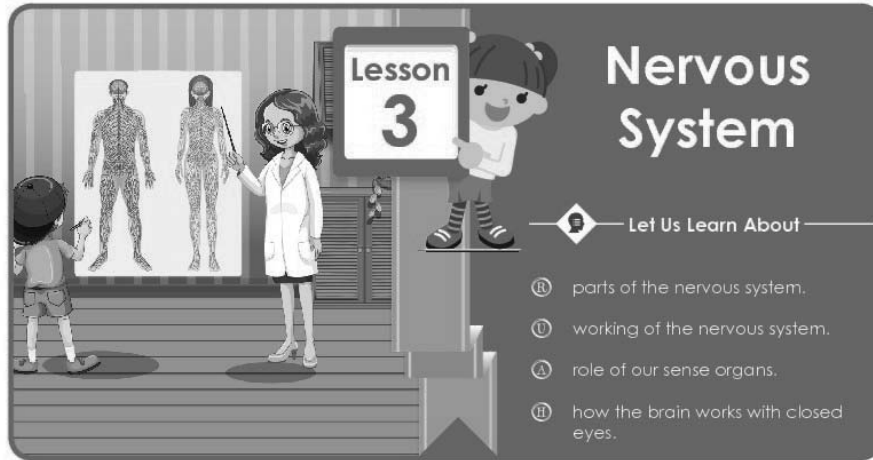
| Period and Planned Date | TB Page No. and Key Competency | L. Obj. No. | Learning Outcome(s) | Teaching Strategies | Resources | Practice | | Areas to Focus |
|-------------------------|--------------------------------|-------------|--|--|-----------|----------|--------------------|----------------|
| | | | | | | CW | HW | |
| 5 DD/MM/YYYY | 12 – HOTS | 3.d | <ul style="list-style-type: none"> Conclude that the brain can identify objects even without the help of the eyes | <ul style="list-style-type: none"> Interactive Discussion | – | – | WB: Pg. 13 (Q. 20) | |

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Day:
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Lesson 3 Nervous System

Let Us Learn About

- i parts of the nervous system.
- ii working of the nervous system.
- iii role of our sense organs.
- iv how the brain works with closed eyes.



Think

If we happen to touch or hold a hot vessel in our hand, what do we do? We let go of it immediately.

How do we come to know that the vessel is hot and we should drop it?



Remembering

Our body is made up of organs which help us perform various functions. Do you think they perform these functions on their own? How do we walk? How do our legs move to walk?

Our body has an organ system which controls all the body functions. It is called the **nervous system**. Without this system, our brain would be like jelly. It wouldn't be able to perform any function.

Let us learn about the different parts of the nervous system.

Important Words

Duration: 1 min

- **Today:** vessel, nervous system, brain, skull, spinal cord, backbone, nerves, spider's web

Transactional Tip(s)

Duration: 27 min



Interactive Discussion:

- Ask the learners, "What will happen if we touch or hold a hot vessel? How do we come to know that it is hot?"
- Drive the discussion to the point that our movements and responses are controlled by a system of organs called the nervous system.
- Introduce the nervous system as the control system by showing the Classlap chart 'Our Senses and the Nervous System'.
- Stress on the name of the organs, their location and functions in the nervous system using a tree diagram.

Class Pulse Check

Duration: 2 min

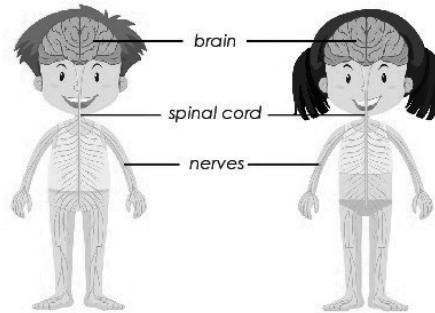


- 1) Name the three main organs of the nervous system.
- 2) What is the shape of the spinal cord?

1) **The brain:** The brain is located in the head. It is soft like jelly. It is covered and protected by the skull. The skull is very hard. It protects the brain. The brain manages the entire body, but weighs only about 1.5 kg.

2) **The spinal cord:** It is long and thin like a pipe. It starts from the lower part of the brain. It looks like a long tail of the brain. Along the way, nerves branch out from the spinal cord just like the branches of a tree from a tree trunk. The backbone encloses the spinal cord.

3) **Nerves:** The nerves are like wires. They are spread in our entire body like a spider's web. They connect different body parts and organs to the spinal cord and to the brain.



the human nervous system

Understanding

Our nervous system is like a postal service.

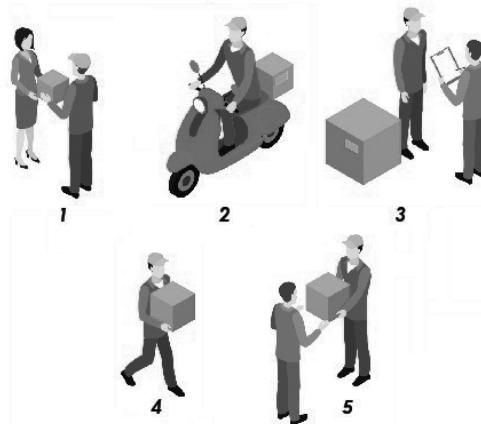
Through the given pictures, let us understand how the nervous system works:

1) Sender (any organ or body part) gives the message to the postman (nerves).

2) Postman takes the message (box) through the spinal cord (red scooter).

3) Postman gives the message to the brain. The brain reads these messages and decides what needs to be done. Accordingly, it gives messages in return. The brain tells what to do about the message.

4) The postman (nerves) returns with the message from the brain through the spinal cord.



nervous system working like a postal service

Important Words

Duration: 1 min

- **Last class:** vessel, nervous system, brain, skull, spinal cord, backbone, nerves, spider's web
- **Today:** sender, postman, message, receiver, control centre, high speed

Transactional Tip(s)

Duration: 27 min



Real-life Connect :

- Using placards for the sender, postman, receiver and scooter, perform the postal service activity with the learners as given on pgs. 10, 11 of the textbook. Any object can be used to signify the message/parcel.
- Relate the working of the nervous system with the postal service and explain the function of each part of the nervous system. Repeat the postal activity with placards of the brain, nerves, organ/body part and spinal cord with the learners.
- Ask a learner to draw the cyclic functioning of the nervous system on the blackboard. Discuss the cycle with them.

Class Pulse Check

Duration: 2 min



- 1) Which part of the nervous system controls the body?
- 2) What carries messages to and from our body parts?

5) Nerves then give the message to the receiver (same or different organ or body part).
Once the body parts receive the message, they do what the message asks them to do.

In our nervous system, the message can be about different parts of the body or about what is happening outside the body.

The brain is the control centre of the body. The brain talks to the entire body through the spinal cord and nerves. It tells our body 'what to do' and 'when to do it.'

All these steps take place at extremely high speed. This is why we can respond to things very fast. For example, when we see something in front of us, within a second we know what it is, how it looks like and how far or close it is.

 **Application**

To control our body, the brain also needs to know what is happening outside our body. For example, when we walk, the brain needs to get the messages about the things in our way. How does the brain get these messages?

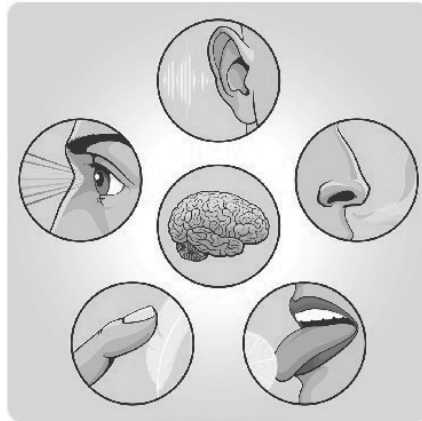
For this, the **sense organs** work along with the nervous system. Eyes, ears, nose, tongue and skin are the organs that help us to sense the things around us. With the help of these organs, we see, hear, smell, taste and feel the things around us.

Let us learn how these organs help us to sense with the help of the nervous system.

When an object comes in front of us, the eyes send this information to the brain through the nerves. The brain reads this message and tells us what object it is. That is how we see.

Similarly, if we smell or taste something, the nose and tongue send a message to the brain through the nerves. Then, the brain tells us what kind of smell or taste it is. It also tells us whether the smell and taste are good or not.

In the same way, the skin helps us to feel heat-cold, the rough-smooth and so on. Ears help us to hear with the help of messages from the brain.



five sense organs

Important Words

Duration: 1 min

- **Last class:** sender, postman, message, receiver, control centre, high speed
- **Today:** sense organs, sense, see, hear, smell, taste, feel

Transactional Tip(s)

Duration: 28 min



Interactive Discussion:

- Through dumb charades, learners can use gestures to depict the sense organs. The other learners can guess the sense organ.
- Initiate a discussion by asking about the five senses and the organs that help to sense. Note the point in a mind map. Define all the five sense organs in our body.

Class Pulse Check

Duration: 1 min



- 1) How do we recognise good or bad smell?

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5) Nerves then give the message to the receiver (same or different organ or body part).
Once the body parts receive the message, they do what the message asks them to do.

In our nervous system, the message can be about different parts of the body or about what is happening outside the body.

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Application

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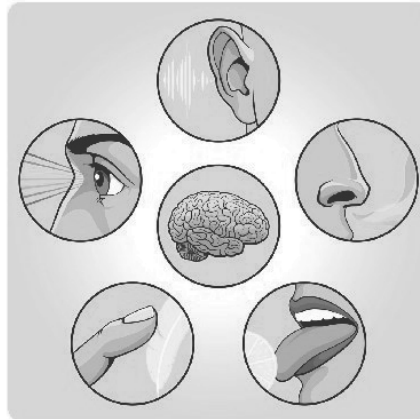
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In the same way, the skin helps us to feel heat-cold, the rough-smooth and so on. Ears help us to hear with the help of messages from the brain.



five sense organs

Important Words

Duration: 1 min

- **Last class:** identifies, objects, siblings, container, blindfold, texture
- **Today:** heat-cold, rough-smooth

Transactional Tip(s)

Duration: 28 min



Interactive Discussion:

- Use the Classklap chart 'Our Senses and the Nervous System' to describe and relate how the sense organs coordinate with the help of the brain to sense things.
- Elaborate on the contents of the 'Amazing Facts' section by showing the image given.

Class Pulse Check

Duration: 1 min



- 1) Which sense organ helps us to feel heat or cold?

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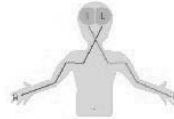
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Amazing Facts

In the human body, the right side of the brain controls the left side of the body, while the left side of the brain controls the right side.



Higher Order Thinking Skills (H.O.T.S.)

You have learnt that the five different sense organs help the brain to sense the things around us. Our brain identifies objects when the eyes send messages to the brain. Can the brain identify objects even without the help of the eyes?

Let us do an activity.

- 1) Ask your parents, siblings or friends to keep different food items in different vessels. (This can be done in the classroom using the different tiffins during the lunch break.)
- 2) Close your eyes while they are putting these food items in the container.
- 3) Blindfold yourself.
- 4) Smell each food item. Try to identify it by its smell.
- 5) Try to guess the food by the feel of the food item.
- 6) If you could not find it out from the smell or feel, then taste it.
- 7) Make a note of how many food items you could identify.



blindfolded child identifying food item

From this activity, you will get to know that our brain can identify things with their smell, taste or feel (texture); even with our eyes closed.

Important Words

Duration: 1 min

- **Last class:** sense organs, sense, see, hear, smell, taste, feel
- **Today:** identifies, objects, siblings, container, blindfold, texture

Transactional Tip(s)

Duration: 29 min



Interactive Discussion:

- Ask the learners, “Does your brain always identify objects with the help of your eyes? What about when your eyes are closed?”
- Perform the activity as given on pg. 12 of the textbook.
- Ask the learners, “What do you get to know from this activity?”
- Explain how the brain identifies objects even when our eyes are closed.

Class Pulse Check



1) _



C – Exit Assessment

| | Suggested questions to test the learning objective(s) | Learning objective(s) | Number of learners who answered correctly |
|---|---|---|---|
| 1 | What is the weight of the human brain? (Ans. 1.5 kg) | Period 1 - parts of the nervous system | |
| 2 | How does the brain talk to the entire body? (Ans. through the spinal chord and nerves) | Period 2 - working of the nervous system | |
| 3 | How can you know if the milk in a glass is hot or cold before drinking it? (Ans. by touching the cup we will know whether it is hot or cold) | Period 4 - role of our sense organs | |
| 4 | If you are blindfolded, how can you identify a flower? (Ans. by its smell) | Period 5 - how the brain works with closed eyes | |

| Post-lesson Reflection | | Handhold Learners | Challenge Learners |
|---|----------------------------------|---------------------------------|-----------------------------------|
| TB completed Yes <input type="checkbox"/> No <input type="checkbox"/> WB completed Yes <input type="checkbox"/> No <input type="checkbox"/> | | | |
| Enthusiastic participation 😊 <input type="checkbox"/> 😊 <input type="checkbox"/> 😐 <input type="checkbox"/> | | | |
| Concept clarity in the classroom 😊 <input type="checkbox"/> 😊 <input type="checkbox"/> 😐 <input type="checkbox"/> | | | |
| Concept clarity through the workbook 😊 <input type="checkbox"/> 😊 <input type="checkbox"/> 😐 <input type="checkbox"/> | | | |
| Names | | | |
| Exam Revision Strategy | Reteach <input type="checkbox"/> | Revise <input type="checkbox"/> | Practise <input type="checkbox"/> |
| App Report | Number _____ | Signature _____ | |

Lesson 3: Nervous System



Think

1) If we happen to touch or hold a hot vessel in our hand, what do we do? We let go of it immediately.

How do we come to know that the vessel is hot and we should drop it?

Ans. Our sense of touch tells us if something is hot or cold. So, when our skin touches the hot vessel, our senses tell us that it is hot and our brain tells us to let go of it quickly.



Remembering

1) Our body is made up of organs which help us perform various functions. Do you think they perform these functions on their own? How do we walk? How do our legs move to walk?

Ans. The organs do not perform functions on their own. The brain controls the whole body and instructs the organs what to do. We walk with the help of our legs. Before we begin to move, the brain sends a signal to the nerves which control the coordination of the leg muscles.



Nervous System



Remembering

Multiple Choice Questions

- 1) Which of the following is long and thin (like a pipe) and starts from lower part of the brain? [B]
(A) food pipe
(B) spinal cord
(C) nervous system
(D) backbone
- 2) Name the organ system which controls all the body functions. [A]
(A) nervous system
(B) muscular system
(C) digestive system
(D) excretory system

Fill in the Blanks

- 3) The nerves are thread like structures that form part of the nervous system.
- 4) The spinal cord looks like a long tail of the brain.

Very Short Answer Questions

- 5) What protects the brain?

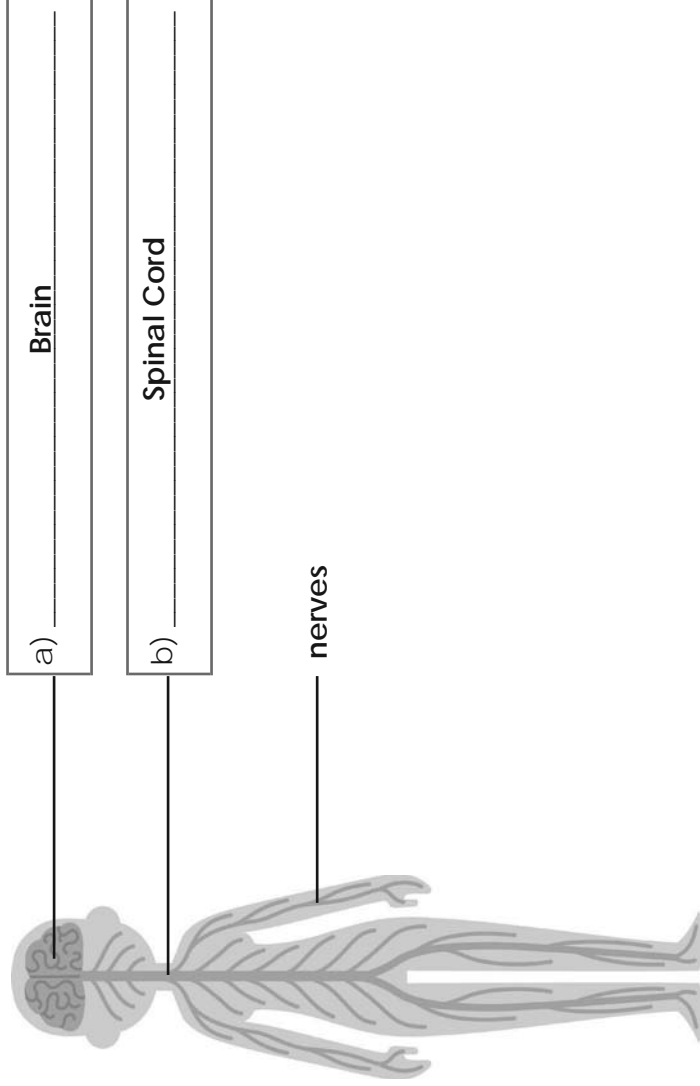
Ans. The brain is covered and protected by the skull.

- 6) What encloses the spinal cord?

Ans. Backbone

Short Answer Question

7) Label the parts of nervous system in the given diagram.



Understanding

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True or False

- 8) The brain is the control centre of the body. [True]
- 9) The nerves carry messages from different parts of the body to the brain. [True]
- 10) Body parts never follow the messages that they receive from the brain. [False]
- 11) The process of carrying messages throughout the body takes a lot of time. [False]

Short Answer Questions

12) What does the brain need to know to control the body?

Ans. To control the body, the brain needs to know what is happening in different parts of the body.

13) Which parts of the nervous system help the brain in giving instructions to the organs?

Ans. The network of nerves and the spinal cord help the brain in giving instructions to the organs.

Long Answer Question

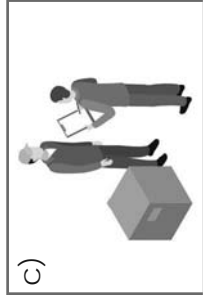
14) Complete the steps to explain how the nervous system works. Use the images as hints.



Any organ or part of the body gives the message to the nerves.



Nerves take the message to the brain through the spinal cord.



The brain reads the message and decides what needs to be done.



The nerves give the message to the receiver organ and tell what to do about the message.



Application

Multiple Choice Questions

15) Name the sense organ from the following.

- (A) teeth (B) hair (C) nail (D) nose

[D]

16) What helps us to feel if a thing is cold or hot? [A]

- (A) skin (B) ear (C) hair (D) nail

Short Answer Questions

17) Which organs work together to make us sense something?

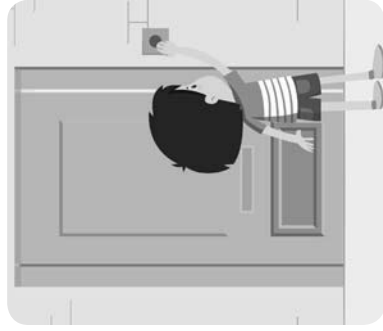
Ans. The sense organs work along with the nervous system to make us sense something.

18) How do ears help us?

Ans. Ears capture the sounds and help us hear.

Long Answer Question

19) Look at the picture given below. Complete the sentences to show how the sense organs help the boy when he rings the doorbell.



a) The ears and the eyes send _____ messages to the brain through the nerves.

b) The brain _____ reads the messages.

c) It identifies _____ the sound and the object.









d) It tells the ears _____ what the sound is
and the eyes _____ what the object is.



Higher Order Thinking Skills (H.O.T.S.)

Long Answer Question

- 20) Name the sense organ other than the eyes that are used to identify the following objects.

| Objects | Sense organ other than the eyes | Objects | Sense organ other than the eyes |
|--|---------------------------------|--|---------------------------------|
| a)  | tongue | b)  | skin |
| c)  | ears | d)  | nose |
| e)  | skin | f)  | ears |
| g)  | nose | h)  | tongue |

A – Curriculum to Learning Objectives: Water

| Prior Knowledge | | <ul style="list-style-type: none"> the use of water for living things, the importance of water, sources of water | | |
|-----------------|--------|---|-------------|--|
| Class | L. No. | Lesson Name | L. Obj. No. | Learning Objectives |
| 3 | 6 | Forms of Water | 6.a | <ul style="list-style-type: none"> forms of water |
| | | | 6.b | <ul style="list-style-type: none"> the water cycle |
| | | | 6.c | <ul style="list-style-type: none"> changing water forms around us |
| | | | 6.d | <ul style="list-style-type: none"> how salt is got from seawater |
| 4 | 6 | Water Storage and Quality | 6.b | <ul style="list-style-type: none"> water purification methods |
| 5 | 4 | Floats, Sinks and Mixes | 4.a | <ul style="list-style-type: none"> the substances that float, sink and mix in liquids |
| | | | 4.b | <ul style="list-style-type: none"> water as a universal solvent |
| | | | 4.c | <ul style="list-style-type: none"> solvents other than water |
| | | | 4.d | <ul style="list-style-type: none"> the effect of heat on solubility |

B – Vision-to-Action Plan: 4 Floats, Sinks and Mixes

| Period and Planned Date | TB Page No. and Key Competency | L. Obj. No. | Learning Outcome(s) | Teaching Strategies | Resources | Practice | | Areas to Focus |
|-------------------------|--------------------------------|-------------|--|--|--|----------------------------|----------------------------|----------------|
| | | | | | | CW | HW | |
| 1 DD/MM/YYYY | 13, 14 – THK, REM | 4.a | <ul style="list-style-type: none"> Define 'solute', 'solvent' and 'solution' | <ul style="list-style-type: none"> Real-life Connect | <ul style="list-style-type: none"> a glass of water sugar | – | – | |
| 2 DD/MM/YYYY | 14 – REM | 4.a | <ul style="list-style-type: none"> Identify the substances that float or sink in water Check the solubility of certain substances in water | <ul style="list-style-type: none"> Interactive Discussion | <ul style="list-style-type: none"> two glasses water ink or neel paper piece of chalk | WB: Pg. 14 (Q. 1–4) | WB: Pg. 14 (Q. 5–7) | |
| 3 DD/MM/YYYY | 15 – UND | 4.b | <ul style="list-style-type: none"> Demonstrate that water is a universal solvent | <ul style="list-style-type: none"> Real-life Connect | <ul style="list-style-type: none"> two glasses water cooking oil salt sugar | WB: Pg. 15 (Q. 8–11) | WB: Pgs. 15, 16 (Q. 12–14) | |
| 4 DD/MM/YYYY | 16 – APP, AF | 4.c | <ul style="list-style-type: none"> Conclude that water cannot dissolve all substances Identify solvents other than water | <ul style="list-style-type: none"> Real-life Connect | <ul style="list-style-type: none"> a glass of water cooking oil | WB: Pgs. 16, 17 (Q. 15–17) | WB: Pg. 17 (Q. 18, 19) | |

| Period and Planned Date | TB Page No. and Key Competency | L. Obj. No. | Learning Outcome(s) | Teaching Strategies | Resources | Practice | | Areas to Focus |
|-------------------------|--------------------------------|-------------|--|---|--|----------|-----------------------|----------------|
| | | | | | | CW | HW | |
| 5 DD/MM/YYYY | 16, 17 – HOTS | 6.d | <ul style="list-style-type: none"> Explain the effects of heat on the solubility of substances in water | <ul style="list-style-type: none"> Peer Learning – Group | <ul style="list-style-type: none"> three glasses hot water cold water normal water sugar spoon | – | WB: Pg. 18 (Q. 20) | |

Annual Day:
16/33

Day:
1/5

Actual Date:

Page(s)
13



Lesson 4 Floats, Sinks and Mixes

Let Us Learn About

- the substances that float, sink and mix in liquids.
- water as a universal solvent.
- solvents other than water.
- the effect of heat on solubility.



Think

If we add some sugar to water and stir it for some time, the sugar disappears. What happens to the sugar? Where does it go?



Remembering

When we add sugar to water or milk, the sugar disappears. It **dissolves**, and the water or milk looks same as before. We can know that the water or milk has sugar in it only when we taste it. In the above example,

- Sugar that gets dissolved is a **solute**.
- Water that dissolves something is a **solvent**.
- Sugar syrup that we get after mixing water and sugar is a **solution**.



sugar dissolves in water

Important Words

Duration: 1 min

- Today:** stir, disappears, dissolves, solute, solvent, syrup, solution, substances

Transactional Tip(s)

Duration: 27 min



Real-life Connect :

- Select a learner, ask the learner to perform the activity in the 'Think' section and let other learners observe.
- Ask the learners, "What did you see? Do you see any sugar in the water? Where did the sugar go?"
- Based on the activity, describe the terms 'solute', 'solvent' and 'solution'.

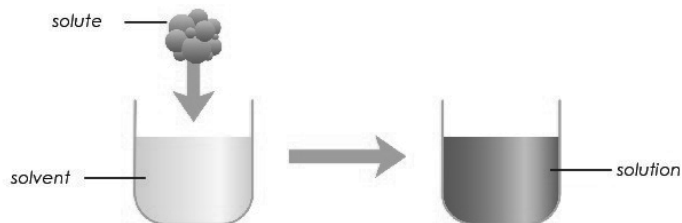
Class Pulse Check

Duration: 2 min



- 1) What is a solution?
- 2) What do we call substances that dissolve in a solvent?

Solvents can dissolve other substances in them. The substances that get dissolved are called solutes. When a solute dissolves in a solvent, a solution is formed.



Try this:

Take a disposable plastic glass. Fill half of it with water. Add a drop of blue ink or *neel* (used at home to whiten clothes) in it. What happens to the water in the plastic glass?

It turns blue. The blue ink or *neel* (solute) dissolves slowly in the water (solvent) to turn it blue (solution).

Do all the things we add to water get dissolved in it?

Try this:

Take a small piece of paper. Put it in water. What happens? It remains near the surface. Stir the water. Does anything happen? No. It remains as it is. Paper does not dissolve in water. It **floats** on the surface. This is the reason why a paper boat also floats.

Now, put a piece of chalk in a glass of water. What do you see? Does the chalk disappear in water? Does it float on the surface of water? No. It just goes down and settles at the bottom of the glass. The piece of chalk neither floats nor dissolves in water. It **sinks** in water.

Substances that can dissolve in water are **soluble** substances. For example, salt, sugar, ink and so on. And ones that do not dissolve are **insoluble**. For example, wood, stones, sand, eraser, pencil and so on.



mixing ink or neel changes the colour of water to blue



paper boat floats on the surface of water



chalk piece sinks in water

Important Words

Duration: 1 min

- **Last class:** stir, disappears, dissolves, solute, solvent, syrup, solution, substances
- **Today:** disposable, neel, surface, floats, sinks, soluble, insoluble

Transactional Tip(s)

Duration: 28 min



Interactive Discussion:

- Dissolve a drop of ink in a glass of water as given in the 'Try this' activity on pg. 14 of the textbook.
- Ask them, "What happens to the water in the plastic glass? Name the solute, solvent and solution in this activity. Do all the things that we added to the water get dissolved in it?"
- Select some learners and help them to perform the second activity in the 'Try this' section on pg. 14 of the textbook. Ask them to observe and categorise the substances as floating or sinking.

Class Pulse Check

Duration: 1 min



- 1) What are the substances that dissolve in water called?



Understanding

Like water, oil is also a liquid. Can we dissolve sugar in it? Let us find out.

Take one glass. Add some cooking oil to it. Now, add one spoon of sugar to it and stir. What do you observe? Sugar does not dissolve in oil. It remains at the bottom.

Substances soluble in water may not be soluble in other liquids. As water can dissolve many substances, it is called the **universal solvent**.

What will happen if we keep on adding any solute to water? Let us find out.

Try this:

Take half a glass of water. Add some salt and stir. Once it gets dissolved, add some more salt. Continue this process.



salt remains undissolved

After some time, the salt you add will remain at the bottom and will not dissolve further. Why is it so? This is because water gets filled with salt. It cannot take up any more salt.

If you add some more water to it and stir, the salt that remained at the bottom will dissolve.



after adding water, salt dissolved

Important Words

Duration: 1 min

- **Last class:** disposable, neel, surface, floats, sinks, soluble, insoluble
- **Today:** liquid, universal solvent, process, undissolved

Transactional Tip(s)

Duration: 27 min



Real-life Connect :

- Take a glass and add some cooking oil to it. Add one spoon of sugar to it and stir.
- Ask the learners, "What do you see? Does the sugar dissolve in oil?"
- Explain that water dissolves most of the solutes hence it is called a universal solvent.
- Pick some learners and help them perform the 'Try this' activity given in the 'Understanding' section on pg. 15 of the textbook. Others can observe the activity.
- Explain what happens when we keep adding more of the solute to the water.

Class Pulse Check

Duration: 2 min



- 1) Name a substance that dissolves in water.
- 2) What is known as a universal solvent?



Application

We have learnt that water is a universal solvent. But it cannot dissolve some substances. Example: oil, stones, some wall paints and so on

Try this:

Take a glass of water. Add some cooking oil to it. What do you see? The water and oil remain separate. They do not mix. The oil floats on the surface of the water.

Have you ever seen painters washing and cleaning their brushes? Do they wash it in water? No. Sometimes, the paint they use does not dissolve in water.

So, they use a solvent like kerosene or petrol to wash away the paint from the brushes.

Have you ever seen your mother giving oil or grease stained clothes for dry cleaning? This is because the oil from the stains is not soluble in water. Some other solvents like petrol is used for dry cleaning. The oil from the stains gets dissolved in it, and the clothes get clean.



some wall paints are not water soluble



Amazing Facts

Have you ever wondered, why the soft drinks fizz when we open the lid? These soft drinks have carbon dioxide dissolved in water under pressure. When we open a bottle or a can of soft drinks, the carbon-dioxide gas dissolved in the drink rushes out. This causes the fizz.



fizzing soft drink can



Higher Order Thinking Skills (H.O.T.S.)

We have learnt that we cannot dissolve something in water beyond a limit.

Let us do an activity to understand why.

Take three glasses. Take cold water in the first glass, normal water in the second glass and hot water in the third one. Add one spoon of sugar to each of them. Stir and observe the changes.

Important Words

Duration: 1 min

- **Last class:** liquid, universal solvent, process, undissolved
- **Today:** wall paints, painters, kerosene, petrol, grease, stained, dry cleaning, fizz, carbon dioxide, pressure

Transactional Tip(s)

Duration: 27 min



Real-life Connect :

- Pick some learners and help them perform the 'Try this' activity given in the 'Application' section.
- Ask the learners, "Does oil dissolve in water? Do you know how painters wash their brushes? Do you know how dry cleaning is done?"
- Inform the learners that water cannot dissolve some substances. Describe the uses of other substances that are used as solvents.
- Explain the 'Amazing Facts' section as given on pg. 16 of the textbook.

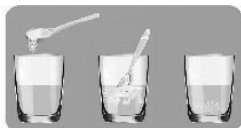
Class Pulse Check

Duration: 2 min



- 1) Name one substance that cannot be dissolved in water.
- 2) Which solvent is used in dry cleaning?

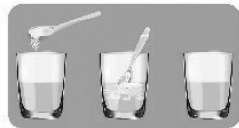
The sugar in hot water disappears first. The normal water takes more time. Cold water takes the longest.



dissolving sugar in cold water



dissolving sugar in normal water



dissolving sugar in hot water

In all three glasses, the solvent and the solute are the same. Then why is there a difference in the speed of dissolving?

The difference is due to heat. When water is heated, the heat energy causes the particles to start moving faster. Fast movement of the particles causes them to dissolve faster. Heating solvents like water or milk, allows us to dissolve more quantity of a solute in it.

Important Words

Duration: 1 min

- **Last class:** wall paints, painters, kerosene, petrol, grease, stained, dry cleaning, fizz, carbon dioxide, pressure
- **Today:** movement, particles, quantity

Transactional Tip(s)

Duration: 28 min



Peer Learning - Pair/Group:

- Form groups of learners. Facilitate the learners to perform the activity given in the 'H.O.T.S.' section.
- Ask the learners, "What do you observe? When did the sugar dissolve faster? When was the speed of dissolving slow?"
- Record the responses using a table and explain the effects of heat on the solubility of substances in water.

Class Pulse Check

Duration: 1 min



- 1) What causes water particles to start moving faster?



C – Exit Assessment

| | Suggested questions to test the learning objective(s) | Learning objective(s) | Number of learners who answered correctly |
|---|---|---|---|
| 1 | What is a solute? (Ans. The substance that gets dissolved in a solvent is a solute.) | Period 1 - the substances that float, sink and mix in liquids | |
| 2 | Say true or false: Substances that are soluble in water are soluble in other liquids too. (Ans. false) | Period 3 - water as a universal solvent | |
| 3 | What do we use to remove water insoluble paint from the brushes? (Ans. kerosene or petrol) | Period 4 - solvents other than water | |
| 4 | What helps in dissolving solutes in a solvent faster? (Ans. heat) | Period 5 - the effect of heat on solubility | |

| Post-lesson Reflection | | Handhold Learners | Challenge Learners |
|---|------------------------|--|--------------------|
| TB completed Yes <input type="checkbox"/> No <input type="checkbox"/> WB completed Yes <input type="checkbox"/> No <input type="checkbox"/> | | | |
| Enthusiastic participation <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Names | | |
| Concept clarity in the classroom <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | Exam Revision Strategy | Reteach <input type="checkbox"/> Revise <input type="checkbox"/> Practise <input type="checkbox"/> | |
| Concept clarity through the workbook <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | App Report | Number _____ | Signature _____ |

Lesson 4: Floats, Sinks and Mixes



Think

1) If we add some sugar to water and stir it for some time, the sugar disappears. What happens to the sugar? Where does it go?

Ans. Sugar dissolves in water. Sugar crystals become smaller in size and eventually disappear.



Remembering

1) Do all the things we add to water get dissolved in it?

Ans. No, things such as sand and stones do not dissolve in water.



Floats, Sinks and Mixes



Remembering

Multiple Choice Questions

- 1) If sugar dissolves in water, then which of the following is true? [B]
(A) It is insoluble in water. (B) It is soluble in water.
(C) It floats on water. (D) It cannot form a solution in water at all.
- 2) Which of the following does not dissolve in water at all? [A]
(A) sand (B) sugar
(C) salt (D) blue ink (neel)

Fill in the Blanks

- 3) _____ **A solvent** _____ can dissolve other substances in it.
- 4) In a solution, _____ **a solute** _____ dissolves in a solvent.

Very Short Answer Questions

- 5) Give an example of an insoluble substance.

Ans. _____
Learner's response (**Hint:** stone, oil, sharpener, sand and so on)

- 6) Give an example of a substance that floats on water.

Ans. _____
Learner's response (**Hint:** Small piece of wood, plastic bag and so on.)

Short Answer Question

- 7) When is a substance said to be sinking? Give an example.

Ans. _____
Some substances go to the bottom and settle down when they are put in some liquids. This is called sinking. For example, Sand sinks in water.



Understanding

True or False

- 8) Sugar dissolves in cooking oil. [False]
- 9) Common salt dissolves in water. [True]
- 10) Substances soluble in water may not be soluble in other liquids. [True]
- 11) All liquids are universal solvents. [False]

Short Answer Questions

12) Why do we call water as the universal solvent?

Ans. Water can dissolve many substances in it. So, it is called the universal solvent.

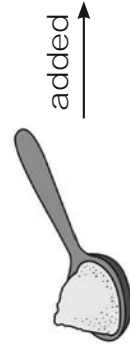
13) What happens to the sugar when we add it to oil?

Ans. When we add sugar to oil, it does not dissolve. It remains at the bottom.

Long Answer Question

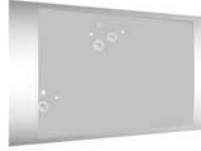
14) In the boxes given below, draw what will happen next. Write the reasons in the space provided.

a)



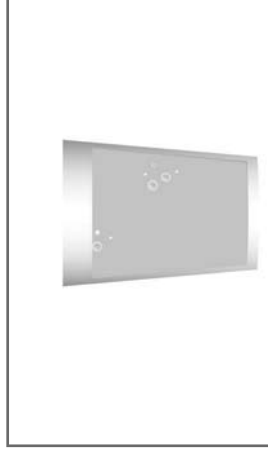
added

a teaspoon of salt



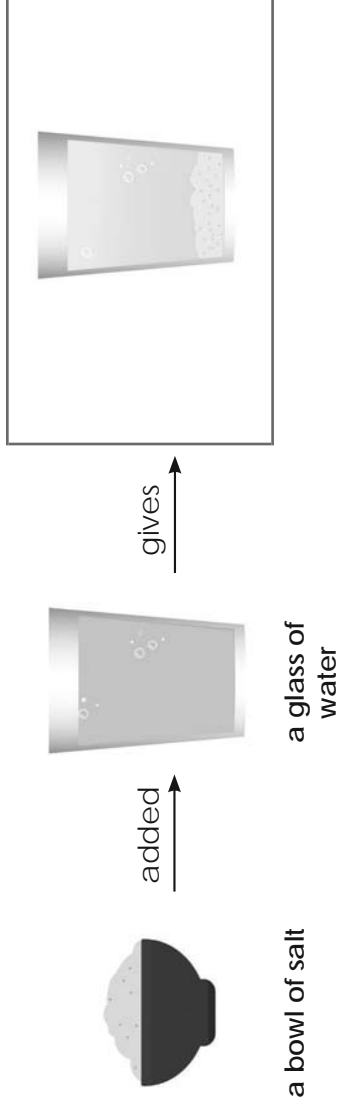
a glass of water

gives



Ans. The salt will get dissolved.

b)



Ans. After sometime, the salt stops dissolving. Extra salt settles at the bottom. The water cannot take up any more salt.



Application

Multiple Choice Questions

- 15) Which of the following is used to clean grease stained clothes? [**B**]
- (A) water
 - (B) petrol
 - (C) oil
 - (D) wall paint
- 16) Meera wants to paint pictures using her new poster colours. Which of the following will be the most suitable solvent to prepare the colours for her paintings? [**A**]
- (A) water
 - (B) petrol
 - (C) kerosene
 - (D) cooking oil

Short Answer Questions

17) Laura's mother got some oil stains on her silk sari. Can she wash them with water to get them removed? Give a reason for your answer.

Ans. No, she cannot wash the stains with water, because oil is not soluble in water.
So, they will not be removed.

18) What is dry cleaning of clothes?

Ans. Washing clothes using solvents like petrol is called dry cleaning.

Long Answer Question

19) Why do wall painters use liquids like kerosene to clean their brushes?



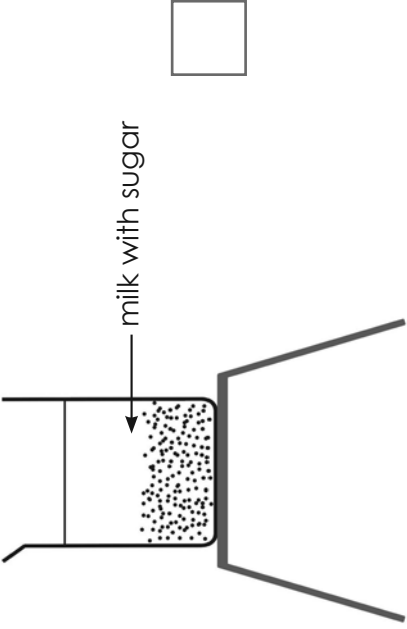
Ans. Most paint used to paints walls are insoluble in water. So, they use a solvent like kerosene to wash the paint from the brushes.



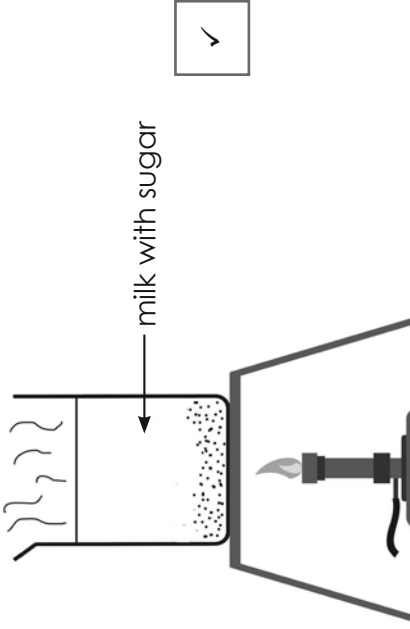
Long Answer Question

- 20) Tick the image in which the solute dissolves faster. Give reasons to support your answer.

a)



b)



Here the water is being heated. The heat energy causes the solute particles to move faster. This fast movement causes them to dissolve faster.

B – Vision-to-Action Plan: 5 Fruits and Seeds

| Period and Planned Date | TB Page No. and Key Competency | L. Obj. No. | Learning Outcome(s) | Teaching Strategies | Resources | Practice | | Areas to Focus |
|-------------------------|--------------------------------|-------------|--|--|--|--------------------------|--|----------------|
| | | | | | | CW | HW | |
| 1 DD/MM/YYYY | 20, 21 – THK, REM | 5.a | <ul style="list-style-type: none"> Find out how flowers turn into fruits List the different types of fruits based on the number of seeds they have | <ul style="list-style-type: none"> Real-life Connect | <ul style="list-style-type: none"> A4 sheets | WB: Pg. 19 (Q. 1–4) | WB: Pg. 19 (Q. 5–7) | |
| 2 DD/MM/YYYY | 21 – UND | 5.b | <ul style="list-style-type: none"> Define ‘germination’ Illustrate the process of germination | <ul style="list-style-type: none"> Interactive Discussion | – | WB: Pg. 21 (Q. 12) | – | |
| 3 DD/MM/YYYY | 21, 22 – UND | 5.b | <ul style="list-style-type: none"> Identify the need for seed dispersal Describe the different ways of seed dispersal | <ul style="list-style-type: none"> Flipped Classroom | <ul style="list-style-type: none"> A4 sheets | WB: Pg. 20 (Q. 8–11) | WB: Pg. 21 (Q. 13, 14) | |
| 4 DD/MM/YYYY | 22, 23 – APP, AF | 5.c | <ul style="list-style-type: none"> Identify the uses of seeds | <ul style="list-style-type: none"> Real-life Connect | <ul style="list-style-type: none"> sprouted seeds | WB: Pg. 22 (Q. 15–17) | WB: Pgs. 21, 22 (Q. 18, 19) Ask learners to bring different types of seeds for the next class. | |

| Period and Planned Date | TB Page No. and Key Competency | L. Obj. No. | Learning Outcome(s) | Teaching Strategies | Resources | Practice | | Areas to Focus |
|-------------------------|--------------------------------|-------------|--|---|--|----------|--------------------|----------------|
| | | | | | | CW | HW | |
| 5 DD/MM/YYYY | 23 – HOTS | 5.d | <ul style="list-style-type: none"> Categorise the seeds | <ul style="list-style-type: none"> Peer Learning – Group | <ul style="list-style-type: none"> different types of seeds | – | WB: Pg. 23 (Q. 20) | |

B – Vision-to-Action Plan: 5 Fruits and Seeds

| Period and Planned Date | TB Page No. and Key Competency | L. Obj. No. | Learning Outcome(s) | Teaching Strategies | Resources | Practice | | Areas to Focus |
|-------------------------|--------------------------------|-------------|--|--|--|--------------------------|--|----------------|
| | | | | | | CW | HW | |
| 1 DD/MM/YYYY | 20, 21 – THK, REM | 5.a | <ul style="list-style-type: none"> Find out how flowers turn into fruits List the different types of fruits based on the number of seeds they have | <ul style="list-style-type: none"> Real-life Connect | <ul style="list-style-type: none"> A4 sheets | WB: Pg. 19 (Q. 1–4) | WB: Pg. 19 (Q. 5–7) | |
| 2 DD/MM/YYYY | 21 – UND | 5.b | <ul style="list-style-type: none"> Define ‘germination’ Illustrate the process of germination | <ul style="list-style-type: none"> Interactive Discussion | – | WB: Pg. 21 (Q. 12) | – | |
| 3 DD/MM/YYYY | 21, 22 – UND | 5.b | <ul style="list-style-type: none"> Identify the need for seed dispersal Describe the different ways of seed dispersal | <ul style="list-style-type: none"> Flipped Classroom | <ul style="list-style-type: none"> A4 sheets | WB: Pg. 20 (Q. 8–11) | WB: Pg. 21 (Q. 13, 14) | |
| 4 DD/MM/YYYY | 22, 23 – APP, AF | 5.c | <ul style="list-style-type: none"> Identify the uses of seeds | <ul style="list-style-type: none"> Real-life Connect | <ul style="list-style-type: none"> sprouted seeds | WB: Pg. 22 (Q. 15–17) | WB: Pgs. 21, 22 (Q. 18, 19) Ask learners to bring different types of seeds for the next class. | |

| Period and Planned Date | TB Page No. and Key Competency | L. Obj. No. | Learning Outcome(s) | Teaching Strategies | Resources | Practice | | Areas to Focus |
|-------------------------|--------------------------------|-------------|--|---|--|----------|--------------------|----------------|
| | | | | | | CW | HW | |
| 5 DD/MM/YYYY | 23 – HOTS | 5.d | <ul style="list-style-type: none"> Categorise the seeds | <ul style="list-style-type: none"> Peer Learning – Group | <ul style="list-style-type: none"> different types of seeds | – | WB: Pg. 23 (Q. 20) | |

Annual Day:
21/33

Day:
1/5

Actual Date:

Page(s)
20



Lesson 5 Fruits and Seeds

Let Us Learn About

- fruits and seeds.
- the dispersal and germination of seeds.
- uses of seeds.
- the collection of seeds.



Think

Shahid saw a baby mango plant in his backyard. It was not there a few days back. He wondered how the new baby plant came out of the soil. Can you guess?



baby mango plant



Remembering

Shahid wanted to know from where the baby mango plant had sprouted. He removed the litter and some soil around the baby plant. Then, he could see that the baby plant had sprouted from a mango seed buried in the soil.

Shahid went to his mother and told her about the baby plant. His mother told him that plants make fruits and seeds to produce new baby plants.

Let us learn about fruits and seeds and how they produce new plants.

Important Words

Duration: 1 min

- Today:** backyard, sprouted, litter, buried, produce, develop, seeds, fleshy, nutritious

Transactional Tip(s)

Duration: 27 min



Real-life Connect :

- Ask learners to read the situation given in the 'Think' and 'Remembering' sections.
- Ask the learners, "How did the baby plant come out of the soil?"
- Discuss flowers, fruits and seeds and the development of new plants from seeds. Explain how flowers develop into fruits and seeds. Also, explain how fruits and seeds vary in size, shape and colour.
- On the A4 sheets provided ask learners to draw four columns—no seeds, one seed, few seeds and many seeds
- Let learners write the names of a few common fruits based on the number of seeds they contain.

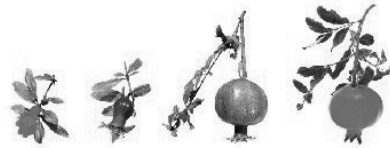
Class Pulse Check

Duration: 2 min



- Name any one fruit that has many seeds.
- Name a fruit that does not have any seed.

Most of the plants around us produce flowers. Most of these flowers develop into fruits with the help of insects and birds. For example, most mango flowers change into mangoes. Pomegranate flowers change into pomegranates.



a pomegranate flower developing into a fruit

Most fruits contain seeds inside them. Some have only one seed, while some fruits have a few seeds. There are some fruits that have many seeds, while some other fruits do not have any seeds. You might have seen grapes without seeds.



seeds inside the apple

seed outside the cashew

Some fruits have seeds outside them. For example, cashew has a seed outside the fruit.

Like fruits, seeds also vary in shape, size and colour. Most of the fruits are fleshy, tasty and nutritious. So, animals, birds and humans use them as food.



a mango with a seed inside

papaya with many seeds



Understanding

Seeds can form new plants. When a seed grows into a new plant, it is called **germination**.



germination of a seed

A seed needs soil, air, water and nutrients to germinate. How does a seed reach the soil? When the fruits are ripe, they fall off from the plant. After a few days, the fruit may decay or dry up, and the seeds get exposed. Have you seen ripe mangoes fall from the tree?

What will happen if all the seeds fall below the tree and germinate there? They will not have enough space to grow. The nutrients in the soil will not be enough for all of them to grow. So, seeds of plants need to be spread to different places. This spreading of seeds from the plants is known as the **dispersal** of seeds.

How does this dispersal take place?

1 Wind: Some seeds are carried away by the wind. For example, seeds of dandelion plants. Have you seen any fluffy seeds gliding in the air?



dandelion seeds gliding in the air

2 Water: Seeds of the plants like lotus or coconut, which grow in or around water bodies are dispersed by water. These type of seeds float on water.



coconut dispersed by water

Important Words

Duration: 1 min

- **Last class:** backyard, sprouted, litter, buried, produce, develop, seeds, fleshy, nutritious
- **Today:** germination, ripe, decay, exposed

Transactional Tip(s)

Duration: 27 min



Interactive Discussion:

- Show the image of germination of a seed given on pg. 21 of the textbook.
- Explain germination and the factors essential for germination using a mind map.
- Draw on the blackboard a process chart explaining the process of germination.
- Ask the learners "If there is only one piece of cake to be shared by all of you, what will you do?" Relate this situation to the need for seed dispersal in plants.

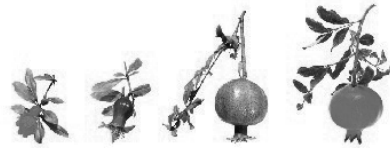
Class Pulse Check

Duration: 2 min



- 1) Name two things a seed requires to germinate.
- 2) Can a seed germinate without water?

Most of the plants around us produce flowers. Most of these flowers develop into fruits with the help of insects and birds. For example, most mango flowers change into mangoes. Pomegranate flowers change into pomegranates.



a pomegranate flower developing into a fruit

Most fruits contain seeds inside them. Some have only one seed, while some fruits have a few seeds. There are some fruits that have many seeds, while some other fruits do not have any seeds. You might have seen grapes without seeds.



seeds inside the apple

seed outside the cashew

Some fruits have seeds outside them. For example, cashew has a seed outside the fruit.



a mango with a seed inside

papaya with many seeds

Like fruits, seeds also vary in shape, size and colour. Most of the fruits are fleshy, tasty and nutritious. So, animals, birds and humans use them as food.



Understanding

Seeds can form new plants. When a seed grows into a new plant, it is called **germination**.



germination of a seed

A seed needs soil, air, water and nutrients to germinate. How does a seed reach the soil? When the fruits are ripe, they fall off from the plant. After a few days, the fruit may decay or dry up, and the seeds get exposed. Have you seen ripe mangoes fall from the tree?

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dandelion seeds gliding in the air

2 Water: Seeds of the plants like lotus or coconut, which grow in or around water bodies are dispersed by water. These type of seeds float on water.



coconut dispersed by water

Important Words

Duration: 1 min

- **Last class:** variety, surroundings, scrapbook, tags, sample
- **Today:** dispersal, wind, dandelion, gliding, fluffy, water bodies, wander, droppings, explosion, moisture, warmth, plantlets

Transactional Tip(s)

Duration: 27 min



Flipped Classroom:

- Ask the learners, "Have you seen any fluffy seeds gliding in the air? Why do those seeds have such fluffy structures on them?"
- Group learners and distribute A4 size sheets. Assign one seed dispersal mechanism to each group. Let them read the content given on pgs. 21, 22 of the textbook, prepare notes and present the different ways of seed dispersal.
- Using a mind map summarise the need for seed dispersal and the different ways of seed dispersal with examples.

Class Pulse Check

Duration: 2 min



- 1) Name any one seed dispersed by water.
- 2) Name a plant whose seeds are dispersed through fruit explosion.

3 Animals: Seeds of some plants are sticky. They get attached to the body of animals. When these animals wander from one place to another, the seeds attached to their bodies may fall off at different places. For example, grass seeds.

Some birds eat fruits. Sometimes seeds fall off accidentally from their beaks. Birds may also spit the seed after eating the fruit. And sometimes, seeds reach the soil through bird droppings.

Animals like bats are also involved in the dispersal of seeds of the banyan and guava trees.

Human beings also help in the dispersal of seeds. For example, seeds get stuck to the clothes and shoes of farmers and are dispersed.



birds eat fruits, and disperse the seeds through their beaks and droppings

4 Explosion: Seeds of some plants are dispersed by fruit explosion. For example, ladies' fingers and mustard.



ladies' fingers explode to disperse the seeds

After dispersal, seeds reach the soil. In the soil, they germinate and turn into a new plant.

Let us see how:

Seeds need moisture, air and the right amount of warmth to germinate and grow. Until they have these conditions, the seeds do not sprout. Once the seeds get the right conditions, they turn into plantlets. They then grow into big plants.



Application

We have learnt that new plants grow from seeds.

If we observe a sprouting seed, we can see that the sprout does not have roots. Then, from where does it get the nutrients to grow?

The small plant absorbs the food from within the seed till it develops roots. Seeds have food stored inside them.

Due to this, we also use different types of seeds as our food. Let us see some uses of seeds.

- 1) Cereals, pulses and sprouts that we use are the seeds of plants. For example, rice, moong, chana and so on. You may have seen sprouts. They are the germinated pulses.
- 2) The nuts we eat are the seeds of plants. For example, groundnut, cashew nut and so on.
- 3) Some of the spices we use are the seeds of plants. For example, pepper.
- 4) We extract oil from groundnut, mustard, coconut and other such seeds.

Important Words

Duration: 1 min

- **Last class:** germination, ripe, decay, exposed
- **Today:** absorbs,, cereals, pulses, sprouts, extract, spice, nuts, oilseed, nutrients, giant

Transactional Tip(s)

Duration: 27 min



Real-life Connect :

- Show images of seeds given on pg. 23 of the textbook and also show some sprouted seeds to the learners.
- Ask learners, "Can you see the roots in them? From where does this new baby plant get nutrition to grow?"
- Explain that seeds store food, so they are used as food by us and animals.
- Splash names of some seeds on the blackboard and ask the learners to give their uses.
- Read out the 'Amazing Facts' section on pg. 23 of the textbook.

Class Pulse Check

Duration: 2 min



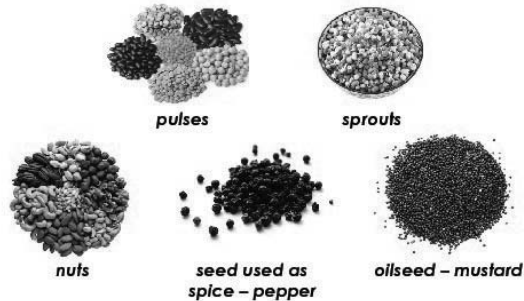
- 1) Name any one seed that is used to extract oil.
- 2) Name any one pulse.

Annual Day:
25/33

Day:
5/5

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23



Amazing Facts

Atlantic giant pumpkins are the largest fruits ever grown on earth.



Atlantic giant pumpkin



Higher Order Thinking Skills (H.O.T.S.)

There are numerous variety of seeds in the world.

Let us find out the different types of seeds in our surroundings.

- 1) Collect different varieties of seeds available in your house and surroundings. Try to collect at least ten different types of seeds.
- 2) Separate the seeds based on their shape, size, colour and so on.
- 3) Paste them directly in your scrapbook, or you can put them in small bags to make samples.
- 4) Find out the use of these seeds to us, if any.
- 5) Also find the way in which their dispersal happens.



variety of seeds

Important Words

Duration: 1 min

- **Last class:** absorbs,, cereals, pulses, sprouts, extract, spice, nuts, oilseed, nutrients, giant
- **Today:** variety, surroundings, scrapbook, tags, sample

Transactional Tip(s)

Duration: 29 min



Peer Learning - Pair/Group:

- Form groups of learners.
- Let them do the activity given in the 'H.O.T.S.' section with the seeds brought by them from their homes.
- Ask them to note down their findings in a table according to the procedure of the activity.
- After the activity let all the groups present their findings to the class.

Class Pulse Check



1) _



C – Exit Assessment

| | Suggested questions to test the learning objective(s) | Learning objective(s) | Number of learners who answered correctly |
|---|---|---|---|
| 1 | What develops into a fruit? (Ans. flower) | Period 1 - fruits and seeds | |
| 2 | What is spreading of seeds called? (Ans. seed dispersal) | Period 3 - the dispersal and germination of seeds | |
| 3 | Say true or false: We extract oil from sprouts. (Ans. false) | Period 4 - uses of seeds | |
| 4 | Say right or wrong: All seeds have the same shape, size and colour. (Ans. wrong) | Period 5 - the collection of seeds | |

| Post-lesson Reflection | | Handhold Learners | Challenge Learners |
|---|--|----------------------------------|---|
| TB completed Yes <input type="checkbox"/> No <input type="checkbox"/> WB completed Yes <input type="checkbox"/> No <input type="checkbox"/> | | | |
| Enthusiastic participation <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | | |
| Concept clarity in the classroom <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | | |
| Concept clarity through the workbook <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | | |
| Names | | | |
| Exam Revision Strategy | | Reteach <input type="checkbox"/> | Revise <input type="checkbox"/> Practise <input type="checkbox"/> |
| App Report | | Number _____ | Signature _____ |

Lesson 5: Fruits and Seeds



Think

- 1) Shahid saw a baby mango plant in his backyard. It was not there a few days back. He wondered how the new baby plant came out of the soil. Can you guess?
- Ans.** The baby plant grew from the seed that may have come accidentally in the soil from somewhere and got all the conditions to grow.



Fruits and Seeds



Remembering

Multiple Choice Questions

- 1) Name the fruit with one seed. [B]
(A) pomegranate
(B) mango
(C) apple
(D) jackfruit
- 2) Which of the following fruit has a seed outside the fruit? [C]
(A) mango
(B) papaya
(C) cashew
(D) guava

Fill in the Blanks

- 3) Fruit of papaya has _____ **many** _____ seeds inside it.
- 4) Most of the plants produce _____ **fruits** _____ and seeds.

Very Short Answer Questions

- 5) Which creatures use fruits as food?

Ans. Birds, animals, human beings

- 6) Name a fruit with a few seeds.

Ans. Learner's response (Hint: Apple)

Short Answer Question

7) Why do we use most of the fruits as food?

Ans. Most of the fruits are fleshy, tasty and nutritious. So, we use them as food.



Understanding

Match the Following

8)



9)



10)



11)



a) dispersal of seeds by water

b) dispersal of seeds by explosion

c) dispersal of seeds by air

d) dispersal of seeds by birds

Short Answer Questions

12) What is germination?

Ans. The process by which a seed grows into a new plant is called germination.

13) How are human beings involved in the dispersal of seeds?

Ans. Seeds get stuck to the clothes and shoes of farmers and are dispersed. In this way, humans are involved in dispersal of seeds.

Long Answer Question

14) Explain how the animals in the given picture are involved in the dispersal of seeds.



Ans.

a) Fruit seeds may accidentally fall off from their beaks.

b) Sometimes birds spit the seed after eating the fruit.

c) Seeds may reach the soil through bird droppings.

d) Seeds may stick to an animal's body and fall off at different places when the animal wanders.



Multiple Choice Questions

- 15) Oil is extracted from which of the following seeds? [C]
(A) chana (B) pepper
(C) groundnut (D) moong
- 16) Which of the following is used as a spice? [D]
(A) moong (B) chana
(C) rice (D) pepper

Short Answer Questions

17) From where do sprouts get the food to grow into a plantlet?

Ans. Sprouts use the food inside the seed to grow.

18) Why do we use different types of seeds as our food?

Ans. Seeds have food stored inside them. So, we use different types of seeds as our food.

Long Answer Question

19) Rajiv has to separate the seeds given below, based on their uses. Help him in doing so. mustard, coconut, cashew nut, wheat, rice, pepper

| Ans. | Used as cereals and pulses | Used as nuts | Used as oil seeds | Used as spices |
|-------------|----------------------------|---------------------------|---------------------------------|--------------------------------|
| | Wheat, rice _____ _____ | Cashew nut _____ _____ | Mustard, coconut _____ _____ | Mustard, Pepper _____ _____ |



Long Answer Question

- 20) Using the given hints identify the seeds and also write some other uses of the seeds in the space provided.

| S.No. | Hints | Name of the seed | Uses |
|-------|---|---|--------------------------------------|
| 1) | I am round, black in colour and mainly used for tempering. | <u>M</u> <u>U</u> <u>S</u> <u>I</u> <u>A</u> <u>R</u> <u>D</u> | Learner's response _____ _____ |
| 2) | I am brownish in colour and eating me improves the health of the brain. | <u>A</u> <u>L</u> <u>M</u> <u>O</u> <u>N</u> <u>D</u> | _____ _____ _____ |
| 3) | I am round, black in colour and mainly used as a spice. | <u>B</u> <u>L</u> <u>A</u> <u>C</u> <u>K</u> <u>P</u> <u>E</u> <u>P</u> <u>P</u> <u>E</u> <u>R</u> | _____ _____ _____ |
| 4) | I am brown on the outside and white inside. | <u>C</u> <u>O</u> <u>C</u> <u>O</u> <u>N</u> <u>U</u> <u>I</u> | _____ _____ _____ |

A – Curriculum to Learning Objectives: Plants

| Prior Knowledge | | • <i>uses of plants, different places where plants grow</i> | | |
|-----------------|--------|---|-------------|--|
| Class | L. No. | Lesson Name | L. Obj. No. | Learning Objectives |
| 3 | 9 | Stems and Leaves | 9.a | • different types of stems and leaves |
| | | | 9.b | • functions of stems and leaves |
| | | | 9.c | • uses of stems and leaves |
| | | | 9.d | • why plants shed leaves |
| 4 | 8 | Roots and Flowers | 8.a | • roots and flowers |
| | | | 8.b | • functions of roots and flowers |
| | | | 8.c | • uses of roots and flowers |
| | | | 8.d | • seasonal flowers |
| 5 | 5 | Fruits and Seeds | 5.b | • the dispersal and germination of seeds |
| 5 | 6 | Plants and Environment | 6.a | • habitats and habits of plants |
| | | | 6.b | • adaptations of plants |
| | | | 6.c | • protection of plant environments |
| | | | 6.d | • sacred groves |

B – Vision-to-Action Plan: 6 Plants and Environment

| Period and Planned Date | TB Page No. and Key Competency | L. Obj. No. | Learning Outcome(s) | Teaching Strategies | Resources | Practice | | Areas to Focus |
|-------------------------|--------------------------------|-------------|---|--|--|----------------------|--------------------------|----------------|
| | | | | | | CW | HW | |
| 1 DD/MM/YYYY | 24 – THK, REM | 6.a | <ul style="list-style-type: none"> Define ‘habitat’ Recognise different terrestrial habitats | <ul style="list-style-type: none"> Real-life Connect | – | – | – | |
| 2 DD/MM/YYYY | 25 – REM | 6.a | <ul style="list-style-type: none"> Describe various aquatic plants Describe how plants differ according to their food habits | <ul style="list-style-type: none"> Real-life Connect | – | WB: Pg. 24 (Q. 1–4) | WB: Pgs. 24, 25 (Q. 5–7) | |
| 3 DD/MM/YYYY | 25, 26 – UND | 6.b | <ul style="list-style-type: none"> Define ‘adaptations’ Describe the adaptations of terrestrial plants | <ul style="list-style-type: none"> Real-life Connect Flipped Classroom | <ul style="list-style-type: none"> A4 sheets | WB: Pg. 25 (Q. 8–11) | – | |
| 4 DD/MM/YYYY | 26, 27 – UND | 6.b | <ul style="list-style-type: none"> Analyse the adaptations of aquatic plants Analyse the adaptations of plants according to food habits | <ul style="list-style-type: none"> Interactive Discussion | <ul style="list-style-type: none"> video of an insectivorous plant trapping insects | WB: Pg. 26 (Q. 14) | WB: Pg. 25 (Q. 12, 13) | |
| 5 DD/MM/YYYY | 25 - 27 – UND | 6.b | <ul style="list-style-type: none"> Reinforce the concept of adaptations of plants according to their habitat | <ul style="list-style-type: none"> Peer Learning – Group | <ul style="list-style-type: none"> chart papers cut to resemble flash cards | – | – | |

| Period and Planned Date | TB Page No. and Key Competency | L. Obj. No. | Learning Outcome(s) | Teaching Strategies | Resources | Practice | | Areas to Focus |
|-------------------------|--------------------------------|-------------|--|--|-----------|-----------------------------|----------------------------|----------------|
| | | | | | | CW | HW | |
| 6 DD/MM/YYYY | 27, 28 – APP, AF, HOTS | 6.c, 6.d | <ul style="list-style-type: none"> Identify how plants support their environment Analyse the effects of human activities on the environment and measures taken by the government Analyse the need for 'sacred groves' and 'Vanamahotsava' | <ul style="list-style-type: none"> Interactive Discussion | – | WB: Pgs. 26, 27 (Q. 15, 16) | WB: Pgs. 27, 28 (Q. 17–20) | |



Lesson 6 Plants and Environment

Let Us Learn About

- ① habitats and habits of plants.
- ② adaptations of plants.
- ③ protection of plant environments.
- ④ sacred groves.

Think

Seema planted a lotus plant in her garden and watered it. But it drooped down and dried up within a few days. What can be the reason for this?



Remembering

Plants can be found almost all over the Earth. They grow on land as well as in water. These places are called their **habitats**. Let us learn more about the habitats of plants.

TERRESTRIAL PLANTS

The plants that grow on land are known as **terrestrial** plants. They grow in different areas like mountains, plains, deserts, swampy areas, coastal areas and so on.



plants on mountains



plants in plains



plants in deserts



plants in swampy areas



plants in coastal areas

Important Words

Duration: 1 min

- **Today:** drooped, habitats, terrestrial plants, swampy, coastal

Transactional Tip(s)

Duration: 28 min



Real-life Connect :

- Read aloud the 'Think' section to the learners. Ask them, "Have you seen a lotus plant? Where does it grow?"
- Explain the terms 'habitat' and 'terrestrial plants'.
- Show images of habitats on pg. 24 of the textbook.
- Ask the learners, "What do you think about the climate of this habitat? What type of plants do you think are found here?"
- Let the learners recognise the habitats and the type of plants found there.
- Capture learners' responses on the blackboard. Elaborate on different terrestrial habitats.

Class Pulse Check

Duration: 1 min



- 1) Name any one area where we can find terrestrial plants.

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AQUATIC PLANTS

Plants that grow in water are called **aquatic plants**. They are of three kinds – **floating**, **fixed** and **underwater plants**.

Floating plants: These plants are found floating freely on water. They are not attached to the bottom of the water body. For example, water lettuce, water hyacinth and so on.



water lettuce

Fixed plants: These plants have roots that are fixed to the soil at the bottom of the water body. Their leaves and flowers float on the surface of the water to get oxygen from the air and sunlight. They have broad and wax coated leaves. This wax coating prevents the leaves from rotting due to water. For example, lotus, water lily and so on.



lotus

Underwater plants: These plants grow completely under the water. They take in carbon dioxide from the water. For example, seagrass, tape grass and so on.



seagrass

Now, let us learn about some habits of plants. Plants also differ according to their **food habits**.

Plants that make food on their own: Most green plants make their own food. They absorb water and nutrients from the soil with the help of roots. Leaves produce food by combining carbon dioxide and water using energy from sunlight.

Plants which depend on other plants: Some plants such as the cuscuta and sandalwood tree absorb water and nutrients from the roots of other plants. Such plants that depend on other plants for their food are called **parasitic plants**.



cuscuta plant

Plants that eat small insects: Some plants trap small insects and digest them. Such plants are called insectivorous plants. For example, pitcher plant, Venus flytrap and so on.



pitcher plant



Understanding

Plants grow on land and in water. They have different food habits. Due to these differences, the plants have different features. The body features and special characteristics that help the plants to live successfully in a particular environment are called their **adaptations**.

Important Words

Duration: 1 min

- **Last class:** drooped, habitats, terrestrial plants, swampy, coastal
- **Today:** aquatic plants, floating plants, fixed plants, underwater plants, water lettuce, water hyacinth, wax coated, rotting, tape grass, tape grass, parasitic plants, insectivorous plants, pitcher plant, venus flytrap

Transactional Tip(s)

Duration: 27 min



Real-life Connect :

- Show the images of water lettuce, lotus and seagrass on pg. 25 of the textbook to explain the term 'aquatic plants.'
- Draw a tree diagram on the blackboard to illustrate the different types of aquatic plants and their features.
- Ask the learners, "How do most green plants make their food? Do all plants make their food? Have you seen plants that eat insects?"
- Mention about plants that make their food, parasitic plants and insectivorous plants. Show the images of the cuscuta plant and pitcher plant on pg. 25 of the textbook.

Class Pulse Check

Duration: 2 min



- 1) Name an aquatic plant.
- 2) Name an insectivorous plant.

ADAPTATIONS OF TERRESTRIAL PLANTS

Mountain plants: They are tall, straight and conical. They have narrow needle-shaped leaves. The conical shape does not allow the snow to remain on their leaves. If the trees in cold places are not conical in shape, snow will collect on the branches. Due to the weight of the snow the branches will break.



leaves of a mountain plant



conical shape of mountain plants

Plants in plains: They have many branches that spread out. These branches help them to absorb maximum sunlight.



branched stem of a tree

Desert plants: They have fleshy green stems that store water. Their leaves are reduced to spines to prevent water loss. They have extensive roots.



stem of a desert plant

Plants in swampy areas: Swampy areas have very sticky and clayey soil. So, it is difficult for plants to grow because air cannot reach the roots. Hence, the plants in swampy areas have breathing roots. Such roots come out of the soil for oxygen and sunlight. **Breathing roots** are roots in the air that help plants to breathe.



breathing roots

Plants in coastal areas: These plants have to adjust to strong winds and heavy rainfall. Coconut trees are mainly found in coastal areas. They have sturdy, flexible stems and thick leaves with many long strips to overcome strong winds.



stem of a coconut tree

leaves of a coconut tree

ADAPTATIONS OF AQUATIC PLANTS

Floating Plants: Their leaves and stems are light and spongy due to waxy leaves and the presence of air pockets. Air gets filled in these pockets. It helps them to float on water.



air pockets

Fixed plants: Their leaves are broad. The upper surfaces of the leaves of floating and fixed plants have a waxy layer. This waxy coating prevents the leaves from rotting due to water.



waxy leaves

Underwater plants: They have narrow and slender leaves. They breathe inside water.



narrow leaves

Important Words

Duration: 1 min

- **Last class:** aquatic plants, floating plants, fixed plants, underwater plants, water lettuce, water hyacinth, wax coated, rotting, tape grass, parasitic plants, insectivorous plants, pitcher plant, venus flytrap
- **Today:** features, characteristics, adaptations, conical, needle-shaped, fleshy, spines, extensive, clayey soil, breathing roots, sturdy, flexible

Transactional Tip(s)

Duration: 27 min



Flipped Classroom:

- Form groups, provide A4 sheets and assign a different adaptation of terrestrial plants to each group. Let the learners in the groups read, discuss and note the points. Let the groups present the topics to the class.
- Summarise the adaptations of terrestrial plants by comparing the parts of plants of different habitats.

Real-life Connect :

- Ask the learners, "Why do lotus plants not grow outside water? Why does a rose plant not grow in water?"
- Relate the discussion to adaptation, and explain the term.

Class Pulse Check

Duration: 2 min



- 1) Name a desert plant.
- 2) What type of soil do swampy areas have?

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4/6

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ADAPTATION OF PLANTS ACCORDING TO FOOD HABITS

Plants which produce food have green leaves and a well developed root system. Leaves are positioned in such a way that they receive maximum sunlight.



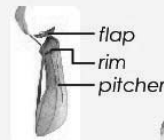
plants that produce food

Parasitic plants have special roots. Using these roots, they absorb the food and water from other plants. *Cuscuta* is one such plant.



cuscuta

Insectivorous plants have special structures to trap and digest insects. For example, the pitcher plant has a **pitcher** (pot-like structure) with a **flap**. The flap produces **nectar** that attracts insects. The rim of the pitcher is slippery. So the insects slip inside. The pitcher is deep. Moreover, the inside wall is difficult to climb. So the insects drown and dissolve in the liquid present inside the pitcher.



parts of a pitcher



insect on the rim of the pitcher



insect trapped inside the pitcher



Application

Plants benefit from their environment. Environment provides all the necessary support to the plants.

HOW DO PLANTS SUPPORT THEIR ENVIRONMENT?



In the process of photosynthesis, plants:

- take in carbon dioxide gas from the air.
- release oxygen.
- trap the energy of the Sun (light energy).
- trap nutrients from the soil.



Roots hold the soil firmly which helps to:

- prevent soil erosion.
- conserve water.



Plants support wildlife by providing shelter.

Important Words

Duration: 1 min

- **Last class:** features, characteristics, adaptations, conical, needle-shaped, fleshy, spines, extensive, clayey soil, breathing roots, sturdy, flexible
- **Today:** spongy, waxy, air pockets, slender, flap, nectar, rim, slippery

Transactional Tip(s)

Duration: 27 min



Interactive Discussion:

- Show images of air pockets, waxy leaves and narrow leaves on pg. 26 of the textbook and explain adaptations of aquatic plants.
- Draw a tree diagram and describe the special structures that help the plants in their different food habits.
- Show the video of the pitcher plant trapping the insects, let the learners observe. With the help of the pictures on pg. 27 of the textbook, ask one of the learners to explain the parts of a pitcher plant and the mechanism of trapping and ingesting insects.

Class Pulse Check

Duration: 2 min



- 1) Name one feature of fixed aquatic plants.
- 2) How does a pitcher plant attract insects?

ADAPTATION OF PLANTS ACCORDING TO FOOD HABITS

Plants which produce food have green leaves and a well developed root system. Leaves are positioned in such a way that they receive maximum sunlight.



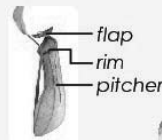
plants that produce food

Parasitic plants have special roots. Using these roots, they absorb the food and water from other plants. Cuscuta is one such plant.



cuscuta

Insectivorous plants have special structures to trap and digest insects. For example, the pitcher plant has a pitcher (pot-like structure) with a flap. The flap produces nectar that attracts insects. The rim of the pitcher is slippery. So the insects slip inside. The pitcher is deep. Moreover, the inside wall is difficult to climb. So the insects drown and dissolve in the liquid present inside the pitcher.



parts of a pitcher



insect on the rim of the pitcher



insect trapped inside the pitcher



Application

Plants benefit from their environment. Environment provides all the necessary support to the plants.

HOW DO PLANTS SUPPORT THEIR ENVIRONMENT?



In the process of photosynthesis, plants:

- take in carbon dioxide gas from the air.
- release oxygen.
- trap the energy of the Sun (light energy).
- trap nutrients from the soil.



Roots hold the soil firmly which helps to:

- prevent soil erosion.
- conserve water.



Plants support wildlife by providing shelter.

Important Words

- **Last class:** photosynthesis, carbon dioxide, oxygen, trap, light energy, nutrients, erosion, conserve, wildlife, firewood, timber, medicinal, lantana, government, Malabar mahogany, talipot palm, vanamahotsava, awareness, conservation, worshipped, communities, sacred groves
- **Today:** –

Transactional Tip(s)

Duration: 29 min



Peer Learning - Pair/Group:

- Form groups of learners, distribute the pieces of chart paper to be used to make flashcards. Ask each group to create flashcards for any five habitats of their choice.
- On one side they should write the name of the habitat, and on reverse, the name of some plants found in those habitats and their key adaptation features.
- Extend the activity by playing a guessing game, where each group reads out the habitat names and the other groups guess examples of plants along with their adaptations.

Class Pulse Check



1) _

Annual Day:
31/33

Day:
6/6

Actual Date:

Page(s)
28

HOW DO HUMAN ACTIVITIES AFFECT THE ENVIRONMENT?

- Due to human activities, the natural environment of plants is being destroyed. Humans cut down trees for firewood, timber, medicinal purposes and many more. This has destroyed the natural habitats of plants and animals.
- Some plants we see around have been introduced in our country from distant places. Some such introduced plants spread rapidly destroying the environment of other local plants by competing for soil, water, nutrients and sunlight. For example, lantana



lantana

WHAT MEASURES ARE BEING TAKEN BY THE GOVERNMENT?

Due to the cutting of trees, some trees have disappeared from the Earth. Some trees may disappear if we don't protect them. So, they are given protection by the government. Example: sandalwood tree, Malabar mahogany, talipot palms, soap nut tree.



talipot palm



soap nut tree



Amazing Facts

The General Sherman Redwood tree in California is about 2300–2700 years old.



Higher Order Thinking Skills (H.O.T.S.)

Why do we celebrate Vanamahotsava? It is a yearly tree-planting movement in India. It began in 1950. It means the 'festival of trees'. It is celebrated to create awareness about forest conservation and planting trees.

Another practice has also been followed since olden days to conserve trees. Some small forest areas are worshipped and protected by different communities. These areas are called **sacred groves**. Find out more about sacred groves.



sacred groves

Important Words

Duration: 1 min

- **Last class:** spongy, waxy, air pockets, slender, flap, nectar, rim, slippery
- **Today:** photosynthesis, carbon dioxide, oxygen, trap, light energy, nutrients, erosion, conserve, wildlife, firewood, timber, medicinal, lantana, government, Malabar mahogany, talipot palm, vanamahotsava, awareness, conservation, worshipped, communities, sacred groves

Transactional Tip(s)

Duration: 27 min



Interactive Discussion:

- Ask the learners, "What are the uses of plants in the environment?"
- Use a star diagram to list the importance of plants to humans, animals and for maintaining environmental balance.
- Describe the effects of human activities on the environment. Talk about the introduction of distant species such as the lantana. Show the image for the same.
- Show the images of 'talipot palms' and 'soap nut tree' and talk about the measures taken by the government to protect them.
- Explain the 'Amazing Facts' content given on pg. 28 of the textbook.
- Show visuals of 'Vanamahotsava' and 'sacred groves'. Ask the learners "Have you visited a sacred grove or attended a Vanamahotsava?"
- Ask the learners to share their experiences or you may share your experiences about activities during Vanamahotsava.
- Explain the relevance of 'Vanamahotsava' and 'sacred groves' in protection of trees.

Class Pulse Check

Duration: 2 min



- 1) Name any one protected plant.
- 2) How do plants support wildlife?



C – Exit Assessment

| | Suggested questions to test the learning objective(s) | Learning objective(s) | Number of learners who answered correctly |
|---|--|---|---|
| 1 | Define terrestrial plants. (Ans. Plants that grow on land are called terrestrial plants.) | Period 1 - habitats and habits of plants | |
| 2 | Why is it difficult for an insect to come out of the pitcher of a pitcher plant? (Ans. because the pitcher is deep and its walls are difficult to climb up) | Period 4 - adaptations of plants | |
| 3 | Why do humans cut trees? Give any two reasons. (Ans. firewood/timber/medicinal purposes) | Period 6 - protection of plant environments | |
| 4 | Why is Vanamahotsava important? (Ans. to create awareness about forest conservation and tree plantation) | Period 6 - sacred groves | |

| Post-lesson Reflection | | Handhold Learners | Challenge Learners |
|---|--|--|--------------------|
| TB completed Yes <input type="checkbox"/> No <input type="checkbox"/> WB completed Yes <input type="checkbox"/> No <input type="checkbox"/> | | | |
| Enthusiastic participation 😊 <input type="checkbox"/> 😊 <input type="checkbox"/> 😐 <input type="checkbox"/> | | | |
| Concept clarity in the classroom 😊 <input type="checkbox"/> 😊 <input type="checkbox"/> 😐 <input type="checkbox"/> | | Exam Revision Strategy Reteach <input type="checkbox"/> Revise <input type="checkbox"/> Practise <input type="checkbox"/> | |
| Concept clarity through the workbook 😊 <input type="checkbox"/> 😊 <input type="checkbox"/> 😐 <input type="checkbox"/> | | App Report Number _____ | Signature _____ |

Lesson 6: Plants and Environment



Think

- 1) Seema planted a lotus plant in her garden and watered it. But it drooped down and dried up within a few days. What can be the reason for this?
- Ans.** Different plants grow in different places. The lotus plant grows in water. Hence, when it was planted in the garden soil it drooped down and died within a few days.



Higher Order Thinking Skills (H.O.T.S.)

- 1) Find out more about sacred groves.
- Ans.** Sacred groves are patches of forests dedicated to a local God. People are not allowed to cut trees, plants or kill animals and birds belonging to this area. A sacred grove was a method of saving the forest in olden times when laws were not present. Hariyali, in Uttarakhand, is one of the largest sacred groves in India.




Plants and Environment



Remembering

Multiple Choice Questions

- 1) Water lettuce is an example of a/an: [A]
- (A) aquatic plant
(B) desert plant
(C) terrestrial plant
(D) mountain plant
- 
- 2) Which of the following is an example of a fixed aquatic plant? [C]
- (A) pitcher
(B) cuscuta
(C) lotus
(D) sea grass

Fill in the Blanks

- 3) Plants that grow on land are called _____ **terrestrial** _____ plants.
- 4) Most plants take _____ **water** _____ and _____ **nutrients** _____ from soil with the help of roots.

Very Short Answer Questions

- 5) Name the plant shown in the picture given below.



Ans. Pitcher plant

6) Give an example of an underwater plant.

Ans. Sea grass, tape grass (any one)

Short Answer Question

7) What are parasitic plants? Give an example.

Ans. Plants that depend on other plants for their food are called parasitic plants.

For example, Sandalwood, Cuscuta (any one)



Understanding

True or False

- 8) Mountain plants are tall, straight and conical. [True]
- 9) The plants in the plains have needle-shaped leaves. [False]
- 10) Desert plants store water in stems. [True]
- 11) Plants in swampy areas have breathing roots. [True]

Short Answer Questions

12) How do fixed aquatic plants adapt to the surroundings?





Ans. Fixed aquatic plants have broad leaves. The leaves have a waxy layer that prevents the rotting of leaves due to water.

13) Why do parasitic plants have special roots?

Ans. Parasitic plants have special roots to absorb food and water from other plants.

Long Answer Question

- 14) Categorise the following plants according to their food habits. Also, match the type of plant with their adaptations by drawing lines.

| Name of the plant | Type of plant (plant that produce food, parasitic, insectivorous) | Adaptations |
|--|---|--|
| a)  cuscuta | _____ parasitic | green leaves and well developed root system |
| b)  Venus flytrap | _____ insectivorous | special roots to absorb the food and water from other plants |
| c)  sandalwood tree | _____ parasitic | special structures to trap and digest insects |
| d)  mango tree | _____ plant that produces food | special structures to trap and digest insects |



Application

Multiple Choice Questions

- 15) How is the natural environment of plants being destroyed? [A]
- (A) due to human activities (B) due to nutrients
 (C) due to fertilised soil (D) due to sunlight

16) Which of the following plant is given protection by the government? [B]

(A) neem



(B) talipot palm



(C) banana



(D) mango



Short Answer Questions

17) Why do some plants need protection by the government?

Ans. People cut plants for timber and firewood. Some plants may disappear if we do not protect them. Hence, government has decided to protect some plants.

18) How do some plants that are introduced from other places destroy the environment?

Ans. Some plants that are introduced from other places grow rapidly. They affect the growth of local plants by competing for soil, water, nutrients and sunlight.

Long Answer Question

19) How do human activities destroy the environment?

Ans. Learner's response (**Hint:** Human activities destroy the environment as follows:

- Humans cut trees for wood, thus decreasing the number of trees.

- Excessive use of chemical fertilisers, harmful chemicals from factories degrade the soil affecting the growth of plants.
- Decrease in number of plants affects the animals which depend on them.)



Higher Order Thinking Skills (H.O.T.S.)

Long Answer Question

- 20) Are Vanamahotsava and sacred groves similar? Give reasons to support your answer.



Vanamahotsava



sacred grove

Ans.

Learner's response

(Hint: Vanamahotsava was started in 1950 in India. It is a yearly movement. Sacred groves are worshipped since olden times. Vanamahotsava involves planting trees and creating awareness about forest conservation. Sacred groves are small forests worshipped and protected by different communities.)

Annual Day:
32/33

Day:
1/2

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Inside the Lab – A

Make sure you do these activities only with the help of a teacher or an adult.

Activity A1: Respiratory System

You will need:

three balloons, scissors, knife, a large plastic bottle, two straws (that can be bent), clay and a rubber band

You need to:

- 1) bend the straws at an angle.
- 2) insert the bent ends of the straws inside the balloons as shown in step 2. Secure them using the duct tape.
- 3) attach the straws to each other forming a 'Y' shape as shown in step 3.
- 4) add a ball of clay around the straight ends of the straws, leaving the holes of the straws open as shown in step 4.
- 5) place the straws into a bottle, and secure the clay around the opening of the bottle as shown in step 5.
- 6) cut the bottom of the bottle as shown in step 6. Cut off the neck of a balloon. Stretch the balloon to cover the bottom of the bottle and secure it with a rubber band. (The teacher should help the student while cutting.)
- 7) blow air into the straws. What do you see? When the air comes out from the bottle, what do you see?

The balloons in the bottle act as lungs, and the balloon that is stretched acts as a diaphragm.

When you blow air into the balloons, they expand. When the air comes out of the balloon, they return to their normal size. This is how we inhale oxygen and exhale carbon dioxide.

Important Words

Duration: 1 min

- **Today:** respiratory system, angle, duct tape, stretch, blow, lungs, diaphragm, inhale, exhale

Transactional Tip(s)

Duration: 29 min



Reinforcement :

- Revisit the different parts of the respiratory system.
- Note the organs of the respiratory system on the blackboard to reinforce the positions and names of the organs.
- Construct a working model of the respiratory system and demonstrate its functions according to the instructions given.

(Note: If learners are allowed to do the activity, all cutting work needs to be done by the teacher.)

Class Pulse Check



1) _



Activity A2: Water as a Universal Solvent

We know that water is called a universal solvent as it dissolves more substances than any other liquid.

Let us find out which of the following household items it will dissolve.

You will need:

four glasses of clean water, spoons, baking soda, pepper, flour, soap

You need to:

- 1) line up the glasses of water and try to dissolve each of the substances by pouring one teaspoon of each substance into a separate glass.
- 2) stir using a spoon.
- 3) record your observations in the table given below.



(Note: Do not try to put too much of any substance in the water.)

Observation table:

| Name of the substance | Dissolve/Does not dissolve |
|-----------------------|----------------------------|
| | |
| | |
| | |
| | |

Important Words

Duration: 1 min

- **Last class:** respiratory system, angle, duet tape, stretch, blow, lungs, diaphragm, inhale, exhale
- **Today:** universal, solvent, dissolves, substances, baking, soda, pepper, teaspoon, stir, record, observations

Transactional Tip(s)

Duration: 29 min



Reinforcement :

- Ask the learners, “Why is water called a universal solvent?”
- Demonstrate the activity according to the instructions given.
- Ask the learners to note down their observations.

Class Pulse Check



1) _

Art Integrated Lesson Plans

Grade: Grade 5, FA 1

Subject: Environmental Studies – I

Lesson: Respiratory System

Learning Outcome(s):

- Outlines the process of respiration in humans by making a poster

Integrated Art Form(s):

- Poster making

Materials Required:

Ice-Breaker: NA

Core Activity:

- 1) Chart papers
- 2) Colouring materials such as poster colours, paint brush, sketch pens and so on
- 3) Stationery items

Art Integrated Lesson Plans

Resources (External References):

Ice-Breaker:

- [Introduction to the respiratory system](#)
- [Tips on poster making](#)

Core Activity: NA

Time Needed:

Ice-Breaker: 15 min

Core Activity: 60 min

Ice-Breaker:

Summary: Show learners the video clips on introduction to the respiratory system and poster making to set the context for the activity.

Procedure:

Step 1:

- Inform learners that they are going to be shown a video about the parts of the human respiratory system.
- Play the video '[Introduction to the respiratory system](#)'.
- When playing the video, ask them to make a note of the different parts of the respiratory system and carefully examine the role of the respiratory system in the human body.
- Once the video has been played, ask learners to recall the names of the organs of the respiratory system from the video.

Step 2:

- Ask learners if they have ever seen or made any poster.
- Inform learners that they are about to make a poster on the process of respiration in humans.
- Play the video '[Tips on poster making](#)'. Ask learners to pay attention to the important features in a poster.

Art Integrated Lesson Plans

Core Activity:

Summary: Facilitate a group activity where learners make a poster on the processes involved in respiration in humans.

Procedure:

- Divide the class into groups of four.
- Provide each group with chart paper, stationery items and colouring materials.
- Instruct each group to work together and make a poster outlining the process of respiration.
- Ask learners to make bilingual posters by writing the content of the poster in their regional languages as well as in English.
- Tell learners that they may refer to the information and the pictures given in the textbook for further details.
- Allow each group 40 minutes to make their posters.
- Walk around the classroom and provide guidance to the groups, if needed.
- Once the activity is completed, ask each group to present their posters to the class, one by one.
- Conclude the topic by asking learners some questions on the process of respiration and the exchange of gases during the process.

Extension Activity:

Ask learners to collect further information on the process of respiration and prepare a write-up on an A4 sheet.

Assessment:

Use the Assessment Rubric given to evaluate the learner.

Conclusion:

This activity allows learners to acquire a firm understanding of the process of respiration. It also helps them to interpret the movement of gases involved in respiration. It facilitates collaboration and lets learners exercise higher-order thinking skills to display their creativity.

Art Integrated Lesson Plans

Suggested Rubric for Assessing Art Integrated Learning

| LEVELS | Proficient | Evolving | Beginner | Pre-Beginner |
|---------------------------------------|--|--|--|--|
| | 4 | 3 | 2 | 1 |
| Knowledge Construction and Expression | Demonstrates excellent use of inquiry and higher order thinking skills, and accurate representation of arts standards. | Demonstrates good use of inquiry and higher order thinking skills and effective representation of arts standards. | Demonstrates moderate use of inquiry and higher order thinking skills and occasional representation of arts standards. | Demonstrates minimal use of inquiry and higher order thinking skills and little representation of arts standards. |
| Collaboration | Participates proactively in community building through collaborative work, and always communicates well within team(s) and with the facilitator. | Participates actively in community building through collaborative work, and mostly communicates within team(s) and with the facilitator. | Participates moderately in community building through collaborative work, and occasionally communicates within team(s) and with the facilitator. | Participates rarely in community building through collaborative work, and hardly communicates within team(s) and with the facilitator. |
| Envisioning | Engages proactively in rigorous arts integration by embracing change; has multiple perspectives and takes adequate calculated risks . | Engages actively in arts integration by accepting change; has some perspectives and takes some calculated risks . | Engages moderately in arts integration by accepting few changes; has few perspectives and takes few calculated risks . | Engages rarely in arts integration; has minimal perspectives and hardly takes risks . |
| Art and Content Integration | Displays a clear connect between the arts and learning outcomes. | Displays an acceptable connect between the arts and learning outcomes. | Displays a moderate connect between the arts and learning outcomes. | Displays a rare connect between the arts and learning outcomes. |
| Self-Assessment | Demonstrates significantly increased awareness of relevance and purpose of the arts integration process. | Demonstrates increased awareness of relevance and purpose of the arts integration process. | Demonstrates occasional awareness of relevance and purpose of the arts integration process. | Demonstrates rare awareness of relevance of the arts integration process. |

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Art Integrated Lesson Plans

Grade: Grade 5, FA 2

Subject: Environmental Studies – I

Lesson: Floats, Sinks and Mixes

Learning Outcome(s):

- Classifies substances based on their solubility in water
- Demonstrates that water is a universal solvent using recorded videos of experiments

Integrated Art Form(s):

- Video making

Materials Required:

Ice-Breaker: NA

Core Activity:

- 1) Cameras or mobile phones with good camera quality
- 2) Samples of water-soluble and insoluble substances (For example, salt, sugar, sand, ink, wood shavings or wood powder, flour and so on)
- 3) Glass tumblers or plastic jars
- 4) Water
- 5) Oil

Art Integrated Lesson Plans

- 6) Spoons
- 7) Stirring rods
- 8) Sketch pens

Resources (External References):

Ice-Breaker:

- [Solute, solvent and solution](#)

Core Activity: NA

Time Needed:

Ice-Breaker: 10 min

Core Activity: 70 min

Ice-Breaker:

Summary: Show learners a video of an experiment on solute, solvent and solution to set the context for the activity.

Procedure:

- Inform learners that they are going to watch a video recording of a scientific experiment.
- Instruct them to carefully observe the introduction part in the video and the way the experiment is being performed.
- Inform them that they have to record videos of scientific experiments in a similar way.
- Play the video '[Solute, solvent and solution](#)'.
- Once the video is over, ask learners what they learnt from the video. Encourage them to actively participate in this discussion.

Art Integrated Lesson Plans

Core Activity:

Summary: Drive a group activity in which learners perform experiments to test the solubility of different substances in water and to demonstrate that water is a universal solvent, and make videos of the same.

Procedure:

Step 1:

- Divide the class into groups of four. (**Note:** If the class has learners from different regions or states, learners who speak the same regional language can be grouped together.)
- Distribute the materials to conduct the experiments to each group, along with a camera or a mobile phone to record a video of their experiments.
- Inform learners that they are going to perform two experiments, 'Experiment 1' to test the solubility of different substances in water and 'Experiment 2' to demonstrate that water is a universal solvent.
- Encourage the groups to explain the experiments in their videos using different languages. For example, ask group 1 to record their videos in English and the other groups to record their videos in their regional or state languages such as Kannada, Tamil, Telugu, Marathi and so on.
- Inform learners that the video for each experiment should not exceed 3 minutes. Allow them 30 minutes to make their videos.
- Help learners plan their videos for both the experiments in the following ways to ensure maximum participation from each learner:
 - a. For the first experiment, one learner records the video, another gives a brief introduction about the experiment, while the other two perform the experiment on solubility.
 - b. For the second experiment, the learners exchange their roles.
- Ask learners to take some time to prepare the introduction and content for the video.
- Ask learners to refer to the information given in the textbook while planning their experiments.
- Extend help to the groups, when needed.

Art Integrated Lesson Plans

Step 2:

- Once the video recordings have been made, ask each group to show their videos to the class by taking turns.
- Appreciate their efforts and acknowledge how multilingual information can be used by a wide range of audiences.
- Ask learners to name a few soluble and insoluble substances from their experiments.
- Conclude the topic by discussing what a universal solvent is and why water is considered a universal solvent.

Extension Activity:

Ask learners to perform the same experiment using a few other substances, record a video of it and upload it on YouTube with the help of elders. (**Note:** Uploading the video on YouTube is optional and subject to guardian's approval.)

Assessment:

Use the Assessment Rubric given to evaluate the learner.

Conclusion:

This activity allows learners to classify different substances based on their solubility in water. It also leads them to infer that water is a universal solvent. It helps learners develop their scientific skills through experimentation. It facilitates collaboration and lets learners exercise higher-order thinking skills to display their creativity.

Art Integrated Lesson Plans

Suggested Rubric for Assessing Art Integrated Learning

| LEVELS | Proficient | Evolving | Beginner | Pre-Beginner |
|---------------------------------------|--|--|--|--|
| RATING | 4 | 3 | 2 | 1 |
| Knowledge Construction and Expression | Demonstrates excellent use of inquiry and higher order thinking skills, and accurate representation of arts standards. | Demonstrates good use of inquiry and higher order thinking skills and effective representation of arts standards. | Demonstrates moderate use of inquiry and higher order thinking skills and occasional representation of arts standards. | Demonstrates minimal use of inquiry and higher order thinking skills and little representation of arts standards. |
| Collaboration | Participates proactively in community building through collaborative work, and always communicates well within team(s) and with the facilitator. | Participates actively in community building through collaborative work, and mostly communicates within team(s) and with the facilitator. | Participates moderately in community building through collaborative work, and occasionally communicates within team(s) and with the facilitator. | Participates rarely in community building through collaborative work, and hardly communicates within team(s) and with the facilitator. |
| Envisioning | Engages proactively in rigorous arts integration by embracing change; has multiple perspectives and takes adequate calculated risks . | Engages actively in arts integration by accepting change; has some perspectives and takes some calculated risks . | Engages moderately in arts integration by accepting few changes; has few perspectives and takes few calculated risks . | Engages rarely in arts integration; has minimal perspectives and hardly takes risks . |
| Art and Content Integration | Displays a clear connect between the arts and learning outcomes. | Displays an acceptable connect between the arts and learning outcomes. | Displays a moderate connect between the arts and learning outcomes. | Displays a rare connect between the arts and learning outcomes. |
| Self-Assessment | Demonstrates significantly increased awareness of relevance and purpose of the arts integration process. | Demonstrates increased awareness of relevance and purpose of the arts integration process. | Demonstrates occasional awareness of relevance and purpose of the arts integration process. | Demonstrates rare awareness of relevance of the arts integration process. |

PARAMETERS

Art Integrated Lesson Plans

Grade: Grade 5, SA1

Subject: Environmental Studies – I

Lesson: Plants and Environment

Learning Outcome(s):

- Outlines the adaptations in terrestrial and aquatic plants through a collage
- Identifies and names some common terrestrial and aquatic plants

Integrated Art Form(s):

- Collage making

Materials Required:

Ice-Breaker: NA

Core Activity:

- 1) Printed-out copies of coloured pictures of terrestrial and aquatic plants
- 2) Illustrations of some indigenous plants of India
- 3) Chart papers (coloured and white)
- 4) Sketch pens
- 5) Glue
- 6) Scissors

Art Integrated Lesson Plans

Resources (External References):

Ice-Breaker:

- Terrestrial and aquatic plants
- Collage of incredible India

Core Activity: NA

Time Needed:

Ice-Breaker: 20 min

Core Activity: 70 min

Ice-Breaker:

Summary: Show learners videos on terrestrial and aquatic plants and introduce them to collage making to set the context for the activity.

Procedure:

Step 1:

- Tell learners that different plants live in different places or environmental areas.
- Inform learners that they are going to watch a video on the different types of plants based on their habitat.
- Instruct them to carefully observe the structures of different plants.
- Play the video on terrestrial and aquatic plants.
- Once the video is over, ask learners if they can name a few terrestrial and aquatic plants from the video.

Step 2:

- Tell learners that they are going to be shown a tutorial video on collage making.
- Inform learners that they are supposed to make a collage of terrestrial and aquatic plants in class.
- Play the video 'Collage of incredible India'.
- Instruct learners to pay attention to how the collage is being made, and the steps to create a layout for the collage.

Art Integrated Lesson Plans

Core Activity:

Summary: Facilitate a group activity in which learners make a collage of terrestrial and aquatic plants based on their features and adaptations.

Procedure:

Step 1:

- Divide the class into two groups 'Group A' and 'Group B'. Further divide each of those groups into subgroups of four.
- Distribute the materials for the activity to each sub-group along with the pictures of different plants. (**Note:** Provide pictures of terrestrial plants to all the subgroups of group A and pictures of aquatic plants to all the subgroups of group B.)
- Display the illustrations of indigenous plants of India in the class.
- Instruct each subgroup to make the layout for their collage by cutting coloured chart papers into the shape of any one indigenous plant of their choice. Remind them that each group has been assigned a specific type of plant (aquatic or terrestrial), and that they must choose a plant shape for their layout accordingly. Supervise them while cutting the chart papers in the required shape.
- Tell learners to paste their layout cut-outs on a white chart paper, and then paste the pictures of plants on the layout to make a collage.
- Instruct learners to write the features or adaptations of the plants on the white chart paper using attractive writing styles.
- Ask learners to refer to the information given in the textbook while summarising the key adaptations of the type of plant allotted to them.
- Allow them 40 minutes to make their collages. Encourage participation from every learner.
- Extend help to the groups, when needed.

Step 2:

- Once the collages are completed, ask each group to present their work, in turns.
- Appreciate their efforts and initiate a discussion on the indigenous plants of India represented in their collage layout.
- Conclude the activity by summarising the adaptations of some well-known terrestrial and aquatic plants.

Art Integrated Lesson Plans

Extension Activity:

Ask learners to observe different plants in their garden/surroundings and list their adaptive features on an A4 sheet.

Assessment:

Use the Assessment Rubric given to evaluate the learner.

Conclusion:

This activity allows learners to outline the adaptations of plants according to their habitat through visual art. It also helps learners to build their skills for comparative study. It facilitates collaboration and lets learners tap into their creativity and presentation skills.

Suggested Rubric for Assessing Art Integrated Learning

Art Integrated Lesson Plans

| PARAMETERS | LEVELS | Proficient | Evolving | Beginner | Pre-Beginner |
|---------------------------------------|--|--|--|--|--------------|
| | RATING | 4 | 3 | 2 | 1 |
| Knowledge Construction and Expression | Demonstrates excellent use of inquiry and higher order thinking skills, and accurate representation of arts standards. | Demonstrates good use of inquiry and higher order thinking skills and effective representation of arts standards. | Demonstrates moderate use of inquiry and higher order thinking skills and occasional representation of arts standards. | Demonstrates minimal use of inquiry and higher order thinking skills and little representation of arts standards. | |
| Collaboration | Participates proactively in community building through collaborative work, and always communicates well within team(s) and with the facilitator. | Participates actively in community building through collaborative work, and mostly communicates within team(s) and with the facilitator. | Participates moderately in community building through collaborative work, and occasionally communicates within team(s) and with the facilitator. | Participates rarely in community building through collaborative work, and hardly communicates within team(s) and with the facilitator. | |
| Envisioning | Engages proactively in rigorous arts integration by embracing change; has multiple perspectives and takes adequate calculated risks . | Engages actively in arts integration by accepting change; has some perspectives and takes some calculated risks . | Engages moderately in arts integration by accepting few changes; has few perspectives and takes few calculated risks . | Engages rarely in arts integration; has minimal perspectives and hardly takes risks . | |
| Art and Content Integration | Displays a clear connect between the arts and learning outcomes. | Displays an acceptable connect between the arts and learning outcomes. | Displays a moderate connect between the arts and learning outcomes. | Displays a rare connect between the arts and learning outcomes. | |
| Self-Assessment | Demonstrates significantly increased awareness of relevance and purpose of the arts integration process. | Demonstrates increased awareness of relevance and purpose of the arts integration process. | Demonstrates occasional awareness of relevance and purpose of the arts integration process. | Demonstrates rare awareness of relevance of the arts integration process. | |

How to Create an Effective Learning Environment?

NCF 2022 aims at achieving a holistic overall transformation of the teaching-learning process that will ensure an enjoyable, inclusive and positive overall learning experience. NCF 2022 asserts that the teacher is at the heart of the practice of education and is the torchbearer of the transformation it envisions for the Indian education system. It also re-emphasises the overall guiding principles of the NEP 2020, some of which include:

- a) emphasis on conceptual understanding rather than rote learning and learning for examinations,
- b) development of 21st-century skills such as problem-solving, creativity, and critical thinking to encourage logical decision-making and innovation
- c) respect for diversity and respect for the local context in curriculum and pedagogy

Here we have outlined some additional pointers that are in alignment with NCF 2022 that we feel will support teachers of environmental studies and science.

“Science is fun!” As adults we know this and even say this, but do our learners get a sense of this excitement? At the school level, science comes across as a collection of isolated facts. Truth is, science is the grandest story that human beings have written. Teaching science to primary school learners is an opportunity to let our future generations marvel at the natural world around us and at the human effort in understanding and manipulating the world. As long as we keep connecting to this *big picture*, a big part of our mission as science teachers gets accomplished. NCF 2022 recommends that a Constructivist approach to science teaching be used at the primary level. But what is ‘Constructivism’, and how can it be practised in the classroom?



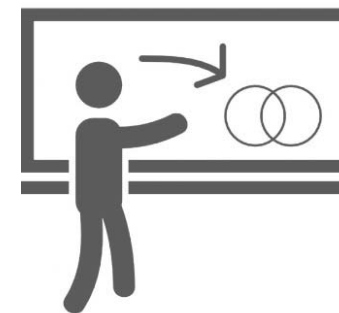
Constructivism means that science should not be taught as facts and figures to be memorised. Instead, learners should be able to understand how science is a process. In order for learners to get involved in the process, developing skills of critical thinking and deduction is necessary.

In order to do this, the 5E model for teaching science can be followed right from the primary level. This approach has been used in the ClassKlap textbooks as well, so your teaching can naturally follow this approach of *Engage*, *Explore*, *Explain*, *Elaborate* and *Evaluate*. Here are the details of this effective method:



- 1) **Engage:** Set the concept in a meaningful and relatable context. This creates an interest in learners as they are able to see meaning in knowing more about it. Raise questions for inquiry and explore learners' ideas and beliefs about the concept. If possible, compare learners' ideas to show different ways of thinking.
- 2) **Explore:** Science is something that is experience-based. The most concrete way to ensure learners understand a concept is to enable them to have an experience. Where possible, try to conduct experiments and observations. This is also the stage where learners can be encouraged to raise questions and to test their ideas.

- 3) **Explain:** The third stage is of consolidating what the learners have experienced and connecting it to theoretical explanations that provide a scientific basis for the concept. This is the stage at which you ensure that all relevant vocabulary is mastered by them. The use of visual aids like charts, diagrams and so on are particularly useful now because learners will be able to make the necessary connections.




- 4) **Elaborate:** Next, allow learners to apply or demonstrate their learning. Encourage learners to represent their understanding of the concept through diagrams, models, flow-charts, mind maps and so on. Learners' work and ideas will give you an idea about how well they have understood the concept. Provide feedback on misconceptions, if there are any, at this stage.



- 5) **Evaluate:** Assess learners once you have gone through all the other Es. Evaluation need not only be formal. You can conduct informal, formative evaluation through class tests, quizzes, surprise tests and classroom questioning in general. Ensure you test factual knowledge, scientific vocabulary as well as conceptual clarity. Providing learners the opportunity to apply their learning through projects is a great way of evaluation as well.

If a child can't learn the way we teach, maybe we should teach them the way they learn. – Ignacio Estrada

End-of-Term Reflection




Q 1) Which were the four best performing areas/concepts for Term 1 as per your Teacher Companion Book?


- 1) _____
- 2) _____
- 3) _____
- 4) _____

Q 2) Which four areas/concepts were highlighted for improvement as per your Teacher Companion Book?

- 1) _____
- 2) _____
- 3) _____
- 4) _____



Q 3) Which transactional tips do you find most useful to remediate the areas/concepts highlighted for improvement?



Q 4) How many periods have you used to remediate areas/concepts highlighted in the Teacher Companion Book?

Q 5) What other transactional tips do you plan on using in Term 2?

Q 6) List at least five learners who you would like to particularly support based on inputs from the Teacher Companion Book.

- 1) _____
- 2) _____
- 3) _____
- 4) _____
- 5) _____

