

**Voyager** TEACHER  
MANUAL

# Voyager

**GENERAL SCIENCE  
GRADE 3**

**TEACHER MANUAL**

THE **HONEYCOMB**  
SERIES

  
**GREYCAPS**  
LEADING A LEARNING REVOLUTION

# Welcome

*WELCOME DEAR TEACHER,*

*It is always wonderful to interact with teachers who are directly connected to the development of children in various fields of study, in their school life.*

*General Science is a subject which gives a peek into the world we live in, to a child. Voyager's interactive storytelling format and amusing characters give life to the topics and at the same time, enhance the learning process.*

*We, at Greycaps, appreciate the time and effort you are giving to this series and are being part of a future in interactive learning.*

*P.ick B. Lin*

# Voyager

## What's in it?

How will  
this manual  
help?

*This manual is designed to help you, the teacher, to understand:-*

- 1. The objective & offerings of the book*
- 2. The content structure and format*
- 3. Teacher inputs which enhance the student experience month-on-month*
- 4. The benefits to the teacher and student*
- 5. Answers to various exercises*
- 6. The measurable take away*

Honeycomb series

About Voyager

Meet Buzz and Rocky

Structure & Framework

Features

Objectives of Voyager 3

Chapter summaries (incl. exercise answers)

Evaluation

Benefits

The sections  
you will find...

# Honeycomb Series

We, at Greycaps, are proud to present a textbook series with a difference which enhances the teaching and learning experience.

## The Philosophy

The honeybee is an intriguing creature in the animal kingdom. Its characteristics reflect being adaptable, agile, well-organised, creating synergy and working in harmony. It's sole purpose is to create the honeycomb and strive for perfection in creating each hexagonal cell in the honeycomb. The queen bee gathers the efforts of all the Honeybees and motivates them to strive for perfection.

We believe that this life skill can be borrowed from nature and applied into the school classroom.



Every teacher is like the **queen bee** – focussing on students' different capabilities and striving to attain harmony within the classroom.

Each student is like a **honeybee** – focussing on better learning and perfection.

This novel philosophy, initiated by Greycaps, is the cornerstone by which we create engaging material for our young learners.



# Honeycomb Series

## OBJECTIVES

### CO-EXISTENCE IS THE KEY

Learning is a collective effort and not an individual effort. Group learning enhances better understanding and decreases dissonance among students.

### INTEGRATION OF LIFE SKILLS INTO TEACHING METHODOLOGIES

Learning takes place in every walk of life – from taking our first steps, to a person landing on the surface of the Moon. Learning from life skills is, perhaps, the most essential part of overall student development.

### BRIDGING THE GAP

Students in a classroom learn at different levels, therefore, there is a need for the teacher to adopt various innovative methods, to bridge gaps between the understanding levels of the first child and the last child.

## About Voyager

# Voyager

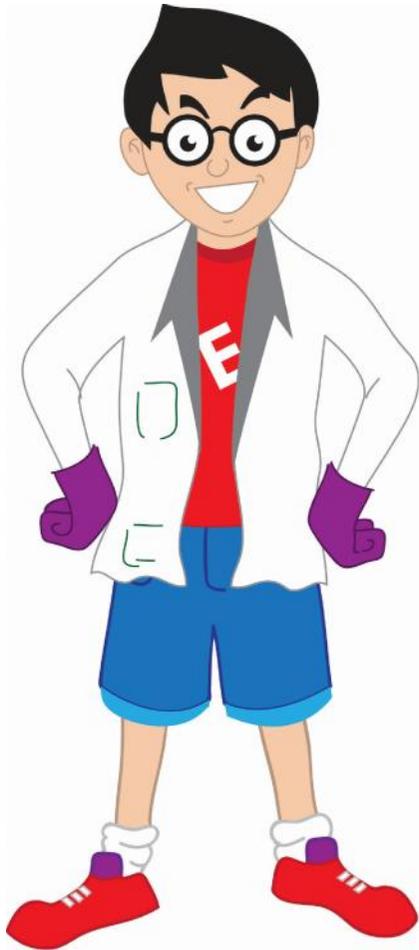
GENERAL SCIENCE



The world of science is constantly evolving in the modern world. New experiments, new inventions and new discoveries change the face of science on a regular basis. Voyager is a book that enables young learners capture how science has helped the human race, since time immemorial.

Equipped with a storytelling format, it is tailored to be generationally relevant to the children of this era. Engaging students through a storyline, Voyager is a relaxed, fun way to learn the basics of general science and to get acquainted with the changes and advancements in the field of science.

# Hello!



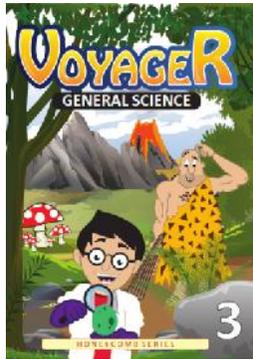
Meet Buzz, a young boy who enjoys conducting experiments of his own. He happens to build a time machine and travel back in time. He stumbles upon Rocky, a caveman, and strikes a friendship with him.

Buzz's journey is chronicled in Voyager. In essence, science is a subject which constantly evolves with new discoveries and experiments. It is in this spirit that the Voyager Series has been created.



# Structure & Framework

## Student



**TEXTBOOK**  
Equipped with a storytelling format and many other exciting features

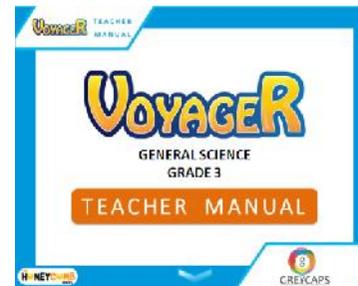


**EVALUATION**  
Assessments sheets provided online for teachers to evaluate students

## Teacher



**CURIOSITY KIT**  
An aid provided for teachers to reinforce concepts through quizzes and other activities



**TEACHER MANUAL**  
Provided online to act as a guide for teachers

## IN THE TEXTBOOK

# Features



The creation of characters brings concepts to life and enables better learning.

Interactive exercise formats at the end of each chapter, which follows the concept of learning by teaching.



Activity based learning becomes an integral part of overall child development.



## FACT HOPPER

Interesting trivia based information that enhances knowledge.

## IN THE CURIOSITY KIT

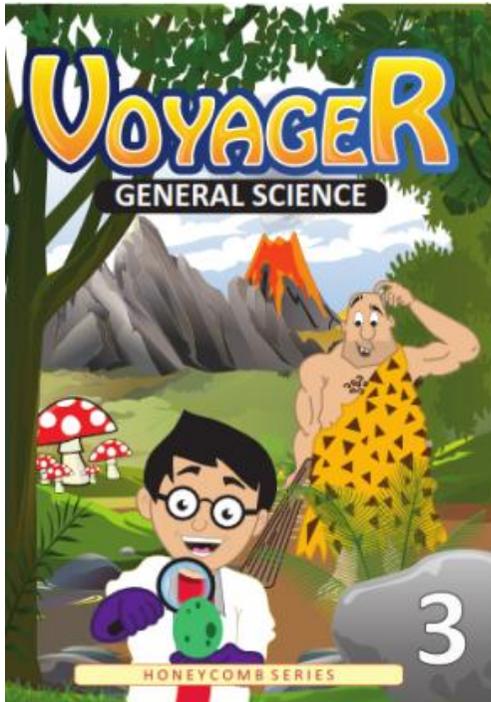
# Features

The **Curiosity Kit** is designed to reinforce teaching material in a fun and innovative way for school students. It is a set of activities and games which will enable teachers to create a fun-filled atmosphere in the classroom. It ensures wholesome learning and easier recall of facts related to the subject at hand.



- 🔍 The Voyager Grade 3 kit contains 37 cards.
- 🔍 The cards are divided into chapters in tandem with the textbook and are colour coded.
- 🔍 Each chapter contains activities with a set of instructions for the teachers and enumerates how it will be beneficial for the students.

## Objectives of Voyager 3



Voyager 3 helps the students get acquainted with their immediate environment and then progress towards understanding the world, at large.

The objectives of Voyager 3 are as follows:-

- Sparking curiosity (new topics)
- Enlisting the assistance of narrative learning
- Encouraging learning by teaching
- Encouraging learning through activities

# Chapter Summaries

THE NATURAL WORLD

NATURAL PHENOMENA

THE HUMAN BODY AND  
SAFETY

MATTER, MATERIALS AND  
MEASUREMENTS

ROCKS, SOIL AND MINERALS

LIGHT, SOUND AND FORCE



## THE NATURAL WORLD

1

### Living and Non-Living Things

Children need to understand the basic difference between a living and a non-living thing, before they can understand the environment around them with greater clarity. The chapter teaches the children this basic difference in environment to help them achieve a clearer understanding of their surroundings.

2

### Plant Life

Plants are all around us and are essential for our survival. The chapter describes the different types of plants and goes into detail about the different parts of a plant. The chapter also explains new terms such as pollination, photosynthesis, etc.

## THE NATURAL WORLD

### 3 Animal Life

Animals are an important part of our everyday life. Children need to become familiar with them in order to know these beings in our surrounding better. The chapter details the differences between domestic animals and wild animals, how plants are different from animals, eating patterns of animals, etc. The chapter also explains the various methods in which animals eat their food.

### 4 Birds and insects

Although a part of the animal kingdom, birds and insects are very different in terms of their habits, build, etc. This chapter explains a wide variety of concepts related to bird life. The chapter does the same for insect life and gives details about their anatomy, their usefulness, how insects can cause us harm, etc.

## THE NATURAL WORLD

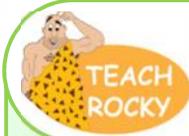
1

Living and Non-  
Living Things

Answers

**DO  
THIS** Page  
**10**

1. No. Non-living things do not grow.
2. River is not a living thing. It keeps flowing because of the movement and shape of the Earth.
3. Clouds move around because of the wind. They are not living things.



Page  
**12**

- 1) Fill in the blanks
  - a. Gills, Stomata
  - b. Sense organs
  - c. Life cycle

- d. Laying eggs, Giving birth
- e. Energy

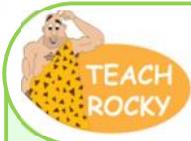
\* These answers may be unique to each student. Teachers may also get an assortment of responses from students based on what they have learnt from the chapter.

## THE NATURAL WORLD

1

### Living and Non-Living Things

(Answers)



Page  
12

2) Answer the following in your notebook.

Living things	Non-living things
Living things move	Non-living things do not move
Living things grow	Non-living things do not grow
Living things need food and water	Non-living things do not need food and water
Living things breathe	Non-living things do not breathe

Living things feel	Non-living things do not feel
Living things reproduce	Non-living things do not reproduce.

- b. Plants use sunlight, water and carbon dioxide to make their food.
- c. Living things give birth to other living things of their own kind. This process is called reproduction. Example:- birds lay eggs, plants are formed from seeds.
- d. Plants breathe through tiny holes present on their leaves called stomata.

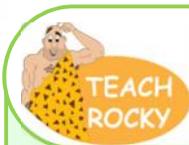
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## THE NATURAL WORLD

1

Living and Non-  
Living Things

[ Answers ]

Page  
12

3) State whether the following statements are true or false.

- a. False
- b. True
- c. True
- d. True
- e. True

\* These answers may be unique to each student. Teachers may also get an assortment of responses from students based on what they have learnt from the chapter.

## THE NATURAL WORLD

2

Plant Life

(Answers)

**DO THIS** Page  
**17 & 18**

The part that hangs from the branches of a Banyan tree is called the aerial root.

Plants make their food during the day, as they need sunlight for the preparation of food.



Page  
20

- 1) Answer the following in your notebook.
  - a. The important parts of a plant are:-
    - Root - The root secures the plant

to the soil and absorbs water and minerals from the soil.

Stem - The stem holds up the plant so that it receives as much sunlight as possible.

Leaf - The leaf, with the help of the

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## THE NATURAL WORLD

2

Plant Life

(Answers)



Page  
20

stomata in it, takes in carbon dioxide to help prepare food. The leaf has veins which carries water from the roots to the leaves.

Flowers - The flowers produce seeds which help in pollination.

- b. Leaves of plants convert sunlight, water and carbon dioxide into food. This process is called photosynthesis.
- c. The transfer of pollen grains from one flower to another is called pollination.

d. Plants in shady places grow larger leaves so that they get enough sunlight to prepare food. Plants in dry places grow larger roots so that they get enough water to supply for the whole plant.

2) Answer in one word.

- a. Chlorophyll
- b. Stomata
- c. Leaves
- d. Herbs and creepers
- e. Tap root

\* These answers may be unique to each student. Teachers may also get an assortment of responses from students based on what they have learnt from the chapter.

## THE NATURAL WORLD

2

Plant Life

[Answers]

Page  
20

3) Classify these under root, stem, leaves, flowers or fruit.

- a. Root
- b. Leaf
- c. Stem
- d. Fruit
- e. Flower

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## THE NATURAL WORLD

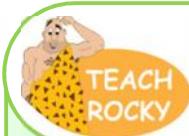
3

### Animal Life

(Answers)

**DO** Page  
**THIS** 24 & 25

- |                  |                |                  |
|------------------|----------------|------------------|
| 1. Cow - H       | 5. Peacock - O | 1. Venus flytrap |
| 2. Kangaroo - O  | 6. Lion - C    | 2. Pitcher plant |
| 3. Monkey - O    | 7. Bear - O    |                  |
| 4. Crocodile - C | 8. Giraffe - H |                  |



Page  
27

- 1) Answer the following in your notebook.
- a. Plants and animals depend on each other. If there are no plants, there will be an imbalance in the food

- b. chain and it will become difficult for the animals to exist.
- b. Plants give animals food and oxygen, while the carbon dioxide given out by animals is taken in by the plants, to prepare their food.

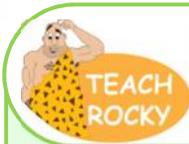
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## THE NATURAL WORLD

3

### Animal Life

Answers



Page  
27

c. Cow - Cows have flat, strong and broad biting teeth in the front to chew their food, called incisors and teeth at the back for grinding.

Squirrel - Squirrels have very sharp front teeth on both, their upper and lower jaw. These help them break nuts and open seeds.

Lion – Lions and other

carnivores have strong, sharp teeth which help them tear and pierce flesh. They chew their food with a set of teeth called 'molars'.

d. Few animals, swallow their food, bring it back to their mouths and chew on them again. This process is called rumination. Animals like cows and buffaloes are ruminants.

e. Answers differ among students.

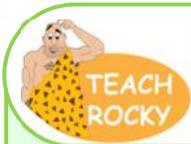
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THE NATURAL WORLD

3

Animal Life

Answers



Page 28

2) Classify the animals given below into herbivore, carnivore and omnivore.

- a. Herbivore
- b. Carnivore
- c. Carnivore
- d. Omnivore
- e. Omnivore
- f. Omnivore
- g. Herbivore
- h. Omnivore

3) State whether true or false.

- a. False
- b. True
- c. False
- d. True
- e. False

4) Classify the following into domestic and wild animals.

Domestic animals	Wild animals
Horse	Lion
Cat	Bear
Dog	Tiger
Sheep	Cheetah

\* These answers may be unique to each student. Teachers may also get an assortment of responses from students based on what they have learnt from the chapter.

## THE NATURAL WORLD

4

Birds and Insects

(Answers)

**DO THIS** Page  
**33 & 36**

1. Eagle
2. Duck
3. Kingfisher
4. Pelican
5. Parrot
6. Owl
7. Hummingbird
8. Sparrow
1. Cockroach
2. Ant
3. Ladybird
4. Bee
5. Ant
6. Beetle
7. Dragonfly
8. Butterfly
9. Spider
10. Grasshopper

\* These answers may be unique to each student. Teachers may also get an assortment of responses from students based on what they have learnt from the chapter.

## THE NATURAL WORLD

4

Birds and Insects

Answers



Page  
38 & 39

- 1) Choose the right answer.
  - a. Ability to fly
  - b. Difference in the structure of the feet
  - c. Flight feathers
  - d. Puffin
  - e. 3
- 2) Answer the following questions in your notebook.
  - a. There are three types of feathers. They are:-

Down feathers - They grow close to the skin and keep the birds warm. These are short and soft feathers.

Body feathers - They cover the body of the bird. These feathers give shape to the bird's body.

Flight feathers - These feathers help the bird fly. They are large in size and are found in the tail and the wings. These feathers also help the birds to lift themselves and balance during flight.

\* These answers may be unique to each student. Teachers may also get an assortment of responses from students based on what they have learnt from the chapter.

## THE NATURAL WORLD

4

### Birds and Insects

Answers



Page  
38 & 39

The different kinds of beaks and their functions are:-

1. Long and straw-like beak- mainly to feed on nectar.
2. Small and short beak- mainly to eat seeds, tender plants and insects.
3. Strong and curved beak- mainly to eat fruits and seeds.
4. Broad, long, pointed beak with a pouch- to eat fish and marine insects.
5. Broad and flat beak -to eat worms and plants.

6. Short, long and pointed beak- to eat fish, crabs and frogs.

7. Short, sharp and hooked beak- to eat mice, rabbits and snakes.

b. Useful insects - Butterflies, bees, ants, dragonflies and dung beetles are some of useful insects. Butterflies, bees and ants help in pollination, the process by which plants reproduce. Dragonflies eat mosquitoes which are harmful, dung beetles feed on animal dung and keep the surroundings clean and honeybees give us honey and beeswax.

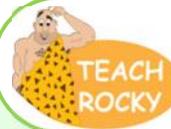
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## THE NATURAL WORLD

4

Birds and Insects

Answers



Page  
38 & 39

Harmful insects - Termites, mosquitoes, flies and cockroaches are harmful insects. The termites eat away plants and trees, thus destroying them. Some insects feed on food grains and spoil the crops. Mosquitoes suck blood and spread diseases, while flies and cockroaches carry germs around.

c. As the birds use their claws to catch food, protect themselves and to sit on trees, they vary depending on the bird's habitat.

Perching birds - They have long, slender claws with three toes in the front and one at the back to hold on to the branches of the tree firmly, even when they are asleep.

Climbing birds - They have two toes which point upwards and another two which point downwards. These claws help them to hold onto the tree with ease.

Preying birds - They have very sharp and strong claws to help them catch and hold their prey firmly, and carry them away.

\* These answers may be unique to each student. Teachers may also get an assortment of responses from students based on what they have learnt from the chapter.

## THE NATURAL WORLD

4

### Birds and Insects

Answers



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38 & 39

Wading birds – They have thin, long legs with wide-spread toes, to help them walk through water. The toes also prevent the birds from sinking into the mud in a pond.

Aquatic birds – These birds have webbed feet. They have three toes in the front and one at the back. The three, front toes have special webs of skin between them. They work like paddles and help the birds to swim easily.

Running and scratching birds – These birds have sharp and strong claws to help them scratch the ground in search of food.

Sparrow is a perching bird and has feet with three toes in the front and one at the back. A chicken is a scratching bird and has sharp and strong claws with three long toes in the front and a short toe at the back. Cranes have thin, long legs with wide-spread toes. Eagles are preying birds which have strong, sharp claws, to help them catch their prey firmly.

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## THE NATURAL WORLD

4

Birds and Insects

Answers



Page  
38 & 39

- d. Birds make nests for shelter, to lay their eggs and to protect their young ones.  
An eagle makes its nest high up in the tree, or on high rocks using twigs, while owls use the hollows of trees as nests.
- e. An insect's body is divided into three parts, head, thorax and an abdomen. The head has a pair of feelers called the antennae, which help them feel and smell.

- f. Most insects have two large eyes. The thorax has three pairs of legs and most insects have two pairs of wings attached to the thorax.  
When a bird has to fly, it lifts itself up by flapping its wings, which helps it move upwards and forward. This is called **upstroke**. When it has to land, it glides and comes down smoothly without flapping too much. The downward flapping is called **downstroke**.

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## THE NATURAL WORLD

4

Birds and Insects

(Answers)



Page  
**38 & 39**

- 3) Identify the following.
- a. Cockroach, locust, lice, termite, mosquito, bedbug
  - b.
    1. Eagle
    2. Duck
    3. Hen
    4. Crane
    5. Parrot
    6. Sparrow

\* These answers may be unique to each student. Teachers may also get an assortment of responses from students based on what they have learnt from the chapter.

## THE HUMAN BODY AND SAFETY

- 5 Our Organ Systems**

As children grow up, they need to become more aware of their bodies and learn how to better take care of it. The chapter gives a description of our sense organs and explains about the various organ systems of the human body. The chapter also explains the various food sources and emphasizes upon the importance of good nutrition.
- 6 Safety and First Aid**

Safety is an important aspect, which needs to be taught and built into the children's minds from a young age. The chapter discusses various safety measures that need to be followed at various locations. The chapter also explains the concept of first aid and discusses small instances, where first aid can be given to self.

## THE HUMAN BODY AND SAFETY

5

Our Organ Systems

Answers

**DO THIS** Page  
**47 & 49**

Some voluntary and involuntary movements are:-

Voluntary	Involuntary
Writing	Heartbeat
Walking	Breathing
Lifting	Digesting
Jumping	Blinking
Exercising	Circulation of blood

Babies have more bones as compared to adults. When babies start growing, some bones in their body fuse together to form one single bone.

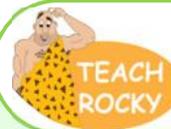
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## THE HUMAN BODY AND SAFETY

5

Our Organ Systems

Answers



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52 & 53

1) Answer the following in your notebook.

- a. The human body is always at work, even when we are asleep. For doing its work, the body requires energy. Food contains nutrients which enable the body to work, grow and fight sickness. Food contains proteins, vitamins, carbohydrates, minerals and fats that are required for the body to function well.

- b. The process of digestion is as follows:-
- The saliva in the mouth helps to break the food we eat into smaller pieces and pushes it down the food pipe, into the stomach.
  - The gastric juices present in the stomach, turn the food into a liquid mixture and the stomach sends the food to the small intestine.
  - The juices in the small intestine, break down the food further and allow the body to absorb all the

\* These answers may be unique to each student. Teachers may also get an assortment of responses from students based on what they have learnt from the chapter.

## THE HUMAN BODY AND SAFETY

5

### Our Organ Systems

Answers



Page  
52 & 53

nutrients such as vitamins, proteins, minerals and carbohydrates.

-After absorption, the waste that is left over is sent to the large intestine, from where, the waste is thrown out of the body through the anus.

- c. Our lungs help us breathe, by taking in oxygen and giving out carbon dioxide. If our lungs stop functioning, it will be not be possible for us to survive.

- c. Proteins help our body grow. When we are sick or injured, proteins help repair and heal our body.
- d. The brain is the most important part of the nervous system.

#### 2) Who am I?

- a. Eyes
- b. Nose
- c. Tongue
- d. Skin

\* These answers may be unique to each student. Teachers may also get an assortment of responses from students based on what they have learnt from the chapter.

## THE HUMAN BODY AND SAFETY

6

Safety and First Aid

Answers

**DO  
THIS** Page  
56

- ❖ What Chotu did was wrong. He has to be taught about safety at home and safety on road. Accidents can happen anywhere. Climbing on chairs and tables, handling sharp objects, playing with electric objects, etc. are all dangerous. While on road, one should always walk on the footpath and cross the road at a zebra crossing.
- ❖ We should look to our left, then to our right and again to our left before crossing the road. We should always use the zebra crossing.
- ❖ Before crossing the road, we have to check whether the traffic lights show a green man. Before crossing, we have to look to our left, then to our right, again to our left and then cross the road.

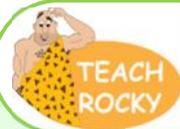
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## THE HUMAN BODY AND SAFETY

6

Safety and First Aid

Answers



Page  
60

- 1) Answer the following in your notebook.
  - a. For an insect bite, remove the sting with a sharp object. Do not pinch the wound, as more poison will enter the body this way. After the sting is removed, apply ice pack on the wound for 10 minutes, till the burning reduces. Later, apply some soothing cream.  
In case of a bleeding nose, sit down and lean forward. Pinch the

nose tightly with your fingers. Hold the nose in the same position for 5-10 minutes.

- b.
  - Never play on an open terrace or on rooftops.
  - Do not play with electric cords and switches and do not touch the plug points with wet hands.
  - Be very careful while using sharp instruments such as scissors, blades and knives.

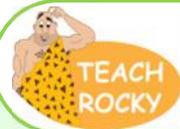
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## THE HUMAN BODY AND SAFETY

6

Safety and First Aid

Answers



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60

- Do not play in the kitchen near the stove.
- Be careful in the bathroom, especially after having a shower, as the floor can be very slippery.
- c. Safety rules have to be followed while on the road.
  1. Walk on the footpath always. Use the zebra crossing to cross the road.
  2. Look to your left, then to the right and again to the left, before crossing the road.
  3. Always keep to your left when cycling. Wear a helmet while on a cycle or a motorcycle.
  4. Never board a moving vehicle. Always stand in the queue to board a vehicle.
  5. Follow traffic lights at signals. Wear a seat belt while driving and never talk on the phone while driving, walking on or crossing the road.

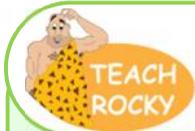
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## THE HUMAN BODY AND SAFETY

6

Safety and First Aid

Answers



Page  
60

d. The safety steps to follow at the playground are:-

1. Always follow the rules of the game.
2. Do not push others while trying to sit on the swings and slides.
3. Never play near main roads, where the traffic is high.
4. Do not fight while playing.
5. Never play near barbed wires or hedges.

- e. Some items that can be found in a first aid box are:- cotton, bandages, antiseptic liquid, antiseptic cream and gauze.

\* These answers may be unique to each student. Teachers may also get an assortment of responses from students based on what they have learnt from the chapter.

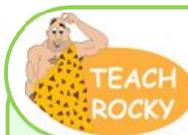
## ROCKS, SOIL AND MINERALS

- 7** **Rocks, Soil and Minerals**  
The chapter describes the composition of Earth, what are rocks, how soil is formed, etc. The chapter also elaborates upon the sources and different types of soil.

## ROCKS, SOIL AND MINERALS

7 Rocks, Soil and Minerals

Answers



Page  
65 & 66

- 1) Choose the correct answer.
  - a. Magma
  - b. Loam
  - c. Crust
  - d. Minerals
  - e. All of the above
- 2) Answer the following in your notebook.
  - a. The process of formation of soil takes over hundreds of years. Under the rain and Sun, the rocks

crack and break into small pieces. Rain and ice get into the rocks and break them apart. These pieces of rocks are carried to other places by running water and strong winds.

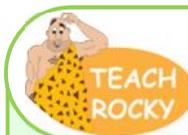
- b. Granite, graphite, coal, chalk, slate, sandstone and diamonds, are some of the rocks. Rocks are used in constructing buildings and roads, some are used to make jewellery and precious stones.

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## ROCKS, SOIL AND MINERALS

### 7 Rocks, Soil and Minerals

Answers



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65 & 66

c. The types of soil differ from each other depending on the minerals and the size of the particles present in it. The different types of soil are:-

**Gravel** has large grains which do not hold any water between them. They hold a lot of air.

**Sand** has smaller pieces of stones and is rough. Sandy soil

does not contain enough nutrients to grow strong and healthy plants. It allows water to run through quickly.

**Silt** is a combination of sandy soil and clay.

**Clay** is made of small particles which have been worn down by rocks. Clay can hold more water than sand and is sticky.

**Loam** is a combination of sandy soil, clay and silt. It breaks up easily, allowing organic activity. Loam is the best soil for growing plants.

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## ROCKS, SOIL AND MINERALS

### 7 Rocks, Soil and Minerals

Answers



Page  
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- d. Earth's crust is made up of rocks and minerals. Inside the Earth, there is a liquid core of molten rock. Most of the crust is covered by water, sand, soil and ice.
- e. Gravel has very large grains and does not hold water between them. Gravel holds a lot of air. Sand is made of smaller pieces of stone and is rough. Sand allows water to run through quickly.

3) Fill in the blanks.

- a. Core
- b. Humus
- c. Minerals
- d. Diamond
- e. Gravel

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## NATURAL PHENOMENA

- 8 Air and Water**

Air and water are important to all life on Earth. This chapter elaborates upon the nature of air and how it is required for our survival. The chapter also details how water is vital to our existence, explains the concept of water cycle, seasons, weather and impact on weather, due to different factors.
- 9 Our Earth**

This chapter is about the Earth and explains all of its aspects. Topics such as layers of the Earth, its movements, Earth's satellite Moon, phases of the Moon, etc. are discussed in great detail in the chapter. Concepts of Solar System, stars and constellations are also covered in the chapter.

## NATURAL PHENOMENA

8

Air and Water

(Answers)

**DO THIS** Page  
**70, 71 & 73**

In our daily life, we use water for:-

- Drinking
- Bathing
- Washing
- Cooking
- Irrigation

Any substance that weighs lesser than water, floats on it.

If a slice of bread is placed on water,

it floats. But if the same bread slice is made into a ball and placed in water, it sinks.

1. River water, while flowing towards the ocean, picks up salt particles making the ocean salty. During the process of evaporation, only water is absorbed from the oceans, leaving behind salts. So, as more water continues to flow into the ocean, it gets saltier.

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## NATURAL PHENOMENA

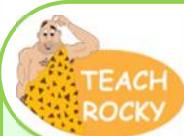
8

Air and Water

Answers

**DO  
THIS** Page  
**73**

2. The process of evaporation is responsible for wet clothes drying in the Sun. The water in the clothes evaporates, because of the Sun's heat and turns into water vapour, mixing with the air in the atmosphere.



Page  
**12**

1) Guess the word. The first letter of the word is given to you.

- |                |          |
|----------------|----------|
| a. Evaporation | d. Snow  |
| b. Clouds      | e. Ocean |
| c. Hail        |          |

2) Answer the following in your notebook.

- a. The layer of air surrounding the Earth is called the atmosphere.
- b. Water has different properties in different states. A few properties

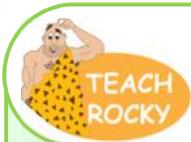
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**NATURAL PHENOMENA**

8

**Air and Water**

**Answers**



**Page  
12**

of water in solid and liquid states are as follows:-

Liquid state	Solid state
Water is a liquid.	Water in solid state is ice.
Water does not have a definite shape and takes the shape of the container.	In solid state, water has its own shape and does not change its shape.
As a liquid, water flows and is not constant.	Water in solid state does not move on its own.

- c. The four stages of water cycle are:-
- Stage 1 – Evaporation.** It occurs when the Sun heats up the water in rivers, lakes and oceans, and turns it into vapour or steam. This vapour rises from the river, lake or ocean and is absorbed by the air.
  - Stage 2 – Condensation.** Water vapour in the air cools down and changes back into a liquid form, forming clouds.
  - Stage 3 – Precipitation.** This occurs when a lot of water has condensed and the air cannot hold

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## NATURAL PHENOMENA

8

Air and Water

Answers



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12

it anymore. The clouds get heavy and water falls back to the Earth in the form of rain, hail, sleet or snow.

**Stage 4** - When the water falls back to the Earth, it gets collected in the rivers, oceans and lakes, or may end up on land. On land, it will get soaked into the Earth and become a part of ground water that plants and animals drink. Some water may run over the soil and collect in the rivers and

oceans, thus beginning the water cycle all over again.

- d. Weather is a day-to-day condition of the atmosphere, at any given time and place. Weather affects our lives in many ways, like, the clothes we wear, the crops we grow and the food we eat. For example; if the weather is hot, we wear loose, cotton clothes and prefer eating food items like ice cream. If the weather is cold, we wear warm woollen clothes and eat hot food items like, soup.

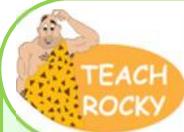
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## NATURAL PHENOMENA

8

Air and Water

Answers



Page  
12

- e. Water is very important for the survival of all living beings. Recycling and reusing water helps in its conservation. Some methods by which, water can be recycled and conserved are:-
- Conserving rain water – Rain water can be collected on the rooftops and can be reused later for irrigation, washing and cleaning.
  - Taps can be turned off while brushing and shaving, to conserve water. The amount of

water used for washing utensils, clothes and vehicles, etc. can also be reduced.

- Use a bucket while bathing, instead of using the shower.
- Water remaining in water bottles, can be reused for watering plants, washing utensils or vehicles.

3) Write whether the following conditions are warm, cold, hot or freezing.

- a. Warm
- b. Cold
- c. Hot
- d. Freezing

\* These answers may be unique to each student. Teachers may also get an assortment of responses from students based on what they have learnt from the chapter.

## NATURAL PHENOMENA

8

Air and Water

[Answers]

Page  
12

- 4) State whether the following statements are true or false.
- False
  - True
  - False
  - True
  - True

\* These answers may be unique to each student. Teachers may also get an assortment of responses from students based on what they have learnt from the chapter.

**NATURAL PHENOMENA**

9

Our Earth

Answers

**DO  
THIS**

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

1. Layers
2. Crust
3. Mantle
4. Core
5. Surface

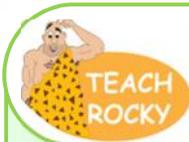
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## NATURAL PHENOMENA

9

Our Earth

Answers



Page  
**83 & 84**

1) Give one word.

- a. Mercury
- b. Star
- c. Neil Armstrong
- d. No

2) Answer the following in your notebook.

- a. The effects of the Earth's movements are:-  
Seasons - they are created by two very important events, rotation and revolution.

Day and night - The rotation of the Earth gives us day and night.

Years - The revolution of the Earth gives us years.

The movement of Earth also causes changes in light, darkness and temperature.

- b. Moon is Earth's natural satellite. The phases of the moon are:- new moon, crescent moon and full moon.
- c. Stars are huge balls of gases such as hydrogen and helium, in outer space.

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## NATURAL PHENOMENA

9

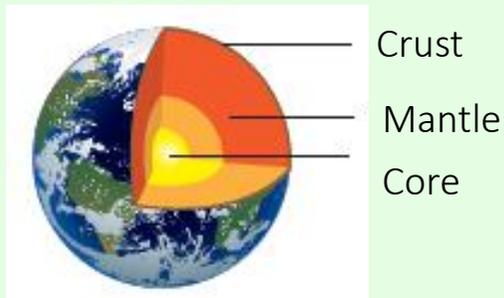
Our Earth

Answers



Page  
83 & 84

- d. A constellation is a group of stars that forms an imaginary shape in the night sky.
- 3) Label each layer of the Earth and describe it below.



The Earth has three layers called the crust, mantle and the core. The outermost layer is called the crust. It comprises of the continents, mountains, oceans and life. This is the surface where we live.

The next layer is the mantle which consists of thick layers of rock. This layer of the Earth is very hot and the rocks in the mantle, melt into thick liquid, due to the heat.

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## NATURAL PHENOMENA

9

Our Earth

Answers



Page  
**83 & 84**

The last and the innermost layer is called the core, which is a mixture of melted metals like iron and nickel. This layer is extremely hot.

There is an outer layer called the atmosphere, which covers the Earth. It contains gases like nitrogen, hydrogen and oxygen.

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## MATTER, MATERIAL AND MEASUREMENTS

10

### Matter and Material

For children to get an understanding of their surroundings, it is imperative that they know what things are made of. This is the focus in this chapter, wherein subjects of natural and man-made materials, housing and types of houses, how to take care of a house, etc. are discussed.

11

### Measurements

To be able to better gauge one's surroundings, measurements are required, and instilling this concept at an early age will help children. The chapter elaborates upon the concept of measurement and explains the ways in which different aspects of our environment are measured.

## MATTER, MATERIAL AND MEASUREMENTS

10

Matter and  
Materials

Answers

**DO** Page  
**THIS** 87, 89 & 90

We cannot make utensils out of rubber because, if rubber is heated, it melts. Clothes cannot be made out of metal as metals are hard and are not fit for clothing. Knives cannot be made out of wood as wood isn't sharp enough to cut hard surfaces and things.

1. Kutcha
2. Apartment
3. Igloo

1. Keep your room clean. Do not throw things around.
2. Do not litter. Throw the trash in the dustbin.
3. Keep food items in a closed container. Keeping it open will attract flies and insects.
4. Keeps the drains covered.
5. Keep the windows open during daytime, to allow fresh air and light to enter.

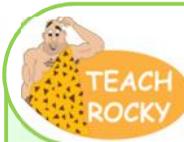
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## MATTER, MATERIAL AND MEASUREMENTS

10

Matter and  
Materials

Answers



Page  
91 & 92

- 1) Choose the right answer.
  - a) Something made by man
  - b) A cave
  - c) A house
  - d) The beach
  - e) A building
- 2) Answer the following in your notebook
  - a. We build houses to stay safe and protected. Houses give us shelter

from rains, storms, heat, insects and animals.

Houses are built depending on the climate of the place where the house is located and the lifestyle of the people who live in it. The different kinds of houses are - Pucca houses and kutcha houses. Pucca houses are strong, last long and are built with cement, bricks, iron and stones. Kutcha houses are not very strong, cannot bear extreme weather

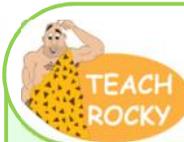
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## MATTER, MATERIAL AND MEASUREMENTS

10

Matter and  
Materials

Answers



Page  
91 & 92

conditions and are made of mud, hay, bamboo and stones.

- b. The features of a good house are:-
- A good house should get enough sunlight to keep germs and insects away.
  - Windows and doors should be opposite to each other, to ensure good movement of air.
  - Different activities like washing,

cooking, sleeping and relaxing should have different rooms for it.

- Open spaces for fresh air and children to play should be provided.
- Doors and windows should have nets to keep mosquitoes away.
- Kitchens should have closed drains to avoid water from collecting.

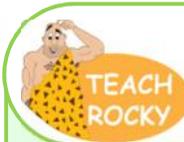
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# MATTER, MATERIAL AND MEASUREMENTS

10

Matter and Materials

Answers



Page 91 & 92

c. The 8 man-made materials that are used in our daily lives are:-

- Plastic
- Clothes
- Paper
- Glass
- Steel
- Gadgets
- Vehicles
- Cement

3) Examples of natural and synthetic fibers are:-

Natural fibres	Synthetic fibres
Silk	Nylon
Cotton	Polyester
Jute	Rayon
Wool	Flax

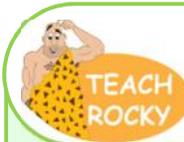
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## MATTER, MATERIAL AND MEASUREMENTS

11

Measurements

Answers



Page  
98 & 99

1) Fill in the blanks.

- a. Seconds
- b. Centimetre
- c. Kilograms
- d. Millilitres
- e. Kilograms

2) Choose the right answer.

- a. Millimetres
- b. Minutes
- c. Grams
- d. Kilometres

3) Answer the following in your notebook.

- a. We need to measure everything, since this helps us know the amount and quantity of things. For example, we go to the market and measure what we buy, so that we can pay accordingly. We measure the amount of medicine we take so that we take it in correct quantities. We measure

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## MATTER, MATERIAL AND MEASUREMENTS

11

Measurements

Answers



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98 & 99

time to see how long it takes for us to do things, etc.

- b. Volume is the space occupied by a liquid or gas in a container. Volume is measured in litres and millilitres.
- c. The measurement of heat is called temperature. It is measured in degrees on the scales of Fahrenheit, Celsius, Centigrade and Kelvin.

Temperature is important to get to know how hot or cold an object is.

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# Chapter Summaries

## LIGHT, SOUND AND FORCE

12

### Light

The chapter details the basic terminologies related to light and explores concepts such as reflection, shadows, how light travels, etc.

13

### Sound, Force and Energy

Sound, work, energy, etc. are the basics of how life functions. The chapter explains to the children the concepts of sound, force and energy, in an easy to understand manner.

## LIGHT, SOUND AND FORCE

12

Light

Answers

**DO  
THIS** Page  
**102**

1. Planets and moon
2. Fireflies, jellyfish, coral are some living things which have their own light.



Page  
**104 & 105**

1) Choose the right answer.

- a. Reflected
- b. Light coloured and smooth
- c. A polished metal knife

- d. By reflecting the light that hits them
  - e. White
- 2) Fill in the blanks.
- a. Reflecting
  - b. Shadow
  - c. Luminous objects

\* These answers may be unique to each student. Teachers may also get an assortment of responses from students based on what they have learnt from the chapter.

## LIGHT, SOUND AND FORCE

12

Light

Answers



Page  
104 & 105

- d. Reflection of light
- e. Straight

3) Answer the following in your notebook.

Natural sources	Artificial sources
Sun	Tube lights
Moon	Bulb

Stars	Torches
Lightning	Candle
Bioluminescent animals (fireflies)	Laser

- b. Light always travels in a straight line. But, if there is something in its path, it bends around it. If light hits anything, it bounces off from that object. This is called reflection of light.

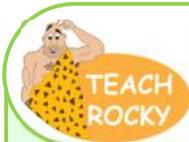
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## LIGHT, SOUND AND FORCE

12

Light

Answers



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104 & 105

- c. When the path of light is blocked by an object, a shadow of that object is formed. For example, if you stand in front of the Sun, the path of sunlight is blocked and your shadow is formed.
- d. Shadows' size and position change at different times of the day. When the Sun is in front of the you, the shadow is behind

you and when the Sun is above you, the shadow falls by your side. The size of the shadow also changes if the source of light is placed at different angles. Moving a light source closer to an object can make its shadow grow larger, while moving it away can have the opposite effect.

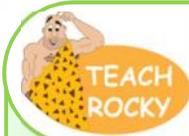
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## LIGHT, SOUND AND FORCE

13

Sound and Force

Answers



Page  
**109 & 110**

1) Choose the right answer.

- a. Vibrations
- b. Noise
- c. Force
- d. Energy
- e. High pitched

2) State whether true or false.

- |          |          |
|----------|----------|
| a. False | c. False |
| b. False | d. True  |

3) Answer the following in your notebook.

- a. Sound is made when something moves backward and forward very fast. These movements are called vibrations. They are nothing more than tiny movements of air. Sounds that sooth our mind, like the sounds made by birds and musical instruments, are pleasant sounds. The sound made by

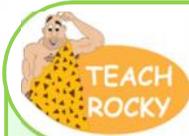
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## LIGHT, SOUND AND FORCE

13

Sound and Force

Answers



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**109 & 110**

machines, traffic, firecrackers, etc. are loud and are unpleasant sounds. Such unpleasant sounds are called noise.

- b. A push or a pull is called force. When force moves something, work is done. Work includes lifting, moving, warming or lighting something. Energy is the ability to do work.

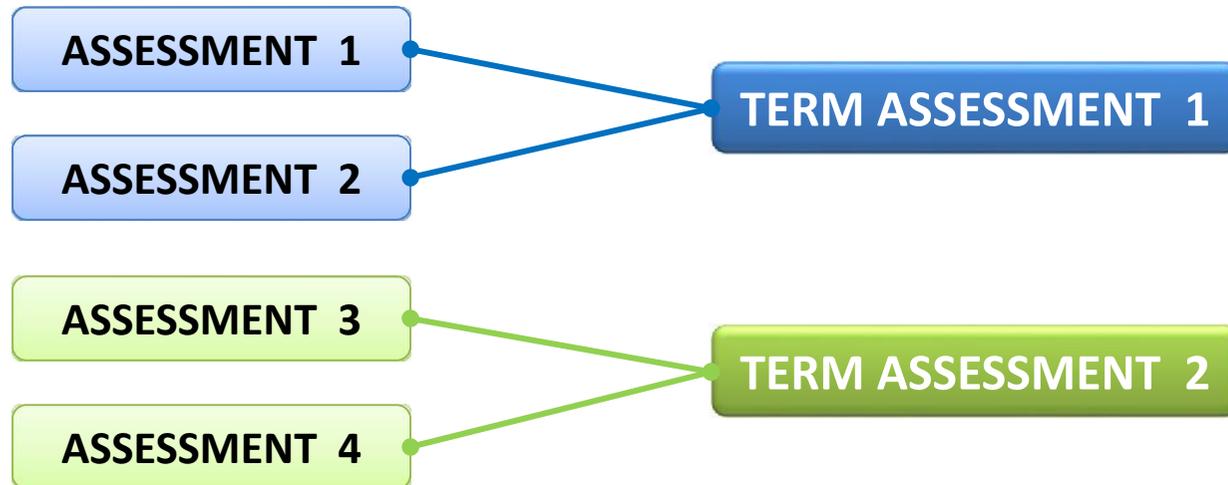
For example; driving a car, working etc.

c. The activities which amount to work in our daily lives are, walking, exercising, lifting things, moving objects and playing.

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# Evaluation

The evaluation sheets are divided into four assessment papers and two term papers, to be given during the academic year.



*These assessment sheets can be accessed from the 'Downloads' link, on the Greycaps website [[www.greycaps.com](http://www.greycaps.com)]*

## 'DOWNLOADS' Link

This link provides access to assessment sheets and this teacher manual, to all teachers subscribed to Voyager.



Each assessment sheet is downloadable in a PDF format and is accompanied with the answer keys.

Each PDF file is password protected for the teachers' benefit.

The password is 'teacher'.

# Evaluation

The units covered for each assessment sheet are as follows :-

ASSESSMENT 1	The Natural World	TERM ASSESSMENT 1
ASSESSMENT 2	The Human Body and Safety   Rocks, Soil and Minerals	
ASSESSMENT 3	Natural Phenomena   Matter, Material and Measurements	TERM ASSESSMENT 2
ASSESSMENT 4	Matter, Material and Measurements   Light, Sound and Force	

# Benefits

- Easy to recall, longer retention
- Fun, team based and experiential
- Makes the child THINK & QUESTION (No rote)
- Reduce the gap between the first child and last child (i.e; Honeycomb Philosophy)



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TEACHER  
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We thank you for being a teacher.



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