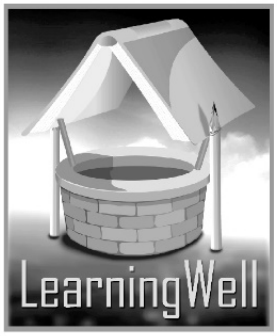

LearningWell's Science

3

Teacher's Resource Book

For Order : 0320-5899031

info@learningwell.pk www.learningwell.pk

Table of Consents

LESSON 1: SCIENCE OUR WORLD

Time required: **180 minutes** or **3 hours** with Activity book and revision of the lesson.

Start this lesson with the revision of table of contents that students have studied in grade **1** and **2.**

Aim of the lesson:

Science is integrated everywhere. Through this lesson students will know that the study of everything is actually a science which starts with the observation. Science is not confined in a lab only but it surrounds us everywhere.

Learning objectives:

In this lesson students will know:

- Science is the study of everything that we need to know
- Every study starts with the observation.

Helping tools:

Teacher resource book will give you an ample support in teaching. Further, to prepare you for the lesson, visit the following sites:

- **The Net Extra.**

  Net extra is especially designed for the teachers and the students. Here you can find not only the text material but also the related information, activities and exercises. You can guide your students to use net extra for more information. Log on to net extra account at *www.learningwell.pk*

- **Other links:**

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  https://www.google.com.pk/webhp?ei=TDkbVrP3Ac26uASwoZPYDA&yv=2&rct=j#q=science+our+world
  https://www.google.com.pk/webhp?ei=TDkbVrP3Ac26uASwoZPYDA&yv=2&rct=j#q=study+of+science

Before you start a lesson in a class, give reading task of the lesson in homework to your students. This reading task will help them understand the lesson. It will also help them realize the importance of pre-reading.

Students have done pre-reading of the lesson at home. This time in a class let them enthusiastically involve in group discussion. You may ask**:**

- What are the topics that you studied in science in grade 1 and 2?
- What are different labs in school?
- Life of people of early era was not comfortable as that of ours today. For example, those days did not have vehicles to travel. Give as many reasons as you know.
- Do you want to invent something that help you fly like a bird? Explain your imagination.

Discussion:

Students have the idea now that science is not just in the lab but it surrounds us everywhere. As the basic objective of the lesson is that science is everywhere, ask student to collect different things from the surrounding. Ask them to describe the things they collected. Your focus should be towards all the branches of science that you are building a bridge of understanding.

It is important that students write what they observe about anything.

Once they are done with recording observation, tell them that everything we study is the science. Study starts with observation which we record for others to read and learn.

In class, let the students read the lesson aloud and underline difficult and the key words.

Key words	Common words
observations	Lab coat
scientists	Materials
microscope	Electricity
laboratories	Space
food	Study
galaxy	Animals
earth	Plants
	Humans

Summarizing:

Once you know that your students have understood the concepts, summarize the lesson in points as:

- Science is the study of everything around us.
- Every learning starts with the observation
- It is the study of living things and non living things.
- A scientist observes and records his observations and answers for others to learn.

Assessment:

Once you find that discussion is complete, check the concepts of your students. You may ask:

- Where do you find science?
- What comes to your mind now about science?
- Is science interesting or boring?
- Scientists have made our lives very comfortable. Give examples to support the statement.
- What is the first step of any investigation or invention?
- Why is it important to record the observation?

The aim of assessment is to enhance student's interpreting skills. Let students answer themselves. You may check concept and sentence structure.

Note for a teacher

Make sure students write answers themselves. You should check their concepts as well as their writing skills. It will help you and English language teacher to understand your students where they are weak at and what to improve now.

For grade 2 students, answers should be simple and not be with complicated grammar structure.

LESSON 2: CONCEPT MAP

Time required: **360 minutes** or **6 hours** with Activity book and revision of the lesson.

Start this lesson in progression with human body parts.

Aim of the lesson:

Concept map is the way to describe anything with symbols. It takes less time to express than the comprehension. The aim of this lesson is to make learning easy for students. This lesson tells the importance of a concept ma and different ways to represent it.

Learning objectives:

In this lesson students will know:

- Concept maps are graphical tools to represent any information.
- Concept map uses different shapes, symbols and tools to connect the ideas.
- Concept maps through pictures.

Helping tools:

Teacher resource book will give you an ample support in teaching. Further, to prepare you for the lesson, visit the following sites:

- **The Net Extra.**

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  Visit:

  https://www.google.com.pk/webhp?hl=en#hl=en-PK&q=concept%20map
  https://www.lucidchart.com/pages/how-to-make-a-concept-map

Before you start a lesson in a class, give reading task of the lesson in homework to your students a day before. This reading task will help them understand the lesson. It will also help them realize the importance of pre-reading.

Warm up:

Students have done the pre-reading and also the exercise in the book. They have idea of using concept map. You may check the level of understanding through exercise in the book and the following activity.

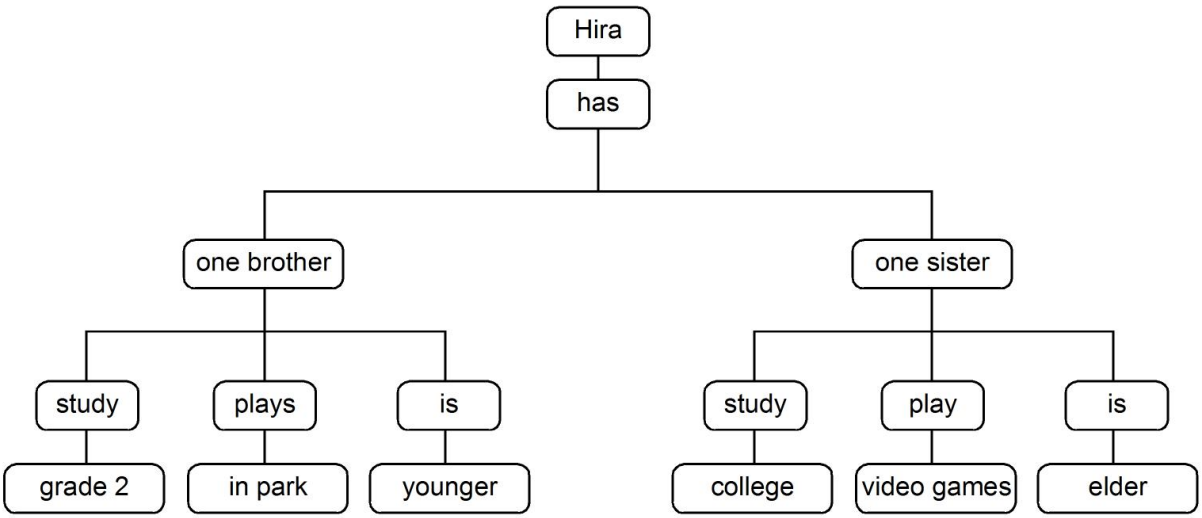
I am Hira.

I have one brothers and one sister

My brother studies in grade 2 and sister studies in college.

My brother likes to play in the park and my sister plays video games at home.

My brother is younger than me and sister is elder than us.



(Once you have explained this, replace the name of Hira with any of your students. Ask him or her to share the sequence of the information and the other students with represent it through the concept map.)

Discussion:

The main objective of the lesson that students should learn how to represent information through a concept map. The above activity will help them understand the importance of it and its organization. Tell them through concept maps , we can learn the concept very quickly. Show different helping tools to make a concept map.

In class, let the students read the lesson aloud and underline difficult and the key words.

Key words	Common words
Concept map Graphical Organizing Representing Symbols	Maps Design Line or Arrow Tools Shapes

Summarizing:

Summarize the lesson in points as:

- Concept map is the way of explaining in a design.
- Design could be of any shape.
- In concept map we use different arrows and lines to connect the ideas.
- We can also use pictures instead of words to represent an idea.

Assessment:

Once you find that discussion is complete, check the concepts of your students. You may ask:

- Why do we use a concept map?
- What different shapes can we use in a concept map?
- What is the role of lines and arrows in a concept map?

Interpreting

Think and write:

1. In a concept map arrows and lines link the describing quality. It helps the reader to connect the ideas.
2. In one glance at a concept map, we can get the information through connecting ideas quickly than any wordy passage.
3. We can represent ideas through pictures, such as the life cycle of a butterfly.

Note for a teacher

Make sure students write answers themselves. You should check their concepts as well as their writing skills. It will help you and English language teacher to understand your students where they are weak at and what to improve now**.**

For grade 2 students, answers should be simple and not be with complicated grammar structure.

LESSON 3: KNOWING VITAL ORGANS

Time required: **360 minutes** or **6 hours** with Activity book and revision of the

Start this lesson in progression with human body parts.

Aim of the lesson:

Students have learnt different body parts that they can see. The aim of this lesson is to make a firm bridge to let them understand the systems of the body. For that students need to know some vital organs and their role in our life.

Learning objectives:

In this lesson students will know:

- Internal vital organs, such as heart, lungs, kidneys, stomach and liver, on which our life depends.
- The function of these vital organs in our body.

Helping tools:

Teacher resource book will give you an ample support in teaching. Further, to prepare you for the lesson, visit the following sites:

- **The Net Extra.**

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- https://www.google.com.pk/webhp?hl=en#hl=en-PK&q=vital+organ+play+vital+role

Before you start a lesson in a class, give reading task of the lesson in homework to your students a day before. This reading task will help them understand the lesson. It will also help them realize the importance of pre-reading.

Warm up:
Students have done the pre-reading and also the exercise in the book. They have idea of using concept map. You may check the level of understanding through exercise in the book and the following questions.

- Have you ever seen the x-ray report? What do you find in that?
- Why do we need to have X-rays done?
- What is in your body that beats?
- What is pumping blood in your body?
- Where the thoughts come to?
- What happens if we do not have?
- Where the food goes when we swallow it?
- When we breathe in where the air is filled?

(There are more questions to be asked)

(Try to involve every student in discussion. You should focus those students more who need your attention more.)

Discussion:

Ask all the students to touch their head, feet, arms, legs, eyes, nose, etc.
Now ask them to tell where the heart, brain, stomach, kidneys, lungs or liver is. You will see that most of the students are unable to tell the specific location of most of the parts. At this time you give them the concept of internal organs that we cannot touch or see but through the
X-rays only. You should display the X-rays of brain, stomach, lungs etc through film report or on computer.
Take students to the biology lab and show them the exact location of these vital parts. Here tell them the function of each part and the consequences if these functions are stopped. Help them to give answers themselves if any function stops. For example if kidney does not flush out bad chemicals from the body? If stomach does not receive food to digest? If lungs do not oxygenate the blood? If liver does not digest the remaining food? Etc. First try to get their answer and then rephrase or correct the statements.
In a class, let the students read the lesson aloud and underline difficult and the key words. Show them the pictures and ask them to explain role of each part.

Key words	Common words
heart	x-rays
blood circulation	supplies
lungs	over-weight
inhale or exhale	released or expelled
stomach	polluted air
digestion	chop
brain	overeating
signals	unhealthy food
kidneys	nerves
substances	respond
digestive tract	emptying bladder

Summarizing:
Summarize the lesson in points as:

- Vital organs are the internal organs on which our life depends
- We can see our vital organs through X-rays
- Blood gives energy to all our parts to function properly. Heart pumps and supplies this blood to all our body parts.
- Lungs help us to breathe. These lungs take Oxygen from the air and transfer it to the blood. This blood with oxygen is supplied to all parts of the body through heart pumping.
- Stomach stores our food and breaks complex food into simpler form for further digestion.
- Brain is the controller of the body that directs every part of the body. Brain receives signals from the body and responds accordingly.
- Kidneys filter extra water and poisonous substances and expel them through urine.
- Liver helps in digestion and also purify helps in purifying blood.

Assessment:
Once you find that discussion is complete, check the concepts of your students. You may ask:

- What are vital organs? Why do them vital part of the body?
- Why does our body need blood supply?
- What carries out the circulation of blood?
- Why lungs are so important?
- What happens if someone damages his or her kidneys?

The aim of assessment is to enhance student's interpreting skills. Let students answer themselves. You may check concept and sentence structure.

Interpreting
Think and write

1. Lungs are the organs that expand to draw in air through nose and fills in to extract Oxygen from it. Then these lungs contract to throw out this air through nose of mouth.
2. Brain is the commanding organ of the body. It plans and carries out the functions of every part of the body.
3. Blood is the energy source for organs throughout the life. Heart that is why keeps pumping it to circulate it in the body.
4. Lungs and liver purify our blood.

Note for a teacher

Make sure students write answers themselves. You should check their concepts as well as their writing skills. It will help you and English language teacher to understand your students where they are weak at and what to improve now**.**

For grade 2 students, answers should be simple and not be with complicated grammar structure.

LESSON 4: SCIENCE OF SENSES

Time required: **360 minutes** or **6 hours** with Activity book and revision of the lesson.

Start this lesson in progression with the lesson "our senses ".

Aim of the lesson:

Students have learnt about senses and sense organs. This time student will know how these sense organs work and we have the particular sense then. This lesson builds a firm bridge to understand the biology of the body or body sciences in grade 5 and on.

Learning objectives:

In this lesson students will know:

- Senses and the sense organs
- Function of each sense organ
- Coordination between senses organs and the brain

Helping tools:

Teacher resource book will give you an ample support in teaching. Further, to prepare you for the lesson, visit the following sites:

- **The Net Extra.**

  Net extra is especially designed for the teachers and the students. Here you can find not only the text material but also the related information, activities and exercises. You can guide your students to use net extra for more information. Log on to net extra account at *www.learningwell.pk*

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  https://www.google.com.pk/webhp?hl=en#hl=en-PK&q=science+of+senses

Before you start a lesson in a class, give reading task of the lesson in homework to your students a day before. This reading task will help them understand the lesson. It will also help them realize the importance of pre-reading.

Warm up:

Students have done the pre-reading and also the exercise in the book. They have idea of using concept map. You may check the level of understanding through exercise in the book and the following questions.

- How do you know the food is yummy?
- Which movie do you like the most? Tell the most interesting scene of that movie?
- When we watch something on TV, which senses do we use?
- What could be the role of brain in our senses?
- When something is dead, it does not feel anything. Why?

(There could be more questions to be asked)

(Try to involve every student in answering regardless of correct answer.)

Discussion:

Students know about five senses and their sense organs. Review in a class to refresh the information and also repeat that as brain controls every function of the body, hence it controls our sense organs too. First tell them that every sense organ has sensors that receive the signals from the surrounding and send those signals to the brain. Brain reads the message and recognizes the sense. It is good if you draw a path of signals from an organ to the brain and then to the organ.

Take your students to the biology lab or arrange big posters of the sense organs. You may also show the Google images to them. Your focus should be on receptors on sense organs and the basic anatomy of the sense organs especially those explained in the textbook.

In class, let the students read the lesson aloud and underline difficult and the key words. Show them the pictures and ask them to explain in words.

Key words	Common words
sense and sense organs	sensation
receptors	detect
cilia	nostrils
retina	lens
eardrum	image
ear canal	blinds
anvil	deaf
hammer	dumb
stirrup	fluid
cochlea	texture
semi-circular canal	fleshy
muscular organ	

Summarizing:
Summarize the lesson in points as:

- Sight, hear, taste, touch and smell are five senses. These senses coordinate with our brain.
- Our sense organs have sensors that detect the sensation and send messages to the brain.
- Our skin has almost 5 sensors or receptors that detect particular sensation.
- Nose is the sense organ that not only lets you breathe but also tells smells around us.
- Eye is just like camera. Like lens of the camera, lens of the eye captures the image.
- People who cannot see are called blind.
- Ears have three main parts that help us hearing, the outer ear , the middle ear and the inner ear.
- People who are unable to hear are deaf.
- Tongue only help us to taste but also used for swallowing and speaking.

Assessment:
Once you find that discussion is complete, check the concepts of your students. You may ask:

- How brain coordinates with the sense organs?
- How our eyes enable us to see and recognize the objects?
- What are the three bones in the middle ear?
- What is the role of the hammer in the middle ear?

(There could be more questions to be asked.)

Interpreting
Think and write

1. Our senses work when brain receives signals from the nerves, reads the sense, and recognizes the particular sense to act accordingly.
2. Our eyes are able to see when light bounces back from the object it strikes and enters in our eyes.
    - Brain recognizes and lets us know what we see. This bouncing light is absent in the dark and we cannot see.
3. Cilia of the nose trap all the dust particles from the air and do not let them enter our lungs.
4. Birds, insects, reptiles
5. Brain receives signals from all over the body, reads them and passes action orders to the body. With this coordination even a single inch of the body cannot work.

Note for a teacher

Make sure students write answers themselves. You should check their concepts as well as their writing skills. It will help you and English language teacher to understand your students where they are weak at and what to improve now**.**

For grade 2 students, answers should be simple and not be with complicated grammar structure.

LESSON 5: HEALTHY EATING

Time required: **360 minutes** or **6 hours** with Activity book and revision of the

Start this lesson in progression with the lesson "Healthy Habits".

Aim of the lesson:

Students have studied in grade 2 about healthy habits. They know that healthy eating is one of the healthy habits. The aim of this lesson is to give them awareness of foods which are good for their growth. They will

Learning objectives:

In this lesson students will know:

- Food choices for well growth
- Balanced diet and healthy eating
- Different food groups of a balanced diet

Helping tools:

Teacher resource book will give you an ample support in teaching. Further, to prepare you for the lesson, visit the following sites:

- **The Net Extra.**

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  Visit:

- https://www.google.com.pk/#q=healthy+foods

Before you start a lesson in a class, give reading task of the lesson in homework to your students a day before. This reading task will help them understand the lesson. It will also help them realize the importance of pre-reading.

Warm up:

Students have done the pre-reading and also the exercise in the book. They have idea of using concept map. You may check the level of understanding through exercise in the book and the following questions.

- What are the things that keep you fit and strong?
- Which food is good for your health?
- Is it good to eat lots of chocolates daily? What may happen if we eat them too much?
- Why over-eating is bad for the health?
- Fruits and vegetables are healthy foods or fried chips and burgers? Give reason of your answer.
- Do you remember any add that tell you about drinking milk?

Note: There could be more questions to be asked.

Engage every student in discussion. Every student should give answer of the question. You should focus on weak students more.

Discussion:

Students of grade three have the understanding of healthy and unhealthy foods. They only need to know the reason of eating something or eating something not. This time they should focus on healthy eating and a balanced diet.
It is better if you display them first a food pyramid. Explain the food pyramid that shows the food choices in a particular quantity with number of servings.
Once they understand the food pyramid, they can easily understand a balanced diet. Tell them the basic function of each food group, such as milk for bones, protein for body development, carbohydrates for quick energy, fruits and vegetables for healthy skin, fats and sugars for lots of energy than a need.
Different activities in the textbook and the activity book will help students always remember the benefits of the healthy eating. These exercises will always make their life healthy.
In a class, let the students read the lesson aloud and underline difficult and the key words. Show them the pictures of different foods and ask them to explain the types, erving and role of them.

Key words	Common words
Healthy eating Balanced diet Junk food Dairy foods Proteins Carbohydrates Fruits and vegetables Fats and sugars Calcium	Proper diet Overweight Fracture Starchy foods Chocolates

Summarizing:
Summarize the lesson in points as:

- To keep ourselves healthy we need a healthy diet.
- Our body needs a healthy diet as per requirement. This is called a balanced diet.
- Junk foods are rich in oil and sugar. The make us over weight.
- Dairy foods are good for bones. They have calcium. We should take it daily.
- Proteins repair and develop our body well. We should take them twice a week.
- Carbohydrates are starchy and sugary foods. They give us quick energy. Only a little amount is needed.
- Fruits and vegetables give us vitamin and minerals that keep our skin fresh. We need them daily.
- Fats and sugars are rich in energy than our need. We need them a little occasionally.

Assessment:
Once you find that discussion is complete, check the concepts of your students. You may ask:

- When we call diet, a balanced diet?
- Which type of food makes our muscles strong?
- Why milk is important for us?

Interpreting
Think and write

1. Good eating gives us right amount of required food. This habit keeps us healthy.
2. A very little quantity of fats and sugar gives lots of energy. Similarly carbohydrates are very rich in energy. Over-eating of them is unhealthy.
3. Protein foods, like meat, poultry and pulses develop and repair our body.
4. Eating lots of sugary food may cause tooth decay in children.
5. They should take a balanced diet. They should avoid eating fats, sugars and carbohydrates. They should do exercise daily.

Note for a teacher

Make sure students write answers themselves. You should check their concepts as well as their writing skills. It will help you and English language teacher to understand your students where they are weak at and what to improve now**.**

For grade 2 students, answers should be simple and not be with complicated grammar structure.

ESSON 6: UNDERSTANDING FOOD CHAIN

Time required: **360 minutes** or **6 hours** with Activity book and revision of the lesson.

Start this lesson with the progression of previous grade.

Aim of the lesson:

The aim of this chapter is to understand the students that all living thing need energy to live and they get this energy form their food. They get their food through a systematic natural chain of different living things.

Learning objectives:

In this lesson students will know :

- Living things gets energy from food.
- A way of organizing living things by what they eat makes a Food Chain.
- Plant gets food energy from sun.
- Animals get food energy from plants.

Helping tools:

Teacher resource book will give you an ample support in teaching. Further, to prepare you for the lesson, visit the following sites:

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    Visit:

https://www.google.com.pk/webhp?hl=en#hl=en&q=food+chain
https://www.google.com.pk/webhp?hl=en#hl=en&q=food+chain+of+living+things

Before you start a lesson in a class, give reading task of the lesson in homework to your students. This reading task will help them understand the lesson. It will also help them realize the importance of pre-reading.

Warm up:

It's time to plough. Before start a lesson, do brain storming of students from their own observations things that they already know. Let them enthusiastically involve in creative thinking and active learning . You can start up the bundle of questions like,

- Tom wants to eat jerry who wants to eat tom?
- Can plants survive without sun?
- Can animals make their own food?

(Note: There are more questions to ask. Try to involve every student in discussion.)

Discussion:

Show the students a video in which a food chain is explained by joining different clips of animals eating their food, making a food chain.

Tell the students that as we know living thing do some action (run, jump, walk) and for this they need energy. All living things need energy to do something and they get energy from the food they eat.
Food chain shows how plants and animals get their food. Food chains begin with plant-life, and end with animal-life. Food chains are interesting because it tell us about food cycle of creatures. Plants own make their food by sunlight, air and water. Some animals eat plants, some animals eat other animals.
Food chain divided into three parts that is producers, consumers and decomposers.
Plants are the producers because they produce their own food with the help of sunlight, air and water.
Animals are called consumers because they cannot make their own food. So they consume (eat) plants and / or animal as their food. Consumers can be (herbivores (only eat plants), carnivores (only eat meat) and omnivores (eat meat and plant both).
Bacteria and fungi are decomposers. They eat dead plants and animals. They break down dead living things into nutrients which is mix in the soil and afterword plants take up these nutrients for making their food.
In class, let the students read the lesson aloud and underline difficult and the key words. Show them the pictures and ask them to explain in words.

Key words	Common words
survive	chain
habitat	transfer
consumer	process
decomposer	balance
bacteria	trouble
fungi	producer
microscope	eaters
organism	source
grasshopper	plants

Summarizing:

- Summarize the lesson in points as:
- A food chain shows energy transfer among living things. It maintains the balance among living things.
- Plants make their own food by the process called photosynthesis.
- Sun starts a food chain. It lets green plants make their food.
- All plants are producers or manufacturers.
- All animals are consumers or eaters. This is because they do not make their own food.

Assessment:

Once you find that discussion is completed, test the concepts of your student. e.g., you may ask:

- Bacteria and fungi are tiny living organism what they do under the soil?
- Why animals are consumer not decomposers?
- Why food chain is important for living things?

Think and write :

Plants make their food from sunlight and animals get energy from eating plants or other animals it shows food chain between different living thing in their habitat.

Food chain is necessary like, if green plants were destroys in large number then plants eaters will be in trouble their might be no food for them.

All plants are producers or manufacturers because they make their own food and they are also the food source of animals.

Note for a teacher

Make sure students write answers themselves. You should check their concepts as well as their writing skills. It will help you and English language teacher to understand your students where they are weak at and what to improve now**.**

For grade 2 students, answers should be simple and not be with complicated grammar structure.

LESSON 7: SCIENCE OF PLANTS

Time required: **360 minutes** or **6 hours** with Activity book and revision of the lesson.

Start this lesson with the progression of previous grade.

Aim of the lesson:

The aim of this lesson is to understand the students the importance of plants and functions of its parts like roots, stem, leaves, fruit and seed.

Learning objectives:

In this lesson students will know:

- Plants are living thing.
- Plants have six parts.
- Plants provide food to us.

Helping tools:

Teacher resource book will give you an ample support in teaching. Further, to prepare you for the lesson, visit the following sites:

- **The Net Extra.**

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https://www.google.com.pk/webhp?hl=en#hl=en-PK&q=parts+of+plants

Before you start a lesson in a class, give reading task of the lesson in homework to your students. This reading task will help them understand the lesson. It will also help them realize the importance of pre-reading.

Warm up:

It's time to plough. Before start a lesson, do brain storming of students from their own observations things that they already know. Let them enthusiastically involve in creative thinking and active learning. You can start up the bundle of questions like,

- What things we get from plants?
- Can we make materials from plants?
- Plants get food energy from?

(Note: There are more questions to ask. Try to involve every student in discussion.)

Discussion:

Show the students a complete plant which has seeds and roots as well and ask them to touch and identify the main parts of plants and teacher further elaborate the function of a plant with the help of the plant.

Tell the students that you know the new plant grow from the **seed** that is called germination. The first part that grows underground after germination is the roots of the new plant. **Roots** absorb the water and minerals for the whole plant. It provides grip to the plant because it penetrate into the soil.

Shoot grows above the soil, it further develop into the stem and leaves.

Stem is the upper part of the plant. It gives support to the plants and bears branches, leaves, flowers and fruits. The stem of new plant is green later on when plant get old it becomes woody and dark brown in colour. Stem transfer water and nutrients received from the roots to the leaves. We can find out the age of any tree by counting the rings of the tree trunk (stem).

Leaves are the food factory of the plant because leaves make food with the help of sunlight, air and water. It contains a green substance that is called chlorophyll through which the process of photosynthesis takes place. Leaves have tiny pores that give off oxygen and take off carbon dioxide that make our air clean. These pores also give off excess water through a process called Transpiration.

Flowers are the upper most and beautiful part of the plant. It produces the **fruits** and fruits produce the **seeds**.

(For more explanation see book.)

Explain further details about parts of flower (carpel, sepals, petals and stamens) with the help of book.

In class, let the students read the lesson aloud and underline difficult and the key words. Show them the pictures and ask them to explain in words.

Key words	Common words
backbone	materials
specialized	growth
ripened	provide
nutrients	germinate
fibrous	tender
chlorophyll	trunk
transpiration	carbon dioxide
pollinated	petals

Summarizing:

Summarize the lesson in points as:

- Plants may consist of seeds, roots, stem, leaves, flower, and fruit.
- Seeds are the grains or ripened part of a plant.
- Roots take up water and nutrients from the soil for the rest of plants.
- Shoots grow above the soil.
- Growth rings of stem tell the age of a plant.
- Leaves contain the green colour substance called chlorophyll.
- Leaves give off oxygen and take in carbon dioxide to make air clean for us.
- Carpals, stamens, petals and sepals are main parts of a flower.

Assessment:

Once you find that discussion is completed, test the concepts of your student. e.g., you may ask:

- Which thing helps in growing same kind of plants?
- Stem is the trunk of the plant what does it do?
- What is the soft part of a flower?
- What is transpiration?

Think and write:

1. Leaf is an outgrowth of the stem. They serve as food factory and the lungs of a plant. Leaves contain the green color substance called **chlorophyll** that allows plant make their food in Sunlight. This food making process in sunlight is termed as **photosynthesis**.
2. Tiny pores of leaves give off oxygen and take in carbon dioxide to make air clean at night. Those pores gives off excess water and this process called transpiration..
3. Roots grow from the seeds downward to soak up water and nutrients from the soil. It provides support to the plant as an anchor of ship.

Note for a teacher

Make sure students write answers themselves. You should check their concepts as well as their writing skills. It will help you and English language teacher to understand your students where they are weak at and what to improve now**.**

For grade 2 students, answers should be simple and not be with complicated grammar structure.

LESSON 8: PLANTS GROWING WELL

Time required: **360 minutes** or **6 hours** with Activity book and revision of the lesson.

Start this lesson with the progression of previous grade.

Aim of the lesson:

The aim of this chapter is to understand the students that plants grow well when they have all the factors in right amount that involve in the process of photosynthesis (a food making process in plants).

Learning objectives:

In this lesson students will know :

- Plants need right amount of water to live.
- Plants need right amount of sunlight to live.
- Plants need right amount of air to live.

Helping tools:

Teacher resource book will give you an ample support in teaching. Further, to prepare you for the lesson, visit the following sites:

- **The Net Extra.**

  Net extra is especially designed for the teachers and the students. Here you can find not only the text material but also the related information, activities and exercises. You can guide your students to use net extra for more information. Log on to net extra account at *www.learningwell.pk*

- **Other links:**

  Besides the Net Extra, here we mention links to other sites also which are **educational kids conceptual videos and activities** for elementary students to learn on the web.
  Visit:
  https://www.google.com.pk/#q=plants+grow+well
  https://www.google.com.pk/#q=how+to+help+plants+grow+well

Before you start a lesson in a class, give reading task of the lesson in homework to your students. This reading task will help them understand the lesson. It will also help them realize the importance of pre-reading.

Warm up:

It's time to plough. Before start a lesson, do brain storming of students from their own observations things that they already know. Let them enthusiastically involve in creative thinking and active learning. You can start up the bundle of questions like ,

- Can plants grow in covered area?
- Is soil necessary for plant growth?
- Tell two factors that affect the plant growth.

(Note: There are more questions to ask. Try to involve every student in discussion.)

Discussion:

As we know that plants make their own food, and for this they need suitable environment. Lets see what things are involve in it.

Sunlight:
Sunlight is the main factor in the process of making food. The green substance is the leaves is chlorophyll, which
collects the sunlight for the process of photosynthesis.

Air:
Air is also a main factor in photosynthesis. Plants get carbon dioxide from the air through the leaves. Plants use carbon dioxide and release oxygen in this process.

Water:
Water is also necessary for photosynthesis. Plant absorbs water from its roots. Excess or less amount of water may harm for the plants.

Temperature:
For well growing of plants right amount of temperature is essential. If the temperature is too low or high it effects the photosynthesis.

Soil:
Soft, nutrient, and balanced soil is another main factor for well growth of plants. Soft soil easily absorb water and air for plant growth, roots easily grow downward in soft soil. It is not easily done in hard soil. (for more explanation see book)

Take a small pot with a plant in it. Cover it with a plastic bag and leave it inside for one day. Now explain the chapter with different examples from around. The next day show the plant to students and ask them the difference between this plant and its previous condition. Then ask about the reasons why that plant died.
In class, let the students read the lesson aloud and underline difficult and the key words. Show them the pictures and ask them to explain in words.

Key words	Common words
photosynthesis	process
temperature	growing
reproduction	amount
chlorophyll	substance
inhibits	weather
germination	spring
famines	devastating
downwards	particles

Summarizing:

Summarize the lesson in points as:

- Plants need air, water and sunlight to live and grow.
- Temperature, light, soil and water are the conditions that affect the growth of a plant.
- Chlorophyll traps sunlight and starts photosynthesis.
- Plants need right amount of water for their growth.
- A well structured soil has some spaces between the particles for air and water.

Assessment:

Once you find that discussion is completed, test the concepts of your student. e.g., you may ask:

- If we put plant under the fountain and it gets continuously water. Could it survive?
- Which type of soil is harmful for plants?
- Can plants grow in cool weather?

Think and write:

1. Weeds harm for the plants as it absorbs nutrients from the soil that plant need to grow well and it become weak.
2. Seed will produce root under the soil. Soil needs water to grow plants. If there is no water plant will not grow.
3. Structured soil has enough space for air and water. Root easily get water and air from the soil.
4. Hard soil is not structured it has no space for air and water it may resist plants to grow.
5. In spring season weather is not too hot or not too cold this is why plant grow well in spring season.

Note for a teacher

Make sure students write answers themselves. You should check their concepts as well as their writing skills. It will help you and English language teacher to understand your students where they are weak at and what to improve now**.**

For grade 2 students, answers should be simple and not be with complicated grammar structure.

LESSON 9: MATERIAL AND THEIR PROPERTIES

Time required: **180 minutes** or **3 hours** with Activity book and revision of the lesson.

Start this lesson with the progression of previous grade.

Aim of the lesson:

The aim of this lesson is to understand the students the properties of the different materials that we use daily

Learning objectives:

In this lesson students will know :

- Objects are made up of materials.
- Materials are either man made or natural.
- Different material have different property.

Helping tools:

Teacher resource book will give you an ample support in teaching. Further, to prepare you for the lesson, visit the following sites:

- **The Net Extra.**

  Net extra is especially designed for the teachers and the students. Here you can find not only the text material but also the related information, activities and exercises. You can guide your students to use net extra for more information. Log on to net extra account at *www.learningwell.pk*

- **Other links:**

  Besides the Net Extra, here we mention links to other sites also which are **educational kids conceptual videos and activities** for elementary students to learn on the web.

  Visit:

  https://www.google.com.pk/webhp?hl=en#hl=en&q=materials

  https://www.google.com.pk/webhp?hl=en#hl=en&q=materials+with+their+properties

Before you start a lesson in a class, give reading task of the lesson in homework to your students. This reading task will help them understand the lesson. It will also help them realize the importance of pre-reading.

Warm up:

It's time to plough. Before start a lesson , do brain storming of students from their own observations things that they already know. Let them enthusiastically involve in creative thinking and active learning . You can start up the bundle of questions like ,

- Can we play with the toys which are made of glass?
- Can we wear clothes which are made of wood?

(Note: There are more questions to ask. Try to involve every student in discussion.)

Discussion:

Different materials have different properties which make them useful for different purposes.

Water cannot penetrate in water proof materials it means that **waterproof** material does not let water seep through. Like aluminum foil, rubber and wax. **Absorbent** materials soak water, it means it allow water to pass through them. For example wool, foam, cotton, fabric etc.

Transparent materials allow light to pass through, it means we can see all the things clearly behind them. For example glass that is used in windows and water. **Translucent** materials allow a little amount of light to pass through, so we cannot see the things clearly behind them. Translucent materials are also called semi-transparent materials. **Opaque** material allows no light to pass through and we cannot see through them like wood, stone etc.

Flexible materials are those materials that easily bend like rubber, wax etc. **Inflexible** materials are not bend easily like wood, stone iron.

Strong material is easily break like iron, stone, marble wood. **Weak** material not break easily like paper, mirror, water glass etc.

In some materials electricity pass easily these types materials is called **conductor** like copper, iron, steel. While in some materials electricity cannot pass easily, these materials are called insulator or **non-conductor** like wood, rubber etc.

Bring different things like pencil, plastic bottle, bracket ask students what is it made of. Then discuss with the students importance of materials.

In class, let the students read the lesson aloud and underline difficult and the key words. Show them the pictures and ask them to explain in words.

Key words	Common words
absorbent	bendy
opaque	plastic
transparent	strong
translucent	electricity
flexible	buildings
sensitive	material
waterproof	furniture
stretching	printing
conductor	natural

Summarizing:

Summarize the lesson in points as:

- Selection of any type of material depends on the purpose of the object.
- Waterproof does not let water through. Absorbents soak water.
- Opaque materials do not let light through. Translucent materials let little light through.
- Conductors let heat and electricity through while non-conductors do not.
- Plastic, glass and paper are common manufactured materials.
- Wood and metals are natural materials.

Assessment:

Once you find that discussion is completed, test the concepts of your student. e.g., you may ask:

- Could light go through from transparent material?
- Tell two common natural materials and also tell from where we can get that?
- Tell two objects that can absorb water.

Think and write:

1. All objects are made up of natural or manufactured material**.** We can get natural material from nature and manufactured materials are obtained after the treatment of natural material.
2. Sometimes materials are treated to be made waterproof. Like wax-coating is applied on jackets, waterproofing sprays are used on travelling tents. Waterproof material does not let water through
3. Strong material is not easy to break like iron and weak material easy to break like glass. Flexible material is bend they can change their shape on stretching like play dough but inflexible material do not change their shape like wood. Conductor can pas electricity easily from them like copper and non-conductor cannot like rubber. Light can easily be pass from transparent like water, glass. Opaque material stop the light and we cannot see behind them like paper, wood. A little light pass through the translucent materials as frosted glass.
4. If iron body made conductor it give a shock when anybody touch it.

Note for a teacher

Make sure students write answers themselves. You should check their concepts as well as their writing skills. It will help you and English language teacher to understand your students where they are weak at and what to improve now**.**

For grade 2 students, answers should be simple and not be with complicated grammar structure.

LESSON 10: MEASURING LENGTH

Time required: **360 minutes** or **6 hours** with Activity book and revision of the lesson.

Start this lesson with the progression of previous grade.

Aim of the lesson:

The aim of this lesson is to understand the students that we use different form of things like solid, liquid and gas. We measure them differently and each have different unit to measure it.

Learning objectives:

In this lesson students will know :

- We can measure all materials.
- We use different measurement for different material.
- Liter for liquid and kilograms for solid.

Helping tools:

Teacher resource book will give you an ample support in teaching. Further, to prepare you for the lesson, visit the following sites:

- **The Net Extra.**
  - Net extra is especially designed for the teachers and the students. Here you can find not only the text material but also the related information, activities and exercises. You can guide your students to use net extra for more information. Log on to net extra account at *www.learningwell.pk*
- **Other links:**

  Besides the Net Extra, here we mention links to other sites also which are **educational kids conceptual videos and activities** for elementary students to learn on the web.

  Visit:

https://www.google.com.pk/webhp?hl=en#hl=en&q=measuring+lenght
https://www.google.com.pk/webhp?hl=en#hl=en&q=measuring+units+

Before you start a lesson in a class, give reading task of the lesson in homework to your students. This reading task will help them understand the lesson. It will also help them realize the importance of pre-reading.

Warm up:

It's time to plough. Before start a lesson , do brain storming of students from their own observations things that they already know. Let them enthusiastically involve in creative thinking and active learning . You can start up the bundle of questions like ,

- Who is tallest in your family?
- Can you measure the weight of your school bag?
- Are you taller than your friend?

(Note: There are more questions to ask. Try to involve every student in discussion.)

Discussion:

In previous lessons students learnt about the materials now it's time to learn about how they can measure these materials.

Tell them we can measure solids in kilograms, grams and milligrams like rice, flour and sugar and liquids in liters, like milk, petrol and oil. We also measure distance in kilometer, meters and inches. We measure time in hours, minutes and seconds. Fahrenheit, centigrade, and Kelvin are the units in which we can measure temperature.

Measuring Chart

Materials	Units	Measuring instruments
Solid	Kilogram, gram, milligram	Beam balance, electronic scale, bathroom scale
Liquid	Liter, milliliter	Measuring cups
Time	Hours, minutes, seconds	Watches, wrist watch, stop watch
Temperature	Fahrenheit, centigrade, kelvin	Air thermometer, clinical thermometer
Distance	Kilometer, meter, inches	Measuring tape, ruler, measuring rod

In class, let the students read the lesson aloud and underline difficult and the key words. Show them the pictures and ask them to explain in words.

Key words	Common words
measurement	length
materials	clothes
temperature	lengths
instruments	distance
thermometer	events
participate	cupboard
marathon	units
instrument	heights

Summarizing:

Summarize the lesson in points as:

- Liquids are measured in liters.
- Solids are measured in kilograms.
- Distance is measured in kilometers.
- Temperature is measured in Fahrenheit, Centigrade or Kelvin.
- Thermometer, weighing machine, measuring cup and inch tape are some of the measuring tools.

Assessment:

Once you find that discussion is completed, test the concepts of your student. e.g., you may ask:

- Can we measure the humidity in air?
- How can we measure the temperature of our body?

Think and write:

1. If there is no measurement we cannot measure anything accurately.
2. Prefer student's answer.
3. Prefer student's answer.
4. Prefer student's answer.
5. Prefer student's answer.

Note for a teacher

Make sure students write answers themselves. You should check their concepts as well as their writing skills. It will help you and English language teacher to understand your students where they are weak at and what to improve now**.**

For grade 2 students, answers should be simple and not be with complicated grammar structure.

Lesson 11: ROCKS AND SOIL

Time required: **360 minutes** or **6 hours** with Activity book and revision of the

Start this lesson in progression with the previously given concept of healthy diet.

Aim of the lesson:

The aim of this lesson is to understand that rocks and soil have different types and the uses of these soil and rocks in our everyday life. The main use of soil is to grow plants.

Learning objectives:

In this lesson students will know:

- Types of rock.
- Types of soil.
- How to separate soil.
- Uses of rocks and soil.

Helping tools:

Teacher resource book will give you an ample support in teaching. Further, to prepare you for the lesson, visit the following sites:

- **The Net Extra.**
  - Net extra is especially designed for the teachers and the students. Here you can find not only the text material but also the related information, activities and exercises. You can guide your students to use net extra for more information. Log on to net extra account at
  - *www.learningwell.pk*
  -
- **Other links:**

1. Besides the Net Extra, here we mention links to other sites also which are **educational kids conceptual videos and activities** for elementary students to learn on the web.
   Visit:
   https://www.google.com/search?rct=j&q=rocksand%20soil
   https://www.google.com/search?rct=j&q=typesofrocks

Before you start a lesson in a class, give reading task of the lesson in homework to your students a day before. This reading task will help them understand the lesson. It will also help them realize the importance of pre-reading.

Warm up:

It's time to plough. Before you start a lesson, do brain storming of students to let them enthusiastically involve in creative thinking and thus in active learning. You may start up with a bunch of questions, e.g.

- Which type of material is used in building home?
- Could plants grow in hard soil?
- What we called the beautiful stones?
- What do you know about lava?

(Note: there is more to ask)

Once you find your students excited to learn more, it's time to sow

Discussion:

Different materials have different properties which make them useful for different purposes.

Our Earth is made up of rocks. Its crust is made of different types of rocks. Rocks have different types and different uses, some are shiny and have crystals in it, some are hard or some are soft. Some rocks absorb water and some do not.

Types of rocks:

There are three main types of rock. Igneous, Sedimentary, Metamorphic.

Igneous Rocks: They catch light and shine. They have crystals in them. They are formed through the cooling and solidification if Magma or Lava. 90% of earth crust is made up of igneous rocks.

Sedimentary Rocks: It is composed of deposition of weathered remains of other rocks. It also may come from skeleton, remains of dead plants and other living things. Fossils are the most common example of sedimentary rock.

Metamorphic Rocks: It is formed from the transformation of either sedimentary or igneous on extreme heat and pressure and this process is called metamorphism.

Soil is mixture. Soil has three types. Sand, Silt and Clay. We identify soil by its colour and texture.

In class, let the students read the lesson aloud and underline difficult and the key words. Show them the pictures and ask them to explain in words.

Key words	Common words
pebbles	gems
permeable	rocky
igneous	marble
granite	crystals
basalt	erupt
sedimentary	lava
metamorphic	squash

Summary:

Summarize the lesson in points as:

- Earth's crust is made up of different types of rocks.
- Rocks are made up of minerals.
- Rocks may be hard or soft.
- Igneous rocks have crystals in them.
- Sediments may come from skeletons, dead plants and other living things.
- Metamorphic rocks are formed deep in Earth by heat or pressure.
- Soil is a mixture of tiny eroded rock particles, remains of living things, water and dissolved minerals.
- Humus is the part of soil made of remains of living things.
- Sand, silt and clay are three common types of soil.

Assessment:

Once you find that discussion is completed, test the concepts of your student. You may ask:

- Which types of rocks are called glossy rocks?
- Which type of rocks catches light and shine?
- Mostly part of Earth's crust is made up?
- What are pebbles?
- How sedimentary rocks are made?
- Gypsum is used in making?

- Which type of rock is used in making chalkboards?
- Could plants grow well under red soil?
- How we can identify the type of soil?
- Could we separate soil by water?
- Name three burrowing animals?
- What is Humus? How it is made?

(Note: there is more to ask)

Once your student has clear concepts of the related topic, it is time to reap.

Think and write (Prefer students' Answers)

1. We can make soil better for plant's growth through composition of soil. Black soil favours the growth of plants.
2. Soil is a mixture and composed of weathered rocks and remains of living things, water and dissolved minerals.
3. Clay soil particles are so tiny and tightly packed together so there is no room for air and water that plants need to grow.
4. We can easily separate different soils by using different sizes of strainer or sieves we can also separate soil by water.

Note for a teacher

Make sure students write answers themselves. You should check their concepts as well as their writing skills. It will help you and English language teacher to understand your students where they are week at and what to improve now.

For grade 5 students, answers should be simple and not be with complicated

Lesson 12: **EARTH OUR PAL**

Time required: **180 minutes** or **3 hours** with Activity book and revision of the

Start this lesson in progression with the previously given concept of healthy diet.

Aim of the lesson:

The aim of the lesson is to understand the study about Earth's, its atmosphere and movement.

Learning objectives:
In this lesson students will know:

- Earth is a blue planet
- Earth's atmosphere
- Earth's movement
- How we save Earth

Helping tools:
Teacher resource book will give you an ample support in teaching. Further, to prepare you for the lesson, visit the following sites:

- **The Net Extra.**
  - Net extra is especially designed for the teachers and the students. Here you can find not only the text material but also the related information, activities and exercises. You can guide your students to use net extra for more information. Log on to net extra account at
  - *www.learningwell.pk*
  -
- **Other links:**
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    Visit:
    1. https://www.google.com/search?rct=j&q=Earth
    2. https://www.google.com/search?rct=j&q=earththeplanet
    -

Before you start a lesson in a class, give reading task of the lesson in homework to your students a day before. This reading task will help them understand the lesson. It will also help them realize the importance of pre-reading.

Warm up:

It's time to plough. Before you start a lesson, do brain storming of students to let them enthusiastically involve in creative thinking and thus in active learning. You may start up with a bunch of questions, e.g.

- What do you know about solar system?
- On which planet we live?
- Can we survive on any other planets?

(Note: there is more to ask)

Once you find your students excited to learn more, it's time to sow

Discussion:

Students already know that we live on Earth and it is the only planet of solar system where we can live and survive. It's time to tell them why we only can live on Earth. Its atmosphere is very pleasant rather than any other planet.

Tell them about the area of Earth, its mostly part consists of water more than 70% and the rest part consists of land at least 21%.

Earth's atmosphere: It is a mixture of gases, mainly 78% Nitrogen and 21% Oxygen gases. This thin layer of gases protects Earth's from ultraviolet harmful rays coming from Sun.

Earth's movement: The changing of seasons caused by the movements of the Earth. There are two movements that affect the Earth. The first one is the rotation of Earth round the Sun, it takes about 24 hours to finish one complete rotation. The second important movement that affects the Earth is it's revolution round the Sun. One revolution takes 365 days or one year. These two movements create variations in temperature, weather and change in seasons.

Tell students that we should protect our earth by cleaning it. Some key points are given in book.

In class, let the students read the lesson aloud and underline difficult and the key words. Show them the pictures and ask them to explain in words.

Key words	Common words
atmosphere	movement
nitrogen	survive
oxygen	rays
moderate	harmful
revolution	rotation

Summary:

Summarize the lesson in points as:

- Earth is made up of 70% water and 30% land.
- Earth atmosphere consists of 78% of Nitrogen and 21% Oxygen.
- Earth rotates on its axis and revolves around the Sun.
- Sun is the main source of energy for Earth.
- We should take care of Earth for our survival.

Assessment:

Once you find that discussion is completed, test the concepts of your student. You may ask:

- Why earth is called a blue planet?
- What is the shape of Earth?
- How much area of earth consists of water?
- How much area of earth consists of land?
- What is lifeless planet?
- How can we save animals?
- How can we save water?
- How much time Earth's take in completing one revolution?
- Write three causes of pollution.
- Why we should plant more trees?
- Earth rotates round the Sun how much time it takes to complete its one rotation?
- How we can save our Earth?

(Note: there is more to ask)

Once your student has clear concepts of the related topic, it is time to reap.

Think and write (Prefer students' Answers)

1. (Prefer students' Answers)
2. Atmosphere keeps Earth's temperature moderate and protects us.
   (Prefer students' Answers)
3. Litter damage our atmosphere and it would be causes of many diseases in our body.
4. It reduces pollution from the environment and makes us healthy.

Note for a teacher

Make sure students write answers themselves. You should check their concepts as well as their writing skills. It will help you and English language teacher to understand your students where they are week at and what to improve now**.**

For grade 5 students, answers should be simple and not be with complicated

Lesson 13: **SAVING ENVIRONMENT**

Time required: **180 minutes** or **3 hours** with Activity book and revision of the

Start this lesson in progression with the previously given concept of healthy diet.

Aim of the lesson:

Students already know about the importance of Earth's environment now it's time to tell the different types of pollution and how these pollutants effect our environment.

Learning objectives:

In this lesson students will know:

- Healthy environment
- Pollution and pollutants
- How we reduce pollution
- How we save environment

Helping tools:

Teacher resource book will give you an ample support in teaching. Further, to prepare you for the lesson, visit the following sites:

- **The Net Extra.**
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- **Other links:**

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  Visit:

  https://www.google.com/search?rct=j&q=savingenvironment
  https://www.google.com/search?rct=j&q=typesofpollution

Before you start a lesson in a class, give reading task of the lesson in homework to your students a day before. This reading task will help them understand the lesson. It will also help them realize the importance of pre-reading.

Warm up:

It's time to plough. Before you start a lesson, do brain storming of students to let them enthusiastically involve in creative thinking and thus in active learning. You may start up with a bunch of questions, e.g.

- What do you know about pollution?
- Do you know about unhealthy environment?
- Do you throw litter in the bins?
- What do you know about marine lives?

(Note: there is more to ask)

Once you find your students excited to learn more, it's time to sow

Discussion:

Students should know about the planet Earth, and they also know that it is the only planet where we can live. It provides us many things to live and survive easily. So it's our responsibility to make it clean and green. Some harmful pollutants exist in our environment that makes it dirty.

There are four different types of Earth that affect our environment or somehow our body parts.

Land pollution: It is caused by the misuse of land resources. Throwing litter outside, wastage of chemical industries, wastage of animals are some major causes of land pollution. It may damage respiratory system of humans, effects on skin like rashes or it may cause various diseases.

Water pollution: It occurs when humans directly or indirectly discharges of trash like particles, substances like plastic bags in water bodies without treatment. This makes sea water polluted and also damages living thing's life.

Air pollution: It is a mixture of solid particles that found in air. Harmful gases erupt from automobiles and factories are the main causes of air pollution. When we breathe we inhale these particles of surroundings it may causes cancer and other serious illnesses.

Noise pollution: It is usually wanted sound or which produces unpleasant effects and discomforts on our ears. The main sources of noise pollution are the sound of aircrafts vehicles, loud speakers, blasting stereo sound or industrial machineries sound.

A clean and healthy environment is necessary to live peaceful life. In book there are some instruction, we can save our environment by following these instructions.

In class, let the students read the lesson aloud and underline difficult and the key words. Show them the pictures and ask them to explain in words.

Key words	Common words
environment	pal
pollution	diseases
pollutant	automobiles
lethal	blasting stereo
contaminate	chemicals

Summary:

Summarize the lesson in points as:

- We can save environment by avoiding pollution causing activities.
- Pollution is contaminated of the environment.
- Pollution may be land, water, air or noise pollution.
- Plastic and chemical substance in water cause water pollution.
- Harmful gases cause air pollution.
- Automobiles and machines ate the major cause of noise pollution.

Assessment:

Once you find that discussion is completed, test the concepts of your student. You may ask:

- How many types of pollution in our environment?
- Which things make air polluted?
- What is contaminated environment?
- Unnecessary horns and noises make which type of pollution?
- How we keep our environment green and clean?
- Tell three causes of land pollution.
- What are the things that make our environment unhealthy?
- What are pollutants?
- Why we should we have to use paper wisely?
- What are the three basic things that our Earth provides us?
- What happens when we dump poisonous chemicals and plastic bags in sea water?

(Note: there is more to ask)

Once your student has clear concepts of the related topic, it is time to reap.

Think and write (Prefer students' Answers)

1. Plant makes our environment green and gives us fresh air.
2. (Prefer students' Answers)
3. (Prefer students' Answers)

Note for a teacher

Make sure students write answers themselves. You should check their concepts as well as their writing skills. It will help you and English language teacher to understand your students where they are week at and what to improve now**.**

For grade 5 students, answers should be simple and not be with complicated

Lesson 14: **HOW SHADOW FORMS**

Time required: **180 minutes** or **3 hours** with Activity book and revision of the

Start this lesson in progression with the previously given concept of healthy diet.

Aim of the lesson:

The aim of the lesson is to understand the concept of shadow. Light travels in straight line and how light cast a shadow. Materials have different types and how these materials absorb light.

Learning objectives:

In this lesson students will know:

- Light is form of energy
- Light travels in straight line
- How shadow forms
- Material has different types. (Opaque, Translucent, Transparent)

Helping tools:

Teacher resource book will give you an ample support in teaching. Further, to prepare you for the lesson, visit the following sites:

- **The Net Extra.**
  - Net extra is especially designed for the teachers and the students. Here you can find not only the text material but also the related information, activities and exercises. You can guide your students to use net extra for more information. Log on to net extra account at
  - *www.learningwell.pk*
  -
- **Other links:**

1. Besides the Net Extra, here we mention links to other sites also which are **educational kids conceptual videos and activities** for elementary students to learn on the web.

   Visit:

   https://www.google.com/search?rct=j&q=shadow%20formation
   https://www.google.com/search?rct=j&q=howshadowforms

Before you start a lesson in a class, give reading task of the lesson in homework to your students a day before. This reading task will help them understand the lesson. It will also help them realize the importance of pre-reading.

Warm up:

It's time to plough. Before you start a lesson, do brain storming of students to let them enthusiastically involve in creative thinking and thus in active learning. You may start up with a bunch of questions, e.g.

- What do you think what is the major source of light in our world?
- Have you ever observe shadow of yourself?

(Note: there is more to ask)

Once you find your students excited to learn more, it's time to sow

Discussion:

Ask your students have they ever observed their shadow, tell them shadow usually forms under the sunlight and disappears when Sun goes.

In this lesson they will also learn about two different types of objects **Luminous** or **Non-luminous** objects. **Luminous** are those objects which emits their own light, like lighted candle, torch bulb and the major example is the Sun. **Non-luminous** are those objects which do not produce their own light and sparkle or become visible when they reflect light produce by luminous objects, like chair, table, plastic and etc.

Tell them how light travels, it is the fastest moving energy which travels without any source it travels through a vacuum. We can measure the intensity of light, brightness of light shows its intensity. We can divide different materials into three forms according to light absorbance technique.

Opaque materials, you cannot see through them, light does not pass through it. Like wood.

Transparent materials, when you look at transparent materials you see clearly in them light through them easily. Like glass.

Translucent materials, blurs the light when it passes through them. Like tissue paper, frosted glass.

In class, let the students read the lesson aloud and underline difficult and the key words. Show them the pictures and ask them to explain in words.

Key words	Common words
opaque	formation
transparent	material
translucent	shadow
luminous	reflected
non-luminous	bent
light absorbance	object
light rays	intensity
straight line	travels

Summary:

Summarize the lesson in points as:

- Light travels in straight line.
- Light sources or luminous objects give their own light.
- Non-luminous objects do not give their own light.
- Brightness of light tells its intensity.
- Shadow is formed when light is blocked.
- Translucent or opaque material from shadow of their own.
- Transparent materials do not make shadow.

Assessment:

Once you find that discussion is completed, test the concepts of your student. You may ask:

- In which direction light travels?
- Which is the fastest moving energy in the universe?
- Which type of object observes light?
- Size of shadow depends on?
- What are luminous objects?
- What are non-luminous objects?
- Objects which emit light of their own are called?
- The flame of gas burner is?
- Tell three luminous objects name.
- Why our shadows are longer in morning or evening class?

(Note: there is more to ask) Once your student has clear concepts of the related topic, it is time to reap.

Think and write (Prefer students' Answers)

1. Intensity of light depends on distance of object from the light. More distance less intensity, less distance more intensity.
2. Because it is non-luminous objects.
3. The shape and size of the shadow depends on the position of light source and size of the object also matters.
4. (Prefer students' Answers)

Note for a teacher

Make sure students write answers themselves. You should check their concepts as well as their writing skills. It will help you and English language teacher to understand your students where they are week at and what to improve now**.**

For grade 5 students, answers should be simple and not be with complicated grammar structure.

Lesson 15:

TRAVELING SOUNDS

Time required: **360 minutes** or **6 hours** with Activity book and revision of the

Start this lesson in progression with the previously given concept of healthy diet.

Aim of the lesson:

The aim of the lesson is to understand the concept of sound traveling, how sound travels in our ear.

Learning objectives:

In this lesson students will know:

- Sound is the source of energy.
- Sound travels slower than the light.
- Sound need air or water to travel.
- Sound has different properties.

Helping tools:

Teacher resource book will give you an ample support in teaching. Further, to prepare you for the lesson, visit the following sites:

- **The Net Extra.**
  - Net extra is especially designed for the teachers and the students. Here you can find not only the text material but also the related information, activities and exercises. You can guide your students to use net extra for more information. Log on to net extra account at
  - *www.learningwell.pk*
  -
- **Other links:**
  - Besides the Net Extra, here we mention links to other sites also which are **educational kids conceptual videos and activities** for elementary students to learn on the web.

    Visit:
    https://www.google.com/search?rct=j&q=soundenergy
    https://www.google.com/search?rct=j&q=traveling%20sound

Before you start a lesson in a class, give reading task of the lesson in homework to your students a day before. This reading task will help them understand the lesson. It will also help them realize the importance of pre-reading.

Warm up:

It's time to plough. Before you start a lesson, do brain storming of students to let them enthusiastically involve in creative thinking and thus in active learning. You may start up with a bunch of questions, e.g.

- You listen different sounds daily, which sound you like most?
- You listen different sounds daily, which sound irritates you most?
- Anyone know how sound travels?

(Note: there is more to ask)

Once you find your students excited to learn more, it's time to sow

Discussion:

Students already know about the organs of human body, tell them each organ have particular function in this lesson they will learn function of ear in detail.

Living things have different sounds and they recognized by their sounds. Tell them sound waves travel in air or water in the form of vibrations. How the parts of ear supports the sound waves in traveling in our ear and how it finally reaches to our brain.

Properties of sound: Usually we recognized sound by their pitches, pitch is the property of sound, soft sounds are low-pitched sounds and harsh sounds are high-sounds.

In class, let the students read the lesson aloud and underline difficult and the key words. Show them the pictures and ask them to explain in words.

Key words	Common words
sound waves	vibrates
eardrum	harsh
impulses	audible
pleasant sound	harmonium
unpleasant sound	xylophone

Summary:

Summarize the lesson in points as:

- Vibration produces sounds.
- Sounds travels in waves. It needs any medium to travel along.
- Sound does not travel in vacuum.

- Any object that produces sound is called a sound source.
- Sound waves travel in all directions from the sound source.
- Pitch is the speed at which vibrations are produced.
- Some sounds are made useful for entertainment or safety.

Assessment:

Once you find that discussion is completed, test the concepts of your student. You may ask:

- Which energy moves faster sound or light?
- How sound produces?
- Could sound travel without any resource?
- Tell three different sounds that you like most?
- Tell three different sounds which irritate you a lot?
- What do you know about artificial sound?
- What do you know about natural sound?
- How we produce low-pitched sound from guitar?
- What are the functions of sound waves?

(Note: there is more to ask)

Once your student has clear concepts of the related topic, it is time to reap.

Think and write (Prefer students' Answers)

1. Because light travels in straight line and sound travels through waves, so you know waves travel in all direction.
2. Pitch is the speed of sound, when the pitch of sound is low it respond slow vibration and when the pitch of sound is high it respond quick vibration.
3. Sound needs to travel air or water and moon does not have both of them so sound cannot travel on moon.
4. Some sounds are very useful for us. Like safety alarms could save us from any dangerous situation. (Prefer students' Answers)
5. Sound waves cannot strike on their eardrums and they could not start vibrating, so they cannot listen the sounds of their surroundings.

Note for a teacher

Make sure students write answers themselves. You should check their concepts as well as their writing skills. It will help you and English language teacher to understand your students where they are week at and what to improve now**.**

For grade 5 students, answers should be simple and not be with complicated

Lesson 16: **THE SOLAR SYSTEM**

Time required: **360 minutes** or **6 hours** with Activity book and revision of the

Start this lesson in progression with the previously given concept of healthy diet.

Aim of the lesson:

The main of the lesson is to understand the Solar System of our universe. It consists of planets, Sun, moons and stars.

Learning objectives:

In this lesson students will know:

- Sun gives heat to all planets.
- Planets moves around the Sun.
- Planets and their moons.
- Asteroids and Comets.

Helping tools:

Teacher resource book will give you an ample support in teaching. Further, to prepare you for the lesson, visit the following sites:

- **The Net Extra.**
  - Net extra is especially designed for the teachers and the students. Here you can find not only the text material but also the related information, activities and exercises. You can guide your students to use net extra for more information. Log on to net extra account at
  - *www.learningwell.pk*
  -
- **Other links:**

  Besides the Net Extra, here we mention links to other sites also which are **educational kids conceptual videos and activities** for elementary students to learn on the web.

  Visit:

  https://www.google.com/search?rct=j&q=solarsystem
  https://www.google.com/search?rct=j&q=asteroidsandcomets

Before you start a lesson in a class, give reading task of the lesson in homework to your students a day before. This reading task will help them understand the lesson. It will also help them realize the importance of pre-reading.

Warm up:

It's time to plough. Before you start a lesson, do brain storming of students to let them enthusiastically involve in creative thinking and thus in active learning. You may start up with a bunch of questions, e.g.

- What do you know solar system?
- How many planets solar system have?
- On which planet we live?

(Note: there is more to ask)

Once you find your students excited to learn more, it's time to sow

Discussion:

In previous grade students already learnt about the things above the sky.
In this lesson they will learn that Sun, planets and their moons, stars and leftover objects such as asteroids and comets all these together make Solar system.
Sun is center of Solar system. It is the hottest part of solar system. It has powerful magnetic or gravitational power to hold the millions of materials around it.
Planets: Solar system has eight planets that continuously move around the Sun and this movement is called revolution. The major planets of Solar system, in order of their average distance from the Sun are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune and Pluto. Each planet has its own orbit some planets have clear orbits but some do not have clear orbits.
Earth: It is the third planet of Solar system where we live. It is the only planet where life exists. It is at the ideal distance from the Sun not very far neither very near.
Asteroids and Comets: There are some objects in the space which also revolve around the Sun like asteroids and comets. The main difference of asteroids and comets is that asteroids are made of rocky materials and metals while comets are made of ice, dust and rocky materials. It is as old as the Solar system 4.5 billion years ago.
In class, let the students read the lesson aloud and underline difficult and the key words. Show them the pictures and ask them to explain in words.

Key words	Common words
solar system	magnetism
planets	gravity
galaxy	movement
asteroids	rocks
comets	metals
revolution	leftovers
dwarf planets	celestial bodies
natural satellites	materials

Summary:

Summarize the lesson in points as:

- Solar system consists of eight planets, many moons, lots of asteroids and comets move around the Sun.
- Sun is the central part of our Solar system.
- Stars are also the hot balls of gases.
- Many planets have more than one moon. Earth has only Moon.
- Comets and asteroids are the leftovers of other bodies in the Solar system.

Assessment:

Once you find that discussion is completed, test the concepts of your student. You may ask:

- How many planets in our Solar system?
- What are examples of celestial bodies?
- Which planet is known as dwarf planet?
- Which planet is called blue planet?
- Name the planet whose orbit is not clear.
- Which planet is nearer to Sun?
- Which planet is at fifth position from the Sun?
- What is the correct order of planets from the Sun, starts from nearer planet to the Sun?
- Which planet has only one moon?
- What are comets mostly made of?

(Note: there is more to ask)

Once your student has clear concepts of the related topic, it is time to reap.

Think and write (Prefer students' Answers)

1. Because it has powerful magnetism and gravity.
2. Every orbit has separate orbit and continuously revolving around the Sun.
3. Those planets are very far from the Sun and they are very small in sizes.
4. If Earth changes its position it may become the hottest planet or frozen planet because it is at ideal distance from Sun.
5. Because they both are made from the leftover materials of Solar system many years ago.

Note for a teacher

Make sure students write answers themselves. You should check their concepts as well as their writing skills. It will help you and English language teacher to understand your students where they are week at and what to improve now**.**

For grade 5 students, answers should be simple and not be with complicated grammar structure.

Lesson 17: **MAGNETISM**

Time required: **360 minutes** or **6 hours** with Activity book and revision of the

Start this lesson in progression with the previously given concept of healthy diet.

Aim of the lesson:

The aim of this lesson is to understand that we use magnets in our daily life. Like magnetic poles repel each other and unlike attract each other.

Learning objectives:

In this lesson students will know:

- Magnets repel or attract each other.
- Uses of magnets.
- Magnetic field.
- Magnetic shielding.

Helping tools:

Teacher resource book will give you an ample support in teaching. Further, to prepare you for the lesson, visit the following sites:

- **The Net Extra.**
  - Net extra is especially designed for the teachers and the students. Here you can find not only the text material but also the related information, activities and exercises. You can guide your students to use net extra for more information. Log on to net extra account at
  - *www.learningwell.pk*
  -
- **Other links:**

  Besides the Net Extra, here we mention links to other sites also which are **educational kids conceptual videos and activities** for elementary students to learn on the web.

  Visit:

  https://www.google.com/search?rct=j&q=magnetsim
  https://www.google.com/search?rct=j&q=magneticfield

Before you start a lesson in a class, give reading task of the lesson in homework to your students a day before. This reading task will help them understand the lesson. It will also help them realize the importance of pre-reading.

Warm up:

It's time to plough. Before you start a lesson, do brain storming of students to let them enthusiastically involve in creative thinking and thus in active learning. You may start up with a bunch of questions, e.g.

- Which materials are used in making magnets?
- Name one material which attracts magnets.

(Note: there is more to ask)

Once you find your students excited to learn more, it's time to sow

Discussion:

Students should already know about the different types of materials. In this lesson they will learn about magnetic force in the materials. Magnets are those objects that have invisible force of pull or push materials called magnetism. Some materials pull towards them like iron and nickel this is magnetism force and some materials give no response to them like wood, plastic, mirror and gold.

We use magnets in our daily life it is very useful for us. We use magnets for tight griping seals, like in refrigerators doors, in CDs, in cameras, in stereo system and in electromagnetic trains for faster speed.

Magnetic poles: Every magnet has two end points which are called poles. Blue colour in magnets shows South Pole and red colour in magnets shows North Pole. If we cut magnets into different pieces, each piece has two poles North and South.

Magnetic field: Magnets are the materials that produce magnetic field. This magnetic field is invisible but it responses to the magnetic materials and pulls magnetic materials towards them in the premises of their force of attraction.

Magnetic shielding: It is the process that blocks or avoids magnetic field with the barriers which are made of magnetic materials. These materials absorb the field and do not let the magnetic field reaching the other magnetic materials. The amount of reduction depends upon on the materials used.

In class, let the students read the lesson aloud and underline difficult and the key words. Show them the pictures and ask them to explain in words.

Key words	Common words
magnetism	magnets
magnetic poles	attraction
magnetic field	materials
magnetic force	manmade
magnetic shielding	interact

Summary:

Summarize the lesson in points as:

- Magnetism is the force of attraction of magnets.
- Natural magnets are kind of stones that interact with some metals.
- Manmade magnets are made of steel and iron.
- Magnets have two end points called points; the South and the North pole.
- Like poles always repel and unlike poles always attract.
- Magnets have maximum force of attraction around the poles.
- The area of force is called Magnetic field.
- Magnetic shielding is the process of to avoid magnetic field by covering magnets with some magnetic materials.

Assessment:

Once you find that discussion is completed, test the concepts of your student. You may ask:

- What is magnetism?
- Tell five different uses of magnets.
- Red colour in magnets represents?
- Blue colour in magnets represents?
- Which types of poles attract each other?
- Which types of poles repel each other?
- What is magnetic field?
- What is meant by magnetic shielding?

(Note: there is more to ask)

Once your student has clear concepts of the related topic, it is time to reap.

Think and write (Prefer students' Answers)

1. Magnetics are very useful for our universe, magnetic field of Earth shields us harmful radiation from Sun, it also allows us to diagnose medical problem using an MRI.
   (Prefer students' Answers)
2. Because of magnetic force, the magnetic force is stronger at lower distance and it gets weaker at far distance.
3. (Prefer students' Answers)
4. It is because of stronger magnetic force presents in Earth and the Sun. the Sun holds all the stars and planets and the Earth holds all living things and everything we see around us.

Note for a teacher

Make sure students write answers themselves. You should check their concepts as well as their writing skills. It will help you and English language teacher to understand your students where they are week at and what to improve now**.**

For grade 5 students, answers should be simple and not be with complicated grammar

Lesson Planner
G. Science (Class 3)

Chapters	Time -min	Description	Total time min
Science Our World	45	Warm up, brain storming (with the help of You will need) and exercise given in book.	180
	45	Discussion and assessment	
	45	Observatory + Think and write + Check if you know now	
	45	Activity book exercises	
Concept Map	45	Warm up, brain storming (with the help of You will need) and exercise given in book.	180
	45	Discussion and assessment	
	45	Observatory + Think and write + Check if you know now	
	45	Activity book exercises	
Knowing Vital Organs	90	Warm up, brain storming (with the help of You will need) and exercise given in book.	360
	90	Discussion and assessment	
	90	Observatory + Think and write + Check if you know now	
	90	Activity book exercises	
Science of Senses	90	Warm up, brain storming (with the help of You will need) and exercise given in book.	360
	90	Discussion and assessment	
	90	Observatory + Think and write + Check if you know now	
	90	Activity book exercises	
Healthy Eating	45	Warm up, brain storming (with the help of You will need) and exercise given in book.	360
	90	Discussion and assessment	
	45	Observatory + Think and write + Check if you know now	
	180	Activity book exercises	
Understanding Food chain	45	Warm up, brain storming (with the help of You will need) and exercise given in book.	360
	90	Discussion and assessment	
	90	Observatory + Think and write + Check if you know now	
	135	Activity book exercises	
Science of Plants	45	Warm up, brain storming (with the help of You will need) and exercise given in book.	360
	90	Discussion and assessment	
	90	Observatory + Think and write + Check if you know now	
	135	Activity book exercises	
Growing Well	90	Warm up, brain storming (with the help of You will need) and exercise given in book.	360
	90	Discussion and assessment	
	90	Observatory + Think and write + Check if you know now	
	90	Activity book exercises	
Materials And Their Properties	45	Warm up, brain storming (with the help of You will need) and exercise given in book.	180
	45	Discussion and assessment	
	45	Observatory + Think and write + Check if you know now	
	45	Activity book exercises	

Chapters	Time -min	Description	Total time min
Measuring Lengths	45	Warm up, brain storming (with the help of You will need) and exercise given in book.	**360**
	90	Discussion and assessment	
	90	Observatory + Think and write + Check if you know now	
	135	Activity book exercises	
Rocks And Soil	45	Warm up, brain storming (with the help of You will need) and exercise given in book.	360
	90	Discussion and assessment	
	90	Observatory + Think and write + Check if you know now	
	135	Activity book exercises	
Earth Our Pal	45	Warm up, brain storming (with the help of You will need) and exercise given in book.	180
	45	Discussion and assessment	
	45	Observatory + Think and write + Check if you know now	
	45	Activity book exercises	
Saving Environment	45	Warm up, brain storming (with the help of You will need) and exercise given in book.	180
	45	Discussion and assessment	
	45	Observatory + Think and write + Check if you know now	
	45	Activity book exercises	
How Shadow Forms	45	Warm up, brain storming (with the help of You will need) and exercise given in book.	180
	45	Discussion and assessment	
	45	Observatory + Think and write + Check if you know now	
	45	Activity book exercises	
Traveling Sounds	45	Warm up, brain storming (with the help of You will need) and exercise given in book.	360
	90	Discussion and assessment	
	90	Observatory + Think and write + Check if you know now	
	135	Activity book exercises	
The Solar System	45	Warm up, brain storming (with the help of You will need) and exercise given in book.	360
	90	Discussion and assessment	
	90	Observatory + Think and write + Check if you know now	
	135	Activity book exercises	
Magnetism	45	Warm up, brain storming (with the help of You will need) and exercise given in book.	360
	90	Discussion and assessment	
	90	Observatory + Think and write + Check if you know now	