Exploring Science Series for Key Stage 1 is written to meet the requirements of new National Curriculum. This intends to cover the contents of the Science Syllabus.

The series consist of three books, for grades 1, 2 and 3. The series enable students to acquire knowledge, skills and attitudes so as to develop an informed and critical understanding of, environment, science and technological issues.

The series aims to cultivate humane and responsible attitudes and an appreciation of the world in accordance with Islamic principles and values.

It is envisaged that teachers use this series as an aid to teach science adopting inquiry approach where students are encouraged to be actively involved in the learning process.

We extend our sincere thanks to Cambridge University Press for partnering with us in this endeavour.

We are beholden to the members of the NIE Curriculum Team for the support rendered.

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Education Development Officer Coordinator

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Look at the pictures.

Who am I?

Who am I?

Tick (✓) the things which a robot cannot do.

Eat food  Walk on its own

Breathe air  Talk on its own

Which of the two pictures show a living thing?

_________________________________
Activity

Living and non-living

Look out for some old magazines, newspapers and books. Find the pictures of living and non-living things. Cut out those pictures and paste them in the picture here wherever they might belong to. For example, you may cut out a photo of a house and paste it on the ground. Mark it as a non-living thing.
What is classification?

Classification means “separating the items into groups or categories based on similar features”. Classification helps us to organise things in an order. Classification helps us to learn similarities and differences among things. It can be done in many different ways, depending on the purpose of classification.

Discuss some of the ways in which we can classify things around us?

Activity

Classifying on my own!

Visit and tick (✓) any of the following places.

a. Beach

b. Market

c. Garden/park
Classify the things you saw there into living things and non-living things.

<table>
<thead>
<tr>
<th>Living things</th>
<th>Non-living things</th>
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</table>

Key Competency: Relating to people
Communication skills and cooperation
Activity

Similar or different!

This is Rahil and his pet cat.

How are they similar?
We have a variety of things around us. We see different things every day. Some of these things are alive, while others are not. Some are alike while others are different. The materials and objects around us have a wide variety of properties or characteristics. To help us understand the diversity around us we can classify things by looking at their properties or characteristics.
Activity

Group the animals!

Group these animals based on similar characteristics. Cut out the pictures and paste them on a chart paper in the group they belong to. Give the name to each group. For example, animals with fur on their bodies can be named ‘fur everywhere’.
Adaptation

Why do you think animals who live in cold places have fur on their bodies? How does a camel manage to live in desert without food and water for days?

Animals develop certain characteristics to adjust to their environment. This process is known as adaptation.

Activity

Adaptations everywhere!

Look at the pictures of these animals.

Why does a duck have webbed feet?
Why do you think a heron has a long neck?

Why does a fish have a slimy body?
Activity

Discuss in your class.

Use of the beak in a bird

Why does a bear sniff?

Key Competency: Thinking critically and creatively

Helps students understand the use of various body parts in animals and appreciate them
Why is a camel’s toes shaped like this?

Why does a snail have a shell on its body?
This is a porcupine. It has spines all over its body. What do you think is the use of these spines?

This is a giraffe. It has really long neck. Why do you think it has a long neck?
### Activity

**Can they live here?**

Look at these pictures.

<table>
<thead>
<tr>
<th>Can a</th>
<th>Why or why not?</th>
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<tbody>
<tr>
<td>camel live in snow?</td>
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<tr>
<td>cat live on a beach?</td>
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</tr>
<tr>
<td>duck live in a park?</td>
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<tr>
<td>giraffe live in a desert?</td>
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</tbody>
</table>
Why is it that a camel can live in the desert while a giraffe cannot?

What will happen if a duck is made to live in a city and not near the water?
Let us study plants!

Fathimath is planting a tree. We all must plant trees. Trees help us to keep our environment clean.

Key Competency: Using sustainable practices
Raise awareness among students about planting more trees

Think of some of the ways in which plants help our environment.

1. _________________________________
2. _________________________________
3. _________________________________
4. _________________________________
5. _________________________________
Adaptations in plants

Like animals, plants also develop certain characteristics to adapt to their environment.

Activity

To study adaptations in plants

Look at the picture of these plants.

This is a lotus flower. It grows in water. Why does a lotus flower have broad leaves?
This is a cactus plant. It has thorns all over its body. It is mostly found in deserts. What is the use of these thorns?

What do you understand from the above activity?

__________________________________________________________________________

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## Activity

### Comparing the plants!

Studying the differences between a plant found near the beach and a plant found inland.

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<thead>
<tr>
<th>Tasks</th>
<th>Plant from the beach</th>
<th>Plant from inland</th>
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</thead>
<tbody>
<tr>
<td>Name the plant you studied.</td>
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<tr>
<td>Draw the shape of leaves.</td>
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<tr>
<td>How long is the stem?</td>
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</table>
**What is the colour of the plant?**

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**Does it have flowers?**

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</table>

**Why is it found in this particular area?**

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**What do you think is the function of the leaves?**

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**What do you think is the function of the stem?**

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**Discuss**

What differences have you observed between the two plants?
Habitat

Habitat is a place where a particular plant or animal lives.

For example, a bird cannot live under water and a fish cannot live on a tree. All of us live in our own habitats.

Ahmed made a wonderful diorama of the animals and plants living in a jungle. Look how beautiful it is!

Key Competency: Practising Islam

The Prophet said: ‘If a Muslim plants a seedling or cultivates a field, whenever a bird, a human or an animal eats of it, it will be counted as a charity for him.’
(Sahîh Muslim)
# Activity

## My diorama!

Make your own diorama of the animals and plants living in or near the beach.

<table>
<thead>
<tr>
<th>You will require:</th>
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<tbody>
<tr>
<td>Which plants you included in your diorama?</td>
<td></td>
</tr>
<tr>
<td>Which animals you included in your diorama?</td>
<td></td>
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<tr>
<td>How could you have improved your diorama?</td>
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</tbody>
</table>
Paste the picture of you with your diorama here.

Me with My Diorama
Activity

Take us home!

These are some of the animals who lost their way home. Take them to their homes.
New Words

Classify: to put items into a group or a category
Diversity: different things around us
Adaptation: development of certain characteristics in plants and animals to adjust to their environment
Habitat: the natural environment or home of an animal or plant

Explore Deeper

Tiger and giraffe can be placed in the same group. Discuss the common features that make it possible.
Count the number of spiders, cats, snails, ants, cockroaches, geckos, birds and butterflies that you find near your house. Show your results in a bar chart form. For example, if you find 2 spiders, colour 2 boxes. Do not extend your search for animals beyond 10.

Which animal did you find most in number?

____________________________________
Warm Up

Label the different body parts.

Hair  Eye  Leg  Hand  Arm  Nose
Mouth  Shoulder  Ear  Knee  Elbow  Foot
Organs

Our body is an amazing machine! It does so many tasks at one time. It works even when we are asleep.

Like any other machine, our body also has various parts which help in its proper functioning. We call these parts as organs.

Our body has external organs and internal organs.

External organs

The body parts which are present on the outside of our body are called external organs. You can see the external organs with your eyes.

Key Competency: Thinking critically and creatively

External and internal organs work together for the effective functioning of our body.
### Activity

List down 5 external organs of your body and write the use of each organ.

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<thead>
<tr>
<th>Organs</th>
<th>Uses</th>
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</table>
My sense organs

Our body has 5 sense organs. We use these sense organs to understand the world around us.

Label the 5 sense organs.

We see through ________________.
We smell through ________________.
We taste through ________________.
We touch through ________________.
We hear through ________________.

Do you know, like various organs of our body, our sense organs also share a relationship with each other?

Key Competency: Making meaning
Understanding that sense organs work in coordination
**Activity**

**Sense organs protect us!**

Put on your headphones. Listen to some music. Now, try to call your friend sitting near you. Did the pitch (loudness) of your voice increase? Why?

When the dust gets into our eyes, why do we blink?

________________________________________________________________________

________________________________________________________________________

Have you noticed, that music sounds loud in darkness? Why?

________________________________________________________________________

________________________________________________________________________

Often it has been seen that, when a person loses one of the senses (either sight or hearing), the other sense organ becomes more effective in understanding the world. Discuss why this occurs.
Activity

Nature walk!

Go out for a walk in a park, garden or a beach. Find out the things you can see, hear, taste, feel and smell. Now, fill in the following observation map.

I can see

I can taste

I can hear

I can feel

I can smell
Do you think we need our five senses to understand the world around us? Discuss.

__________________________________________________________________________________

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Key Competency: Relating to people
Understanding the viewpoint of others along with developing their communication skills.
Look at this picture. It shows some of the internal organs of our body.

**Internal organs**

The body parts which are present inside our body are called internal organs.

Look at this picture. It shows some of the internal organs of our body.

Take a deep breath. Do you feel air filled up inside your chest? Where do you think air is going?
Run for a few minutes. Now, place your right hand on the left side of your chest. Do you feel a movement?

Which organ of your body helps you understand things and study well?

When you eat food, which organ stores food for sometime?

Water helps to clean wastes from our body. Which internal organ do you think help the body from getting rid of the waste?
Activity

Missing letters!

Complete the words.

When we eat food, it goes into our S __ O __ __ C H.

The H E __ __ T pumps blood and sends it to all organs of the body.

The L __ N G __ help us to breathe.

The K __ D N __ Y __ help to clean body.

The __ N T E __ T __ N __ helps to absorb nutrients from the food we eat.

Our internal organs are delicate. How do you think they are protected?
Look at these pictures. These show some of the ways how our internal organs can be harmed in everyday life.

Which internal organ is being affected the most?

What does this child need to do to remain healthy?
Do you think eating too much unhealthy food can harm our internal organs? How?

Discuss. How can we protect our internal organs?
Sense organs in animals

Just like humans, animals are also blessed with sense organs to understand the world around them. Some animals have very powerful sense organs. For example, rats can detect the slightest movement in the surrounding and run away. This is due to the reason that its sense of hearing is more powerful than ours.

Similarly, we are not able to see in the dark, but a cat can see very clearly in the dark.
Activity

How animals sense things!

Wow! This pirini is very tasty.

Be careful Madeeha! Do not drop the sweet on the table. You might invite ants?

But how would ants come to know that I am eating a sweet dish. They are not even here.
Can you answer the query of Madeeha?


Discuss and write the names of some of the animals which are blessed with a strong sense organ.


Key Competency: Using technology and media
Uses various resources (like media) to search information
Our food

All living things need food to remain healthy. Healthy food protects all the organs of our body and keeps us fit and healthy. Therefore, we must never skip our meals.

Write the names of some of the healthy foods which protect all our organs.

____________________________________

____________________________________

____________________________________

____________________________________

____________________________________
Activity

Keep a record of the food you eat in a week and based on the information fill in the table.

<table>
<thead>
<tr>
<th>How many times in the week did you eat</th>
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<tbody>
<tr>
<td></td>
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<tr>
<td><img src="image" alt="Rice" /></td>
<td></td>
</tr>
<tr>
<td><img src="image" alt="Meat" /></td>
<td></td>
</tr>
<tr>
<td><img src="image" alt="Vegetables" /></td>
<td></td>
</tr>
<tr>
<td><img src="image" alt="Fruits" /></td>
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</tbody>
</table>
Do you think you eat a healthy diet? Give reasons.

____________________________________

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____________________________________

Key Competency: Understanding and managing self
Assessing the food habits and understanding its impact on our bodies.
Look at the food items and match them with their respective food groups.

Cereals group

Milk group

Meat group

Fruits and vegetables group

We must include foods from all the food groups in our diet.
We must be thankful to Allah (SWT) for providing us with food to eat. There are many people in the world who are not able to get food. We must respect food and should never waste it.
New Words

**Internal organs:** organs present inside our body

**Diet:** the kind of food we eat

**Project Idea**

Collect the packets of five different foods from each food group—cereals, milk, meat, vegetables and fruits. Fill in the following information.

<table>
<thead>
<tr>
<th>Name of the food items</th>
<th>Name of the food groups</th>
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**Discuss**

What is common among foods in different groups?

Which food is the healthiest of all and why?
Prophet Muhammad (SAW) advised his followers, to work, to be energetic, and to start their day early, all of which are conditions for a healthy body. He said “O God, make the early morning hours blessed for my nation.”

(Imam Ahmed)
Notes