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PRIMARY 3 · SCIENCE · LIVING AND NON-LIVING THINGS

Living and Non-Living Things

Theory and worked examples

Living things and non-living things

Look around you. Some things are living things, such as a cat, a hen, a tree and a mushroom. Other things are non-living things, such as a rock, a kite, a toy car and water. All living things have the same four characteristics. Non-living things do not have all four. Some non-living things seem to do one of these (a fire needs air), but no non-living thing does all of them.

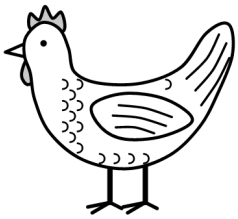
KEY IDEA

A living thing has ALL four characteristics: it needs air, food and water to survive, it grows, it responds to changes around it, and it reproduces.

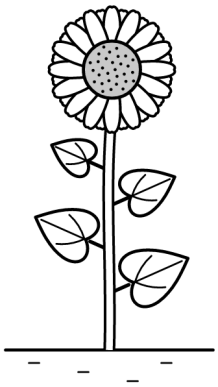
WORDS TO KNOW

living thing	a thing that is alive: it needs air, food and water to survive, and it grows, responds and reproduces
non-living thing	a thing that is not alive
characteristic	something about a thing that helps us to describe it or to tell it apart from other things
observe	to use your senses (looking, listening, touching, smelling) to find out about a thing
infer	to use what you observe to work something out ("its shell got bigger, so it is growing")

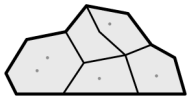
Living things	Non-living things
need air, food and water to survive	do not need air, food and water together to survive
grow	do not grow as living things do
respond to changes around them	do not respond to changes around them
reproduce	do not reproduce



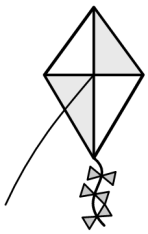
hen: living



sunflower plant: living



rock: non-living



kite: non-living

WORKED EXAMPLE

Hui Min wrote three sentences about her pet rabbit.
A: It became heavier as the months passed.
B: It has white fur.
C: It gave birth to four young rabbits.
Which sentences show that the rabbit is a living thing? Explain your answer.

1. What is the question asking? I must find the sentences that match a characteristic of living things.
2. The science idea: living things need air, food and water to survive, grow, respond to changes around them and reproduce.
3. Link: A is about growing. C is about reproducing. B is only about colour. Non-living things, such as a white soft toy, can have white fur too.

Sentences A and C. Sentence A shows that living things grow. Sentence C shows that living things reproduce. Sentence B does not show a characteristic of living things.

TRY THIS

Name the three things that all living things need to survive.

Answer: Air, food and water.

Living things need air, food and water to survive

To survive is to stay alive. All living things need air, food and water to survive. Animals eat plants or other animals as food. Plants make their own food. A living thing dies if it goes without air, food or water for too long. Non-living things do not need air, food or water.

KEY IDEA

Living things need air, food and water to survive. Take away one of them and the living thing cannot survive.

- We water pot plants because plants need water to survive.
- A seed needs water before it can start to grow into a seedling.
- We feed our pets every day because animals need food to survive.
- A container for small animals, such as snails, has small holes in its lid to allow air to enter.
- In a fair test, we change one variable only. We keep all the other variables the same. Then we know what caused the result.

WORDS TO KNOW

survive	to stay alive
fair test	a test in which only one thing is changed and all the other things are kept the same
variable	anything in a test that can be changed or kept the same, such as the amount of water
seedling	a young plant

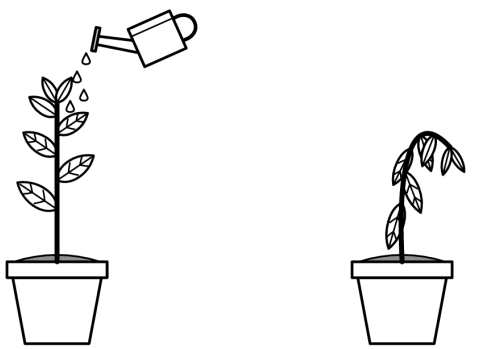
WORKED EXAMPLE

Wei Jie wanted to find out if plants need water to survive. He used two pot plants of the same kind and size, A and B. He put both near the same window. He gave Plant A 50 ml of water every day. He did not water Plant B. The diagram shows the plants after 7 days. Then he watered Plant B again.

(a) Which variable did Wei Jie change?

(b) State two variables that he kept the same. Why did he keep them the same?

(c) What can he conclude from the results?



Plant A
50 ml of water every day

Plant B
not watered

1. What is the question asking? It is about a fair test. I must find what was changed, what was kept the same, and what the results show.
2. The science idea: living things need water to survive. In a fair test only one variable is changed.
3. Link: the only difference between A and B is the water given. Plant A stayed healthy. Plant B wilted (its leaves and stem drooped) and would die without water.

(a) The amount of water given to the plant. (b) The kind and size of plant, and the place where the plants were put. He kept them the same to ensure a fair test, so that only the amount of water was changed. (c) Plants need water to survive.

TRY THIS

Ravi keeps two snails in a plastic container for one day to observe them. He puts in some leaves and a little water. Why must he also make small holes in the lid?

Answer: To allow air to enter the container. Snails are living things, and living things need air to survive.

Living things grow and reproduce

Living things grow. When a living thing grows, it becomes bigger, taller or heavier. A kitten grows into a cat. A seedling (a young plant) grows into a tall plant. Living things also reproduce. To reproduce is to make more living things of the same kind. A hen lays eggs that hatch into chicks. A cat gives birth to kittens. Many plants make seeds that grow into new plants.

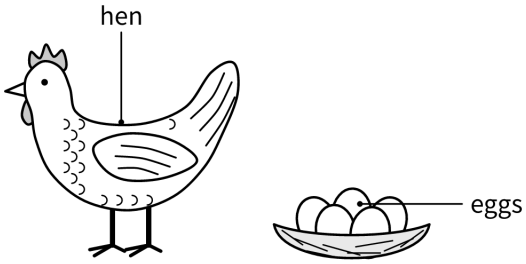
KEY IDEA

Getting bigger, taller or heavier shows growth. Making more of its own kind shows reproduction.

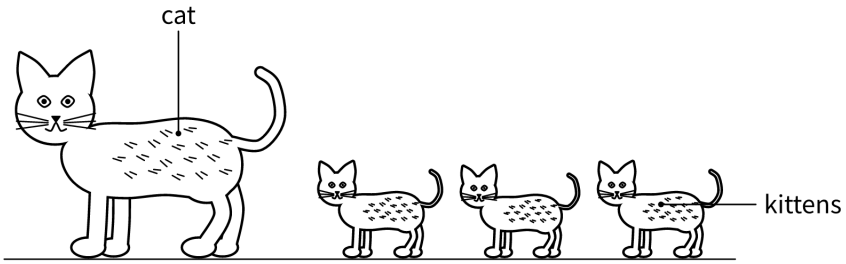
- Clue words for "grow": taller, longer, bigger, heavier.
- Clue words for "reproduce": lays eggs, gives birth, has young, makes seeds, the number increases (more of its kind).
- Living things reproduce so that their kind does not die out.

WORDS TO KNOW

grow	to become bigger, taller or heavier
reproduce	to make more living things of the same kind (to have young)
young	the babies of an animal, such as chicks and kittens



A hen lays eggs.



A cat gives birth to kittens.

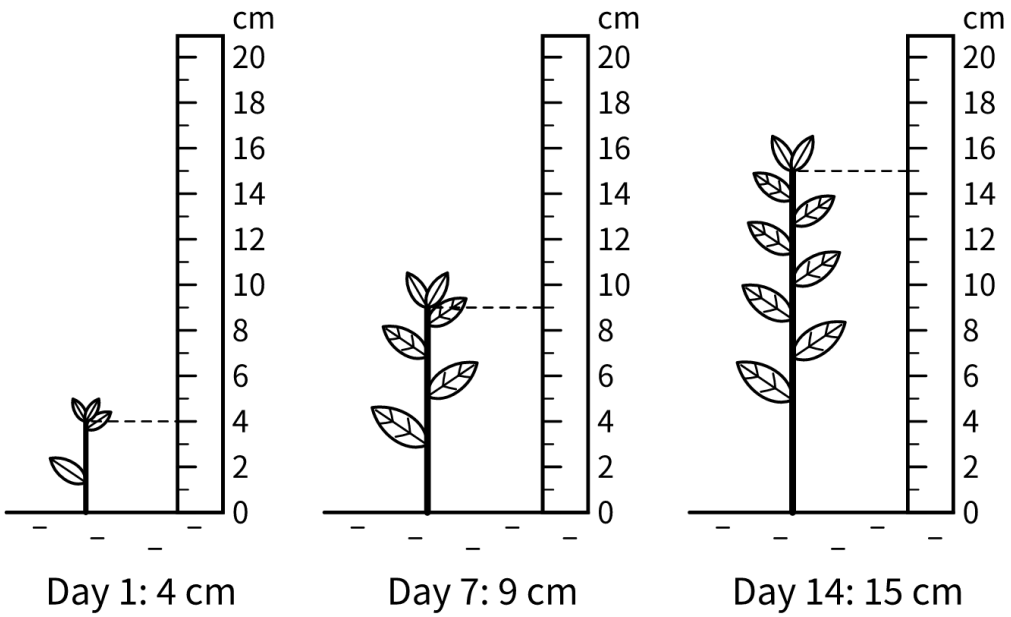
WORKED EXAMPLE

Farah planted a seedling in a pot. She measured its height on three days. The diagram shows what she saw. Some months later, the plant made seeds. The seeds fell on the soil and four new seedlings grew from them.

(a) How much taller did the seedling grow from Day 1 to Day 14?

(b) Which characteristic of living things do the heights show?

(c) Which characteristic of living things do the four new seedlings show?



1. What is the question asking? I must use the heights of the seedling, then name the characteristic that each observation shows.
2. Read the data: the seedling was 4 cm tall on Day 1, 9 cm on Day 7 and 15 cm on Day 14. 15 – 4 = 11.

CHAPTER 1

Practice Questions

Part 2: Living and Non-Living Things



In the practice questions

16 questions, 40 marks. For each multiple-choice question, write the number of the correct option in the brackets. Write your other answers on the lines given. The answers are on page 240.

- **Section A: Multiple-Choice Questions: 11 questions, 22 marks**
- **Section B: Open-Ended Questions: 5 questions, 18 marks**

Name: _____ Class: _____ Date: _____

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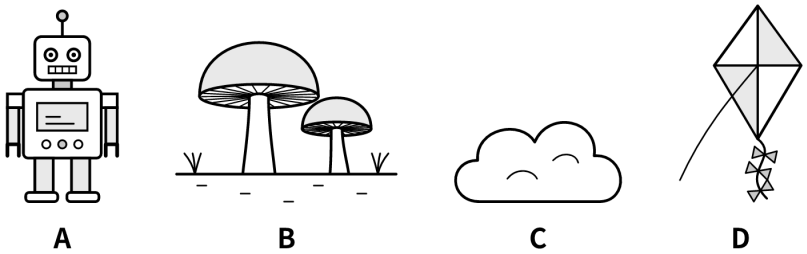
Living and Non-Living Things

INSTRUCTIONS

- 16 questions, 40 marks in total.
- Answer all questions in the spaces provided.
- For multiple-choice questions, write the option number in the brackets.
- Write your other answers on the lines given, in full sentences.

Section A: Multiple-Choice Questions

1 The pictures show a robot (A), some mushrooms (B), a cloud (C) and a kite (D).
Which one is a living thing? ( ) [2]



(1) A (2) B (3) C (4) D

2 Siti's kitten had a mass of 400 g when it was one month old. Its mass was 1200 g when it was four months old.
Which characteristic of living things does this show? ( ) [2]

(1) Living things reproduce.
(2) Living things respond to changes around them.
(3) Living things need air to survive.
(4) Living things grow.

3 Arjun touched the leaves of a mimosa plant gently. The leaves folded up at once.
Which characteristic of living things does this show? ( ) [2]

1. Living things grow.
2. Living things reproduce.
3. Living things respond to changes around them.
4. Living things need water to survive.

4 Daniel wrote three statements about a hen on a farm.
A: It laid eggs, and chicks hatched from the eggs.
B: It ran away when a dog barked.
C: It is kept in a wooden cage.
Which statements show that the hen is a living thing? ( ) [2]

1. A and B only
2. A and C only
3. B and C only
4. A, B and C

5 Mei Ling classified eight things into two groups, as shown in the table.
Which thing did she put in the wrong group? ( ) [2]

Living things	Non-living things
grasshopper	kite
mushroom	rock
fire	bicycle
fern	cloud

1. fire
2. mushroom
3. cloud
4. fern

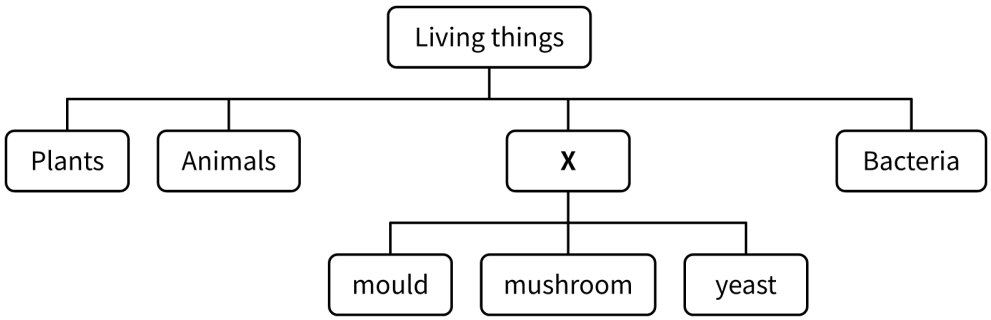
6 Wei Jie winds up a toy car. It moves across the floor.
Why is the toy car a non-living thing? ( ) [2]

1. It is made of plastic.
2. It has four wheels.
3. It cannot grow or reproduce.
4. It is smaller than a real car.

7 Which of these non-living things was once part of a living thing? ( ) [2]

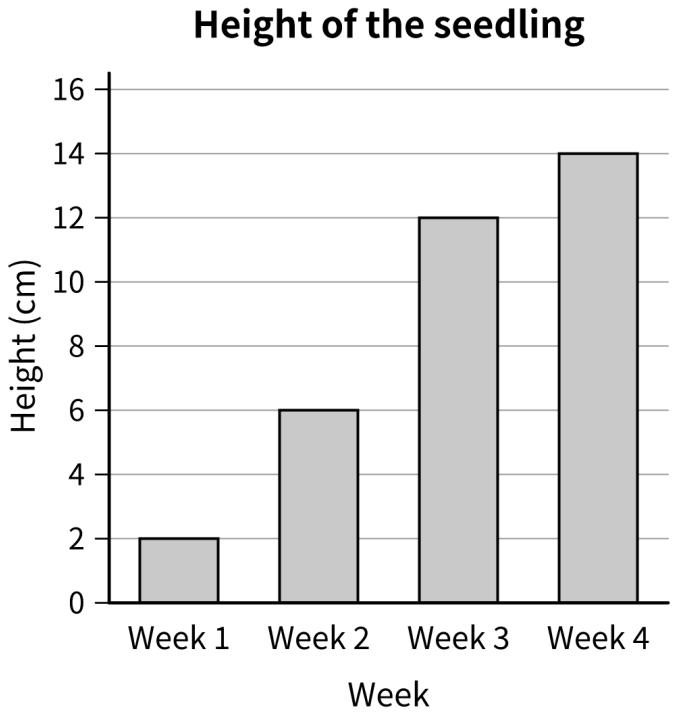
1. a glass cup
2. a wooden spoon
3. a metal key
4. a plastic ruler

8 The classification chart shows four groups of living things.
What is group X? ( ) [2]



(1) Plants (2) Bacteria (3) Non-living things (4) Fungi

9 Ravi measured the height of a seedling at the end of each week. The bar graph shows his results.
Which statement is correct? ( ) [2]



(1) The seedling was 12 cm tall at the end of Week 2.
(2) The seedling grew 4 cm every week.
(3) The seedling grew the most from Week 2 to Week 3.
(4) The seedling stopped growing after Week 3.