

SMARTWIZ

GRADE 8 NATURAL SCIENCE EXAM

MARKS: 50

MARKS	

TIME: 2 hours

SCHOOL _____

CLASS (e.g. 4A) _____

SURNAME _____

NAME _____

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Instructions for Students:

- > Read all instructions carefully before beginning the exam.
- > Write your name and student ID clearly on the answer sheet/booklet.
- > Answer all questions unless otherwise stated.
- > Show all your work/calculations where applicable.
- > Write clearly and legibly.
- > Use blue or black ink only. * Do not use correction fluid/tape.
- > No electronic devices (calculators, phones, etc.) are allowed unless explicitly permitted.
- > Raise your hand if you have any questions.
- > Do not talk to other students during the exam.
- > Any form of cheating will result in disqualification.

This test consists of 4 pages, excluding the cover page.

SECTION A: ECOLOGY AND ENVIRONMENT

(20 Marks)

QUESTION 1: ECOSYSTEMS

1.1 Define the term **habitat**.

(2)

1.2 Name two abiotic (non-living) factors in an ecosystem.



1.3 What is biodiversity?

(2)

1.4 Explain the difference between a **herbivore** and a **carnivore**.

(3)

1.5 Describe one way humans can help protect ecosystems.

(3)

SECTION B: MOTION AND FORCES

(15 Marks)

QUESTION 2: FORCES

2.1 What is meant by **friction**?

(2)

2.2 Give an example of friction in everyday life.

(2)

2.3 What effect does friction have on moving objects?

(2)

2.4 Define the term **gravity**.

(2)

2.5 Why do astronauts feel “weightless” in space?

(3)

SECTION C: ENERGY AND LIGHT

(15 Marks)

QUESTION 3: LIGHT

3.1 Define the term **reflection**.

(2)

3.2 What type of surface produces a clear reflection? Give an example.

(2)

3.3 What is refraction?

(2)

3.4 Describe how light changes direction when it passes from air into water.

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(3)

3.5 Explain why shadows change size during the day.

(4)

TOTAL: 50 MARKS

SECTION A: ECOLOGY AND ENVIRONMENT

(20 Marks)

1.1 Habitat is the natural home or environment where an organism lives. (2)

1.2 Two abiotic factors:

- Water
 - Sunlight
 - Temperature
 - Soil
- (Any two, 2 marks)

1.3 Biodiversity is the variety of different plants, animals, and microorganisms in an ecosystem. (2)

1.4 Difference between herbivore and carnivore:

- Herbivores eat only plants.
- Carnivores eat other animals. (3)

1.5 One way humans can help protect ecosystems:

- Planting trees
 - Reducing pollution
 - Conserving water
 - Protecting endangered species
- (Any relevant answer, 3 marks)

SECTION B: MOTION AND FORCES

(15 Marks)

2.1 Friction is a force that opposes motion between two surfaces that are in contact. (2)

2.2 Example of friction:

- Rubbing hands together to create warmth
 - Tires gripping the road
 - Brakes slowing down a bike
- (Any relevant example, 2 marks)

2.3 Friction slows down moving objects by opposing their motion. (2)

2.4 Gravity is a force that pulls objects toward the center of the Earth. (2)

2.5 Astronauts feel weightless in space because they are in free fall around the Earth, experiencing microgravity. (3)

SECTION C: ENERGY AND LIGHT

(15 Marks)

3.1 Reflection is the bouncing back of light from a surface. (2)

3.2 A smooth, shiny surface produces a clear reflection, for example, a mirror or calm water. (2)

3.3 Refraction is the bending of light as it passes from one medium to another (e.g., air to water). (2)

3.4 When light passes from air into water, it slows down and bends towards the normal line. (3)

3.5 Shadows change size during the day because the position of the Sun changes, affecting the angle of light and the length of the shadow. (4)

TOTAL: 50 MARKS