

ANSWERS TO ENCYCLOPAEDIA GRADE 4 SCIENCE & TECHNOLOGY

1.0 LIVING THINGS AND THEIR ENVIRONMENT

1.1 Plants

Remind me

Refer to page 165 to 166

1. Water and sunlight
2. Because they grow, reproduce, remove waste, respond to changes in the environment, breathe and die.
3. Plants die
4.
 - a. Part C
 - b. D
 - c. Part E
 - d. D
5. They make the environment beautiful, some plants give us food and animals feed on plants as well.
6. D
7. C
8.
 - a. Presence of fruits and flowers.
 - b. Shedding of leaves, gums, removal of excess water
9. Because they have been cut down, eaten by animals, lack of water or too much sunlight
- 10.

External part of the plant	Function
Leaf	transports water and minerals
Root	Makes food for the plant
Stem	Produces fruits
Flower	Holds the plants in the soil.

1.2 Animals

Remind me

Refer to page 170 to 171

1. Vertebrates
2. Invertebrates
3. Snail
4.
 - a. True
 - b. False
 - c. False
 - d. True
5. Ostrich
6. Living
7. Picture A – vertebrate, picture B- invertebrate
8. Non-living
9. Vertebrates – cow, fish and frog
Invertebrates – snail, crab and flea
10. Hand gloves
11. Snail

1.3 The Human Digestive System

Remind me

Refer to page 174

1. Mouth
2. Mouth, rectum
3. *Assess a correctly draw and labelled diagram of the human digestive system*
4. Digestion
5. Large intestine
6. Small intestine
7. Water, fruits and vegetables, foods rich in fibre like rice, *ugali*
8. Diarrhoea, presence of worms in the stomach, stomach ache and vomiting
9. Eat hard food like sugarcane, brush the teeth atleast twice a day, visit the dentist regularly.
10. Rectum

End of strand 1 assessment

Refer to page 174 to 175

1. C
2. C
3. B
4. C
5. D
6. A
7. B
8. D
9. A
10. B
11. A
12. B
13. C
14. A
15. B
16. D
17. B
18. D
19. C
20. C

2.0 MATTER

2.1 Properties of Matter

Remind me

Refer to page 178 to 179

1. Space and has weight
2. A solid can be touched while a liquid flows
3.
 - a. Solid – stone, book, chair, bucket
 - b. Liquid- water, blood, milk, juice, porridge
 - c. Gas – air, smoke, steam
4. Wood
5. 3
6. Have definite shape, mass and volume

7. Air, water vapour, smoke
8. Liquids do not have a definite shape
9. They have a definite mass but shape and volume are not definite
10. Air
11. Gas

2.2 Management of Solid Waste

Remind me

Refer to page 182

1. Decomposable waste are waste materials which can rot or decay easily while non-decomposable waste are waste materials that cannot easily rot or decay.
2. Gumboots, hand gloves and a dust coat
3. Solid waste in the environment may lead to death of animals, burning of solid waste releases harmful gases into the environment leading to air pollution, solid waste can contaminate water bodies making them unsafe for human use while killing the animals that live in water, contaminate soil and lead to disease transmission. This is because they attract animals such as flies that can transfer germs from one place to another.
4. Electronic waste, plastics, broken glasses and metal waste
5. Recycling
6. Reduce soil and water pollution, keep the environment clean, reduce the risk of being sick, produce new items through recycling and avoid common accidents such as falls, cuts and pricks.
7. It causes air pollution
8. Recycling

2.3 Water Conservation

Remind me

Refer to page 184

1. Water conservation refers to the careful use and management of water and its resources.
2. Harvesting rain water, recycling water, re-using water using water sparingly, mulching or shading plants and constructing dams.
3. To protect our environment, preserve energy, ensure regular supply of water mostly when it is a dry season, conserving water reduces the amount of money used on

water bills because less water will be used and reduce water pollution mostly from untreated sewage.

4.
 - a. False
 - b. True
5. Harvesting rainwater
6. Reusing water

End of strand 2 assessment

Refer to page 184 to 185

1. B
2. D
3. C
4. D
5. A
6. B
7. B
8. C
9. B
10. C
11. D
12. A
13. D
14. B
15. B
16. D
17. B
18. A
19. C
20. A

3.0 FORCE AND ENERGY

3.1 Force and its Effects

Refer to page 188

Remind me

1. Force of friction is a force that opposes movement of objects. It goes against the direction of a moving object.
2. It pulls objects downwards towards the ground.
3. Helps in walking, writing and stopping when running
4. The force of gravity
5. The force of friction
6. Starts movement of an object, stops movement of an object, increases or decreases the speed of an object, changes the shape of an object, changes the direction of an object and changes the size of an object.
7. Lubrication, use of ball bearings, placing rollers, making rough surfaces smooth and streamlining
8.
 - a. Decreased
 - b. Stones and dry sand
9. Placing rollers, making the surface smooth
10.
 - a. Applying oil or grease
 - b. Use of rollers, ball bearings, making the surface smooth

3.2 Light

Remind me

Refer to page 191

1. The sun, stars, moon, fireflies and glowworms.
2. We use light to see things around, for security in dark places to see a danger that is coming, to read, for entertainment and to scare away pests that destroy crops or harm domestic animals.
3. Natural sources of light produce light on their own while artificial light produce light with the help of human beings.
4. Using translucent roofs and using windows
5. To prevent accidents at home, to enable people to see
6. To make food through photosynthesis
7. Kerosene lamp, candle, electric bulb and torch
8. Translucent roofs and windows
9. Sunlight, torch, candles and kerosene lamps
10. For security, reading, seeing, reading and entertainment.

3.3 Heat

Remind me

Refer to page 193

1. Hotter, cooler
2. Wear protective clothing such as hand gloves when handling hot objects, keep our hair, clothing and flammable materials away from open flames when handling heat, use utensils with insulated handles, seek help when handling a source of heat, turn off the sources of heat when not in use and put flammable materials away from the source of heat.
3. Heat energy from the fire
4. Cooking, boiling and ironing
5. Drying food to remove moisture

End of strand 3 assessment

Refer to page 193 to 195

1. B
2. A
3. C
4. B
5. D
6. C
7. D
8. C
9. D
10. D
11. B
12. D
13. B
14. C
15. A
16. B
17. D
18. B
19. A
20. B

MODEL TEST PAPERS

Model Test Paper 1

Refer to page 195 to 197

1.
 - a. Leaf
 - b. Absorbs water and mineral salts from the soil to the plant, holds the plant firmly in soil and in some plants, it stores food.
2. B and C
3.
 - a. S - oesophagus, T - stomach , U - small intestine
 - b. Brushing the teeth at least twice a day, visiting the dentist regularly and eating hard foods
4.
 - a. Solid
 - b. Sand has a definite shape, volume and mass
5.
 - a. *Ugali* remains, banana peels
 - b. Reuse them, take them to the factory for recycling and buy reusable bottles
6.
 - a. Re-using water
 - b.
 - i. Picture B
 - ii. Washing utensils in a basin of water instead of running tap water
7.
 - a. The force of gravity
 - b. It can break and stop moving
8.
 - a. The sun
 - b. Enables us to see during the day, enables plants to make their own food

Model Test Paper 2

Refer to page 197 to 198

1.
 - a. It breathes moves, responds to changes in the environment, dies, reproduces and grows.
 - b. Providing it with shelter, food and water
2.
 - a. Wearing protective clothing and using a pair of forceps to hold the plant.
 - b. To avoid being pricked by thorny plants and to avoid touching poisonous plants.
 - c. Some are used as food, they make the environment beautiful
3. Vertebrates have a backbone while invertebrates do not have backbone. Vertebrates are big in size while invertebrates are small in size
4.
 - a. Shape of liquids
 - b. Definite volume and mass
5.
 - a. Banana peels, vegetable stalks, ugali remains, rotten fruits.
 - b. Use them to make compost manure
6.
 - a. Filtration
 - b. Water conservation refers to the careful use and management of water and its resources.
 - c. Boiling, recycling
7.
 - a. Picture B
 - b. Use of rollers
8.
 - a. Artificial source of light
 - b. Use of electric bulbs and kerosene lamps
9. Drying clothes and grains, keeping the house warm and ironing clothes

Model Test Paper 3

Refer to page 198 to 199

1. Plants and animals reproduce, respond to changes in the environment, grow, breathe and die.

2. Vertebrates – bird, fish, cow, dog, man
Invertebrates – snail, butterfly, millipede
3.
 - a. Stomach pain, diarrhea and vomiting
 - b.
 - i. Constipation is when the body has difficulty in passing stool.
 - ii. Bloating is the feeling of fullness due to gas.
4.
 - a. Smoke
 - b. They have definite shape, volume and mass
5.
 - a. Air pollution, host to pests and soil pollution
 - b. Reusing and recycling
6.
 - a. Re-using water
 - b. Mopping the house using water that has been used to wash the house
7. Increase or decrease speed, stop movement, change direction
8.
 - a. Entertainment
 - b. See things and for security
9.
 - a. Warm ourselves, ironing and preserving food
 - b. Wear protective clothing, keep a safe distance from the fire, turn off the sources when not is use, put flammable materials away from the source of heat

Model Test Paper 4

Refer to page 199 to 200

1.
 - a. Plants remove waste
 - b. Shedding leaves and removing gums
 - c. Urinating and removing faeces
2.
 - a. Avoiding sugary foods, eating hard foods, brushing the teeth twice a day and visiting the dentist regularly.
 - b. They will have cavities
3.
 - a. It is not definite

- b. No fixed shape and volume
- 4.
 - a. Recycling
 - b. Metallic bottle tops, wires and slippers
- 5.
 - a. Taking short showers, washing utensils in a basin of water instead of a tap with running water and turning off taps when not in use.
 - b. To make it available for use in the future
- 6.
 - a. Change of direction, stop or start the movement of the ball.
 - b. Walking, writing, lighting a matchstick, skating, dropping of rain, keeping us grounded on the earth surface
- 7.
 - a. The sun
 - b. True
- 8. Boiling and drying food

Model Test Paper 5

Refer to page 200 to 201

- 1.
 - a. Plants die
 - b. Cutting them down, lack of water and too much sunlight
- 2.
 - a. Picture A - respond to changes in the environment, picture B- move
 - b. Wild animals act as tourist attraction sites, some animals are sources of food, some are for companionship, some are for security
- 3.
 - a. Deworm herself
 - b. Washing her hands before eating, washing fruits before eating and eating well cooked food

4.

Feature	Solid	Liquid	Gas
Shape	Fixed shape	Takes the shape of the container	Has no fixed shape
Volume	Fixed volume	Fixed volume	Has no fixed volume

5.

- a. Decomposable waste rot or go bad easily while non-decomposable waste does not rot.
- b. Examples of decomposable waste - food leftovers, vegetable and fruit peels, grass, leaves, flowers, paper, wood and animal droppings

Examples of non-decomposable waste – plastics, glass, metal cans, rubber and old electronics (e-waste)

6. To wash utensils from the bucket of water.
7. The force of friction
8.
 - a. To communicate
 - b. To see, for security
9. Sun, fire