31 Living organisms - answers

1 The following are characteristics possessed by some, but not **all** living things: (b) 'warm-bloodedness', (d) egg-laying, (g) photosynthesis.

2 Most living organisms can be classified as bacteria, protista, fungi, plants or animals.

3 (a) Birds and mammals are 'warm-blooded'.
(b) Fish, Amphibia, Reptiles and Birds reproduce by laying eggs.

4 Protozoan: *Amoeba, malarial parasite.*
Annelid: *earthworm, lugworm*.
Crustacean**:** *woodlouse, lobster, shrimp.*
Insect: *wasp, butterfly, cockroach, housefly.*
Mollusc: *slug, snail, whelk, mussel.*

5 Insects possess all of the characteristics listed. Crustacea possess all but the 3 pairs of walking legs. Spiders, millipedes and centipedes have segmented bodies, exoskeleton and jointed legs. Annelids have segmented bodies.

6 Mosses, ferns and flowering plants all have many cells, with cell walls and chlorophyll, and all obtain energy from respiration. (Mosses have leaves and stems but no proper roots.) Only flowering plants produce seeds.

7 (a) Fungi: *mushrooms, moulds, toadstools.*
(b) Flowering plants: *trees, cabbages, grasses, cacti.*

8 Fish: *cod, tuna, trout, sea-horse.*
Amphibia: *toad, frog, tadpole*.
Reptiles: *tortoise, adder, cobra, iguana.*
Birds*: sparrow, rook, owl.*
Mammals: *stoat, rabbit, cow, porpoise, mongoose*.

9 (a) All plant cells have a cellulose cell wall.
(b) Some plant cells have chloroplasts and a large central vacuole.

10 Eyes, five toes, ears and teeth are characteristics possessed by vertebrates other than mammals.

11 The Primate group includes lemurs, monkeys, apes and humans.

12 Two features which distinguish humans from other primates are their upright posture and their powers of speech. Large brains (especially the cerebral hemispheres) and adaptability are also human characteristics, but are not so clear cut as the first two.

13 (a) Clothing and (b) housing provide warmth and shelter, and so have enabled humans to survive in a wide range of climatic conditions. (c) Writing has enabled humans to pass on acquired and complex knowledge from one generation to the next; e.g. methods of building, ways of curing disease, avoidance of hazards. This knowledge improves the chances of survival.

14 Animals take in *solid food* (A) and digest it to *simpler substances* (B) which their digestive systems can *absorb* (C). Plants take in *carbon dioxide* (D) and *water* (E) and build these into food molecules by a process called *photosynthesis* (F).

15 Oxygen and carbon dioxide are the gases exchanged when living organisms breathe.

Living organisms - answers (continued)

16 (a) Breathing implies the obtaining of oxygen from the environment and the release of carbon dioxide.
Respiration is the breakdown of organic molecules (food) to release energy which is used to drive all the living processes in an organism.
(b) Ventilation is an aspect of breathing by which an animal exchanges the air or water in contact with its respiratory surface.

17 In sexual reproduction, special cells called *gametes* (A) fuse together to form a *zygote* (B) which grows into a new *organism* (C).

18 Living organisms are sensitive. This means that when they receive a *stimulus*, they make a *response*.

19 The response made by a growing plant shoot to one-sided illumination is called *positive photropism.*

31 Living organisms

1 Which of the following are **not** characteristics of **all** living organisms?

(a) growth	(d) egg-laying	(g) photosynthesis
(b) 'warm-bloodedness'	(e) respiration	(h) excretion
(c) reproduction	(f) sensitivity	(i) feeding

2 List the five kingdoms into which most living organisms can be classified.

3 Which of the vertebrate classes (a) are 'warm-blooded', (b) reproduce by laying eggs?

4 Classify the following invertebrates under the headings, 'Protozoan', 'Annelid', 'Crustacean', 'Insect', or 'Mollusc' .

earthworm, slug, woodlouse, wasp, butterfly, lugworm, snail, lobster, Amoeba, cockroach, whelk, shrimp, housefly, malarial parasite, mussel

5 Which invertebrate groups possess one, three, four or all of the features listed below?

segmented bodies, hard exoskeleton, jointed legs, compound eyes, three pairs of walking legs

6 Which of the features listed below are possessed by all of the groups 'Mosses', 'Ferns' and 'Flowering plants'?

made up of many cells, have cell walls, contain chlorophyll, have roots, stems and leaves, produce seeds, get energy from respiration

7 Which of the following are (a) fungi, (b) flowering plants?

ferns, mushrooms, trees, cabbages, moulds, toadstools, seaweeds, grasses, mosses, cacti

8 Classify the following vertebrates under the headings, 'Fish', 'Amphibia', 'Reptiles', 'Birds' and 'Mammals'.

sparrow, cod, tortoise, adder, stoat, tuna, toad, rabbit, rook, cow, frog, trout, porpoise, owl, cobra, tadpo1e, sea-horse, iguana, mongoose

9 State the ways in which (a) all plant cells, (b) some plant cells differ from animal cells.

10 Which of the following are **not** characteristics which could be used to distinguish a mammal from other vertebrates?

eyes, fur, mammary glands, five toes, diaphragm, ears, teeth, ear pinnae, suckling its young, milk teeth

11 Which types of mammal are included in the Primate group?

12 State two characteristics of humans which distinguish them from other primates..

13 In what ways might (a) clothing, (b) housing, (c) writing, have contributed to the survival of human beings?

Living organisms (continued)

14 Select the appropriate words from the list below to complete the following paragraph.

Animals take in …… (A) ….. and digest it to …… (B) …..which their digestive systems can ……. (C) ….. Plants take in …… (D) ….. and …… (E) ….. and build these into food molecules by a process called …… (F) …...

water, photosynthesis, dissolve, absorb, solid food, soil particles, carbon dioxide, simpler substances, air, respiration

15 Which two gases are exchanged when living organisms breathe?

16 (a) What is the distinction between 'breathing' and 'respiration'?
(b) What part do 'ventilation' and 'gaseous exchange' play in these processes?

17 In sexual reproduction, special cells called ….. (A) ….. fuse together to form a ….. (B) ….. which grows into a new ….. (C) …..

18 Living organisms are sensitive. This means that when they receive a ……..,
they make a ……..

19 The response made by a growing plant shoot to one-sided illumination is called
…….