Workbook answers

1.3 Classification and species

1. The missing words are: characteristics, species, Latin, world, infertile, hybrids.
2. a. **Same species:** none; **Related species:** *Equus ferus; Equus africanus*; **Very different species:** *Tetracerus quadricornis; Syncerus caffer.*
   b. Similar species are given the same first name in their two part Latin names. The first part of the species name of a zebra is *Equus* so other species with the same first name will be similar/ also be members of the horse family.
3. **a.** F; **b.** T; **c.** F; **d.** T; **e.** F
   a. Similar species share the same first Latin name.
   c. Members of the same species don't always look similar.
   e. Members of different species usually have infertile offspring if they breed.

2.5 Specialised animal cells

1. The missing words are: cells; respiration; multicellular; specialised; structure; function.
2. A3; B1; C2; D5; E4
3. Filled with haemoglobin: red substance/molecule that carries oxygen.

   Small and flexible: can pass through tiny blood vessels to carry oxygen to the cells.

   No nucleus: makes more space for haemoglobin to carry oxygen.

   Biconcave: gives a large surface area to pick up oxygen.

2.6 Specialised plant cells

1. **a.** Photosynthesis.

   b. (Adaptations can be given in any order) Adaptation/explanation 1: Cells are located near top of the leaf/so they get as much sunlight as possible. Adaptation/explanation 2: cells are brick-shaped/so they can be packed together as tightly as possible. Adaptation/explanation 3: they contain large numbers of chloroplasts/to capture light for photosynthesis and make food.

2. **a.** Root hair cell.

   b. Take in water and mineral salts from the soil.

   c. Your labels should be the same as Fig 2.6C in your Student Book. Your notes on the diagram should include: long microscopic hair to give a big surface area to take in water and mineral salts; found on outside of the root – to grow into the soil and reach the soil water; large sap-filled vacuole which helps move water from the soil into the root.

3.1 Microorganisms

1. The missing words are: single; bacteria/viruses; viruses/bacteria; fungi; microscope; culture.

2. **a.** fungus **b.** bacteria **c.** viruses **d.** yeast/s.

Students book page 40+41

3. a. So scientists all over the world know which organisms they are talking about.

b. Because the bears are similar so they are in the bear group together.

c. Because the bears are different species.

d. If different species breed they form a hybrid and hybrids are usually infertile.

9. a. A group of organisms that can breed to produce fertile offspring.

b. Any two from: make detailed observations of their appearance/analyse their genetic material and compare it with other similar monkeys/see if they can breed and produce fertile offspring.

Students book page 61

5. Neurone: carries electrical messages around the body

Root hair cell: absorbs water and mineral nutrients

Muscle cell: contracts to move parts of the body

Red blood cells: carries oxygen around the body

Fat cell: contains a fat store to provide fuel for respiration when it is needed

Palisade cell: carries out photosynthesis

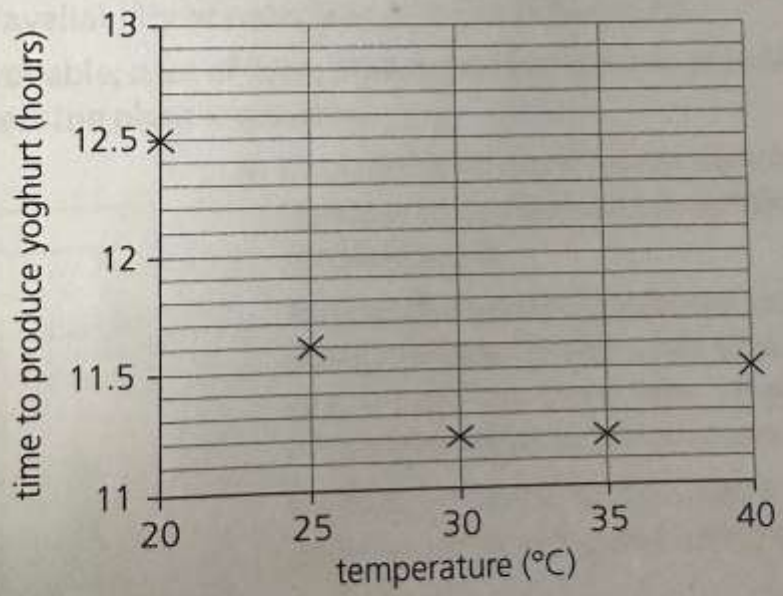
Students book page 76

3. a. Bacteria feed on the sugar in milk and break it down into lactic acid. This solidifies the milk and gives it a sharp taste. [2

b. She should control the quantity of milk/ and bacteria/ and the containers they are in. She should only change the temperature. Any other sensible point. [

c. When the pH is 4.5 (pH of yoghurt). [

d. [



e. 32.5 °C

4. a. When the dough with yeast and sugar is kept in a warm place, it gets bigger. Dough without yeast does not change size.

b. Yeast uses the sugar to respire. It produces carbon dioxide gas as a waste product. The bubbles of gas make the dough rise and expand.

c. Cylinder with yeast: increase the temperature it is kept at. Cylinder without yeast – add yeast.