Cells

KS3 Biology · Follows the national curriculum

Name _____ Class _____ Date _____

1. Worked example

Compare a plant cell and an animal cell.

Step 1 · Parts BOTH have

Cell membrane, cytoplasm, nucleus, mitochondria and ribosomes.

Step 2 · Parts ONLY plant cells have

Cell wall (cellulose), chloroplasts and a large permanent vacuole.

Step 3 · What the differences mean

Plant cells keep a fixed shape (cell wall) and can make their own food (chloroplasts); animal cells are flexible and must get food by eating.

Answer: Plant cells = animal cell parts + cell wall + chloroplasts + permanent vacuole

Check: Not every plant cell has chloroplasts: root cells don't, because they get no light.

2. Now try one with the steps

Explain how a sperm cell is adapted to its function.

Step 1 · Function

Step 2 · Adaptations

Answer:

3. Practice

Show your working. The marks tell you how much is expected.

1. What is the basic building block of all living organisms? [1]

2. Which part of a cell controls its activities? [1]

3. Name TWO parts found in plant cells but NOT animal cells. [2]

4. What is the function of the mitochondria? [1]

5. What does the cell membrane do? [1]

6. What is the cell wall made of, and what does it do? [2]

7. Where in a cell do most chemical reactions take place? [1]

8. Why do muscle cells contain many mitochondria? [2]

9. Why do red blood cells have no nucleus? [2]

10. A root hair cell has a long thin extension. Explain why. [2]

11. Which cell part, found in both plant and animal cells, is too small to see with a school light microscope? [1]

12. A cheek cell is 0.06 mm across and is drawn 30 mm across. What is the magnification? [2]

13. Explain why a palisade leaf cell has many chloroplasts but a root hair cell has none. [2]

14. Explain how a plant stays upright without a skeleton. [3]

4. Before you hand it in

"The cell wall controls what enters the cell."
The cell MEMBRANE controls what enters and leaves. The cell WALL gives support and lets most substances straight through.

"All plant cells have chloroplasts."
Leaf and green-stem cells have chloroplasts; root cells do not.

"You can see ribosomes with a light microscope."
Ribosomes (about 0.00002 mm) need an electron microscope. With a light microscope you can see the nucleus, cell wall, chloroplasts and vacuole.

"Animal cells don't have a cell membrane because they have no cell wall."
ALL cells have a cell membrane. Plant cells have a cell wall, outside it.