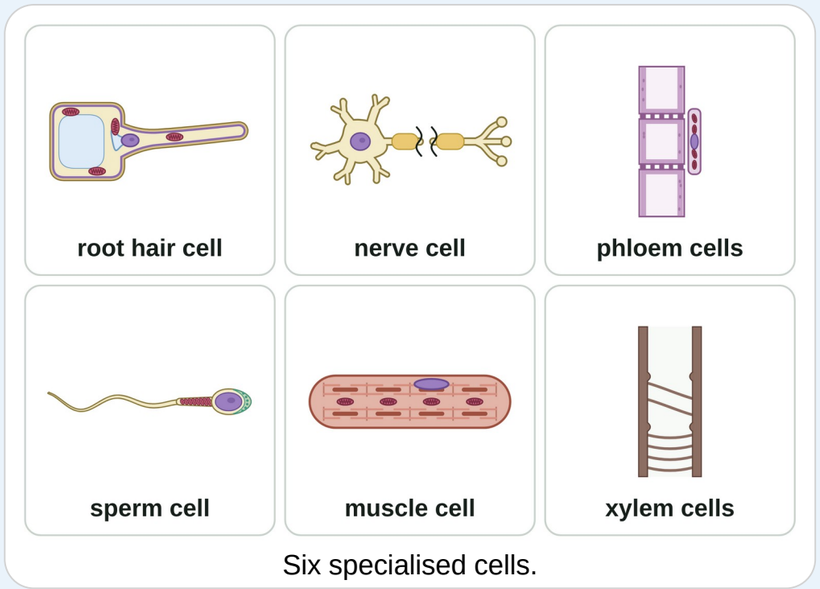
B1 L5 Alternative worksheet: Specialised cells

Name: _____ Class: _____

Key facts

- A **specialised cell** has a structure that suits it to one job.
- **Sperm cell**: swims to an egg cell and fertilises it. It has a tail.
- **Nerve cell**: carries electrical impulses.
- **Muscle cell**: contracts (gets shorter) to cause movement.
- **Root hair cell**: takes in water and mineral ions from the soil. It has no chloroplasts.
- **Xylem cells**: dead, hollow tubes that carry water and mineral ions.
- **Phloem cells**: living cells that carry dissolved sugars.
- **Mitochondria** release energy.
- Cells become specialised by **differentiation**.



Six specialised cells.

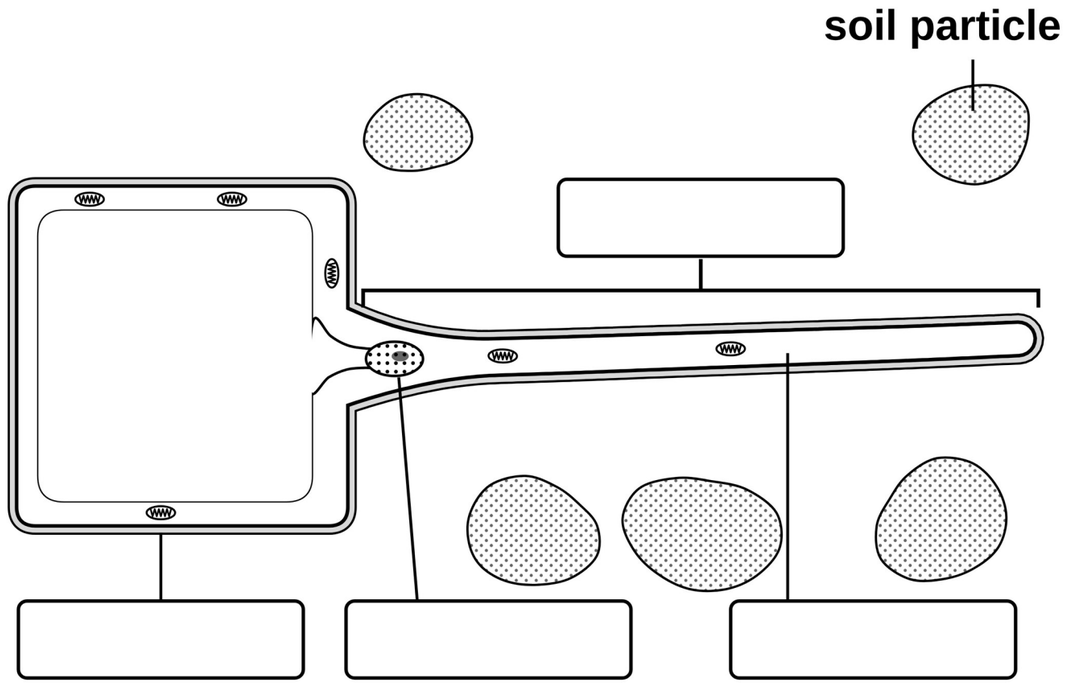
A diagram is simplified. Cells are drawn much bigger than real life, and the colours only show the parts.

A. Label the root hair cell

Help: online screens 2 and 3 [4]

Write a word from the box in each label box.

cytoplasm	**nucleus**	**root hair**	**cell wall**



Tip: the root hair is the long, thin part that reaches into the soil.

B1 L5 Alternative worksheet: Specialised cells

Name: _____ Class: _____

B. Match the cell to its job

Help: online screens 3, 4, 6 and 9 [6]

Draw a line from each cell to its job.

sperm cell	carry dissolved sugars
nerve cell	contracts to cause movement
muscle cell	takes in water from the soil
root hair cell	swims to an egg cell
xylem cells	carry water up the plant
phloem cells	carries electrical impulses

C. Fill the gaps

Help: online screens 3, 4, 6 and 9 [6]

Use the words in the box. Use each word once.

contract	**impulses**	**mitochondria**
sugars	**tail**	**water**

1. A sperm cell swims with its _____.
2. Many _____ release energy for swimming.
3. Nerve cells carry electrical _____.
4. Muscle cells _____ to cause movement.
5. Root hair cells take in _____ from the soil.
6. Phloem cells carry dissolved _____.

D. True or false?

Help: online screens 1, 3, 4, 6 and 9 [6]

Tick (✓) True or False for each sentence.

Sentence	True	False
1. A root hair is a separate hair stuck onto a root.		
2. Root hair cells have chloroplasts.		
3. A sperm cell uses its tail to swim.		
4. Nerve cells carry blood.		
5. Xylem cells are dead and hollow.		
6. Mitochondria release energy.		

E. How many times longer?

Help: online screen 7 [3]

Fill in the gaps. Do one step at a time.

1 mm = 1000 µm

A root hair is 0.4 mm long. A sperm cell is 50 µm long. How many times longer is the root hair?

1. Change mm into µm: 0.4 × 1000 = _____ µm
2. Divide by the length of the sperm cell: _____ ÷ 50 = _____
3. Check: your answer × 50 = _____ µm

The root hair is _____ times longer than the sperm cell.

Tip: change both sizes into µm before you divide.