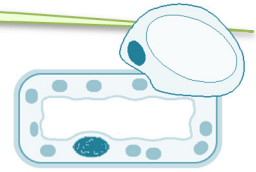
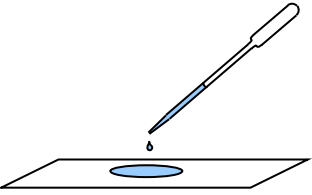
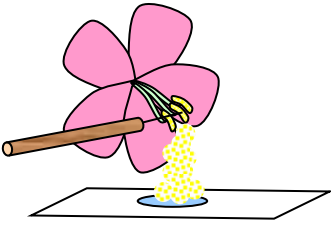
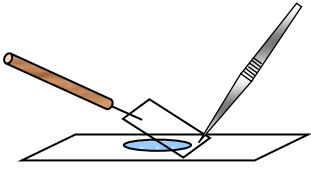
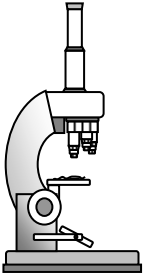
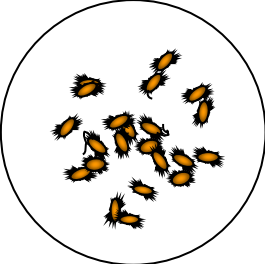
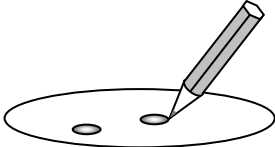


Pollen



Charlie prepared a microscope slide of the pollen from a lily. The pictures below show the steps he took during the process.

<p>Step 1 Small pool of water</p> 	<p>Step 2 Adding some pollen</p> 	<p>Step 3 Placing the cover slip</p> 	<p>Fact File</p> <p>Pollen is the male reproductive cell in plants. It is found on the stamen.</p> <p>During reproduction, the pollen nucleus has to be transferred to the ovule of another flower.</p> <p>The whole pollen grain may be carried to the stigma by insects, birds or the wind.</p> <p>A pollen tube then grows to the ovary for the pollen nucleus to move through.</p>
<p>Step 4 Preparing the microscope</p> 	<p>Step 5 Viewing the slide</p> 	<p>Step 6 Recording observations</p> 	

Tasks

1. Label the following pieces of apparatus in the pictures. You do not need to repeat labels.

Microscope slide Dropper Lily Stamen Pollen
 Cover slip Forceps Needle Microscope Sketch

2. Write a procedure for preparing the pollen slide for viewing. Use the six steps suggested in the pictures above.
3. Draw a sketch of the pollen as it appears under the microscope.
4. Some of the pollen grains appear to be growing pollen tubes. Circle one of these grains.
5. Outline the part pollen plays in the reproductive cycle of flowering plants. Include details of how it is transferred to the ovule and what happens when it arrives.
6. Find a picture of pollen at high magnification (perhaps x400). Sketch one of the pollen grains from the image.

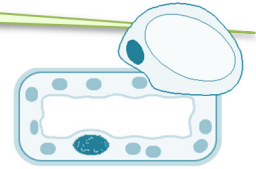
Key Words

Pollen. Reproductive cell. Stamen.
 Nucleus. Stigma. Pollen tube. Ovule.
 Reproductive cycle.

Checklist for this activity

- | | |
|--|---|
| <input type="checkbox"/> Work on the sheet/in the file | <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 |
| <input type="checkbox"/> Write full answers | <input type="checkbox"/> Copy the <i>Fact File</i> |
| <input type="checkbox"/> Copy the diagrams | <input type="checkbox"/> Add your own research |

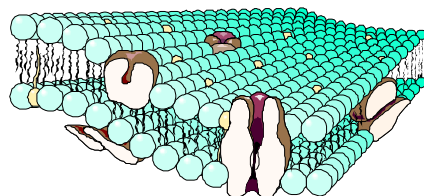
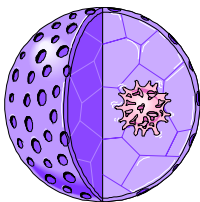
Plant Cells



1. Using the information given to you by your teacher, provide a label for the following structures:

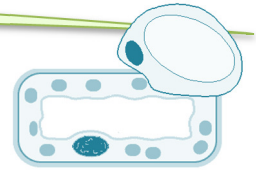


2. Match the diagrams below with the labels above and then arrange them in a table that describes their function. You might use the headings 'Name of organelle', 'Picture' and 'Function in cell'.


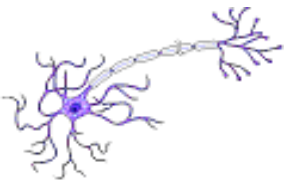
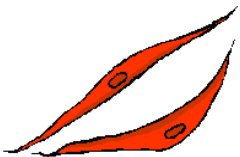
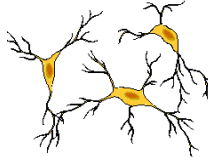
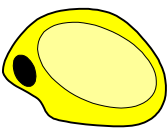
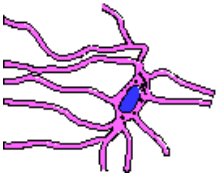
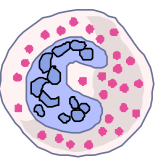


3. Name the chemical in plants that gives them a green colour and makes food by absorbing light energy. Find out what this chemical does.

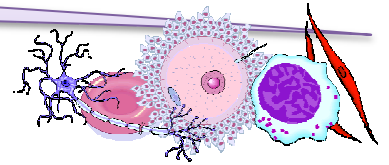
Cell Function^{LA}



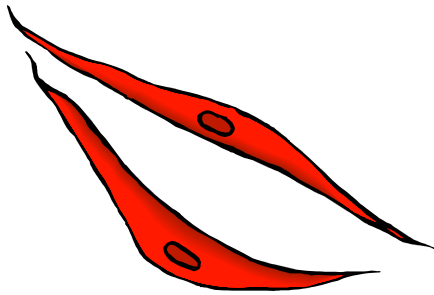
Cut out the pictures, cell names and descriptions. Arrange each cell name with its correct picture and description.

Pictures	Cell Names	Descriptions
	NERVE CELL	These cells make a fibre that can contract and pull.
	MUSCLE CELL	These carry oxygen around the body.
	RED BLOOD CELL	These long cells carry messages between the brain and muscles.
	FAT CELL	This storage cell is found below the skin.
	BONE CELL	These are a type of nerve cell. They form our brain matter.
	WHITE BLOOD CELL	These cells join to form a hard material.
	BRAIN CELL	These cells help fight off disease.

Muscle Cell



A muscle cell (also called a muscle fibre) is long and cylindrical. The cell is made up of many smaller fibres which can contract and expand. There are 3 types of muscle: smooth, skeletal and cardiac.



Labels

Nucleus
Myofibril
Actin
Myosin

Key Words

Fibre	Actin
Myofibrils	Myosin
Smooth	Isotonic
Skeletal	Isometric
Cardiac	Voluntary
Fascicle	Calcium
Striated	Atrophy

Research Ideas

- What are actin and myosin?
- What is the difference between smooth muscle and striated muscle?
- What is the difference between voluntary and involuntary muscles?
- How do nerve cells and muscle cells communicate?
- What is the largest and smallest muscle in the body?

Advanced Research

- Explain the importance of a balanced diet to normal muscle function.
- Make a list of isotonic exercise activities.
- Make a list of isometric exercise activities.

Presentation Ideas

- Create a wall display with diagrams and facts.
- Give a talk to your class.
- Write and perform a poem, play or song.
- Tell a story.
- Create a Prezi or PowerPoint.
- ...

Internet Search Terms

- "muscle cell" + diagram
- myosin + actin
- smooth + striated + muscle
- "the largest muscle"
- voluntary + involuntary + muscle

Webpages

- kids.kiddle.co/Skeletal_muscle
- www.howstuffworks.com/muscle
- [en.wikipedia.org/wiki/Cell_\(biology\)](http://en.wikipedia.org/wiki/Cell_(biology))
- en.wikipedia.org/wiki/Muscle_cells
- www.visiblebody.com/learn/muscular/muscle-types
- [youtu.be/L- MvjcH0xk](http://youtu.be/L-MvjcH0xk)

Cell Wordsearch



T D M T S S M O E D S E N A N
 M S U E L C U N L L N W O O U
 C A F E R T I L I S A T I O N
 H P G S A I A D Z E P T T D E
 L L Z N N M E W S O A V U I L
 O A N L I E R O L S B M L V O
 R N F N H F L L I M E U O I U
 O T A R L U I L C M U V S S C
 P B U J L N A C B I T S E I A
 L D X L A I O R A T N G R O V
 A X E T C O A V S T I A S N W
 S C I E D N L L E C I S G J G
 T O P V E O R G A N S O S R M
 N S E P O C S O R C I M N U O
 A C Y T O P L A S M T J D N E

Words to find

- | | |
|---------------|----------------|
| Animal | Nucleus |
| Cell | Organic |
| Cellulose | Organs |
| Chloroplast | Plant |
| Cytoplasm | Pollination |
| Division | Resolution |
| Fertilisation | Slide |
| Lens | Specialisation |
| Magnification | Tissue |
| Membrane | Vacuole |
| Microscope | |

