

Asking Questions

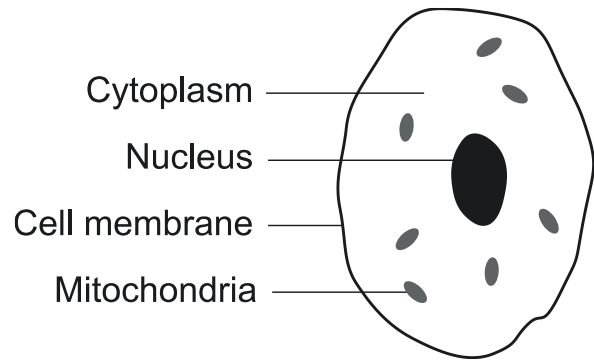
1. Science is about
 - a. **observing** the world (watching and listening)
 - b. **asking questions** about nature and how the world works
 - c. coming up with **ideas and explanations** that explain what we see
 - d. **testing** our ideas to see if they are true
 - e. using our knowledge and skills to **solve problems and improve lives**
2. A scientific question is one that
 - a. Can be **answered**
 - b. Can be **tested** or measured

Staying Safe

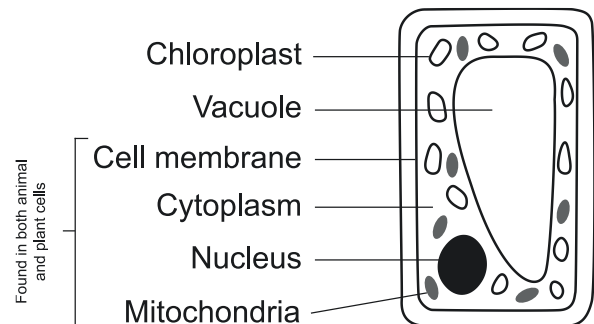
3. A **hazard** is something that can cause harm
4. A **risk** is the harm that might happen to you or someone else
5. A **precaution** is what you do to prevent a hazard from causing harm

Cells

6. Living things are called organisms
7. All organisms carry out the **7 life processes**: movement, respiration, sensitivity, growth, reproduction, excretion and nutrition
8. All living things are made of cells
9. **Unicellular** organisms are made of only one cell e.g. bacteria
10. **Multicellular** organisms are made of many cells e.g. humans
11. Animal and plant cells contain a **nucleus, cell membrane, mitochondria** and **cytoplasm**



12. Only plant cells contain a cell wall, vacuole, and chloroplasts



13. The **nucleus** controls the cells activities because it contains DNA
14. The **cell membrane** controls what enters and leaves the cell
15. The **cytoplasm** is a jelly-like substance where reactions happen
16. The **cell wall** surrounds plant cells and provides strength and support
17. The **chloroplasts** are where photosynthesis take place to make food (glucose) for the plant and contain chlorophyll to absorb sunlight
18. The **vacuole** contains a liquid that stores substances for the cell and keeps it rigid

Specialised Cells

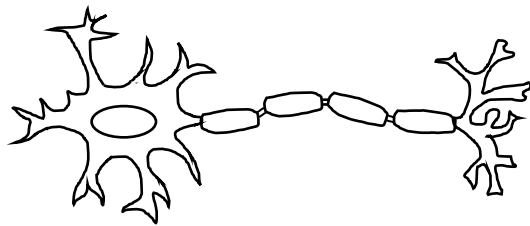
19. Specialised cells have different structures that let them carry out their function
20. **Sperm cells**: Their function is to swim to the egg cell for fertilisation. The structure



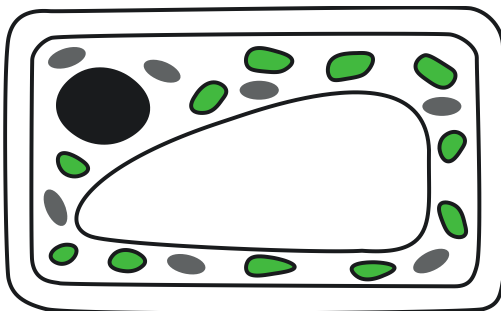
that helps them to do this is a tail for swimming



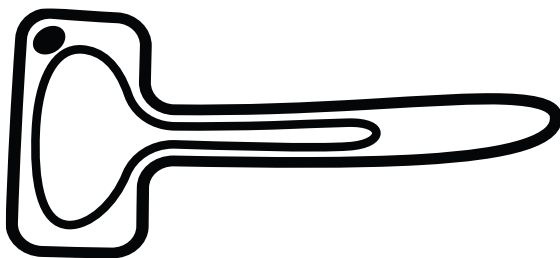
21. **Neurons** (nerve cells): Their function is to send messages to control the body. The structure that helps them to do this is a long axon and connections at the ends



22. **Leaf cells:** Their function is to take in lots of sunlight (for photosynthesis to make food). Their structure helps them to do this as they have lots of chloroplasts

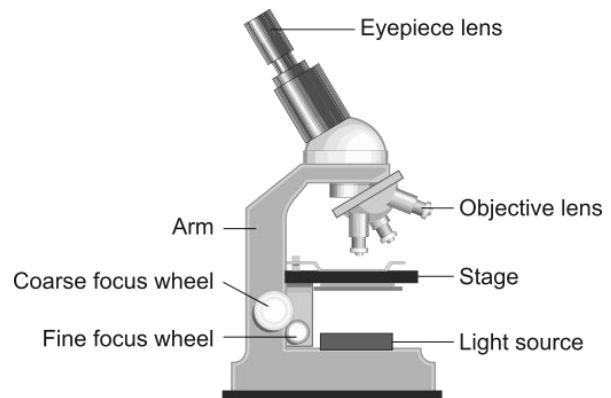


23. **Root hair cells:** Their function is to take in lots of water. To help them to do this, their structure consists of a large surface area to take water in



Microscopes

24. A microscope is used to make something small appear much larger
25. The parts of a microscope are: eye piece lens, stage, objective lenses, handle/arm, light/mirror, coarse focusing wheel, fine focusing wheel

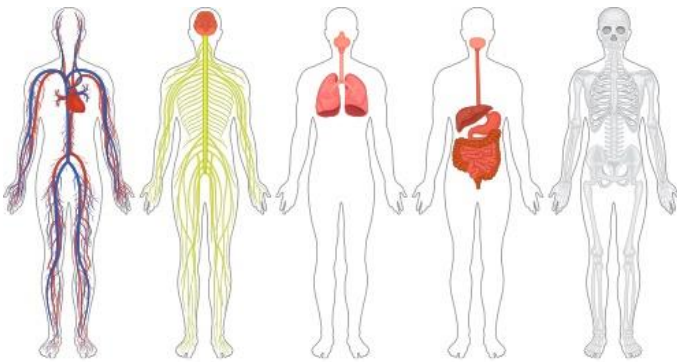


26. To calculate the magnification of an image seen under the microscope, this equation can be used:
Magnification = eyepiece magnification x objective lens magnification
27. The following method should be used to observe something under the light microscope:
- Place the specimen under the clips on the stage
 - Move the objective lenses so that the lowest magnification is facing the specimen
 - Move the stage up towards objective lens using the coarse focus wheel ensuring that it does not touch it
 - Place your hand on coarse focus wheel and look through the eyepiece lens
 - Move the coarse focus wheel slowly away from you so that the stage moves down
 - When the image becomes clearer, use the fine focus wheel instead and focus the image to make it clear



Cell Organisation

28. A group of the same cells working together is called a **tissue**
29. A group of tissues working together for the same function is called an **organ**
30. A group of organs working together for the same function is called an **organ system**
31. There are many organ systems in the human body including: respiratory, excretory, nervous, muscular, circulatory, skeletal and digestive



Circulatory system Nervous system Respiratory system Digestive system Skeletal system

32. Multicellular organisms require organ systems to carry out life processes



