Year 7 Cells **Knowledge Organiser**

ATHERTON HIGH SCHOOL

Asking Questions

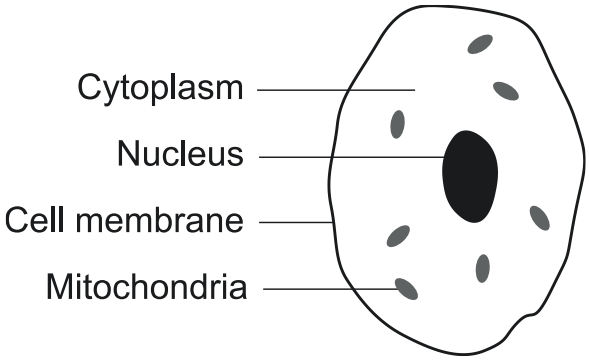
1. Science is about
a. **observing** the world (watching and listening)
b. **asking questions** about nature and how the world works
c. coming up with **ideas and explanations** that explain what we see
d. **testing** our ideas to see if they are true
e. using our knowledge and skills to **solve problems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

Staying Safe

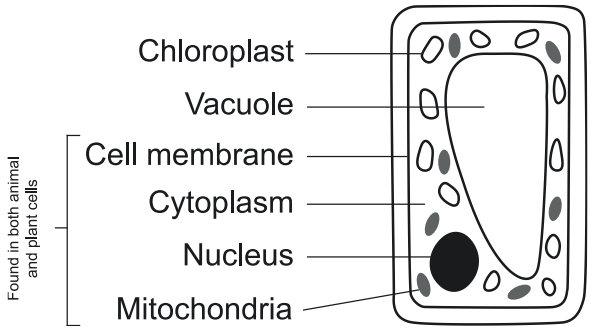
3. A **hazard** is something that can cause harm
4. A **risk** is the harm that might happen to you or someone else
5. A **precaution** is what you do to prevent a hazard from causing harm

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



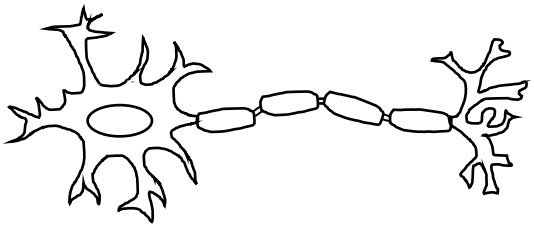
13. The **nucleus** controls the cells activities because it contains DNA
14. The **cell membrane** controls what enters and leaves the cell
15. The **cytoplasm** is a jelly-like substance where reactions happen
16. The **cell wall** surrounds plant cells and provides strength and support
17. The **chloroplasts** 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

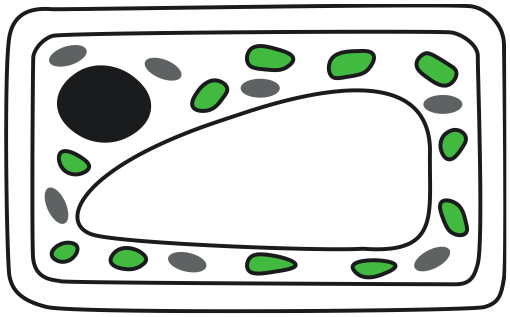
19. Specialised cells have different structures that let them carry out their function
20. **Sperm cells:** Their function is to swim to the egg cell for fertilisation. The structure

that helps them to do this is a tail for swimming

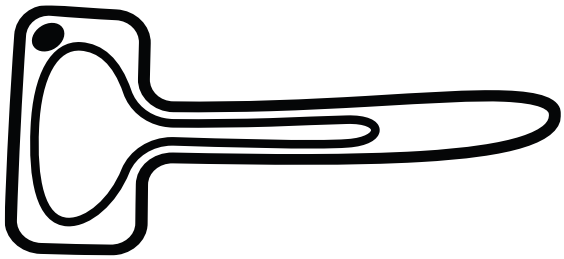
21. **Neurons** (nerve cells): Their function is to send messages to control the body. The structure that helps them to do this is a long axon and connections at the ends



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

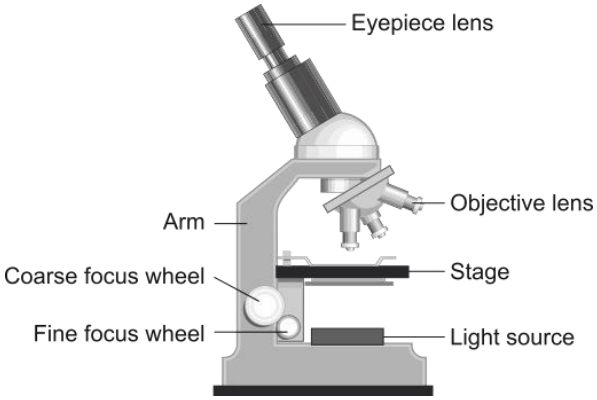


23. **Root hair cells:** Their function is to take in lots of water. To help them to do this, their structure consists of a large surface area to take water in



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

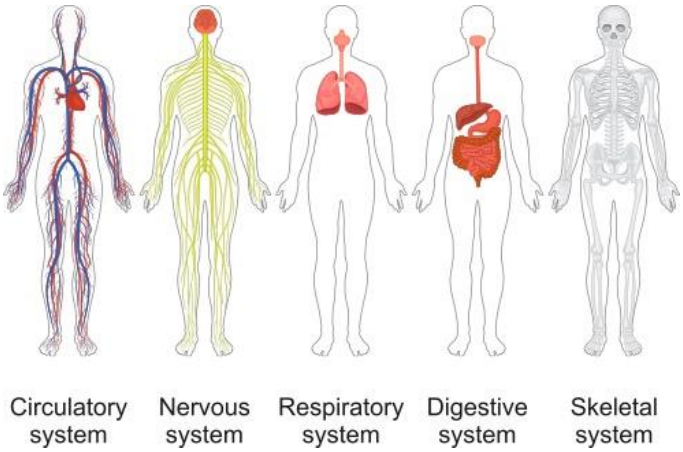


26. To calculate the magnification of an image seen under the microscope, this equation can be used: Magnification = eyepiece magnification x objective lens magnification
27. The following method should be used to observe something under the light microscope:

a. Place the specimen under the clips on the stage
b. Move the objective lenses so that the lowest magnification is facing the specimen
c. Move the stage up towards objective lens using the coarse focus wheel ensuring that is does not touch it
d. Place your hand on coarse focus wheel and look through the eyepiece lens
e. Move the coarse focus wheel slowly away from you so that the stage moves down
f. 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



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