

# WJEC Wales Biology GCSE

## 1.1 (a) to (d) - Cells

### Flashcards

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What are the components of both plant and animal cells? (4)



# What are the components of both plant and animal cells? (4)

- Nucleus
- Cytoplasm
- Cell membrane
- Mitochondria



# What are the functions of the nucleus?



# What are the functions of the nucleus?

- Stores genetic information
- Controls cellular activities



# Describe the structure of the cytoplasm



## Describe the structure of the cytoplasm

- Fluid component of the cell
- Contains organelles, enzymes and dissolved ions and nutrients



# What is the function of the cytoplasm?





What is the function of the cytoplasm?

Site of cellular reactions e.g. first stage of respiration



# What is the function of the cell membrane?



What is the function of the cell membrane?

Controls the entry and exit of materials  
into and out of the cell



# What is the function of the mitochondria?



What is the function of the mitochondria?

Site of later stages of aerobic respiration  
in which ATP is produced



Which organelles are found in plant cells only? (3)



## What organelles are found only in plant cells? (3)

- Cell wall
- Large, permanent vacuole
- Chloroplasts



# What is the cell wall made of?





# What is the cell wall made of?

## Cellulose



# What is the function of the cell wall?



## What is the function of the cell wall?

- Provides strength
- Prevents the cell bursting when water enters by osmosis



# What does the permanent vacuole contain?



What does the permanent vacuole contain?

Cell sap (a solution of salts, sugars and organic acids)



What is the function of the permanent vacuole?



What is the function of the permanent vacuole?

Supports the cell, maintaining its turgidity



# What is the function of the chloroplasts?





# What is the function of the chloroplasts?

## Site of photosynthesis



What piece of equipment is used to observe plant and animal cells?



What piece of equipment is used to observe plant and animal cells?

Light microscope



# How does a light microscope work?



## How does a light microscope work?

Passes a beam of light through a specimen which travels through the eyepiece lens, allowing the specimen to be observed



Describe the pathway of light through a  
light microscope



Describe the pathway of light through a light microscope

lamp → condenser → specimen →  
objective lens → eyepiece lens → eye



What is the function of the eyepiece lens?





# What is the function of the eyepiece lens?

- Magnifies the image
- Fixed magnification, usually  $\times 10$



What is the function of the objective lens?



# What is the function of the objective lens?

- Magnifies the image
- Interchangeable magnifications:  $\times 4$ ,  $\times 10$ ,  $\times 40$



What is the function of the iris diaphragm?



What is the function of the iris diaphragm?

Adjusts the amount of light that passes through the specimen and enters the objective lens



# What is the function of the condenser?



What is the function of the condenser?

Focuses light onto the objective lens



# How is a light microscope manually focused?





# How is a light microscope manually focused?

Using the coarse focus control and fine focus control



# What is the function of the coarse focus control?



What is the function of the coarse focus control?

Used to focus the image under the low-power objective lens



What is the function of the fine focus control?



What is the function of the fine focus control?

Used to finely adjust the focus of an image



# What is cell differentiation?



# What is meant by cell differentiation?

Process in which unspecialised cells (stem cells) become specialised to have a specific function



# Why is cell differentiation important?





# Why is cell differentiation important?

Enables the formation of specialised cells with specific functions e.g. sperm cells, red blood cells.



# What is a tissue?



## What is a tissue?

A group of similar cells which work together to perform a specific function  
e.g. muscle tissue, xylem tissue



# What is an organ?



# What is an organ?

A group of tissues which work together to perform a specific function e.g. brain, heart, kidney



# What is an organ system?



# What is an organ system?

A group of organs that work together to perform a particular function e.g. nervous system, digestive system



# What is an organism?





# What is an organism?

A living thing that is able to function independently e.g. human, sunflower

