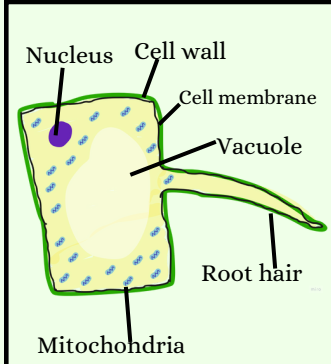


Name: Root hair cell Job: Take up water and mineral ions efficiently.

Adaptations	Function
Root hair	Increase surface area for greater uptake from soil
Vacuole	Increases speed of water movement by osmosis from soil
Mitochondria	Transfer energy by respiration so roots can take up mineral ions by active transport

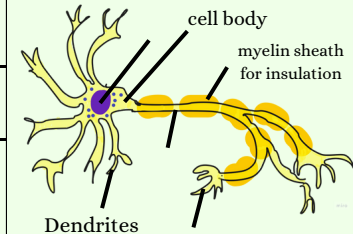


Cells that have adaptations to perform a particular function/role/job

Definition

Name: Nerve cell Job: Carry electrical impulses for fast communication around the body

Adaptations	Function
Dendrites	Make connections to other nerve cells
Axon	Carries electrical impulse
Synapse	Nerve endings that allow transmission of chemical transmitters to other cells or muscles

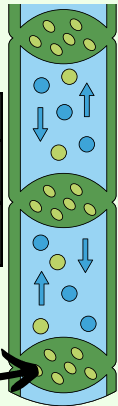


Synapses need energy to make chemical transmitters, which organelle will there be lots of?
Mitochondria

Name: Phloem Job: Transports glucose

Adaptations	Function
Sieve plates	Allows water carrying glucose to be transported
Companion cells	Contain mitochondria that provide energy to transport glucose up and down the plant

Label sieve plates on the diagram



Plant

SPECIALISED

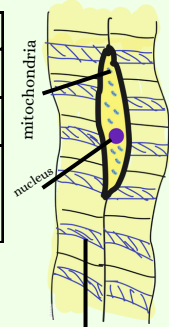
CELLS



Animal

Name: Muscle cell Job: Contract and relax

Adaptations	Function
Proteins	Slide over each other to help contract and relax
Mitochondria	Transfer/release energy by respiration for contractions
Store glycogen	Broken down into glucose for use in respiration in the mitochondria to release energy for contractions



Types of muscles

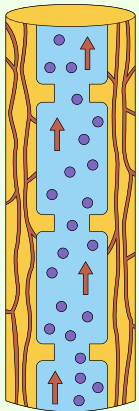
Striated
Example: Skeletal muscle like biceps and triceps

Smooth
Example: Digestive system

proteins that help contract and relax the muscle

Name: Xylem

Job: Transport water and mineral ions from roots to shoots



Match up

- Lignin spirals
- Dead cells
- Cell wall
- Cell support
- Allow xylem to be hollow for transport
- Provide strength to withstand water pressure

Becoming specialised

Early cells start unspecialised. these are called stem cells.

A process called differentiation means cells develop adaptations to perform particular roles

Name: Sperm cell Job: Fertilise an egg cell during reproduction

Adaptations	Function
Tail	Helps sperm to move
Middle filled with mitochondria	Transfer energy allowing tail to work
Acrosome	Contains enzymes that can be released to digest the outer egg layers, allowing the sperm to enter.
Nucleus	Contains genetic information to be passed on during fertilisation

