

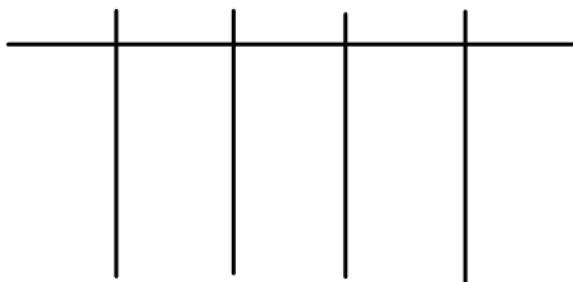
Teaching notes

This activity can be applied to just about any topic although it particularly lends itself to recall of information, revision and higher ability students. It can be easily differentiated for lower ability groups by using much smaller chunks of information.

Two sets of information are prepared, 5 paragraphs each.

The activity is broken into two stages 'Home' and 'Away'.

Home: In pairs, students work with one set of information (5 paragraphs). On A3 or sugar paper they draw the following grid to fill the page:



Each column will represent one paragraph in the text but apart from writing one word at the top of each column, the text must be converted into pictures.

The pictures do not have to be scientific. The aim is that the pair can narrate the text back by only looking at their drawings.

cellulose	cross-links	macrofibril	turgid	function

Away: One person from each pair swaps with another that drew the alternative piece of text. The person staying with their work narrates it to their new partner. In turn, the new partner then narrates the 'new' pictures back to their original partner. This way, everyone in the room has had access to both pieces of text.

It's worth getting your head around the way the activity works because once you have the hang of it, it's extremely versatile. Below is an example of a completed sheet and paragraphs used with KS5.



Student sheet - set 1

Cellulose is a long, straight chained polysaccharide made from beta-glucose molecules. It is found only in plants and is the most common polysaccharide in nature.

Hydrogen bonds form between hydroxide groups of glucose monomers on different polysaccharide chains. This means cross-links form between cellulose molecules resulting in bundles called microfibrils.

Microfibrils in turn are held together by more hydrogen bonds to form larger bundles called macrofibrils. These have great mechanical strength and with a glue of pectins, form the cell wall.

The arrangement of macrofibrils allows water to move through and along cell walls. The cell wall also prevents cells from bursting when full of water (turgid).

Cell walls can be reinforced with other substances to provide extra support, or to make them waterproof. They can also affect how cells grow and function e.g. guard cells.

Student sheet - set 2

Maltose is formed from the condensation of two alpha glucose molecules. If this reaction occurs over and over again, a long molecule called amylose forms.

Amylose can be made from thousands of glucose monomers. Glycosidic bonds form between the monomers (carbon number 1 of one molecule with carbon number 4 of the next).

The long chains of amylose coil into a spring which makes amylose compact. If iodine is added, it becomes trapped in the coils of the spring and changes colour from yellow to black (a positive starch test).

Amylose is not water-soluble and is the main component of starch along with another carbohydrate - amylopectin. Amylopectin is a long branched molecule. Starch is stored in chloroplasts and as starch grains in other parts of plant cells.

Another energy storage molecule is glycogen. It is also made of alpha glucose molecules but differs from starch in that the polysaccharide chains are shorter and more branched meaning the overall molecule is more compact.