

Water, carbohydrates and lipids

What is a dipole?

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Why do ions dissolve in water?

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Name two substances transported dissolved in xylem or phloem sap.

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Name the three monosaccharides and three disaccharides you need to know.

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Which bonds join glucose units in amylose?

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What bonds are in amylopectin and glycogen?

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Why is glycogen suited to being an energy store?

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Where is glycogen stored?

Charged ends of water molecules are attracted to the ions and surround them, keeping them dispersed.

A molecule with a slightly positive end and a slightly negative end, because its electrons are shared unevenly.

Glucose, fructose, galactose. Maltose, sucrose, lactose.

Xylem: mineral ions. Phloem: sucrose (also amino acids).

α -1,4 glycosidic bonds in the chain and α -1,6 glycosidic bonds at the branch points.

α -1,4 glycosidic bonds only, giving an unbranched chain that coils into a helix.

In liver and muscle cells (animals).

Insoluble, compact, and highly branched so many free ends allow rapid hydrolysis to glucose.

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What is a condensation reaction?

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What is hydrolysis?

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Maltose, sucrose and lactose: what is each made from?

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What colour changes does the Benedict's test show as reducing sugar concentration rises?

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What does iodine solution show for starch?

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What does semi-quantitative mean in Core practical 1?

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What does a triglyceride consist of?

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How many water molecules are released when a triglyceride forms?

A reaction in which a molecule of water is used to break a bond, for example a glycosidic bond.

A reaction joining two molecules by forming a bond and releasing a molecule of water.

Blue → green → yellow → orange → brick-red (heated in a water bath).

Maltose: glucose + glucose. Sucrose: glucose + fructose. Lactose: glucose + galactose.

Concentration is estimated by matching colour to standards of known concentration, not measured exactly.

Yellow-brown to blue-black, darker as starch concentration increases.

Three, one per ester bond (condensation).

One glycerol molecule joined to three fatty acids by three ester bonds.

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What is a saturated lipid?

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Why are unsaturated lipids often liquid at room temperature?

C=C double bonds kink the chains, so they pack less closely and have a lower melting point.

One whose fatty acids have no C=C double bonds in the hydrocarbon chain.