

Solutions

2.1 Any three: used for respiration; converted to starch for storage; converted to cellulose for cell walls; used with nitrates to make amino acids/proteins; converted to lipids/oils for storage in seeds.

2.2 Glucose $\rightarrow$ ethanol + carbon dioxide.

2.3 The sum of all the reactions in a cell or in the body.

3.1 Aerobic: in mitochondria and cytoplasm / needs oxygen; glucose fully broken down to carbon dioxide and water; transfers much more energy. Anaerobic: cytoplasm only, without oxygen; glucose incompletely broken down to lactic acid, transferring much less energy.

3.2 Oxygen supply is less than the muscles' demand; anaerobic respiration transfers energy but builds up lactic acid; lactic acid causes fatigue / muscles stop contracting efficiently. (HT) Blood transports lactic acid to the liver; the liver converts it back to glucose, using the extra oxygen breathed after exercise – the oxygen debt.

3.3 Yeast uses the sugar for respiration; in the dough there is little oxygen, so yeast respire anaerobically – fermentation; glucose $\rightarrow$ ethanol + carbon dioxide; the CO₂ gas bubbles expand/get trapped in the dough, so it rises.