S2 Biology CELLS Learning Outcome checklist

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| Activity | -/+/\* | by the end of this activity you should know |
| S1 Cells recap |  | * cells have structures including, nucleus, cytoplasm, cell membrane – in all cells; cell wall, chloroplast, vacuole – in plants only |
| Enzymes  – catalyst |  | * a catalyst can speed up the rate of a chemical reaction without being altered * an enzyme is a protein made by living cells that acts as a biological a catalyst * catalase speeds up the breakdown of hydrogen peroxide into water and oxygen |
| - build up |  | * phosphorylase is an enzyme that catalyses the synthesis of starch from glucose-1-phosphate |
| - breakdown |  | * amylase is an enzyme that catalyses that breakdown of starch into maltose * as the temperature increases the enzyme activity increases up to around 40oC * at temperatures above 40oC enzyme molecules are damaged and no longer work – this is called denatured |
| - specific |  | * an enzyme is specific - it will only work on one type of substrate * the shape of an enzyme molecule fits the shape of its substrate molecule * the lock and key theory is used to explain how enzymes are specific * the enzyme is like the key fitting into the substrate which is the lock |
| Respiration  -aerobic |  | * respiration is the chemical process that releases the energy that is stored in food * the raw materials are oxygen and food * the products are water and carbon dioxide |
| - role of diffusion |  | * diffusion is the movement of a substance from an area where it is high in concentration to an area where it is low in concentration * diffusion is important to cells as it allows raw materials to enter a cell and products to leave a cell * only small molecules can cross the cell membrane through the tiny holes in it |
| -fermentation |  | * fermentation does not require oxygen but is less efficient at releasing the energy from food * anaerobic respiration in yeast produces ethanol and carbon dioxide * anaerobic respiration in animals produces lactic acid |
| Cell growth  -division |  | * Cell division is essential to allow organisms to grow and repair damaged parts, eg cuts, broken bones. * During cell division, the parent cell divides to produce two identical cells, which contain the same number of chromosomes in their nuclei as the parent cell. |
| -uncontrolled growth |  | * Cancer cells result from uncontrolled cell division. |