S2 Biology CELLS Learning Outcome checklist

|  |  |  |
| --- | --- | --- |
| 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.
 |