**Curriculum Related Expectations**

HT2: Year 7 Organisms Cells / Matter Separating Mixtures / Forces Speed

**Students can define the following terms:**

|  |  |
| --- | --- |
| Cell | Uni-cellular |
| Multi-cellular | Tissue |
| Organ | Diffusion |
| Structural adaptations | Cell membrane |
| Nucleus | Vacuole |
| Mitochondria | Cell wall |
| Chloroplast | Cytoplasm |
| Immune system | Reproductive system |
| Digestive system | Circulatory system |
| Respiratory system | Muscular skeletal system |
| Solvent | Solute |
| Dissolve | Solution |
| Soluble | Solubility |
| Pure substance | Mixture |
| Filtration | Distillation |
| Evaporation | Chromatography |
| Speed | Average speed |
| Relative motion | Acceleration |

**Students know:**

* Multicellular organisms are composed of cells which are organised into tissues, organs and systems to carry out life processes.
* There are many types of cell. Each has a different structure or feature so it can do a specific job.
* Use a light microscope to observe and draw cells.
* A pure substance consists of only one type of element or compound, and has a fixed melting and boiling point. Mixtures may be separated due to differences in their physical properties.
* The method chosen to separate a mixture depends on which physical properties of the individual substances are different.
* Use techniques to separate mixtures.
* If the overall, resultant force on an object is unbalanced, its motion changes and it slows down, speeds up or changes direction.
* Use the formula:

 speed = distance (m) / time (s) or distance-time graphs, to calculate speed.

* A straight line on a distance-time graph shows constant speed, a curving line shows acceleration.
* The higher the speed of an object, the shorter the time taken for a journey.

**Students can:**

* Explain why multi-cellular organisms need organ systems to keep their cells alive.
* Suggest what kind of tissue or organism a cell is part of, based on its features.
* Explain how to use a microscope to identify and compare different types of cells.
* Explain how uni-cellular organisms are adapted to carry out functions that in multicellular organisms are done by different types of cell.
* Make deductions about how medical treatments work based on cells, tissues, organs and systems.
* Suggest how damage to, or failure of, an organ would affect other body systems.
* Deduce general patterns about how the structure of different cells is related to their function.
* Explain how substances dissolve using the particle model.
* Use the solubility curve of a solute to explain observations about solutions.
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* Choose the most suitable technique to separate out a mixture of substances.
* Analyse and interpret solubility curves.
* Suggest a combination of methods to separate a complex mixture and justify the choices.
* Evaluate the evidence for identifying an unknown substance using separating techniques.
* Illustrate a journey with changing speed on a distance-time graph, and label changes in motion.
* Describe how the speed of an object varies when measured by observers who are not moving, or moving relative to the object.
* Suggest how the motion of two objects moving at different speeds in the same direction would appear to the other.
* Predict changes in an object's speed when the forces on it change.