**Year 7**

**Term 3**

**Science**

**Revision Guide**

**Solutions**

**Electricity**

**Variation**

**End of Term Exam Details:**

* **1 written exam**
  + **1 hour 30 minutes**
  + **In the exam hall**
  + **Four sections**
    - **Multiple choice**
    - **Vocabulary (matching)**
    - **Vocabulary (write definitions)**
    - **Short answer**
    - **Essay Question**
    - **Graph Question**
  + **Calculator allowed**
  + **MOST of the exam is on the Term 3 material from this packet**
  + **Only roughly 15% of the exam is on older material**
* **1 practical exam**
  + **1 hour**
  + **In the lab room**
  + **Experiments done in partners**
  + **Written questions and graph done on your own**
  + **Marks off for not**
    - **Doing experiment safely**
    - **Following instructions**
    - **Using equipment correctly**
    - **Working independently without help**

**Solutions**

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| Identify the solute, the solvent, and the solution in different examples. |
| Recall examples of soluble and insoluble substances. |
| Recall that solutions are transparent, not opaque. |
| Describe using the particle model what happens when substances dissolve. |
| Explain why filtering separates insoluble substances from a solution. |
| Describe what solubility is. |
| Describe how to make a saturated solution. |
| Explain how temperature affects solubility. |
| Analyse solubility graphs to determine how many grams of solute will dissolve at different temperatures and which solutes are more/less soluble at different temperatures. |
| Describe how to use chromatography to separate a mixture of dyes. |
| Explain how chromatography works using ideas about solubility. |
| Analyse a chromatogram to identify what substances are in a mixture of dyes. |
| Explain how to obtain a sample of salt from rock salt. |

**Vocabulary List**

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| Solute | A soluble solid that is dissolved. |
| Solvent | A liquid that dissolves the solute. |
| Solution | A mixture formed by a solute dissolved in a solvent. |
| Opaque | Not see through |
| Transparent | See through |
| Soluble | Able to dissolve |
| Insoluble | Not able to dissolve |
| Filtering | A method to separate an insoluble solid from a liquid or solution. |
| Solubility | A measure of how soluble a substance is, how many grams of solute will dissolve in a certain amount of solvent (g/100g of water) |
| Saturated Solution | A solution with the maximum amount of dissolved solute possible |
| Chromatography | A method to separate a mixture of dyes (coloured substances) |
| Chromatogram | The results of a chromatography experiment |
| Evaporation | When a liquid changes state to a gas, can be used to separate a solute from a solution by removing the solvent |

**Electricity**

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| Recall that electricity is a type of energy carried by the movement of electrons through a circuit. |
| Recall the circuit symbols for circuit components; bulb, cell, battery, switch, wire, ammeter |
| Explain why a complete circuit is needed for electricity to flow. |
| Describe the difference between conductors and insulators. |
| Explain what parts of an electrical device should be made from conductors and which should be made from insulators. |
| Draw series and parallel circuit diagrams. |
| Use a model to explain a circuit and the role of the components of a simple circuit (energy, electrons, cell, wire, bulb, switch, resistor) |
| Describe what current and voltage are. |
| Predict the current in different parts of a series and parallel circuit. |
| Predict the brightness of bulbs in different series and parallel circuits. |
| Predict which bulbs would stay lit if different switches were opened or closed. |
| Recall that all components have resistance. |
| Describe the effect of resistance on current. |
| Explain why high voltage is dangerous and what injuries can occur. |

**Vocabulary List**

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| Electricity | Type of energy carried by the movement of electrons |
| Electron | Tiny particle that carries electrical energy around a circuit |
| Complete Circuit | A completely connected loop that allows electricity (electrons) to flow through |
| Conductor | A material that allows electricity to flow through |
| Insulator | A material that does not allow electricity to flow through |
| Resistance | A measure of how difficult it is for electricity to flow through (high resistance = very difficult for electricity to flow) |
| Current | A measure of the amount of electricity flowing through a circuit, measure in amps |
| Component | A part of a circuit |
| Bulb | A component that transfers electrical energy into light and heat energy |
| Cell | A component that provides energy to electrons and gives them a push around the circuit |
| Ammeter | A component that measures the current in a circuit at one location |
| Switch | A component that breaks or completes the circuit and turns the electricity off or on |
| Wire | A component made from a conductor that allows electron to flow through and connects the components in a circuit |
| Resistor | A component that increases the resistance in a circuit and decreases the current |
| Series Circuit | A circuit with only one loop, electricity has to flow through all components and current is the same everywhere |
| Parallel Circuit | A circuit with more than one loop, electricity has more than one pathway they can take, current splits when the circuit branches |
| Model | An example that is used to help explain a difficult scientific concept |

**Variation**

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| Describe what variation is. |
| Describe the difference between inherited and environmental variation. |
| Identify variations as inherited, environmental, or both. |
| Explain how inherited variations are passed from parent to offspring using ideas about genes. |
| Explain how genetic diseases are inherited. |
| Analyse a pedigree chart to see the chances of a child inheriting a genetic disease. |
| Identify categoric and continuous variables. |
| Draw graphs for categoric and continuous variables. |
| Classify animals into vertebrates and invertebrates. |
| Classify invertebrates into different groups (insects, arachnids, crustaceans, molluscs, worms). |
| Classify vertebrates into different groups using physical features. |
| Use a classification key to identify organisms based on their physical features. |

**Vocabulary List**

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| Variation | Differences between organisms |
| Inherited Variation | Differences (features) that are passed down from parent to offspring through genes |
| Environmental Variation | Differences (features) that are caused by environmental factors that are from outside the body |
| Environmental Factors | Something from the surrounding conditions (environment) that influences organisms |
| Gene | A section of DNA that controls a physical feature and is passed on from parent to offspring |
| Genetic Disease | A disease that can be inherited from parents to offspring and is caused by genes |
| Pedigree Chart | A chart that shows a family tree and contains information about which family members are affected by genetic diseases |
| Variable | Something that changes in an experiment |
| Categoric Variable | A variable that can be described in words (categories) |
| Continuous Variable | A variable that can be measured using numbers |
| Classification | Sorting into groups |
| Vertebrate | An animal with a back bone |
| Mammal | A vertebrate that has fur, is warm-blooded, breathes with lungs and gives birth to live young |
| Bird | A vertebrate that has feathers, is warm-blooded, breathes with lungs, and lays eggs |
| Reptile | A vertebrate that has dry scales, is cold-blooded, breathes with lungs, and lays eggs |
| Amphibian | A vertebrate that has moist skin, is cold-blooded, breathes with lungs, and lays eggs |
| Fish | A vertebrate that has wet scales, is cold-blooded, breathes with gills, and lays eggs |
| Invertebrate | An animal without a back bone |
| Insects | An invertebrate with six legs and an exoskeleton |
| Arachnid | An invertebrate with eight legs and an exoskeleton |
| Crustacean | An invertebrate a hard shelled exoskeleton and gills |
| Mollusc | An invertebrate with a soft body (no bones) of one section |
| Worms | An invertebrate group with a soft body in many sections |