**Year 10 Science ‘at home learning’ resource**

**Task: Aim to complete one activity a day to help support and further your revision and subject knowledge.**

**Key Topics to revise:**

* Ionic bonding, covalent bonding and types of substances
* Key concepts in biology
* Motion

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| Describe how an anion and a cation is formed. CHALLENGE: draw diagrams to represent an anion and cation formed in sodium chloride. | Define the following terms:   * Ionic bond * Covalent bond * Metallic bond * Delocalised electron * Electrostatic force * Anion * Cation | State what a polyatomic ion is. Write the formula and charge for the following ions: sodium, magnesium, chloride, oxide, nitrate, sulphate, hydroxide | Explain why sodium chloride, an ionic compound, has a high melting/boiling point whereas carbon dioxide, a covalent compound, has a low melting and boiling point. | Draw dot-cross diagrams for the bonding of the following substances:   * Water * Methane * Carbon dioxide | Explain why carbon dioxide cannot conduct electricity, but **molten** sodium chloride can. | State what an allotrope is. Describe the difference between the bonding in diamond and graphite. Explain why graphite can conduct electricity, but diamond cannot. | Describe metallic bonding. Use this model to explain the following properties: high melting point, good conductor of electricity, malleable. |
| State tow advantages of using an electron microscope to view cells, rather than a light microscope. | State the role of the following parts: nucleus, cell membrane, cytoplasm, cell wall, chloroplast, vacuole, mitochondria, ribosome | Write a method for making a slide of plant and animal cells. What is the role of the stain? | Describe how the following specialised cells are adapted for their role: sperm, ciliated epithelial cells, eggs cell. | Draw and label the parts of a bacterial cell. State what a flagellum does. Which two parts do bacterial cells have that animal cells may not? | State what eukaryotic and prokaryotic cells are. Compare eukaryotic and prokaryotic cells? | State what an enzyme is. Explain the role, with examples, of enzymes in the digestive system. | Explain the lock and key model for enzyme action. Explain the effect of pH, temperature and concentration on enzyme-controlled reactions. |
| Define the following terms:  Vector, scalar, force, weight, mass, distance, speed, displacement, magnitude | State how to calculate speed.  A snail travels 300cm in 4minutes. Calculate the speed of the snail in 4 minutes. | Sketch an example of a distance-time graph. Describe the key features of a distance-time graph. | Define acceleration. State how to calculate acceleration. A cheetah accelerates from rest to 30m/s in 3 seconds. Calculate the acceleration of the cheetah. | Sketch an example of a velocity-time graph. Describe the key features of a velocity-time graph. | Explain why the area under part of a velocity-time graph gives you the distance covered. | Use the following data of a train journey to plot a velocity-time graph. Label the graph with everything you can tell from it. Show any workings for your calculations. 0s – 0m/s; 20s – 10m/s; 30s – 30m/s; 60s – 30m/s; 120s – 0m/s; | A train is travelling at 35m/s. It slows down with an acceleration of -0.5m/s2. How much time does it take to stop and how far does it travel while it is stopping? |