



## Miss Burke – Science homework

Set week beginning	Homework Description				Due date Week beginning	
	Year 7 7U2	Year 8 8U3	Year 8 8F2	Year 9 9U1		Year 10 10U2
<b>January 6, 2020</b>	<p>Research a pair of organisms, similar to the cheetah and the hyena, where one is better adapted than the other. Write a paragraph to describe the adaptations of both organisms. Explain how the population of one is affected by the other.</p> <p>Kerboodle 10.1.3</p>	<p>What is supersonic travel? How are objects designed to travel faster than the speed of sound? What are the benefits of supersonic travel? What are the drawbacks of supersonic travel? Research different methods for reducing the volume of sound in areas where it could cause problems (e.g. houses near an airport). Write a short paragraph explaining how the different methods work.</p> <p>Kerboodle 4.1.1-2</p>	<p>What is supersonic travel? How are objects designed to travel faster than the speed of sound? What are the benefits of supersonic travel? What are the drawbacks of supersonic travel? Research different methods for reducing the volume of sound in areas where it could cause problems (e.g. houses near an airport). Write a short paragraph explaining how the different methods work.</p> <p>Kerboodle 4.1.1-2</p>	<p>Water and ethanol are both liquids at room temperature. Water boils at 100 °C. Ethanol boils at 78 °C. Can you explain the difference in boiling points in terms of the attraction of particles? Find out the formula of the following ions? Remember to include the charge. hydroxide nitrate sulphate carbonate Phosphate. Kerboodle C3.1-2</p>	<p>1. When an aeroplane lands it slows down, and at the end of a race a drag racer needs to slow down. Find out how aeroplanes and drag racers are slowed and stopped. Make a booklet or a presentation to show what you have found out. Remember to explain your findings as the forces that are acting and the energy transfers that are taking place. 2. Think of three places that you regularly experience a change in your gravitational potential energy. Estimate you change in gravitational potential energy for each of these three places.</p> <p>Kerboodle P1.2&amp;4</p>	<b>January 10, 2020</b>
<b>January 13, 2020</b>	<p>Produce a leaflet with an outline of a human in the middle. Label one side of the human "Changes in a boy during adolescence". Label the other side "Changes in a girl during adolescence". Fill in your leaflet.</p> <p>Kerboodle 10.2.1</p>	<p>Research the science behind how music is produced. Use your research to produce a leaflet for concert organisers to give to the public. You will need to access the WebQuest for your homework. Kerboodle 4.1.4</p>	<p>Research the science behind how music is produced. Use your research to produce a leaflet for concert organisers to give to the public. You will need to access the WebQuest for your homework. Kerboodle 4.1.4</p>	<p>1. You have a card bookmark. On the front, explain what an ionic compound is and what a giant lattice is. On the back, list the properties of ionic compounds and explain them in terms of the giant lattice model. Summarise the key information and make the bookmark eye-catching. 2. Create a table with four columns. The headings of the columns should be: molecule, formula, ball and stick, dot and cross. Add a row for each of the following molecules: hydrogen gas oxygen gas water methane Classify each of the molecules as an element or a compound. 3.Explain, using a labelled diagram, why ammonia has a low melting point. Kerboodle C3.4-6</p>	<p>1. Build an elastic-powered vehicle. Which vehicle can go the furthest? 2. Do some research to answer some questions about energy. You will need to calculate the energy transferred and compare different energy transfers and stores. 3. Research electrical devices that you use regularly to find the most efficiency model. What features of the device improves the efficiency? 4. Carry out a survey of the electrical appliances in your classroom or at home. Record the useful and wasted energy transfers of each appliance. Kerboodle P1.5-8</p>	<b>January 17, 2020</b>

<p><b>January 20, 2020</b></p>	<p>Write an account of the development of a baby. Your account should use scientific words and be well written. Kerboodle 10.2.4</p>	<p>Research the eyes of other animals. Write a short article about the similarities and differences between human and animal eyes. Include labelled diagrams. Research coloured lights and how they mix. Use this research to produce a fact-sheet for an amateur theatre group to help them plan lighting schemes in shows. You will need to access the WebQuest for your homework. Kerboodle 4.2.4-5</p>	<p>Research the eyes of other animals. Write a short article about the similarities and differences between human and animal eyes. Include labelled diagrams. Research coloured lights and how they mix. Use this research to produce a fact-sheet for an amateur theatre group to help them plan lighting schemes in shows. You will need to access the WebQuest for your homework. Kerboodle 4.2.4-5</p>	<p>1. Make a model of a Bucky-ball. Write a description of the properties of a Bucky-ball and some potential uses. 2. Would sodium or aluminium have stronger metallic bonding? Explain your answer. Kerboodle C3.8-9</p>	<p>Research how much energy is used by your electronic devices each day and over a year. Compare this to the energy used in lighting or heating. For homework, complete a survey of materials in your own home that are used for insulation or to allow efficient energy. For example, building materials or furnishings. Kerboodle P1.9-P2.1</p>	<p><b>January 24, 2020</b></p>
<p><b>January 27, 2020</b></p>	<p>Write a report on the hazard symbols you can find on chemical bottles around the home. Include: a sketch of the hazard symbol a brief description of the hazard precautions to take when using substances with this hazard. Make sure you are supervised by a responsible adult when doing this task. Kerboodle 6.1.2</p>	<p>Produce a leaflet on alternative fuels for cars. Include word equations for the combustion of your chosen fuels. Kerboodle 6.3.2</p>	<p>Produce a leaflet on alternative fuels for cars. Include word equations for the combustion of your chosen fuels. Kerboodle 6.3.2</p>	<p>1. Write five questions about the structure and bonding of metals. Swap them with a partner and answer your partner's questions. 2. Write a tweet (max. 140 characters) to summarise what you know about nanoscience. Kerboodle C3.10-11</p>	<p>1 A 'bomb calorimeter', diagram shows how samples of food can be burned to release heat energy. This can be used to calculate the energy content of the food, which is then displayed on the food label. Why is the sample cup surrounded by water, and how does this allow us to calculate the energy released by the food? What other features of the apparatus can you see that allow us to obtain reliable results? 2. For homework, complete the WebQuest to research different methods that can be used to improve the insulation of a house. Kerboodle P2.4-.5</p>	<p><b>January 31, 2020</b></p>
<p><b>February 3, 2020</b></p>	<p>What are the acids present in soils? What is the name of the base used to neutralise soils? What would the salts be called that are produced in this reaction? What other products would be produced? Write a short paragraph to answer these questions and write word equations for the neutralisation reactions that happen. Kerboodle 6.1.6</p>	<p>Calculate the missing mass for these equations. 1. <math>C(s) + O_2(g) \rightarrow CO_2(g)</math> 1.2g      3.2g 2. <math>CaCO_3(s) \rightarrow CaO(s) + CO_2(g)</math> 5g                      2.2 g For these equations, you will also need to balance them. 3. <math>CH_4(g) + O_2(g) \rightarrow CO_2(g) + H_2O(g)</math> 6.4 g      4.4 g      3.6 g 4. <math>Fe(s) + O_2(g) \rightarrow Fe_2O_3(s)</math> 8.93 g              12.77 g Kerboodle 6.3.4</p>	<p>Calculate the missing mass for these equations. 1. <math>C(s) + O_2(g) \rightarrow CO_2(g)</math> 1.2g      3.2g 2. <math>CaCO_3(s) \rightarrow CaO(s) + CO_2(g)</math> 5g                      2.2 g For these equations, you will also need to balance them. 3. <math>CH_4(g) + O_2(g) \rightarrow CO_2(g) + H_2O(g)</math> 6.4 g      4.4 g      3.6 g 4. <math>Fe(s) + O_2(g) \rightarrow Fe_2O_3(s)</math> 8.93 g              12.77 g Kerboodle 6.3.4</p>	<p>1. practice calculating magnification, and rearranging the magnification formula: magnification = image size / size of real object 2. Design and/or build a model cell. What would you use to represent the different parts of the cell? Why? 3. All humans have grown from a fertilised egg. What is the increase in order of magnitude as a human grows from a fertilised egg into an adult? Kerboodle B1.1-3</p>	<p>1. For homework, complete the WebQuest to research: the differences of biofuels and fossil fuels the advantages and disadvantages of biofuels, and the effect biofuels have on the environment. Use your research as the basis for a presentation. 2. Plan an investigation into the power output from solar cells. You could focus on the area of the cells or the distance from the light source. Kerboodle P3.1&amp;3</p>	<p><b>February 7, 2020</b></p>



<p><b>February 10, 2020</b></p>	<p>Research how different elements produce different coloured flames when burned in oxygen. Think about how this is useful for making fireworks.</p> <p>Kerboodle 6.2.2</p> <p>Produce a worksheet to teach other students how to name the salts produced when metals and acids react.</p> <p>Kerboodle 6.2.3</p>	<p>Research the metals that are used in catalytic converters.</p> <p>Kerboodle 6.4.3</p>	<p>Research the metals that are used in catalytic converters.</p> <p>Kerboodle 6.4.3</p>	<p>1. Find out the name of a specialised plant cell. What is its function?</p> <p>2. Plants make their own food using photosynthesis. Design a cell for humans that would allow us to make our own food using photosynthesis.</p> <p>3. Analyse your results from the diffusion practical. Describe and explain what the results show.</p> <p>4. Research osmosis and its role in living things. Consider why osmosis is so important in living things.</p> <p>Kerboodle B1.4-7</p>	<p><b>Physics Paper 1 Topic Recap</b> Electricity Particle model of matter Atomic structure</p>	<p><b>February 14, 2020</b></p>
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