

Science Year 9– Autumn Term 2021

	What? When? Why?			
	BIOLOGY 8C Gas exchange and respiration	CHEMISTRY 8G Metals and their uses	PHYSICS 8J Light	REVISION End of KS3 Assessment
Lesson 1 Learning intentions	<u>The gas exchange system</u> Label the lungs and use a model to explain how lungs expand and contract to allow air to move into and out of the lungs.	<u>Properties of metals</u> Describe some common properties and uses of metals Write word equations for the reactions of metals and non-metals	<u>Reflection</u> State the meaning of: diffuse, specular, incident ray, reflected ray.	<u>Acids and alkali</u> A full review of the unit. Misconceptions highlighted and use of exam style questions to prepare for end of KS3 assessment.
Lesson 2 Learning intentions	<u>Gas exchange</u> Explain how the lungs are adapted for efficient gas exchange.	<u>Corrosion and oxidation</u> Describe the corrosion of metals by reactions with oxygen. Relate the uses of different elements to their chemical properties.	<u>Images formed in a mirror</u> Describe the characteristics of the image formed by a plane mirror and use ray diagrams to explain its formation. Use the ray model of light to explain how a periscope works.	<u>Current electricity</u> A full review of the unit. Misconceptions highlighted and use of exam style questions to prepare for end of KS3 assessment.
Lesson 3 Learning intentions	<u>Peak flow investigation</u> Use the peak flow meters to measure peak flow. Look at if there is a correlation between lung volume and your height.	<u>Metals and reactivity with water</u> Use information on the reactions of metals with water to place them in an order of reactivity	<u>Refraction</u> Describe what refraction is. Explain why refraction occurs.	<u>Cells and reproduction</u> A full review of the unit. Misconceptions highlighted and use of exam style questions to prepare for end of KS3 assessment.

Lesson 4 Learning intentions	<u>Investigating breathing rate, heart rate and exercise</u> Carry out an experiment to try to correlate the strenuousness of an activity with the effect it has on pulse and breathing rates.	<u>Metals and reactivity with water – equations</u> Identify and explain the products formed by the reactions of metals with water. Model simple reactions of metals and water using word equations.	<u>Lens</u> State the meaning of focal length, focus, and principal axis. Relate the power of a lens to its shape.	<u>Forces</u> A full review of the unit. Misconceptions highlighted and use of exam style questions to prepare for end of KS3 assessment.
Lesson 5 Learning intentions	<u>Look at the link between breathing rate, heart rate and exercise.</u> Explain the changes in heartbeat and breathing rate during exercise. Explain some of the effects of reduced oxygen supply on the body.	<u>Metals and reactivity with acid</u> Use information on the reactions of metals with acids to place them in order of reactivity.	<u>Cameras</u> Use ray diagrams to explain image formation in pinhole cameras. Identify which parts of the eye cause refraction of light and describe how light is focused on the retina.	<u>Atoms and elements</u> A full review of the unit. Misconceptions highlighted and use of exam style questions to prepare for end of KS3 assessment.
Lesson 6 Learning intentions	<u>Smoking and gas exchange</u> Describe how asthma, emphysema and tobacco tar can reduce gas exchange. Explain the effects of some chemicals in tobacco smoke on the body.	<u>Metals and reactivity with acid – equations</u> Identify and explain the products formed by the reactions of metals with acids. Model simple reactions of metals and water using word equations.	<u>Colours</u> Explain why coloured objects appear coloured. Explain how filters can be used to make coloured light	<u>Food and digestion</u> A full review of the unit. Misconceptions highlighted and use of exam style questions to prepare for end of KS3 assessment.
Lesson 7 Learning intentions	<u>Gas exchange and respiration</u> Compare respiration in plants and animals. Describe how gas exchange occurs in plants. Compare the human gaseous exchange system with those of other animals.	<u>Pure Metals</u> State that a pure material has a fixed melting point and boiling point. Describe how impurities alter melting, freezing and boiling points.	<u>Review/ Consolidation/Application</u> Exam question practice	<u>Fluids</u> A full review of the unit. Misconceptions highlighted and use of exam style questions to prepare for end of KS3 assessment.

Lesson 8 Learning intentions	<u>Anaerobic respiration</u> Recall that anaerobic respiration releases less energy than aerobic respiration. Model anaerobic respiration using a word equation.	<u>Alloys</u> Use models to explain why converting pure metals into alloys often increases the strength of the product.		<u>Mixtures</u> A full review of the unit. Misconceptions highlighted and use of exam style questions to prepare for end of KS3 assessment.
Lesson 9 Learning intentions	<u>The effect of oxygen debt</u> Analyse and explain the changes in heartbeat and breathing rate during and after exercise (including EPOC/oxygen debt).	<u>Review/</u> <u>Consolidation/Application</u> Exam question practice		<u>Breathing and respiration</u> A full review of the unit. Misconceptions highlighted and use of exam style questions to prepare for end of KS3 assessment.
Lesson 10 Learning intentions	<u>Review/</u> <u>Consolidation/Application</u> Exam question practice			