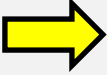
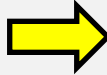


## Greenfields Academy (Secondary) - Long Term Planning – Science

### Academic Year Overview 2020/21 – Year 7 Nurture (3 lessons per week. 1 lesson to be taught in the lab)

Term	Autumn		Spring		Summer	
	1	2	3	4	5	6
  	<b>Biology</b> Cells (4 weeks)	<b>Biology</b> Reproduction (3 weeks)	<b>Biology</b> Environment/Feeding (3 weeks)	<b>Biology</b> Variation (3 weeks)	<b>Physics</b> Energy (3 weeks)	<b>Physics</b> Electrical Circuits (3 weeks)
	<b>Physics</b> Forces & Gravity (3 weeks)	<b>Physics</b> The Solar System (4 weeks)	<b>Chemistry</b> Particles (3 weeks)	<b>Chemistry</b> Solutions (2 weeks)	<b>Chemistry</b> Acids and Alkalis (3 weeks)	<b>Chemistry</b> Chemical Reactions (2 weeks)
Weekly Sequence	<b>KEY:</b> N – New Learning & Knowledge, KQ – Key Question, <span style="background-color: red; color: black;">Assessment/End of unit test</span> <span style="background-color: blue; color: black;">ICT focus</span> <span style="background-color: green; color: black;">Lab Lesson – This lesson will be taught in the science lab</span> <span style="background-color: magenta; color: black;">Assessed presentation – Links to English speaking and listening.</span>					

<p><b>1</b></p>	<p><b>CELLS- LIVING THINGS</b>  N – To know the necessary features of living organisms. (MRS GREN)</p> <p>To understand that living things contain structures called organs.</p> <p>To know that organs are made up of tissues and tissues are made up of cells.</p> <p>To understand that cells contain a nucleus.</p> <p><b>Lab lesson – Introduction to the science lab/health and safety. To create a poster demonstrating lab safety. ICT Focus</b></p> <p>KQ – What is a cell? What is the difference between an onion cell and a cheek cell? What is the function of the nucleus?</p>	<p><b>REPRODUCTION – HUMAN REPRODUCTION/FERTILISATION AND GROWING THE BABY</b>  N – Find out about male and female reproductive systems.</p> <p>Be able to label diagrams of the male and female reproductive systems.</p> <p>Be able to describe sperm and egg cells and how they do their job.</p> <p>Find out what fertilisation is and how it happens.</p> <p>Describe how the embryo develops into a foetus and baby.</p> <p>Explain how the lifestyle of the mother effects the development of the foetus.</p> <p>Know how the baby is born.</p> <p>KQ – How are human babies made? Can you identify the difference between the male and female gamete? What happens to the sperm</p>	<p><b>ENVIRONMENT &amp; FEEDING</b>  N – Be able to describe the ways living things are adapted to their habitat.</p> <p>Be able to measure variables in a habitat</p> <p><b>To create a leaflet using word to describe the habitat of a chosen living thing.</b></p> <p>KQ – What does environment mean? What environment are we in now? What is a habitat? Do animals live in different habitats? Why is this?  WSF –</p>	<p><b>VARIATION – AIL THE SAME?</b>  N – Be able to recognise members of the same species.</p> <p>Be able to recognise variation between members of the same and different species.</p> <p>Make predictions of possible outcomes.</p> <p><i>Practical investigation - Do tall people have big feet?</i></p> <p>KQ – Are we all the same? What differences do we have? Are animal all the same? What is meant by the word species?  WSF –</p>	<p><b>ENERGY – ENERGY ON THE MOVE</b>  N – Find out about heat, light, sound, electrical and kinetic energy.</p> <p>Find out about energy transfers.</p> <p>Be able to use the word 'energy' correctly</p> <p>KQ – What is energy? Can you name any types of energy? If a person has lots of energy, what does this mean? How do people get energy?  WSF –</p>	<p><b>ELECTRICAL CIRCUITS- ELECTRICAL ENERGY</b>  N – Find out how energy is transferred to an electrical circuit.</p> <p>Find out that cells have different voltages.</p> <p>Be able to test and make predictions about circuits.</p> <p><i>Practical investigation - a demonstration to show that electric current will flow through the human body.</i></p> <p><b>Lab lesson – making circuits.</b></p> <p>KQ – Where does electricity come from? How is electricity measured? Where are circuits used in everyday life?  WSF –</p>
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		and the egg cell when they meet?  WSF –				
<b>2</b>	<p><b><u>CELLS - FUNCTIONS</u></b> N – To know the functions of the nucleus and the cell membrane.</p> <p>To identify the differences between animal and plant cells.</p> <p><b>Lab lesson – To be able to name the parts of a microscope.</b></p> <p>KQ – What visual differences can you identify when looking at the plant cell and the animal cell?</p>	<p><b><u>REPRODUCTION – PLANT REPRODUCTION &amp; SEED DISPERSAL</u></b> N – Identify and describe flower structures. Explain the difference between self and cross pollination.</p> <p>Describe the process of fertilisation in plants.</p> <p>Describe how plants disperse their seeds.</p> <p>KQ – Can you name the different parts of a plant. How does fertilisation take place in a plant? Do we need bees? WSF –</p>	<p><b><u>ENVIRONMENT &amp; FEEDING – A DAY IN THE LIFE OF.....</u></b> N – Be able to describe how living things adapt to daily changes in their habitat.</p> <p>Find out how one animal and one plant are adapted to seasonal changes.</p> <p>Be able to analyse data on seasonal changes</p> <p><b>Use evidence to draw conclusions</b></p> <p>KQ – Can all living things adapt? Do habitats change with the seasons? WSF –</p>	<p><b><u>VARIATION – SORTING LIVING THINGS</u></b> N- Find out that members of the same species have similar features.</p> <p><b>PRACTICAL ACTIVITY – POND DIPPING - Be able to sort organisms found in a pond into different groups.</b></p> <p>KQ – Can you identify any similar features that member of the same species have? Can you identify any differences? WSF –</p>	<p><b><u>ENERGY – ENERGY IN FOOD</u></b> N – Find out where the energy from food comes from.</p> <p>Be able to present and interpret results and draw conclusions.</p> <p><b>Lab lesson – To compare the energy given out by two pieces of food.</b></p> <p>KQ – Where does food get its energy from? Look at the pictures, which food item would give you the most energy? WSF –</p>	<p><b><u>ELECTRICIAL CIRCUITS – CURRENT AFFAIRS</u></b> N – Find out what current is and measure it.</p> <p>Investigate how changing the components in a circuit affects the current.</p> <p>Be able to make predictions about current.</p> <p>KQ – What is current measured in ? What does current need to flow? WSF –</p>
<b>3</b>	<p><b><u>CELLS - GROWTH</u></b> N – To understand that cells make new cells by dividing.</p>	<p><b><u>REPRODUCTION - ADOLESCENCE</u></b> N – Find out what happens during adolescence.</p>	<p><b><u>ENVIRONMENT &amp; FEEDING</u></b> N –To make a habitat for your chosen living creature.</p>	<p><b><u>VARIATION – VERTEBRATES AND INVETEBRATES – NO BONES ABOUT IT!</u></b></p>	<p><b><u>ENERGY – FOSSIL FUELS</u></b> N – To research how fossil fuels are made (present the information in the form of a story, a quiz, a PowerPoint, a fact sheet)</p>	<p><b><u>ELECTRICIAL CIRCUITS – DIFFERENT CIRCUITS</u></b> N – Find out about series and parallel circuits.</p>

	<p>To know that growth occurs because new cells are made and increase in size.</p> <p>To identify the stages of the human life cycle.</p> <p><b>Lab lesson - To use a microscope to view animal and plant cells.</b></p> <p>KQ – Are the cells in an adult person bigger than the cells in a baby? How many cells do you think an adult person contains?</p>	<p>To be able to explain why growth spurts occur.</p> <p>KQ – How does a girl’s body change during puberty? How does a boy’s body change during puberty? Are changes physical, emotional or both?</p> <p><b>End of unit test</b></p>	<p><i>(this task may be completed individually or in small groups)</i></p> <p>KQ – What living creature are you choosing? Name the features of the habitat that you have chosen. Why is this habitat suitable for your living creature?</p> <p><b>Present to the class and teacher.</b></p> <p><b>End of unit test</b></p> <p><b>Assessed presentation – Links to English speaking and listening.</b></p>	<p>N – Be able to divide animals into vertebrates and invertebrates.</p> <p><b>Be able to name and describe common features of the five vertebrate groups.</b></p> <p><b>Be able to sort vertebrates into these five groups – reptile, amphibian, bird, fish and mammal.</b></p> <p>KQ – What is meant by vertebrate and invertebrate? Can you think of the different vertebrate animal groups?</p> <p><b>End of unit test</b></p>	<p>Find out how fossil fuels are used to generate electricity.</p> <p><b>Be able to decide if an experiment is a fair test.</b></p> <p>KQ – Why are some fuels called fossil fuels? Can you name any fossil fuels?</p> <p><b>Assessed presentation – Links to English speaking and listening</b></p>	<p>To research who was behind the development of the lightbulb.</p> <p><b>Lab lesson – to build a parallel and lighting circuit recording results.</b></p> <p>KQ – How many lightbulbs are there in your home? How many scientists were involved in developing the lightbulb? Describe a parallel circuit and where it would be used in everyday life?</p> <p><b>End of unit test</b></p>
<p><b>4</b></p>	<p><b>CELLS – FLOWER CELLS</b></p> <p>N – To draw and label the parts of a flower.</p> <p>To investigate the fertilisations process of plants.</p> <p><b>Lab lesson – To dissect and group the different parts of a flower.</b></p>	<p><b>THE SOLAR SYSTEM – EARTH AND MOON</b></p> <p>N – To recall the length of a day, a month and a year.</p> <p>To explain day and night</p> <p>To represent the system as a model and a diagram.</p> <p>Know what causes night and day, the phases of the Moon and eclipses.</p>	<p><b>PARTICLES – SOLIDS, LIQUIDS &amp; GASES</b></p> <p>N – Find out how the particle theory gives us a model to help us understand how solids, liquids and gases behave.</p> <p><b>Be able to explain the difference between solids, liquids, and gases in terms of the particle theory of matter.</b></p>	<p><b>SOLUTIONS</b></p> <p>N – Find out the meaning of the words soluble, insoluble, solute and solvent.</p> <p><b>Be able to suggest ways that mixtures can be separated.</b></p> <p><b>Practical activity – to separate sand from water using filtration.</b></p>	<p><b>ACIDS AND ALKALIS</b></p> <p>N – Find out about acids and alkalis.</p> <p>List common materials that are acids or alkalis.</p> <p>KQ – What words come to mind when you hear the word acid? What is an alkali? Where do you think</p>	<p><b>CHEMICAL REACTIONS – CHANGING MATERIALS</b></p> <p>N- Find out about the many chemical changes that take place around us every day.</p> <p><b>Be able to tell when a chemical reaction occurs.</b></p> <p><b>Investigate the reaction of different metals with an acid.</b></p>

	<p><b>End of unit test</b></p>	<p>KQ – How many hours in a day, days in a month and months in a year? How long does it take for the Earth to make one complete journey around the sun?</p>	<p>KQ- What is the difference between a solid, liquid and a gas? Can we see gas? What are the properties of solids, liquids and gases?</p>	<p>KQ – Can you think of ways to separate solids from a liquid?</p>	<p>we use acids and alkalis at home? Are all acids dangerous? Do you know what litmus paper is?</p>	<p>KQ – Can you give an example of when a chemical change takes place in everyday life? Can you name the type of change?</p>
<p><b>5</b></p>	<p><b><u>FORCES &amp; GRAVITY – USING FORCES</u></b>  N- To understand what force is and how it is measured.</p> <p>To know the difference between mass and weight.</p> <p><b>Lab lesson – Inertia experiment with bottles and money.</b></p> <p>KQ – What have you done today that has used force? Can you write down some words that describes the forces in the pictures?</p>	<p><b><u>THE SOLAR SYSTEM – WHY THE SEASONS?</u></b>  N- Find out what causes the seasons.</p> <p>Be able to use a model to show how the seasons occur.</p> <p><b>Lab lesson - Pupils learn how light hitting a surface at a more obtuse angle will cause the energy to be more dilute.</b></p> <p>KQ – Can you name the seasons of the year and the main features of each season? What activities are you able to do during the summer that you can't do during winter? Why is this? What can you tell me about the length of daylight in the summer compared to winter?</p>	<p><b><u>PARTICLES</u></b>  N- Find out how particles move in solids, liquids and gases.  KQ- Can you think of an example where a solid changes to a liquid? Is this change permanent? Can a change of state be permanent?</p>	<p><b><u>SOLUTIONS - SEPARATION</u></b>  N- <b>Lab lesson - Be able to separate salt from rock salt</b></p> <p>To be able to use the Bunsen burners safely.</p> <p>To record the experiment.</p> <p>KQ- What safety aspects do we need to think about when using the Bunsen burners?</p>	<p><b><u>ACIDS AND ALKALIS – HOW ACIDIC?</u></b>  N- Be able to test a solution to find out whether it is an acid.</p> <p><b>Lab lesson- Be able to use universal indicator to test acids and alkalis.</b></p> <p>KQ- What do you think will happen to the litmus paper when dipped in acid? What about when it is dipped in an alkali?</p> <p><b>End of unit test</b></p>	<p><b><u>CHEMICAL REACTIONS – FIGHTING WITH FIRE</u></b>  N- Be able to work out the best material to put out a fire</p> <p><b>Design a hazard warning sign to be put on a bottle of flammable material such as petrol.</b></p> <p>KQ- What so fires need to burn? Is water effective on all types of fire?</p>

<p><b>6</b></p>	<p><b><u>FORCES &amp; GRAVITY – FRICTION</u></b>  N – Find out what friction is and how friction can be useful or reduced.</p> <p>Be able to present and interpret line graphs.</p> <p><b>Lab lesson – TO investigate the relationship between the mass of a shoe and the force needed to pull it against friction</b></p> <p>KQ – Can you think of any situations where friction arises? What do you think is going to happen when the shoe mass is increased?</p>	<p><b><u>THE SOLAR SYSTEM – PLANETS</u></b>  _N- To create a mnemonic to remember the planets in the solar system.</p> <p>To research the conditions on other planets.</p> <p>KQ – Which is bigger, the sun or the earth? How many planets can you name in the solar system? Which planet has rings? Which planet is furthest away from the sun?  WSF-  <b>End of unit test</b></p>	<p><b><u>PARTICLES</u></b>  N –To make a 3D particle model using art straws. To show and tell the model to the rest of the class.</p> <p>KQ – Discuss your particle model with the group. Is your particle model a solid, liquid or gas, explain.</p> <p><b>End of unit test</b></p> <p>Assessed presentation – Links to English speaking and listening.</p>		<p><b><u>ACIDS AND ALKALIS – TAKING AWAY ACIDITY</u></b>  N- Be able to name a use of neutralisation.</p> <p>Be able to describe how the pH changes as an acid is added to an alkali.</p> <p><b>Lab lesson - Find out what happens when acids and alkalis are mixed together.</b></p> <p>KQ – Can you think where an alkali would be used to neutralise an acid in everyday life?  <b>End of unit test</b></p>	<p><b><u>END OF SCHOOL YEAR WEEK</u></b></p> <ul style="list-style-type: none"> <li>• Educational games</li> <li>• Enrichment time</li> <li>• Sports day</li> </ul>
<p><b>7</b></p>	<p><b><u>FORCES &amp; GRAVITY – BALANCED AND UNBALANCED FORCES</u></b>  N – Find out about balanced forces. Find out about unbalanced forces</p> <p><b>Lab lesson - Push a ping pong ball so it moves, then blow air at it with a straw from the side so it moves sideways, showing</b></p>	<p><b><u>THE SOLAR SYSTEM – MAKING A SOLAR SYSTEM</u></b>  N - All students to create a scale model of the solar system using different art medians e.g. air clay, paper mache, pastel drawing or junk modelling.</p> <p><i>Pupil's to present to the rest of the class.</i></p>				

that an unbalanced force on something makes it change direction.

Assessed presentation – Links to English speaking and listening.

KQ – Are the forces involved in each action a pushing force, a pulling force, or a twisting/turning force?

End of unit test

