Granard Science Unit Summary		
Year	**Name of Unit**	**Unit Description**
1	Everyday Materials	Pupils will begin their topic by naming materials and matching them to their pictures. Pupils will then name different objects around them and state the material that they are made from. Pupils will investigate the best material to use to make an umbrella for a teddy.
	Seasonal Changes: Autumn – Winter	Pupils will describe the weather conditions during autumn. They will then investigate the different weather conditions in October and measure rainfall. Pupils will then compare autumn weather to winter weather and again, they will investigate the weather conditions in December and measure rainfall. Pupils will end their topic by learning about how animals survive during the winter months.
	Animals including Humans	Pupils will begin their topic by naming/grouping animals according to whether they are reptile, mammal, bird etc. They will then explore different diets and learn the terms: 'Omnivore, Carnivore and Herbivore'. Pupils will then learn the major parts of the body and describe the five senses. They will investigate their own 'taste' by tasting a variety of different fruit and vegetables... blindfolded!
	Seasonal Changes: Spring – Summer	Pupils will begin the topic by comparing the length of days/weather at this point in the year to winter. They will then investigate spring weather in March and measure rainfall. Pupils will then go on a 'spring walk' to observe the evidence that spring has arrived. Towards the end of the topic, pupils will begin to investigate whether summer has arrived by observing weather conditions and measuring rainfall. They will end the topic by exploring ways to keep safe in the sun.
	Plants	Pupils will begin the topic by physically planting beans and they will use the entire length of the topic to observe changes and measure the growth of each plant. Pupils will then look at garden plants and wild plants and learn some names of the most common plants, and trees, around us.
	Scientists and Inventors	Pupils will learn about: 1. Ole Kirk Christiansen and his invention of 'Lego' (Materials) 2. Mae Jemison and her space travel (Seasons) 3. George Mottershead and Chester Zoo (Animals Including Humans) 4. Tim Smit and the sensory gardens at the Eden Project (Plants) 5. Christopher Wren, Robert Hooke, Richard Towneley George James Symons and their development of the rainfall gauge (Seasons) 6. The Vet Surgery (Animals Including Humans) 7. Chester Greenwood and his contributions to warm clothing (Materials)
2	Living Things and their Habitats	Pupils will begin their topic by developing their understanding of the terms: 'alive, no longer alive and never alive'. Pupils will then investigate what birds are living in their local environment. Pupils will then learn about different habitats (including mini beast) around the world, and on their doorstep. They will end the topic by learning about how food chains work.
	The Environment	Pupils will begin their topic by investigating the meaning of 'climate change' and what a greenhouse gas is. They will then build on this understanding to explore the justification for 'recycling, reusing and reducing consumption'. They will then learn about water consumption and endangered animals.
	Animals Including	Pupils will learn about different animals and their offspring. They will then learn about life cycles and will explore the

	Humans	different stages of a human's life. Pupils will then focus their learning on investigating the benefits of exercise, as well as learning about having a healthy, balanced diet.
	Uses of Everyday Materials	Pupils will learn the different names of materials and will explain some of the benefits of each material. They will then investigate how to change the shape of a material and describe what they are doing. Pupils will also learn about recycling and how John McAdam changed the way that roads were built.
	Plants	Pupils will begin their topic by getting outside and seeing what plants we have in our local environment! They will then focus this learning on following simple instructions to plant seeds and bulbs. They will then investigate what plants need to survive and finish the topic by learning about what plants are eaten by us.
	Scientists and Inventors	Pupils will learn about: 1. The Eden Project and how they help different plants to grow (Plants) 2. Jane Colden and her contributions to botany (Plants) 3. Elizabeth Garrett Anderson and the role of the doctor (Animals Including Humans) 4. Louis Pasteur and his research into germs and washing hands (Animals Including Humans) 5. Charles McIntosh and his invention of the waterproof jacket (Materials) 6. Rachel Carlson and her research into food chains (Living Things and their Habitats) 7. Hero of Alexandria/James Blyth and their contributions to wind power (The Environment)
3	Rocks and Soils	Pupils will learn about the 3 different types of rocks and will be able to group them according to their properties. Pupils will also learn about fossils and explore the work of Mary Anning (palaeontologist). Pupils will then learn about soil formation and they will investigate the permeability of different types of soils found in the local area.
	Light	Pupils will learn to identify a variety of different light sources and they will compare light sources with reflective objects. Pupils will then learn about the sun's rays and how to protect themselves from the sun. Pupils will then learn about shadows and they will investigate the shape of different shadows.
	Forces and Magnetism	Pupils will learn about the differences between pushing and pulling and they will consider how things can be made to travel faster and slower. They will investigate how friction can be a factor by using a toy car on a ramp made from different materials. Pupils will then learn about different types of magnets and identify magnetic materials around the classroom. Pupils will then learn about magnetic strength as well as learn about the two different poles on a magnet.
	Animals Including Humans	Pupils will begin the topic by learning about nutrition before moving on to learning about the human skeleton and comparing it to other skeletons. Pupils will then learn the different names of major bones and discuss their functions. Pupils will investigate 'muscles' by holding their bodies in different positions and seeing which muscles begin to feel tired.
	Plants	Pupils will learn about the major parts/functions of a plant. They will then move onto learning about how water travels up the stem and they will investigate the different elements that a plant needs to survive.
	Scientists and Inventors	Pupils will be learning about: 1. Plant hunters (Joseph Banks, David Douglas, Jeanne Baret and Tom Hart Dyke) and explore how different plants ended up growing in our local area (Plants) 2. Marie Curie and her contributions to the X Ray machine (Animals including Humans) 3. George Washington Carver and his contributions to plant growth through crop rotation (Plants) 4. William Smith and his 'fossil hunting' experiences (Rocks and Soils) 5. Inge Lehmann and her research into the Earth's core/igneous rocks (Rocks and Soils) 6. Arthur Wilson and his research into different types of mirrors (Light)

		7. William Sturgeon, Joseph Henry, Andre Marie Ampere, Hans Christian Orated, and the development of the first electromagnets (Forces and Magnetism) 8. Different inventions/discoveries from around the world
4	States of Matter	Pupils will explore solids, liquids and gases. Pupils will then learn about at cooling and heating water to see each change in action. Pupils will then explore water in greater detail and explore the key stages of the water cycle. Pupils will investigate evaporation by placing wet tissues in different areas of the classroom and observing the time it takes for them to fully dry.
	Electricity	Pupils will explore how electricity is created and where electricity is used. Pupils will then explore different electrical appliances in the home/school. Pupils will also learn how to construct a simple circuit and explore what happens when a switch is applied. Pupils will investigate different electrical conductors around the classroom e.g. paper clip, scissors etc.
	Sound	Pupils will identify different sound sources around the school and they will learn about how sound travels into the ear. Pupils will learn about how sound can travel and will demonstrate this through creating string phones. Pupils will also learn about how to 'sound proof' something and they will have opportunities to explore how different musical instruments are played. Pupils will investigate how different pitches cause different soundwaves by using a variety of tuning forks and placing them into a bowl of water.
	Animals Including Humans	Pupils will learn about the different parts and functions of the digestive system, and they will use this knowledge to explore different food chains. Pupils will then move onto learning about the different teeth that humans have and they will learn about dental hygiene. Pupils will investigate tooth decay by placing boiled eggs into a variety of corrosive liquids (e.g. orange juice) and make careful observations over the course of a week.
	Living Things and their Habitats	Pupils will learn about what are the essential components to be deemed 'alive'. They will then explore different invertebrates in the local environment using a classification key. Pupils will then consider environmental changes in the wider world and the area around us. Pupils will investigate what dangers there are to local wildlife through creating and completing their own surveys and walking around the local area.
	Scientists and Inventors	Pupils will be learning about: 1. Gerald Durrell and the effects of deforestation in Madagascar (Living Things and their Habitats) 2. Alexander Graham Bell and the invention of the telephone (Sound) 3. Maria Telkes and her contributions to solar power (Living Things and their Habitats) 4. Garett Morgan and the invention of the traffic lights (Electricity) 5. The discovery of oxygen (States of Matter) 6. Lord Kelvin and his discovery of absolute zero (States of Matter) 7. Thomas Edison and his contributions to electrical appliances (Electricity) 8. The invention of toothpaste (Animals including Humans)
5	Earth and Space	Pupils will explore what a sphere is and discuss different theories about the Earth's shape (flat and spherical). Pupils will then learn about the major properties of each primary planet in our solar system and learn about how they orbit the sun. Pupils will also learn about night and day, why time zones exist and how the moon orbits planet Earth. Pupils will investigate the sun's position during the course of a day by making a sundial and recording each shadow.
	Living Things and their Habitats	Pupils will learn about how plants reproduce. They will learn about wind pollination and insect pollination and discuss a flower's components according to how they are pollinated. Pupils will then move onto learning about life cycles and

		metamorphosis. Pupils will finish the topic by learning about Jane Goodall and her contribution to the understanding of chimpanzees and their similarities to humans. Pupils will investigate cloning plants by growing rosemary from a cutting.
	Properties of Materials	Pupils will begin the topic by exploring the properties of different materials and the benefits of each material. Pupils will then move on to learning about investigating insulating/conducting heat and electricity. Pupils will also learn about reversible and irreversible changes, and they will investigate the saturation point of different solvents (dissolving) as well as explore how some materials can be separated.
	Animals Including Humans	Pupils will begin the topic by learning about the different stages of a human's life. They will then explore in greater detail what life is like as a baby, as a child, as an adolescent and as an adult (including elderly). Pupils will investigate gestation periods and life expectancies in order to find a connection.
	Forces	Pupils will explore what a force is and will conduct a series of small tests (inspired by Galileo) to further understand what gravity is. Pupils will then focus their learning on air/ water resistance and connect their learning to what 'streamlining' is. Pupils will also learn about friction and how mechanisms (e.g. hinges) have an impact on our daily lives. Pupils will investigate how parachutes work by using different sized pieces of fabric and raw eggs.
	Scientists and Inventors	Pupils will be learning about: 1. David Attenborough and his life's work around animals (Living Things and their Habitats) 2. Crime Scene Investigations and how separating mixtures can be used to gather evidence (Properties of Materials) 3. Margret Hamilton and how her work impacted on the moon landings (Earth and Space) 4. Neil deGrasse Tyson and his contributions towards learning about the Solar System (Earth and Space) 5. Eva Crane and her research about bees (Living Things and their Habitats) 6. Stephanie Kwolek and her creation of Kevlar (Materials) 7. Leonardo Da Vinci and his *Vitruvian Man* (Animals including Humans) 8. Stonehenge and its connections to astronomy (Earth and Space)
6	Evolution and Inheritance	Pupils will learn about how characteristics are inherited from parents and they will understand the necessity around how some different species have had to adapt to their environment. Pupils will then explore different evolutionary theories and will observe both plant and animal based evidence (fossils). Pupils will be investigating how the Peppered Moth's adaption has led to survival in a concrete environment.
	Living Things and their Habitats	Pupils will learn about classifying animals according to their features, and they will learn how to use a classification key. Pupils will then move on to exploring micro-organisms and learning about harmful and beneficial micro-organisms; including within the local area. Pupils will be investigating the decaying process of a slice of damp bread and a slice of damp bread to see if water can accelerate the decaying process.
	Light	Pupils will be introduced to the work of Sir Isaac Newton and his contribution to the study of light. They will explore how light enables us to see colours. Pupils will also learn about how light travels and will explore reflections through creating periscopes. Pupils will learn about refraction and explore how prisms can affect rays of light. Pupils will investigate how to manipulate shadows by increasing and decreasing the distance of a light source.

	Animals Including Humans	Pupils will be learning about the circulatory system and the function of the heart and lungs. Pupils will then explore the benefits of exercise and a healthy diet, and the impact of drugs and alcohol on the human body. Pupils will be investigating how exercise impacts different functions of the body (e.g. breathing, pulse rate etc.).
	Electricity	Pupils will begin their topic with a brief overview of developments in electricity over time. Pupils will then learn how to construct and draw a simple circuit whilst exploring what voltage is. Pupils will investigate whether wire length has an impact on the different components of a circuit.
	Scientists and inventors	Pupils will be learning about: 1. Stephen Hawking and his contribution to the understanding of black holes (Light). 2. Libbie Hyman and her contribution to the understanding of invertebrates using classification key (Living Things and their Habitats) 3. Marie Maynard Daly and her contribution to the understanding of how different food types can affect the body (Animals including Humans) 4. Alexander Fleming and his discovery of penicillin (Living Things and their Habitats) 5. Mary Leakey and her contribution towards understanding about evolution using fossils (Evolution and Inheritance) 6. Daniel Hale Williams and his controversial contribution towards learning about the functions of the heart (Animals including Humans) 7. Steve Jobs and his contribution towards *Apple* Technology (Electricity)