Trinity and St.Michael's

Science End Points

Great are the works of the LORD, studied by all who delight in them.
Psalm 111:2

Do everything in

1 Corinthians 16:13-14

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Do everything in

1 Corinthians 16:13-14

Year 1 – Scientific Knowledge

Do everything in Love

1 Corinthians 16:13-14

Year 1

Animals including humans		Plants	Everyday Materials	Seasonal Change
• Point out some of the differences between different animals. • Sort photographs of living things and non-living things. • Classify common animals (e.g. birds, fish, amphibians, reptiles and mammals). • Name the parts of an animal's body.	• Classify animals by what they eat. • Name the parts of the human body that they can see. • Identify the main parts of the human body and link them to the 5 senses.	• Name the petals, stem, leaf and root of a plant. • Identify and name a range of common plants and trees. • Recognise deciduous and evergreen trees • Describe the parts of a plant (roots, stem, leaves, flowers) • Sort some plants by size.	• Describe materials using the 5 senses using specific scientific words. • Explain what material objects are made from. • Explain why a material might be useful for a specific job. • Name some different materials • Sort materials into groups given criteria	• Observe changes across the four seasons. • Observe and describe weather associated with the four seasons and how day length varies. • Observe and describe shadows during the day
• Begin to classify animals according to several given criteria.	• Name some parts of the human body that cannot be seen. • Explain why certain animals have certain characteristics. • Name a range of wild animals.	• Name the main parts of a flowering plant. • Sort plants by those that can be eaten and those that cannot.	• Describe things that are similar and different between materials. • Explain what happens to certain materials when they are heated. • Explain what happens to certain materials when they are cooled.	• Describe how light and temperature are different during the night and day.

Year 1 – Working Scientifically

Do everything in

1 Corinthians 16:13-14

Year 1			
Observing closely	Performing tests	Identifying and classifying	Recording findings.
• Talk about what they can see, touch, smell, hear and taste. • Use simple equipment to help them make observations.	• Perform simple tests. • Tell other people about what they have done.	• Identify and classify things they observe. • Think of some questions to ask. • Answer some scientific questions. • Give a simple reason for their answers. • Explain what they have found out.	• Show their work using pictures, labels and captions, • Record their finding using standard units. • Put some information in a chart or table.
Challenging			
• Find out by watching, listening2, tasting, smelling and touching.	• Give a simple reason for their answer.	• Talk about similarities and differences. • Explain what they have found out using scientific vocabulary.	• Use IT to show their working, • Make accurate measurements.

Year 1 – Key Vocabulary

Do everything in Love

1 Corinthians 16:13-14

Year 1				
Working scientifically	Animals including humans	Plants	Everyday materials	Seasonal change
Question Find out Observe Describe Test Compare Measure Length Height Mass/weight Time Temperature Record Results Table Chart Pictograph	Fish Amphibian Reptile Bird mammal *Common structure of animals and humans including:* head, face, ears, hair, eyes, nose, mouth, teeth, cheek, chin, neck, body, arms, hands, fingers, paws, fins, wings, legs, feet, toes, tail, skin, scales, fur, feathers Herbivore Carnivore Omnivore *The 5 senses:* See Hear Touch Taste smell	Leaves Flowers Blossom Petals Fruit Roots Bulb Seed Trunk Branches Stem *Names of plants in their local environment:* grass, clover, daisy, buttercup, dandelion, oak, holly, daffodil, tulip. *Plants we grow to eat such as:* lettuce, tomatoes, cucumber, radish, herb.	Wood Plastic Glass Metal Water Rock Brick Paper Fabric Rubber *Names of common objects made from these materials.* Soft Hard Rough Smooth Stretchy Stiff Shiny Dull Flexible Waterproof Absorbent Opaque Transparent	Spring Summer Autumn Winter Day Night Light Dark Sunrise Sunset Sun Rain Snow Hail Wind Cloud Deciduous Evergreen tree

Year 2 – Scientific Knowledge

Do everything in Love

1 Corinthians 16:13-14

Year 2

Living things and their habitats.	Animals including humans	Plants	Everyday Materials
• Match certain living things to the habitats they are found in. • Explain the differences between living and non-living things. • describe how a habitat provides for the basic needs of things living there. • Describe a range of different habitats. • Describe how plants and animals are suited to their habitat • Sort living things into groups and say why they have sorted them in that way.. • Identify and compare a variety of plants and animals found in different habitats and microhabitats.	• Describe some of the life processes common to plants and animals, including humans. • Describe whether something is living, dead or non-living. • Describe what animals need to survive. • Explain that animals grow and reproduce. • Explain why animals have offspring. • Describe the life cycle of some living things. • Explain the basic needs of animals, including humans. • Describe why exercise and a balanced diet are important for humans. • Explain how animals get their food and draw a simple food chain.	• Observe and describe how seeds and plants grow into plants. • Identify how plants need water, light and suitable temperatures.	• Identify and name a range of everyday materials. • Describe the physical properties of a variety of everyday materials. • Compare and classify a variety of materials based on their simple physical properties. • Explore how the shapes of solids can be changed. • Identify and compare the uses of a range of everyday materials.
• Name some characteristics of an animal that help it to live in a particular environment. • Classify living things into groups according to a range of criteria they have been given.	• Explain that animals need the right type of nutrition (balanced diet).	• Explore how flowers play a part in the life cycle of flowering plants.	• Sort materials into groups and explain the groupings. • Tell which materials cannot be changed back after being heated, cooled, bent, stretched or twisted. • Explain how materials are changed by bending, twisting and stretching.

Year 2 – Working Scientifically

Do everything in Love

1 Corinthians 16:13-14

Year 2			
Observing closely	**Performing tests**	**Identifying and classifying**	**Recording findings.**
• Use their 5 senses to answer questions. • Use scientific vocabulary to describe what they have seen and measured. • Compare several things.	• Carry out a simple fair test. • Explain why it might not be fair to compare two things. • Say whether things happened as they expected. • Suggest how to find things out. • Use prompts to find things out.	• Organise things into groups. • Find simple patterns. • Identify animals and plants by a specific criteria.	• Use text, diagrams, pictures, charts and tables to record observations.
Challenging			
• Suggest ways of finding out through listening, hearing, smelling, touching and tasting.	• Say whether things happened as they expected and if not, why not?	• Suggest more than one way of grouping animals and plants and explain their reasons.	• Use information from books and online information to find things out.

1. Year 2 – Key Vocabulary

Do everything in Love

1 Corinthians 16:13-14

Year 2

Working scientifically	Animals including humans	Plants	Everyday materials	Living things and their habitats
Question Find out Observe Describe Test Measure Temperature Record Results Table Chart Pictograph Block graph Bar chart	Reproduce Offspring Grow Adults Fish Amphibian Reptile Bird Mammal Humans Survival Water Food Air Shelter Exercise Fit Healthy Food Fruit Vegetables Meat Fish Eggs Nuts Pulses Beans Milk Cheese Bread Pasta Rice Butter Oil	Seeds Bulbs Grow Healthy Water Light Temperature Soil Nutrients Leaves Flowers Blossom Petals Fruit Roots Trunk Branches Stem Shade *Names of plants in their local environment I*	Wood Plastic Glass Metal Rock Brick Paper Card Stretchy Stiff Flexible Waterproof Absorbent Squash Bend Twist Stretch	Living Dead non-living Habitat micro habitat food chain Field Hedgerow Pond Woodland Seashore Ocean Rainforest Arctic Desert Air Food Water Shelter Heat Warmth Sun Survive Light Dark

Year 3 – Scientific Knowledge

Do everything in Love
1 Corinthians 16:13-14

Year 3

Rocks and fossils	Animals including humans	Plants	Light	Forces and magnets
• Compare and group together different rocks based on their simple physical properties. • Describe and explain how different rocks can be useful to us. • Describe and explain the differences between sedimentary, igneous and metamorphic rocks. • Describe how fossils are formed within sedimentary rocks.	• Explain the importance of a nutritious balanced diet • Describe how nutrients, water and oxygen are transported within animals and humans. • Describe and explain the skeletal system of a human. • Describe and explain the muscular system of a human.	• Identify and describe the functions of different parts of plants. • Identify what a plant needs for life and growth. • Describe the ways in which nutrients, water and oxygen are transported within plants. • Investigate the way in which water is transported withing plants. • Explain the process of pollination.	• Explain the differences between transparent, translucent and opaque. • Compare the brightness and colour of light. • Explain how bulbs work in an electrical circuit. • Explain how shadows are formed.	• Observe that magnetic forces can be transmitted without direct contact. • Can talk about how some magnets attract or repel each other. • Classify which materials are attracted to magnets. • Can describe the speed and direction of moving objects.
• Classify igneous rocks and sedimentary rocks. • Begin to relate the properties of their rocks with their uses.	• Explain how the muscular and skeletal systems work together to create movement. • Classify living things and non-living things by several characteristics that they have thought of. • Explain how people, weather and the environment can affect living things. • Explain how certain things depend on one another to survive.	• Classify a range of common plants according to many criteria. • Explore the role of flowers in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	• Explain why lights need to be bright or dimmer according to need. • Make a bulb go on and off. • Say what happens to the electricity when more batteries are added. • Explain why their shadow changes when the light source is moved closer or further from the object.	• Investigate the strengths of different magnets and find fair ways to compare them. • Explain why an object will move faster if it is rolling down a hill or a slope.

Year 3 – Working Scientifically

Do everything in Love

1 Corinthians 16:13-14

Year 3		
Planning	**Obtaining and presenting data**	**Considering evidence and evaluating**
• Use different ideas and suggest how to find something out. • Make and record a prediction before testing. • Plan a fair test and explain why it is fair. • Set up a simple fair test to make comparisons. • Explain why they need to collect information to answer a question.	• Measure using different equipment and units of measure. • Record their observations in different ways. • Describe what they have found using scientific words. • Make accurate measurements using standard units.	• Explain what they have found out and use their measurements to say whether it helps to answer their questions. • Use a range of equipment in a simple test.
Challenging		
• Record and present what they have found using scientific language, drawings, labelled diagrams, bar charts and tables.	• Explain their findings in different ways. • Use their findings to draw a simple conclusion. • Suggest improvements and predictions for further tests.	• Suggest how to improve their work if they did it again.

Year 3 – Key Vocabulary

Do everything in Love

1 Corinthians 16:13-14

Year 3				
Rocks and fossils	Animals including humans	Plants	Light	Forces and magnets
Fossil Soil Sedimentary Metamorphic Igneous	Nutrition Skeleton Muscles Diet Joint Pelvis Rib cage Tendon Spine	Roots Stem Nutrients Pollination Seed dispersal Fertilizer Seed Stigma Anther Soil	Reflection Shadows Light source Opaque Refraction Periscope Nocturnal Orbits Convex Concave	Magnetic pole Organic matter Attract Repel Magnetic Friction Ferrous Repulsions Loadstone Pulley Hoist

Year 4 – Scientific Knowledge

Do everything in Love

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Year 4

Animals including humans	Living things and their habitats	States of matter	Sound	Electricity
• Identify and name the basic parts of the human digestive system. • Describe the functions of the organs in the human digestive system. • Identify the functions of different types of human teeth. • Compare the teeth in herbivores and carnivores. • Explain what a simple food chain shows.	• Use classification keys to group a variety of living things. • Compare the habitats of common plants and animals to living things found in other places. • Name and group a variety of living things based on feeding patterns. • Recognise that environments can change, and this can sometimes pose a danger to living things.	• Compare and group materials based on their states of matter. • Explain what happens to materials when they are heated or cooled. • Measure the temperature at which different materials change state. • Explain the part that evaporation and condensation has in the water cycle.	• Describe a range of sounds. • Compare sources of sound and explain how the sounds differ. • Describe and explain how a sound travels from a source to our ears. • Explain what happens to sound as it travels away from its source. • Investigate how different materials can affect pitch and volume of sounds.	• Explain how electricity is useful to us. • Construct a simple circuit. • Explain what a conductor is and test materials for conductivity. • Explain closed and open circuits. • Construct a circuit with a switch. • Recognise some common conductors and insulators.
• Classify living things and non-living things by a number of characteristics • Explain how living things depend on one another to survive.	• Give reasons for how they have classified animals and plants.	• Group and classify a variety of materials according to the impact of temperature on them. • Explain what happens over time to materials such as puddles on the playground. • Relate temperature to change of states.	• Explain why sound gets fainter or louder according to the distance. • Explain how pitch and volume can be changed in a variety of ways. • Work out which materials give the best insulation for sound.	• Explain how a bulb might get dimmer. • Recognise if all metals are conductors of electricity, • Work out which metals can be used to connect across a gap in a circuit.

Year 4 – Working Scientifically

Do everything in Love

1 Corinthians 16:13-14

Year 4		
Planning	**Obtaining and presenting evidence**	**Considering evidence and evaluating**
• Set up a simple fair test to make comparisons. • Plan a fair test and isolate variables and explain why it was fair and explain which variables have been isolated. • Suggest improvements and predictions. • Decide which information needs to be collected and decide which is the best way for collecting it. • Use their finding to draw a simple conclusion	• Take measurements using different equipment and units of measure and record what they have found in a range of ways. • Make accurate measurements using standard units. • Explain their findings in different ways.	• Find any patterns in their evidence or measurements. • Make predictions based on something they have found out. • Record and present what they have found using scientific language, drawings, labelled diagrams, bar charts and tables.
Challenging		
• Plan and carry out an investigation by controlling variables fairly and accurately. • Use test results to make further predictions and set up further comparative tests.	• Record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models.	• Report findings from investigations through written explanations and conclusions. • Use a graph or diagram to answer scientific questions.

Year 4 – Key Vocabulary

Do everything in Love

1 Corinthians 16:13-14

Year 4				
Living things and their habitats	Animals including humans	States of matter	Sound	Electricity
Amphibians Reptiles Mammals Birds Fish Vertebrates Invertebrates Pollution Classify Vascular Non-vascular	Digestive system Pancreas Small intestine Large intestine Stomach Molars Premolars Canines Incisors Food chain Herbivore Omnivore Carnivore Predators Prey Producer Consumer Energy	Solid Liquid Gas Particles Water vapour Condensation Precipitation Evaporation Matter	Vibration Pitch Volume Outer ear Middle ear Inner ear Cochlea Ear drum Hammer	Circuit Buzzer Conductor Battery Cell Switch Socket Appliance Simple circuit Insulator

Year 5 – Scientific Knowledge

Do everything in Love

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Year 5

Animals including humans	Living things and their habitats	Properties and changes to materials	Earth and Space	Forces
• Create a timeline to indicate stages of growth in humans. • Explain what puberty is.	• Describe and compare the life cycles of a range of animals, including amphibians, insects and birds. • Describe the life cycles of common plants. • Talk with knowledge about birth, reproduction, and death of familiar animals or plants. • To label the sexual organs of a flowering plant.	• Test and group materials based on scientific evidence. • Explain the process of dissolving. • Recover a substance from a solution. • Decide how a mixture would best be separated. • Give reasons for the uses of everyday materials based on scientific evidence. • Show what they know about the properties of different materials. • Use their knowledge of materials to suggest ways to classify. • Use the terms 'reversible' and 'irreversible'.	• Identify and explain the movement of the earth relative to the sun. • Explain how the seasons and the associated weather is created. • Identify and explain the movement of the moon relative to the Earth. • Explain the size, shape and position of Earth, sun and moon. • Explain how night and day are created and use diagrams to show this. • To know all plants in our Solar System in their order.	• Explain what gravity is and the impact on our lives. • Explain why a wheeled vehicle that is pushed will slow down and stop. • Explain the impact of friction on an object. • Explain the effect of drag force on moving objects. • Explain how force and motion can be transferred through gears, levers, pulleys and springs. • Explain how the force of magnetism works. • Describe how magnetism is used in everyday objects. • Describe magnets as having 2 poles. • Make predictions associated with whether two magnets with attract or repel depending on which pole are facing.
• Create a timeline to indicate stages of growth in certain animals, sch as frogs and butterflies.	• Observe their local environment and draw conclusions about life cycles. • Explain using terminology how a seed is produced in a flowering plant.	• Describe methods of separating mixtures. • Work out which materials are most effective for keeping us warm or for keeping something cold.	• Compare the time of day at different places on Earth. • Begin to understand how older civilizations used the sun to create atmospherical clocks. • Explore the work of some space pioneers.	• Work our how magnets are useful in an everyday context. • Link the magnetic poles to the North and South poles. • Explain how motion is affected by forces. • Design effective parachutes. • Work out how water can cause resistance to floating objects.

Year 5 – Working Scientifically

Do everything in Love

1 Corinthians 16:13-14

Year 5		
Planning	**Obtaining and presenting data**	**Considering evidence and evaluating**
• Plan and carry out an investigation by controlling variables fairly and accurately. • Make a prediction with reasons. • Use test results to make further predictions and set up further comparative tests. • Present a report of their findings through writing, display and presentation.	• Take measurements using a range of scientific equipment with increasing accuracy and precision. • Record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models.	• Report findings from investigations through written explanations and conclusions. • Use a graph to answer scientific questions.
Challenging		
• Explore different ways to test an idea and choose the best way and give reasons. • Vary one factor whilst keeping others the same in an experiment. • Use information to help make a prediction. • Explain in simple terms a scientific idea and what evidence supports it.	• Decide which units of measurement they need to use. • Explain why a measurement needs to be repeated.	• Find a pattern from their data and explain what it shows. • Link what they have found out to other science. • Suggest how to improve their work and say why they think this.

Year 5 – Key Vocabulary

Do everything in Love

1 Corinthians 16:13-14

Year 5				
Animals including humans	Living things and their habitats	Properties and changes to materials	Earth and Space	Forces
Puberty Gestation Reproduction Teenager Toddler Embryo Fertilisation Pistil Stigma Style		Conductivity Transparency Dissolve Filtering Melting Separate Soluable Evaporate Solution Reversible Irreversible	Orbit Solar system Astronomical Planet Rotation Spherical Crescent moon Gibbous moon Eclipse Lunar Mercury Venus Mars Jupiter Saturn Uranus Neptune	Friction Gravity Air resistance Water resistance Levers Pulleys Gears Parachute Galileo Newton

Year 6 – Scientific Knowledge

Do everything in Love

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Year 6

Living things and their habitats	Animals including humans	Evolution and inheritance	Light	Electricity
• Identify what classification is and how Carl Linnaeus impacted Taxonomy. • Explain the classification of living things into broad groups based on common observable characteristics. • Identify the five kingdoms in taxonomy. • To research an animal and identify seven taxonomy criteria and what these represent. • Group animals into vertebrates and invertebrates.	• To name and locate the major organ systems in the human body. • Identify and explain the function of the organs of the human circulatory system. • To identify the components of blood. • To discuss and detail healthy and unhealthy habits and how these impact the human body.	• To explain the process of evolution and describe the evidence for this. • To identify how adaptations affect the survival of species (animals). • To identify how adaptations affect the survival of species (plants). • To recognise that living things have changed over time and that fossils provide information. • To recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. • To talk about the life of Charles Darwin.	• Explain how light travels. • Explain how the human eyes see objects. • Explain how different colours of light can be created. • Explain how shadows are formed.	• Identify and name the basic parts of a simple electric circuit. • Compare and give reasons for variation in how components function, including bulb brightness. • Explain how to make simple changes in a circuit. • Explain the impact of making changes in a circuit. • Explain the effect of changing the voltage of a battery.
• Explain why classification is important. • Identify how the Latin naming of genus and species can identify any animal in any language.	• Create a life-sized diagram of the circulatory system. • Make a diagram of three different organ systems in the human body (nervous, skeletal, circulatory system).	• Explain how some living things adapt to survive in extreme conditions.	• Use the ray model to explain the size of shadows.	• Explain the danger of short circuits. • Explain what a fuse is.

Year 6 – Working Scientifically

Do everything in Love

Year 6		
Planning	Obtaining and presenting data	Considering evidence and evaluating
• Explore different ways to test an idea and choose the best way and give reasons. • Vary one factor whilst keeping the others the same in an experiments. Explain why they do this. • Plan and carry out an investigation by controlling variables fairly and accurately. • Make a prediction with reasons. • Use information to help make a prediction. • Use test results to make further predictions and set up a further comparative test. • Explain in simple terms a scientific idea and what evidence supports it. • Present a report of their findings through writing, display and presentation.	• Explain why they have chosen specific equipment. • Describe which units of measurement they need to use. • Explain why a measurement needs to be repeated. • Record their measurements in different ways. • Take measurements using different scientific equipment increasing with accuracy and precision.	• Find patterns from their data and explain what it shows. • Use a graph to answer scientific questions. • Link what they have found out to other science. • Suggest how to improve their work and say why they think this. • Record more complex data and results using scientific diagrams, classification keys, tables, bar charts, line graphs and models. • Report findings from investigations through written explanations and conclusions.
Challenging		
• Choose the best way to answer a question. • Use information from different sources to answer a question and plan an investigation. • Make a prediction which links with other scientific knowledge. • Identify the key factors when planning a fair test. • Explain how a scientist has used their scientific understanding plus good ideas to make a breakthrough.	• Plan in advance which equipment they will need and use it well. • Make precise measurements. • Collect information in different ways. • Record their measurements and observations systematically. • Explain qualitive and quantative data.	• Draw conclusions from their work. • Link their conclusions to other scientific knowledge. • Explain how they could improve their way of working.

Year 6 – Key Vocabulary

Do everything in Love

1 Corinthians 16:13-14

Year 6				
Living things and their habitats	Animals including humans	Evolution and inheritance	Light	Electricity
Vertebrates Invertebrates Species Fungi Monera Bacteria Protista Animalia Plantae Algae Amphibians Fish Birds Mammals Reptiles Arthropod Annelid Mollusca Echinoderm Cnidaria Carl Linnaeus Taxonomist	Blood vessels Ventricle Heart Lungs Platelet White blood cell Red blood cell Plasma Deoxygenated Oxygenated Organ System Circulatory System Plasma Cell Balanced Diet	Evolution Adaptation Organism Survival of the fittest Theory Charles Darwin Offspring Evolution Inheritance Paleontologist Characteristic	Light wave Light source Concave Convex Filters Lens Retina Cornea Iris Pupil Ray	Conductor Insulator Socket Simple circuit Cells Volts Generator Turbine Fuses Battery Light