Science Curriculum – Year 5 and 6 – Cycle A

Non- Negotiables – Working Scientifically	
Year 5 and Year 6	W1: Plan enquiries, including recognising and controlling variables where necessary. W2: Use appropriate techniques, apparatus, and materials during fieldwork and laboratory work. W3: Take measurements, using a range of scientific equipment, with increasing accuracy and precision. W4: Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs, and models. W5: Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions. W6: Present findings in written form, displays and other presentations. W7: Use test results to make predictions to set up further comparative and fair tests. W8: Use simple models to describe scientific ideas, identifying scientific evidence that has been used to support or refute ideas or arguments.
Vocab	Investigation, enquiry, what to change, what we used, what we did, what we found out Investigation, enquiry, prediction, variable, dependent variable, independent variable, constant, patterns, equipment, apparatus, method, results, conclusion Investigation, enquiry, prediction, variable, dependent variable, independent variable, constant, patterns, equipment, apparatus, method, results, conclusion

	Autumn		Spring		Summer	
Hierarchies	**Understanding animals and humans - circulation** B4: Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. B5: Recognise the importance of diet, exercise, drugs and lifestyle on the way the human body functions.	**Understanding electrical circuits** P14: Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. P15: Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. P16: Use recognised symbols when representing a simple circuit in a diagram.	**Investigate Sound and Hearing** P11: Find patterns between the pitch of a sound and features of the object that produced it. P12: Find patterns between the volume of a sound and the strength of the vibrations that produced it. P13: Recognise that sounds get fainter as the distance from the sound source increases.	**Investigate Light and Seeing** P7: Understand that light appears to travel in straight lines. P8: Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eyes. P9: Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them, and to predict the size of shadows when the position of the light source changes. P10: Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.	**Understanding evolution and inheritance (revise plants b1, b2)** B3: Describe the changes as humans develop to old age. B10: Give reasons for classifying animals based on specific characteristics. B11: Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. B12: Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. B13: Identify how animals are adapted to suit their environment in different ways and that adaptation may lead to evolution.	**Forces and air resistance** P3: Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. P4: Identify the effect of drag forces, such as air resistance, water resistance and friction that act between moving surfaces. P5: Describe, in terms of drag forces, why moving objects that are not driven tend to slow down. P6: Understand that force and motion can be transferred through mechanical devices such as gears, pulleys, levers and springs. P7: Understand that some mechanisms including levers, pulleys and gears, allow a smaller force to have a greater effect.
Topic	**Why is Brazil always in the news?**	**What was Life like as a Victorian?**	**What did the Mayan's do for us?**	**Can you believe your eyes?**	**Which decade has the best music?**	**What theme park would you build in Caythorpe?**
Resources	iPads, Tissue paper, coloured card, felt tips, coloured pencils, crayons, Laptops/computers/tablets for internet research, graphing software on laptops, squared paper	Electrical wires with crocodile clips, Bulbs, Bulb Holders, Batteries (a selection of batteries with different voltages), Battery Holders (single and double), Buzzers, Motors, circuit diagrams, images of symbols,	Range of instruments to demonstrate i.e. different sized recorder, glockenspiel notes, tuning forks of differing sizes, bowls of water,	Torches, shadow puppets, plain paper/screen, diagram of an eye, mirrors,	iPads and laptops, internet access – research, reference materials, examples of fossils,	Large trays, flour, cocoa/chocolate powder, marbles, ball bearings, golf balls etc, iPads and laptops, internet access – research, reference materials, Plastic Bag Parachute sheet • Plastic bags, string/wool, paper clips, rubber bands, Measuring cylinders or equivalent, Water, Plasticine, Stopwatches
Vocabulary	Heart, Blood ,Circulatory system, blood vessels, veins, arteries, valves, oxygenated, deoxygenated, exercise, pulse, respiration	circuit, series/ parallel, conductors, insulators, amps, volts, , Thomas Edison, Nikola Tesla, Alessandro Volta, Michael Faraday, home, alternating current, direct current, battery, cell. Bulb, battery, cell, wires, switch, motor, buzzer, scientific, informal, circuit, diagram, voltage, brightness, loudness, increase, decrease.	Volume, vibration, sound wave, loud, soft, high pitch, low pitch, tone, speaker, (amplitude, frequency), insulating sound, insulator,	Reflection, refraction, lens, light spectrum, colour ,prism, rainbow,	Fossils, adaptation, evolution, characteristics, reproduction, genetics	Force, friction, Newton, gravity, newtonmeters, air resistance, water resistance, gears, pulleys, levers
Lesson 1	**Year 5:** To find out how scientific ideas about food and diet were tested in the past **Year 6:** To find out how scientific ideas about food and diet were tested in the past and how this has contributed to our knowledge of a balanced diet. **Activities:** Children will learn about historical health problems caused by poor diet, and how the work of scientists such as James Lind helped develop a better understanding of how diet affects health. They will then consider and describe how medical tests and trials might be conducted, or improved.	**Year 5/6: To** explain the importance of the major discoveries in electricity. **Activities:** Recap understanding of electricity and circuits. Research history of electricity and its invention. **Outcomes:** **Year 5/6:** I can identify how our understanding of electricity has changed over time. I can explain how major discoveries affected our understanding and use of electricity	**Year 5:** To revise that sounds are made when objects and materials vibrate. **Year 6:** To revise that sounds are made when objects and materials vibrate. **Activities:** Children will learn about how sounds are created, then explore the way sounds are produced by a variety of instruments or resonant objects. **Outcomes:** **Year 5:** Children understand that sounds are made when objects or materials vibrate • Children make careful	**Year 5/6:** To recall facts about how shadows are formed. **Activities:** Children revisit their knowledge about how shadows are formed and the objects which create them. They focus specifically on the shapes of the shadows and why shadows are the shape of the object which creates them. **Outcomes:** **Year 5/6:** Children are able to identify light sources and describe how light travels • Children can use their knowledge of how	**Year 5/6:** To recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents **Activities:** Children will learn about traits that are passed from one generation by the next, and consider ways in which in which some inherited characteristics may vary. They may then identify ways in which families or groups of people have some similar or shared characteristics. **Outcomes:**	**Year 5:** To explain that unsupported objects fall towards the Earth because of the force of gravity **Year 6:** To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. **Activities:** Children will consider what weight is, and how the impact caused by falling objects can vary, depending on their size, shape, mass, and the height they fall from.

	Outcomes: **Year 5:** Children describe some examples of how doctors in the past tested ideas about food and diet • Children know that in order to be healthy we need a balanced diet which includes different food groups **Year 6:** Children describe some examples of how doctors in the past tested ideas about food and diet • Children know how these tests in the past have affected our ideas about healthy eating today • Children know that in order to be healthy we need a balanced diet which includes different food groups		observations • Children draw conclusions about sounds from their observations? **Year 6:** Children know that sounds are made when objects or materials vibrate • Children make careful observations • Children draw conclusions about sounds from their observations	light travels to explain how a shadow is created • Children explain why a shadow takes the shape of the object casting it	**Year 5/6:** • Children recognise that animals produce offspring that are like themselves • Children explain why variation in offspring occurs	**Outcomes:** **Year 5:** **Year 6:** Children explain why objects fall towards the centre of the Earth • Children understand the causal link between the mass of an object and the amount of force with which gravity acts on it
Lesson 2	**Year 5:** To investigate some different food groups and what foods contribute to a healthy diet **Year 6:** To investigate some different food groups and find out why a variety of foods is important for a healthy diet. **Activities:** Children will learn about food groups: what they provide our bodies with, and what quantities of each we need in a balanced diet. They will then either design balanced meals or study food labelling. **Outcomes:** **Year 5:** Children name some of the different food groups • Children know which types of foods are included in different food groups • Children know why each different food group is important for a healthy lifestyle **Year 6:** Children name the different food groups • Children know which types of foods are included in different food groups • Children know why each different food group is important for a healthy lifestyle	**Year 5/6:** To be able to Use recognised symbols when representing a simple circuit in a diagram **Activities:** What is a circuit? How would you draw a circuit? Explain vocabulary difference cell/battery. Show symbols. Match informal and scientific symbols. Convert informal diagrams to scientific diagrams **Outcomes:** **Year 5/6:** I know the scientific symbols for the main parts of a circuit. I can create circuit diagrams using scientific symbols. I can recognise and draw scientific circuit symbols.	**Revisiting learning from Y3/4** **ear 5:** To investigate sounds whether sounds can travel through different materials. **Year 6:** To investigate whether sounds can travel through different materials. **Activities:** Children will learn about how sounds travel through different materials. They will give reasons why they think some materials will transmit sound better/ worse than others, then investigate. **Outcomes:** **Year 5:**Children know that vibrations from sound sources travel through different materials • Children know that some materials allow sound to pass through them more easily than others **Year 6:** Children know that vibrations from sound sources travel through different materials to the ear • Children know sound can travel through solids, liquids and gases • Children know that some materials allow sound to pass through them more easily than others	**Year 5/6:** To investigate how we can change shadows. **Activities:** Children conduct an investigation into how we can change and manipulate shadows 'shape, length, intensity and in particular, size. They conduct an experiment, identifying the key variables, and observe the results. They then draw conclusions from their results. **Outcomes:** **Year 5/6:** Children give a clear, scientific description of translucent, transparent and opaque and how this property affects an object's shadow • Children are able to describe and explain how an object's shadow can be manipulated • Children make informed conclusions from their investigations?	**Year 5/6:** To identify how animals and plants are adapted to suit their environment in different ways. **Activities:** Children will learn about how random mutations may or may not be passed from one generation to the next, and how this process results in variation. They will then consider whether certain variations are advantageous, giving reasons why **Outcomes:** **Year 5/6:** Children describe the conditions of an environment • Children identify characteristics which help an organism to be well suited to its environment • Children understand why different organisms in the same environment may have different characteristics	**Year 5/6:** To identify the effects of friction acting between moving surfaces. **Activities:** Children will learn about what friction is and some ways in which it can be measured. They will also identify instances of high and low friction and conduct friction investigations. **Outcomes:** **Year 5:** **Year 6:** • Children define friction •Children know that friction can be useful and give some examples • Children carry out an investigation, making sure that it is a fair test
Lesson 3	**Year 5:** To find out how nutrients and water are transported in the human body. **Year 6:** To find out and explain how nutrients and water are transported in the human body. **Activities:** Children will learn about the functions of the heart, lungs and circulatory system, then either draw and label diagrams, or perform a heart dissection to study its internal structure. **Outcomes:** **Year 5:** • Children know that the circulatory system transports blood and nutrients to the different parts of the body • Children describe how the circulatory system works • Children record their own resting pulse rate accurately **Year 6:**• Children know that the circulatory system transports blood and nutrients to the different parts of the body • Children describe how the	**Year 5/6:** To observe and explain the effects of differing voltages in a circuit **Activities:** BBC Clio – currents and voltage. Show children a circuit diagram with the volts labelled. Discuss the location of the label and how to label a battery containing multiple cells, as opposed to a single cell. Show children a circuit diagram with the volts labelled. Discuss the location of the label and how to label a battery containing multiple cells, as opposed to a single cell. What difference do volts make? Make predictions – what will happen if to bulb, buzzer if increase voltage. Model one example using a bulb, including how to draw the circuit diagram of each step with volts labelled accurately Pairs explore effects of increasing cells - draw diagrams **Outcomes:** **Year 5/6:** I can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit I can observe and explain the effects of differing voltages in a circuit.	**Revisiting Learning from Year ¾ - ensure depth** **Year 5/6:** To explore the relationship between distance and volume. **Activities:** **Outcomes:** Children will explore ways in which sounds change as you move further away from its source. They will suggest reasons for their findings. **Year 5:** Children know that sounds get fainter as the distance from the sound source increases • Children explore what happens to sound as it gets further away • Children describe what they have found out **Year 6:** • Children know that sounds get fainter as the distance from the sound source increases • Children carry out an investigation to explore what happens to sound as it gets further away • Can children draw conclusions and describe what they have found out	**Year 5/6:** To understand how our eyes allow us to see. **Activities:** In this lesson the class will take a closer look at the anatomy of our eyes and how the different parts allow us to see. The children will complete diagrams to explain and identify the different parts of the eye. **Outcomes:** **Year 5/6:** Children name the parts of the eye • Children describe what the main parts of the eye do to help us see • Children understand that without light, we cannot see	**Year 5/6:** To understand that adaptation of plants and animals to suit their environment may lead to evolution. **Activities:** Children will learn about how, if traits are advantageous to a species, they may be passed on and that evolution can occur. They may then undertake some of a range of activities where they will identify advantageous traits of species, learn more about evolutionary scientists, or sequence description of evolutionary processes. **Outcomes:** **Year 5/6:** Children know that not all inherited characteristics are advantageous • Children explain why advantageous characteristics are more likely to be passed from generation to generation • Children understand that whole species can evolve in this way	**Year 5/6:** To identify and explain the effects of air resistance. **Activities:** Children will learn about ways in which air resistance affects moving objects, then plan and conduct investigations where they will determine how air resistance affects falling objects. **Outcomes:** **Year 5/6:** • Children know that air resistance is a force that slows objects moving through the air • Children plan, carry out and assess experiments to investigate air resistance • Children draws conclusions from their investigations

	circulatory system works • Children record their own resting pulse rate accurately	I can draw circuit diagrams I can explain the effect of increasing or decreasing the voltage on different parts of a circuit. **Year 6:** I can associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit I can draw circuit diagrams indicating the voltage. I can explain the effect of increasing or decreasing the voltage on different parts of a circuit.				
Lesson 4	**Year 5:** To investigate what happens to the heart when we exercise **Year 6:** To investigate what happens to the heart when we exercise and why. **Activities:** Children will learn about what happens to the heart when we exercise, then conduct practical investigations where heart rate is measured. **Outcomes:** **Year 5: :**• Children describe the functions of the heart • Children investigate how the heart is affected through exercise • Children know that hearts need to have exercise to stay healthy **Year 6:**• Children describe the functions of the heart • Children investigate how the heart is affected through exercise and draw conclusions • Children know that hearts need to have exercise to stay healthy	**Year 5/6:** To be able to plan an investigation to explore variations in how components function. **Activities:** Does wire length affect how components in a circuit work? Children discuss the question with their talk partners and feed back. Plan an investigation. Discuss investigation plan with peer partner and make improvements. **Outcomes:** **Year 5:** I can plan an investigation. I can select an appropriate scientific enquiry. I can decide which variables to control. I can understand variations in how components function. **Year 6:** I can plan an investigation in detail. I can select an appropriate scientific enquiry. I can decide which variables to control. I can explain variations in component function.	**Revisiting Learning from Year ¾ - ensure depth** **Year 5:** To investigate which materials insulate sound **Year 6:** To find out that some materials are effective in preventing vibrations from sound sources reaching the ear – insulating sound **Activities:** Children will learn about why it is sometimes necessary to prevent sounds from travelling, then investigate the soundproofing effectiveness of a range of materials. **Outcomes:** **Year 5:** Children name some of the reasons why preventing sound to travel is sometimes important • Children carry out a test to measure how well different materials muffle sound • Children draw conclusions about which materials muffle sound the best **Year 6** :Children name some of the reasons why preventing sound to travel is sometimes important • Children plan a test to measure how well different materials muffle sound • Children draw conclusions about which materials muffle sound the best	**Year 5/6:** To understand how we see objects. **Activities:** This lesson will teach the children that all objects reflect and absorb different amounts of light. They will discover that it is these reflections that allow us to see objects. They will complete diagrams of how we can see different objects and write explanations of the process. **Outcomes:** **Year 5/6:** • Children name the parts of the eye and briefly describe what the main parts do • Children complete a diagram to show how light allows us to see an object • Children understand that all objects reflect an amount of light	**Year 5/6:** To know how Linnaeus and Darwin contributed to our understanding of evolution **Activities:** Children will learn about the contributions of ancient Greek scientists to our understanding of evolution. They will also study in greater depth the work of Carl Linnaeus and, particularly, that of Charles Darwin. **Outcomes:** **Year 5/6:** • Children know that our understanding of process of evolution has developed over time • Children share what they have learned about the process of evolution • Children share what they have learned about the life and work of Charles Darwin	**Year 5/6:** To identify and explain the effects of water resistance. **Activities:** Children will learn about water resistance and how it affects objects moving through water. They will then conduct water resistance investigations. **Outcomes:** **Year 5/6:** • Children know that water resistance slows an object moving through water • Children plan and carry out an experiment, making sure it is a fair test • Children identify trends in results and draw conclusions
Lesson 5	**Year 5:** To investigate how muscles move the skeleton **Year 6:** To investigate how muscles move the skeleton and how muscle activity requires increased blood flow. **Activities:** Children will learn about how muscles work, and how they work in groups to move the skeleton. They will then explore in greater depth how blood flow increases to different muscle groups during different types of exercise. **Outcomes:** **Year 5:** Children know that muscles work in pairs • Children know that when muscles exercise they need an increased flow of blood • Children explain why their pulse rate increases when they exercise **Year 6:** Children know that muscles work in pairs to move different parts of the skeleton • Children know that when	**Year 5:** To be able to conduct an investigation **Year 6:** To be able to conduct an investigation adjusting my plan if needed **Activities:** Define what degrees of trust are. Discuss the different criteria. Which of these should you bear in mind while conducting your investigation? What will you do to ensure you can have a high degree of trust in your results? Carry out investigations planned last week. Children participate in a whole class discussion and then decide on which ways of establishing a higher degree of trust are appropriate and which are not, giving reasons why **Outcomes:** **Year 5:** I can use my plan to conduct an investigation.	**Revisiting Learning from Year ¾ - ensure depth** **Year 5:** To investigate how sounds can be different pitches and volumes. **Year 6:** To investigate how sounds can be different pitches and volumes. **Activities:** Children will learn about pitch and volume, then investigate ways in which they may be altered by a variety of instruments or resonant objects. **Outcomes:** **Year 5:**• Children know that the term 'pitch' describes how high or low a sound is • Children recognise changes in pitch and identify high and low notes • Children investigate different instruments and make generalisations about pitch **Year 6:** • Children know that the term 'pitch' describes how high or low a sound is • Children recognise changes in	**Year 5/6:** To investigate reflection. **Activities:** Children will learn about the law of reflection and use their knowledge and understanding of identifying and measuring angles to predict reflected light rays. They will identify the angle of incidence and reflection and use these to complete a light maze. **Outcomes:** **Year 5/6:** • Children give a scientific definition of the word 'reflect' • Children understand that the angle of incidence is equal to the angle of reflection • Children think of examples of how angled mirrors can be used in different ways	**Year 5:** To recognise that living things have changed over time **Year 6:** To recognise that living things have changed over time and that a number of factors can affect a species' evolution. **Activities:** Children will learn about mutations, and how external factors can affect the evolution of a species. They will then either summarise their learning about how the fossil record provides evidence of this, or summarise given technical vocabulary in their own words, drawing on prior knowledge and learning. **Outcomes:** **Year 5/6:** • Children understand that a species can change over time due to mutations • Children understand that a species can change over time due to external factors such as competition from other species, disease or climate change	**Year 5/6:** To recognise that levers and pulleys allow a smaller force to have a greater effect. **Activities:** Children will learn how simple machines can make it easier to move objects. They will then make and test models which have pulleys or levers. **Outcomes:** **Year 5/6:** Children recognise that that levers and pulleys allow a small force to have a greater effect • Children make and improve models that use pulleys or levers • Children explore the effects of changing parts of their model

	muscles exercise they need an increased flow of blood because the muscles are working harder • Children explain why their pulse rate increases when they exercise	I can record my findings as data. I can decide how to report my findings **Year 6:** I can use my plan to conduct an investigation. I can adjust my plan if necessary. I can decide how to record my findings as data. I can decide how to report my findings appropriately.	pitch and identify high and low notes • Children investigate different instruments and make generalisations about pitch			
Lesson 6	**Year 5 and Year 6:** To investigate the effects of tobacco, alcohol and other drugs. **Activities:** Children will learn about what drugs are, how some are helpful and some are harmful. They will also consider ways in which drugs have side effects. Following this, children may explain differences between drugs, or their effects, in their own words **Outcomes:** **Year 5 and Year 6: C**hildren know that drugs affect the way the mind or body works • Children know that some drugs are beneficial even though they may have unpleasant side-effects • Children aware of some of the negative effects of tobacco and alcohol on the body	**Year 5: To** investigate my results further. **Year 6:** To use test results to make predictions to set up further comparative and fair tests **Activities:** Look at last week's investigations and results- what would you do differently? Class discussion. Show how to make a further prediction based on their test results. What did your results show? How will you investigate further? What will your new prediction be? Check that children are referring to the length of wire, brightness of the bulb, loudness of the buzzer, making predictions about whichever component they did not test and the investigation type they used. Children create a new question, make predictions. How do degrees of trust come into it? Which ones are applicable to this study? Present second investigation and explain results. **Outcomes:** **Year 5/6:** I can use my results to make new predictions. I can plan and conduct a further investigation.	**Revisiting Learning from Year ¾ - ensure depth** **Year 5:** To find out how the length of a string affects its pitch. **Year 6:** To find out how the length, thickness and tightness of a string affects its pitch. **Activities:** Children will consider how the pitch of notes produced by stringed instruments is altered, then investigate further by experimenting with instruments or by making instruments. **Outcomes:** **Year 5:** Children know that the pitch of a stringed instrument depends on the length of the string • Children suggest ways of testing • Children draw conclusions from their observations **Year 6:** Children know that the pitch of a stringed instrument depends on the length, thickness and tightness of the string • Children suggest ways of testing what happens to the pitch of a string when you alter the length, tightness and thickness • Children draw conclusions from their observations	**Year 5/6:** To understand about refraction **Activities:** Children will learn about how refraction can bend and change the direction of light rays. They will then need to differentiate between whether or not an object will reflect or refract light. **Outcomes:** **Year 5/6:** Children give a brief description of what happens to light when it's refracted • Children able to differentiated between if an object will reflect or refract light • Children give some examples of objects which use refraction in a useful way	**Year 5:** To understand how humans have evolved over time, **Year 6:** To understand how humans have evolved over time, and how human behaviour can affect change in species over time. **Activities:** Children will learn about human adaptations which allow us to thrive, then consider some impacts of human behaviour on other species. They will then either discuss these impacts in greater depths, or discuss some beliefs and misconceptions about evolution. **Outcomes:** **Year 5/6:** Children know that primate species (including humans) have changed over time? • Children explain some ways in which human behaviour has changed the characteristics of other species • Children identify positive and negative consequences of this human behaviour	**Year 5/6:** To recognise that gears allow a smaller force to have a greater effect. **Activities:** Children will learn about how gears work together in transmissions and look at a variety of transmission. They will then make models to explore in greater depth how gears work. **Outcomes:** **Year 5/6:** Children recognise that the speed or amount of force transmitted is affected by changing the size of the gears in a transmission • Children make transmissions where two or more gears work together
Lesson 7	**Year 5 and Year 6:** To evaluate what we can do to keep our bodies healthy. **Activities:** In the light of prior learning about the functions of the human body, children will gather their ideas about staying healthy, and present them in a variety of ways. They will do an end of unit quiz. **Outcomes:** **Year 5 and Year 6:** Children describe the impact that diet has on the body • Children describe why exercise is important for a healthy lifestyle • Children describe the harmful effects some drugs can have on the body		**Revisiting Learning from Year ¾ - ensure depth** **Year 5:** To find out how sounds can be made by air vibrating **Year 6:** To find out how sounds can be made by air vibrating and how to change the pitch of notes produced by vibrating air. **Activities:** Children will learn how sounds can be made by air vibrating, then explore ways in which the pitch of these sounds can be altered. **Outcomes:** **Year 5:** • Children know that sounds can be made by air vibrating • Children suggest ways to change the pitch of a sound made by air • **Year 6:** • Children know that sounds can be made by air vibrating • Children suggest ways to change the pitch of a sound made by air • Children describe how to change the length of the air column vibrating to change pitch	**Year 5/6:** To investigate the colours in white light **Activities:** Children will investigate how white light can be split into the seven colours of the rainbow. They will find out about Isaac Newton's experiments with prisms and discuss how we see colours. **Outcomes:** **Year 5/6:** • Children understand that white light can be split into a spectrum of seven colours • Children able to name the seven colours that light can be split into • Children explain how the light is refracted based on the colours' wavelengths		

Assessment Criteria

	Working Scientifically	Understanding animals and humans - circulation	Understanding electrical circuits	Investigate Sound and Hearing	Investigate Light and Seeing	Understanding evolution and inheritance (revise plants b1, b2)	Forces and air resistance
Year 5 and Year 6	I can •plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary • take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate • record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs; • use test results to make predictions to set up further comparative and fair tests; • report and present findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations • identify scientific evidence that has been used to support or refute ideas or arguments	I can: •identify and name the main parts of the human circulatory system, •describe the functions of the heart, blood vessels and blood. •recognise the importance of diet, exercise, drugs and lifestyle on the way the human body functions.	I can: •associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. •compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. •use recognised symbols when representing a simple circuit in a diagram.	I can: •find patterns between the pitch of a sound and features of the object that produced it. •find patterns between the volume of a sound and the strength of the vibrations that produced it. •recognise that sounds get fainter as the distance from the sound source increases.	I can; •understand that light appears to travel in straight lines. •use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eyes. •use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them, and to predict the size of shadows when the position of the light source changes. •explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.	I can ; •describe the changes as humans develop to old age. •give reasons for classifying animals based on specific characteristics. •recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. •recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. •identify how animals are adapted to suit their environment in different ways and that adaptation may lead to evolution.	I can: •explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. •identify the effect of drag forces, such as air resistance, water resistance and friction that act between moving surfaces. •describe, in terms of drag forces, why moving objects that are not driven tend to slow down. •understand that force and motion can be transferred through mechanical devices such as gears, pulleys, levers and springs. •understand that some mechanisms including levers, pulleys and gears, allow a smaller force to have a greater effect.