YEAR 5	**Science**	
Topic 1: Fight For Your Rights (5)		
KNOW	DO	UNDERSTAND
MUSIC WEEK: 10 Pieces (1)		
KNOW	DO	UNDERSTAND
Topic 2: Shakespeare (3)		
KNOW	DO	UNDERSTAND
Topic 3: Materials Matter (6)		
KNOW	DO	UNDERSTAND
NC: compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets N.C. know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution N.C. use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating N.C. give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic N.C. demonstrate that dissolving, mixing and changes of state are reversible changes N.C. explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda *Vocabulary: properties, solubility, transparency, conductivity, electrical, thermal, magnetic, solution, mixture, dissolve, filtering, sieving, evaporating, reversible and irreversible.* Children know how to test whether a product's hardness,	WS: planning different types of scientific enquiries to answer questions, including recogniSing and controlling variables where necessary WS: recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs WS: using test results to make predictions to set up further comparative and fair tests Children can record the data from experiments in tables and then produce graphs showing the changes. Children can group different materials together. Children can make predictions using their scientific knowledge – linking particularly to this NC objective → N.C. use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating Children can draw conclusions and write explanations about what they discover. Children know how to make their test a fair test. Children can talk about which variables they are controlling and how they are controlling them. *Questions:* *How could you separate a mixture?* *How could you separate a solution?*	*PRIOR LEARNING: Children have studied different properties of materials in year 2. They tested materials, including waterproof, transparent, opaque etc – solubility and conductivity is new learning.* Children understand how their learning in year 4 about teeth and acid links to an irreversible change. Children use their year 4 learning about electricity to test whether different materials conduct electricity. Children learn in year 4 about gases, solids and liquids. Children understand the effect of using plastic as a material on our environment. This will link to English, as they will write a persuasive piece about plastic pollution. *Questions:* *Do you think Climate change is a reversible or irreversible change?*

solubility, transparency, conductivity (electrical and thermal), and response to magnets. Children know that some materials will dissolve in liquid; this forms a solution. Children know how to extract the substance from the solution – heating the liquid so it evaporates. Children can give examples of solutions, e.g. tea with a sugar in, or the ocean. Children know what a mixture is and can give examples, e.g. sand and water or sweetcorn in water. Children know that you can use filtering, sieving and evaporating to separate elements of a mixture. Children can use knowledge of solids, liquids and gases to decide which method to choose. Children know why everyday materials are used – e.g. why do people use plastic bags over paper? Children know that some changes of state are reversible – e.g. water, ice, steam or salt and water. Children know that some changes of state are not reversible, e.g. burnt toast, action of acid (link to yr4 learning on teeth and apple juice) or cake mixture → cake. *Questions:* *What is the difference between a mixture and a solution?* *Can you name one reversible and one irreversible state of matter?*		
DT Week: Reduce, Reuse, Recycle (1) Musical instruments (QCA unit 5A)		
KNOW	DO	UNDERSTAND
Topic 4: The Islamic Golden Age (5)		
KNOW	DO	UNDERSTAND
Topic 5: Earth Explorers (6)		
KNOW	DO	UNDERSTAND

ART WEEK: RAINFORESTS (1)		
KNOW	DO	UNDERSTAND
Topic 6: Project Birmingham (2)		
KNOW	DO	UNDERSTAND
Topic 7: Star Trek (5)		
KNOW	DO	UNDERSTAND
Science (Forces) N.C. explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object N.C. identify the effects of air resistance, water resistance and friction, that act between moving surfaces N.C. recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect *Vocabulary: gravity, air resistance, water resistance, friction, mechanisms, levers, pulleys, gears, Newtons.* Children know that an unsupported object will fall towards the centre of the Earth, because of gravity. Children know that gravity is measured in Newtons. Children will list the effects of air resistance, water resistance and friction. Children that levers, pulleys and gears allow a smaller force to be used to have a greater effect. Children can give examples of when gears, levers and pulleys are used. *Questions:* *What is gravity measured in?* *How could you make a car go faster?* *How are gears and pulley used in day to day life?* **Science (Earth and Space)** N.C. describe the movement of the Earth and other planets	WS: planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary WS: taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate WS: reporting and presenting 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 WS: identifying scientific evidence that has been used to support or refute ideas or arguments. Children can plan scientific enquires to test the effect of gravity, air resistance, water resistance and friction. Children can control the variables when carrying out these experiments to ensure they are carrying out a fair test. Children will take repeated readings to ensure reliability of results. Children will record findings using a table and will try their own conclusions from their results. *Questions:* *What forces would affect a sports car?* *Can you draw a scientific diagram to show me?* Children can draw scientific diagrams/ illustrations to show the	*PRIOR KNOWLEDGE: Children will build on knowledge from year 3, when they looked at friction as a force. In year 3, they used ramps to test materials.* Children will understand how objects, such as planes, boats, F1 cars are affected by forces. Children can use their knowledge to suggest improvements to objects, in order to make them more efficient. *Questions:* *How could I make a boat faster?* *PRIOR KNOWLEDGE: Children have not studied space explicitly in school before, although they have looked at shadows and how they change throughout the day – linking to the sun and how it appears to move throughout the day.* Children build on the idea of gravity in the Space unit, as the larger the mass, the greater the gravitational pull. *Questions:* *How does learning about space link to forces?*

relative to the sun in the solar system N.C. describe the movement of the moon relative to the Earth N.C. describe the sun, Earth and moon as approximately spherical bodies N.C. use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky Vocabulary: relative, solar system, spherical bodies, rotation, orbit, names of the planets. Children know that the Earth and all of the other planets orbit the sun – this takes the Earth approx 364 days. Children know that this is because of gravity – the larger the mass, the greater the gravitational pull. They know that the Moon orbits the Earth – this takes approx 28 days. They know that the Earth completes a full rotation every 24 hours – this creates day and night. The Sun, Earth and Moon are approximate spherical bodies. Children know that even though it looks like the sun moves across the sky, it doesn't – the Earth moves. *Questions:* *How long does the Moon take to orbit the Earth?* *How long does the Earth take to orbit the Sun?* *What shape are the Moon, Earth and Sun?*	movement of the Earth and Moon around the Sun. Children can use scientific language to explain Earth and Space. *Questions:* *Why do shadows appear to move on the ground? Surely that tells me that the sun is moving, not us? – Prove it.*	
Topic 8: Busy Biologists (4)		
KNOW	DO	UNDERSTAND
Science: (Animals, including humans) N.C. describe the changes as humans develop to old age	WS: identifying scientific evidence that has been used to support or refute ideas or arguments	*PRIOR KNOWLEDGE: Children understand that the body changes over time – link this is PSHE. In year 1, they talk about changes from younger to older.*

N.C. describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird N.C. describe the life process of reproduction in some plants and animals *Vocabulary: develop, adolescent, mammal, amphibian, insect, bird, reproduction, naturalist, asexual reproduction of plants, sexual reproduction of plants, puberty, gestation, embryo, fetus.* Children know that humans change throughout their lives. They know the difference between babies and toddlers, a child to a teenager and a teenager to an adult. Children know that puberty starts approx from the age of 10 – 16. Children know the changes that will take place – periods, breast development, hair growth etc. *Sex will not be taught explicitly, but we will talk about the need for a male and female and that the female will carry the young/ a baby.* Children know the life cycle of different animals, e.g. mammals, amphibians, reptiles etc. Children know the main differences – giving birth to live young or laying eggs, life expectancy. Children know the main reproductive organs of a plant and can describe how plants reproduce - example, seeds, stem and root cuttings, tubers, bulbs. *Questions:* *How is the life cycle of a mammal and reptile different?* *What are the reproductive organs of a plant?* *How do plants reproduce?*	WS: Use their science experiences to explore ideas and raise different kinds of questions WS: Recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact Children can research human and animal gestation periods, selecting the most helpful website. Children can ask questions about the anatomy of a plant and can dissect it to discover its function. Children can research Jane Goodall or David Attenborough. *Questions:* *How can you tell whether a secondary source is useful?*	*In year 3, they looked at the life cycle of a plant.* Discuss how feelings or emotions might become more heightened as puberty approaches or takes place. Children understand the importance of living creatures, like bees, wasps, pets to spread seeds and pollen for plants. *Questions:* *Why are bees so important?*