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|  | | **Castle Academy**  **Science Curriculum Overview** | | | | | |  | |
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| *Forces* | *Electromagnets* | | *Waves* | *Earth* | *Matter* | *Organisms* | *Ecosystems* | | *Genes* |
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|  | Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | Year 6 |
| Autumn 1 | Animals Including Humans  (About Me) | | Living Things and Their Habitats | | Rocks | | States of Matter | | Properties of Materials | Light |
|  | |  |  |  | |  | |  |  |
| Autumn 2 | Everyday Materials  (Exploring) | | Animals Including Humans  (Growth) | | Animals Including Humans  (What Makes us) | | Animals Including Humans  (Food and Digestion) | | Changes of Materials | Electricity |
|  | |  | |  | |  |  |  |  |
| Spring 1 | Everyday Materials  (Uses) | | Plants | | Forces and Magnets | | Living Things and Their Habitats  (Nature and the Environment) | | Animals Including Humans  (the Human Life Cycle) | Animals Including Humans  (Blood and Transportation) |
|  | |  | |  |  |  | |  |  |
| Spring 2 | Plants | | Everyday Materials | | Exploring the World of Plants | | Living Things and Their Habitats  (Classifying) | | Studying Living Things | Animals Including Humans  (The Heart and Health) |
|  | |  | |  | |  | |  |  |
| Summer 1 | Animals Including Humans  (About Animals) | | Animals Including Humans  (Diet and Health) | | Plants  (Life Cycles) | | Sound | | Earth and Space | Evolution and Inheritance |
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| Summer 2 | Seasonal Change | | Living Things and Their Habitats  (Habitats around the World) | | Light | | Electricity | | Forces | Living Things and Their habitats |
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|  | | | **Castle Academy - Science Curriculum** | | | | | | | | | | | | | |  | | |
| **Year 1** | | | | | | Aut | | Spr | | | Sum | | Key Vertical Science Links | | | Horizontal/Diagonal Links | | |
| 1 | 2 | 1 | 2 | | 1 | 2 |
| **Animals Including Humans**  **(About Me)** | Learn about the senses: sight, taste and touch | | | | |  |  |  |  | |  |  | **The World**  Children know about similarities and differences in relation to living things. They talk about the features of their own immediate environment. They make observations of animals and plants.  **Shape, space and Measures**  Children use everyday language to talk about size, Weight, capacity … and explore characteristics of everyday objects and shapes and use mathematical language to describe them.  **Technology**  Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.  **Understanding**  Children follow instructions involving several ideas or actions. They answer ‘how’ and ‘why’ questions about their experiences and in response to stories or events  **Health and self-care**  Children know the importance for good health of physical exercise, and a healthy diet, and talk about ways to keep healthy and safe. They manage their own basic hygiene and personal needs successfully, including dressing and going to the toilet independently.  **Self-confidence and self-awareness**  Children are confident to try new activities and say why they like some activities more than others. They are confident to speak in a familiar group, will talk about their ideas, and will choose the resources they need for their chosen activities. They say when they do or don’t need help.  **Moving and handling**  Children show good control and co-ordination in large and small movements. They move confidently in a range of ways, safely negotiating space. They handle equipment and tools effectively, including pencils for writing.  **Numbers**  Children count reliably with numbers from 1 to 20, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing. | | |  | | |
| Learn about the senses of hearing and smell | | | | |  |  |  |  | |  |  |
| Identify, name, draw and label the basic parts of the human body | | | | |  |  |  |  | |  |  |
| Learn about changes in your body since you were a baby | | | | |  |  |  |  | |  |  |
| Understand the importance of taking care of your body | | | | |  |  |  |  | |  |  |
| Show how humans mimic nature | | | | |  |  |  |  | |  |  |
| **Everyday Materials**  **(Exploring)** | Identify the material objects are made from | | | | |  |  |  |  | |  |  | **Year 1 Autumn 2 DT**  Sliders and Levers - Select and use tools, explaining their choices, to cut, shape and join paper and card. | | |
| Describe some simple physical properties of materials | | | | |  |  |  |  | |  |  |
| Group together materials by their physical properties | | | | |  |  |  |  | |  |  |
| Explore everyday materials which are opaque or transparent | | | | |  |  |  |  | |  |  |
| Know the story of Wilbur and Orville Wright | | | | |  |  |  |  | |  |  |
| Explore everyday materials which are absorbent or non-absorbent | | | | |  |  |  |  | |  |  |
| **Everyday Materials**  **(Uses)** | Know every day uses of magnets | | | | |  |  |  |  | |  |  | **Year 1 Spring 1 DT**  Freestanding Structures - Know how to make freestanding structures stronger, stiffer and more stable. Select new and reclaimed materials and construction kits to build their structures. | | |
| Recognise a variety of widely used materials | | | | |  |  |  |  | |  |  |
| Understand why materials are chosen for specific tasks | | | | |  |  |  |  | |  |  |
| Understand that magnets only attract certain metals | | | | |  |  |  |  | |  |  |
| Understand that magnets have a north and south pole | | | | |  |  |  |  | |  |  |
| Know how to test materials for their strength; understand that some materials are nature, and some are man-made | | | | |  |  |  |  | |  |  |
| **Plants** | Understand what a plant needs in order to grow well | | | | |  |  |  |  | |  |  |  | | |
| Know the basic parts of a plant | | | | |  |  |  |  | |  |  |
| Understand that some food is grown as a crop on a farm | | | | |  |  |  |  | |  |  |
| Know about different arable crops grown by farmers | | | | |  |  |  |  | |  |  |
| Understand the difference between an evergreen and deciduous plant | | | | |  |  |  |  | |  |  |
| How plants change over time | | | | |  |  |  |  | |  |  |
| **Animals Including Humans**  **(About Animals)** | Understand what animals need in order to grow | | | | |  |  |  |  | |  |  |  | | |
| Know where birds live and what they need | | | | |  |  |  |  | |  |  |
| Explore how animals need to be cared for differently | | | | |  |  |  |  | |  |  |
| Discover how an animal’s offspring is the same as its parent | | | | |  |  |  |  | |  |  |
| Identify a variety of animals including fish, amphibians, reptiles, birds and mammals | | | | |  |  |  |  | |  |  |
| Identify a variety to common animals that are carnivores, herbivores and omnivores | | | | |  |  |  |  | |  |  |
| **Seasonal changes** | Recognise different types of weather | | | | |  |  |  |  | |  |  |  | | |
| Learn about clouds and rainfall | | | | |  |  |  |  | |  |  |
| Recognise the different types of cold weather | | | | |  |  |  |  | |  |  |
| Explain how to keep safe during thunderstorms | | | | |  |  |  |  | |  |  |
| Look at different types of weather and how it affects places on Earth | | | | |  |  |  |  | |  |  |
| Identify the four seasons | | | | |  |  |  |  | |  |  |
| *Forces* | | *Electromagnets* | | *Waves* | *Earth* | | | | | *Matter* | | | | *Organisms* | *Ecosystems* | | | *Genes* | |

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|  | | | **Castle Academy - Science Curriculum** | | | | | | | | | | | | | |  | |
| **Year 2** | | | | | | Aut | | Spr | | | Sum | | Key Vertical Science Links | | | Horizontal/Diagonal Links | | |
| 1 | 2 | 1 | 2 | | 1 | 2 |
| **Living Things and Their Habitats** | Explore the differences between things that are living, dead and things that have never been alive | | | | |  |  |  |  | |  |  | **Year 1 Spring 2 – Plants**  Understand what a plant needs in order to grow well. Know the basic parts of a plant. Understand that some food is grown as a crop on a farm. Know about different arable crops grown by farmers. Understand the difference between an evergreen and deciduous plant  How plants change over time. | | |  | | |
| Identify and name a variety of plants and animals in a microhabitat | | | | |  |  |  |  | |  |  |
| Describe how animals obtain their food from plants | | | | |  |  |  |  | |  |  |
| Know about different sources of food grown by farmers | | | | |  |  |  |  | |  |  |
| Understand the journey food makes form the farm to the supermarket | | | | |  |  |  |  | |  |  |
| Learn about the food chain | | | | |  |  |  |  | |  |  |
| **Animals Including Humans**  **(Growth)** | Learn the life cycle of birth, growth, reproduction and death | | | | |  |  |  |  | |  |  | **Year 1 Autumn 1 – About Me**  Learn about changes in your body since you were a baby. Understand the importance of taking care of your body. Show how humans mimic nature.  **Year 1 Summer 1 – About Animals**  Understand what animals need in order to grow. Discover how an animal’s offspring is the same as its parent. Identify a variety of animals including fish, amphibians, reptiles, birds and mammals | | |  | | |
| Learn about reproduction and growth in animals | | | | |  |  |  |  | |  |  |
| Learn how humans grow by looking at how babies grow into adults | | | | |  |  |  |  | |  |  |
| Describe the stages of life from adulthood to old age | | | | |  |  |  |  | |  |  |
| Know the life cycle of a frog | | | | |  |  |  |  | |  |  |
| Describe the life cycle of a butterfly | | | | |  |  |  |  | |  |  |
| **Plants** | Compare generations of families to help understand how characteristics are inherited | | | | |  |  |  |  | |  |  | **Year 1 Spring 2 – Plants**  Understand what a plant needs in order to grow well. Know the basic parts of a plant. Understand the difference between an evergreen and deciduous plant. How plants change over time.  **Year 2 Autumn 1 – Plants**  Identify and name a variety of plants and animals in a microhabitat. Describe how animals obtain their food from plants. | | |  | | |
| Understand that plants need water, light and a suitable temperature in order to grow well | | | | |  |  |  |  | |  |  |
| Understand the difference between a bulb and a seed | | | | |  |  |  |  | |  |  |
| Understand that plants make their own food | | | | |  |  |  |  | |  |  |
| Know how plants grow from a seed to a plant | | | | |  |  |  |  | |  |  |
| Recognise the importance of flowers and seeds | | | | |  |  |  |  | |  |  |
| **Everyday Materials** | Explore the work of Charles Macintosh; understand how the properties of material can be changed | | | | |  |  |  |  | |  |  | **Year 1 Autumn 1 – Exploring Everyday Materials**  Identify the material objects are made from. Describe some simple physical properties of materials. Group together materials by their physical properties. Explore everyday materials which are opaque or transparent. Explore everyday materials which are absorbent or non-absorbent.  **Year 1 Spring 1 – Uses of Everyday Materials**  Recognise a variety of widely used materials. Understand why materials are chosen for specific tasks. | | |  | | |
| Know about John McAdam’s invention, recognise that new materials are constantly being invented | | | | |  |  |  |  | |  |  |
| Explore the work of John Dunlop; identify and compare the usefulness of certain materials when forces are applied | | | | |  |  |  |  | |  |  |
| Explain why we use certain materials | | | | |  |  |  |  | |  |  |
| Investigate squashing, bending, twisting and stretching | | | | |  |  |  |  | |  |  |
| Compare the uses of everyday materials | | | | |  |  |  |  | |  |  |
| **Animals Including Humans**  **(Diet and Health)** | Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) | | | | |  |  |  |  | |  |  | **Year 1 Autumn 1 – About Me**  Learn about the senses: sight, taste and touch  Learn about the senses of hearing and smell. Identify, name, draw and label the basic parts of the human body.  **Year 2 Autumn 1 – Living Things and Their Habitats**  Describe how animals obtain their food from plants. | | | **Year 2 Spring 2 PHSE**  Sort foods into the correct food groups and know which foods the body needs every day to keep healthy. Decide which foods to eat to give the body energy. Make some healthy snacks and explain why they are good for the body. | | |
| Discuss the importance of exercise, a healthy diet and hygiene | | | | |  |  |  |  | |  |  |
| Learn the importance of nutrition for humans | | | | |  |  |  |  | |  |  |
| Know how to keep healthy through daily exercise | | | | |  |  |  |  | |  |  |
| Know how to keep healthy through diet | | | | |  |  |  |  | |  |  |
| **Living Things and Their Habitats**  **(Habitats aroura the World)** | Know that living things live in environments to which they are suited | | | | |  |  |  |  | |  |  | **Year 1 Summer 1 – About Animals**  Know where birds live and what they need. Explore how animals need to be cared for differently. Identify a variety of animals including fish, amphibians, reptiles, birds and mammals.  Identify a variety to common animals that are carnivores, herbivores and omnivores. | | | **Year 2 Autumn Geography**  Identify the position and significance of the Equator. Identify the location of hot and cold areas of the world in relation to the Equator and the North and South Poles (Polar, Desert and Rainforest) | | |
| Appreciate that environments are constantly changing | | | | |  |  |  |  | |  |  |
| Describe life in the ocean | | | | |  |  |  |  | |  |  |
| Appreciate the dangers to ocean life | | | | |  |  |  |  | |  |  |
| Explore the Arctic and Antarctic habitat | | | | |  |  |  |  | |  |  |
| Explore the rainforest and its problems | | | | |  |  |  |  | |  |  |
| Understand desert, underground and ocean habitats | | | | |  |  |  |  | |  |  |
| *Forces* | | *Electromagnets* | | *Waves* | *Earth* | | | | | *Matter* | | | | *Organisms* | *Ecosystems* | | | *Genes* |

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|  | | | **Castle Academy - Science Curriculum** | | | | | | | | | | | | | |  | | |
| **Year 3** | | | | | | Aut | | Spr | | | Sum | | Key Vertical Science Links | | | Horizontal/Diagonal Links | | |
| 1 | 2 | 1 | 2 | | 1 | 2 |
| **Rocks** | Describe how mountains are formed | | | | |  |  |  |  | |  |  | **Year 1 Summer 2 – Seasonal Changes**  Recognise different types of weather. Learn about clouds and rainfall. Recognise the different types of cold weather.  Look at different types of weather and how it affects places on Earth. Identify the four seasons.  **Year 2 Spring 2 – Everyday Materials**  Explain why we use certain materials.  Compare the uses of everyday materials. | | |  | | |
| Recognise the differences between igneous, sedimentary and metamorphic rock | | | | |  |  |  |  | |  |  |
| Observe rocks, including those used in buildings and gravestones | | | | |  |  |  |  | |  |  |
| Classify different types of gravestone weathering | | | | |  |  |  |  | |  |  |
| Understand what a fossil is | | | | |  |  |  |  | |  |  |
| Describe what soils are made of | | | | |  |  |  |  | |  |  |
| Identify common rocks | | | | |  |  |  |  | |  |  |
| **Animals Including Humans**  **(What Makes us)** | Understand about the parts of the brain | | | | |  |  |  |  | |  |  | **Year 2 Summer 1 – Diet and Health**  Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). Discuss the importance of exercise, a healthy diet and hygiene. Know how to keep healthy through daily exercise.  **Year 1 Autumn 1 – About Me**  Learn about changes in your body since you were a baby. Understand the importance of taking care of your body. Show how humans mimic nature*.* | | |  | | |
| Compare generations of families to help understand how characteristics are inherited | | | | |  |  |  |  | |  |  |
| Learn about voluntary and involuntary muscles | | | | |  |  |  |  | |  |  |
| Introduction to the skeleton | | | | |  |  |  |  | |  |  |
| Know about the skeleton – tendons and ligaments | | | | |  |  |  |  | |  |  |
| Explore how skeletons and muscles are used for support, protection and movement | | | | |  |  |  |  | |  |  |
| **Forces and Magnets** | Understand magnetism | | | | |  |  |  |  | |  |  | **Year 2 Spring 2 – Everyday Materials**  Explain why we use certain materials. Compare the uses of everyday materials.  **Year 1 Spring 1 – Uses of Everyday Materials**  Know everyday uses of magnets. Understand that magnets only attract certain metals. Understand that magnets have a north and south pole. | | | **Year 2 Summer DT**  Wheels and Axels  **Year 2 Autumn DT**  Sliders and Levers | | |
| Learn about the different types of magnets | | | | |  |  |  |  | |  |  |
| Know that the Earth behaves like a magnet | | | | |  |  |  |  | |  |  |
| Learn about magnetic fields; learn about the law of magnetic attraction | | | | |  |  |  |  | |  |  |
| Know that magnetic needles always point magnetic north | | | | |  |  |  |  | |  |  |
| Compare how things move on different surfaces | | | | |  |  |  |  | |  |  |
| **Exploring the World of Plants** | Describe the process of germination in seeds and bulbs | | | | |  |  |  |  | |  |  | **Year 2 Spring 1 – Plants**  Understand that plants need water, light and a suitable temperature in order to grow well. Understand the difference between a bulb and a seed. Understand that plants make their own food. Know how plants grow from a seed to a plant.  **Year 2 Summer 2 – Habitats Around the World**  Know that living things live in environments to which they are suited. Appreciate that environments are constantly changing. | | |  | | |
| Asexual reproduction in plants | | | | |  |  |  |  | |  |  |
| Describe the features of non-vascular plants | | | | |  |  |  |  | |  |  |
| Describe the life cycle of a plant | | | | |  |  |  |  | |  |  |
| Explore extraordinary plants and fungi | | | | |  |  |  |  | |  |  |
| Explore the rainforest and its problems | | | | |  |  |  |  | |  |  |
| **Plants**  **(Life Cycles)** | Name the parts of the flower and describe what they do | | | | |  |  |  |  | |  |  | **Year 2 Spring 1 – Plants**  Understand that plants need water, light and a suitable temperature in order to grow well. Understand the difference between a bulb and a seed. Understand that plants make their own food  Know how plants grow from a seed to a plant. Recognise the importance of flowers and seeds.  **Year 3 Spring 2 – Exploring the World of Plants** | | |  | | |
| Explain how plants make their own food | | | | |  |  |  |  | |  |  |
| Describe the life cycle of a plant | | | | |  |  |  |  | |  |  |
| Describe the process of pollination | | | | |  |  |  |  | |  |  |
| Describe how plants soak up water | | | | |  |  |  |  | |  |  |
| Describe the different ways plants share their seeds | | | | |  |  |  |  | |  |  |
| Explain how water and food moves around a plant | | | | |  |  |  |  | |  |  |
| **Light** | Explain how shadows are formed | | | | |  |  |  |  | |  |  | **Year 1 Summer 2 – Seasonal Changes**  Recognise different types of weather. Learn about clouds and rainfall. Look at different types of weather and how it affects places on Earth. Identify the four seasons. | | | **Year 2 Spring 1 Maths**  Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise) | | |
| Describe how light travels | | | | |  |  |  |  | |  |  |
| Understand different types of mirrors | | | | |  |  |  |  | |  |  |
| Know what a periscope is and how it is used | | | | |  |  |  |  | |  |  |
| Explain how reflective surfaces keep us safe | | | | |  |  |  |  | |  |  |
| Recognise that light from the Sun can be dangerous and that there are ways to protect your eyes | | | | |  |  |  |  | |  |  |
| *Forces* | | *Electromagnets* | | *Waves* | *Earth* | | | | | *Matter* | | | | *Organisms* | *Ecosystems* | | | *Genes* | |

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|  | | | **Castle Academy - Science Curriculum** | | | | | | | | | | | | |  | |
| **Year 4** | | | | | Aut | | Spr | | | Sum | | Key Vertical Science Links | | | Horizontal/Diagonal Links | | |
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| **States of Matter** | Compare and group solids, liquids and gases | | | |  |  |  |  | |  |  | **Year 2 Spring 2 – Everyday Materials**  Explore the work of Charles Macintosh; understand how the properties of material can be changed.  **Year 1 Summer 2 – Seasonal Changes**  Learn about clouds and rainfall. Recognise the different types of cold weather. Look at different types of weather and how it affects places on Earth. | | |  | | |
| Understand the water cycle | | | |  |  |  |  | |  |  |
| Investigate the effect temperature has on changing state | | | |  |  |  |  | |  |  |
| Understand diluting and dissolving | | | |  |  |  |  | |  |  |
| Understand evaporation and condensation | | | |  |  |  |  | |  |  |
| Describe freezing and melting | | | |  |  |  |  | |  |  |
| **Animals Including Humans**  **(Food and Digestion)** | Understand the intestines | | | |  |  |  |  | |  |  | **Year 3 Autumn 2 – What Makes Us**  Understand about the parts of the brain. Explore how skeletons and muscles are used for support, protection and movement.  **Year 2 Summer 1 – Diet and Health**  Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).  **Year 1 Autumn 1 – About Me**  Learn about changes in your body since you were a baby. Understand the importance of taking care of your body. Show how humans mimic nature. | | |  | | |
| Understand the food pyramid and why it is important | | | |  |  |  |  | |  |  |
| Know about vitamins and minerals | | | |  |  |  |  | |  |  |
| Understand salivary glands and taste buds | | | |  |  |  |  | |  |  |
| Know the different types of teeth | | | |  |  |  |  | |  |  |
| Understand the food chain, know how natural cycles work | | | |  |  |  |  | |  |  |
| **Living Things and Their Habitats**  **(Nature and the Environment)** | Understand water pollution | | | |  |  |  |  | |  |  | **Year 4 Autumn 1 – States of Matter**  Understand the water cycle. Investigate the effect temperature has on changing state.  **Year 3 Spring 2 – Exploring the World of Plants**  Explore the rainforest and its problems.  **Year 2 Summer 2 – Habitats Around the World**  Know that living things live in environments to which they are suited. Appreciate that environments are constantly changing. Understand desert, underground and ocean habitats | | |  | | |
| Know about the balance of nature | | | |  |  |  |  | |  |  |
| Describe ecosystems and how they are affected by changes in the environment | | | |  |  |  |  | |  |  |
| Explore methods that can be used to conserve water | | | |  |  |  |  | |  |  |
| Understand human impact on the environment | | | |  |  |  |  | |  |  |
| Explore air pollution | | | |  |  |  |  | |  |  |
| **Living Things and Their Habitats**  **(Classifying)** | Understand habitats | | | |  |  |  |  | |  |  | **Year 4 Spring 1 – Nature and the Environment**  Describe ecosystems and how they are affected by changes in the environment.  **Year 4 Autumn 2 – Food and Digestion**  Understand the food pyramid and why it is important. Understand the food chain, know how natural cycles work.  **Year 2 Summer 1 – Diet and Health**  Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). | | |  | | |
| Know how scientists classify animals | | | |  |  |  |  | |  |  |
| Understand the difference between vertebrate and invertebrate | | | |  |  |  |  | |  |  |
| Know about cold-blooded amphibians and reptiles | | | |  |  |  |  | |  |  |
| Know about warm-blooded birds and mammals | | | |  |  |  |  | |  |  |
| Understand how fish are different from amphibians and reptiles | | | |  |  |  |  | |  |  |
| **Sound** | Explain what causes sound | | | |  |  |  |  | |  |  | **Year 3 Summer 2 – Light**  Describe how light travels.  **Year 1 Autumn 1 – About Me**  Learn about the senses: sight, taste and touch  Learn about the senses of hearing and smell. | | |  | | |
| Describe different sounds | | | |  |  |  |  | |  |  |
| Compare the speed of sound and the speed of light | | | |  |  |  |  | |  |  |
| Compare sounds in solids, liquids and gases | | | |  |  |  |  | |  |  |
| Describe how sound travels | | | |  |  |  |  | |  |  |
| Explain how to protect your ears | | | |  |  |  |  | |  |  |
| **Electricity** | Describe the basic parts of a circuit | | | |  |  |  |  | |  |  | **Year 3 Spring 1 – Forces and Magnets**  Understand magnetism. Learn about the different types of magnets. Learn about magnetic fields; learn about the law of magnetic attraction.  **Year 3 Summer 2 – Light**  Describe how light travels. | | | **Year 4 Summer 2**  Simple Circuits and Switches – Light | | |
| Identify when a lamp will light in a simple series circuit | | | |  |  |  |  | |  |  |
| Understand the difference between a series and a parallel circuit | | | |  |  |  |  | |  |  |
| Explain how to recognise electrical conductors and insulators | | | |  |  |  |  | |  |  |
| Explore how electricity is transported | | | |  |  |  |  | |  |  |
| To know how to work safely with electricity | | | |  |  |  |  | |  |  |
| *Forces* | | *Electromagnets* | | *Waves* | *Earth* | | | | *Matter* | | | | *Organisms* | *Ecosystems* | | | *Genes* |

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|  | | | **Castle Academy - Science Curriculum** | | | | | | | | | | | | | |  | |
| **Year 5** | | | | | | Aut | | Spr | | | Sum | | Key Vertical Science Links | | | Horizontal/Diagonal Links | | |
| 1 | 2 | 1 | 2 | | 1 | 2 |
| **Properties of Materials** | Describe the properties of different materials | | | | |  |  |  |  | |  |  | **Year 4 Autumn 1 – States of Matter**  Compare and group solids, liquids and gases. Understand the water cycle. Investigate the effect temperature has on changing state. Understand diluting and dissolving. Understand evaporation and condensation. Describe freezing and melting**.**  **Year 2 Spring 2 – Everyday Materials**  Explain why we use certain materials. Investigate squashing, bending, twisting and stretching. Compare the uses of everyday materials | | |  | | |
| Compare the properties and uses of different materials | | | | |  |  |  |  | |  |  |
| Make the perfect sandcastle | | | | |  |  |  |  | |  |  |
| Explore extracting useful substances from natural resources | | | | |  |  |  |  | |  |  |
| Explore materials which can be derived from crude oil; explain the importance of carbon compounds in our lives | | | | |  |  |  |  | |  |  |
| Explore the thermal conductivity of materials to improve energy efficiency in buildings or other systems | | | | |  |  |  |  | |  |  |
| **Changes of Materials** | Understand that some changes to materials are not reversible | | | | |  |  |  |  | |  |  | **Year 5 Autumn 1 – Properties of Materials**  Explore extracting useful substances from natural resources. Explore materials which can be derived from crude oil; explain the importance of carbon compounds in our lives. Explore the thermal conductivity of materials to improve energy efficiency in buildings or other systems  **Year 4 Autumn 1 – States of Matter**  Compare and group solids, liquids and gases. Understand the water cycle. Investigate the effect temperature has on changing state. Understand diluting and dissolving. Understand evaporation and condensation. Describe freezing and melting**.** | | |  | | |
| Know the difference between physical and chemical change | | | | |  |  |  |  | |  |  |
| Be able to explain the words dissolve and solution | | | | |  |  |  |  | |  |  |
| Understand the actions of filtering, sieving and evaporating | | | | |  |  |  |  | |  |  |
| Understand that a chemical change alters a molecule permanently | | | | |  |  |  |  | |  |  |
| Know the difference between elements, compounds and mixtures | | | | |  |  |  |  | |  |  |
| **Animals Including Humans**  **(the Human Life Cycle)** | Know about life cycles | | | | |  |  |  |  | |  |  | **Year 2 Autumn 2 – animals Including Humans**  Learn the life cycle of birth, growth, reproduction and death. Learn about reproduction and growth in animals. Learn how humans grow by looking at how babies grow into adults. Describe the stages of life from adulthood to old age. | | |  | | |
| Know about the human reproductive organs | | | | |  |  |  |  | |  |  |
| Exploring gestation periods | | | | |  |  |  |  | |  |  |
| Describe the changes which happen in childhood | | | | |  |  |  |  | |  |  |
| Understand changes which happen in adolescence | | | | |  |  |  |  | |  |  |
| Describe the changes as humans develop to old age | | | | |  |  |  |  | |  |  |
| **Studying Living Things** | Know about the life and work of Sir David Attenborough | | | | |  |  |  |  | |  |  | **Year 4 Spring 2 – Living Things and Their Habitats**  Understand habitats. Know how scientists classify animals. Understand the difference between vertebrate and invertebrate. Understand how fish are different from amphibians and reptiles.  **Year 2 Autumn 2 – Animals Including Humans**  Learn about reproduction and growth in animals. Know the life cycle of a frog. Describe the life cycle of a butterfly. | | |  | | |
| Know about the life and work of Dame Jane Goodall | | | | |  |  |  |  | |  |  |
| Learn about sexual reproduction | | | | |  |  |  |  | |  |  |
| Describe the life cycles of a mammal, bird and reptile | | | | |  |  |  |  | |  |  |
| Describe the life cycle of an insect and amphibian | | | | |  |  |  |  | |  |  |
| Learn about asexual reproduction | | | | |  |  |  |  | |  |  |
| **Earth and Space** | Describe Nicolaus Copernicus’ ideas about planetary motion | | | | |  |  |  |  | |  |  | **Year 1 Throughout – Seasonal Changes**  Observe changes across the seasons. Observe and describe weather associated with the seasons and how day length varies. | | |  | | |
| Describe the movement of the Earth in space | | | | |  |  |  |  | |  |  |
| Learn about the gravitational force | | | | |  |  |  |  | |  |  |
| Describe the characteristics of the planets in our solar system | | | | |  |  |  |  | |  |  |
| Know about the comets, asteroids and meteors | | | | |  |  |  |  | |  |  |
| Describe the Big Bang theory | | | | |  |  |  |  | |  |  |
| **Forces** | Describe the life and work of Sir Issac Newton | | | | |  |  |  |  | |  |  | **Year 5 Summer 1 – Earth and Space**  Learn about the gravitational force. Describe the characteristics of the planets in our solar system.  **Year 4 Autumn – States of Matter**  Compare and group solids, liquids and gases | | | **Year 3 Autumn DT**  Levers and Linkages  **Year 5 Autumn DT (CAMs)**  Understand that mechanical systems have an input, process and an output. Understand how cams can be used to produce different types of movement and change the direction of movement. | | |
| Understand water resistance and friction | | | | |  |  |  |  | |  |  |
| Explore gravity and air resistance | | | | |  |  |  |  | |  |  |
| Predict if an object will float or sink | | | | |  |  |  |  | |  |  |
| Investigate mechanisms – gears | | | | |  |  |  |  | |  |  |
| Investigate mechanisms – levers and pulleys | | | | |  |  |  |  | |  |  |
| *Forces* | | *Electromagnets* | | *Waves* | *Earth* | | | | | *Matter* | | | | *Organisms* | *Ecosystems* | | | *Genes* |

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|  | | | **Castle Academy - Science Curriculum** | | | | | | | | | | | | | |  | |
| **Year 6** | | | | | Aut | | Spr | | | Sum | | Key Vertical Science Links | | | | Horizontal/Diagonal Links | | |
| 1 | 2 | 1 | 2 | | 1 | 2 |
| **Light** | Explain how light travels in a straight line and shadows are formed | | | |  |  |  |  | |  |  | **Year 3 Summer 2 – Light**  Explain how shadows are formed. Describe how light travels. Understand different types of mirrors. Know what a periscope is and how it is used. Explain how reflective surfaces keep us safe. Recognise that light from the Sun can be dangerous and that there are ways to protect your eyes. | | | | **Year 5 Autumn 1 Maths**  Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles. | | |
| Compare materials of different transparencies | | | |  |  |  |  | |  |  |
| Describe how lenses can be used | | | |  |  |  |  | |  |  |
| Explain how water can bend light | | | |  |  |  |  | |  |  |
| Show white light is a mixture | | | |  |  |  |  | |  |  |
| Investigate light colour mixing | | | |  |  |  |  | |  |  |
| **Electricity** | Explain how objects become charged | | | |  |  |  |  | |  |  | **Year 4 Summer 2 – Electricity**  Describe the basic parts of a circuit. Identify when a lamp will light in a simple series circuit. Understand the difference between a series and a parallel circuit  Explain how to recognise electrical conductors and insulators. Explore how electricity is transported. To know how to work safely with electricity. | | | | **Year 4 Summer DT**  Electrical Systems – Simple Circuits and Switches | | |
| Describe the parts of an electric circuit | | | |  |  |  |  | |  |  |
| Explain what effects the output of a circuit | | | |  |  |  |  | |  |  |
| Explain how variable resistors can work like a switch | | | |  |  |  |  | |  |  |
| Compare electrical conductors and insulators | | | |  |  |  |  | |  |  |
| Build a set of traffic lights | | | |  |  |  |  | |  |  |
| **Animals Including Humans**  **(Blood and Transportation)** | Describe the composition of blood | | | |  |  |  |  | |  |  | **Year 5 Spring 1 – The Human Life Cycle**  Describe the changes as humans develop to old age.  **Year 4 Autumn 2 – Animals Including Humans**  Understand the intestines. Know about vitamins and minerals. Understand salivary glands and taste buds. | | | | **Year 5 Spring 2 PSHE**  I know what makes a healthy lifestyle including healthy eating and the choices I need to make to be healthy and happy. | | |
| Describe how oxygen is moved around the body | | | |  |  |  |  | |  |  |
| Explain how blood is filtered | | | |  |  |  |  | |  |  |
| Describe what a blood transfusion involves | | | |  |  |  |  | |  |  |
| Describe how diabetes is managed | | | |  |  |  |  | |  |  |
| Describe the roles of Bacteria | | | |  |  |  |  | |  |  |
| **Animals Including Humans**  **(The Heart and Health)** | Describe the function of blood | | | |  |  |  |  | |  |  | **Year 6 Spring 1 – Blood and Transportation**  Describe the composition of blood. Describe how oxygen is moved around the body. Explain how blood is filtered. Describe what a blood transfusion involves. Describe how diabetes is managed. Describe the roles of Bacteria.  **Year 2 Summer 1 – Diet and Health**  Discuss the importance of exercise, a healthy diet and hygiene. Know how to keep healthy through daily exercise. Know how to keep healthy through diet. | | | |  | | |
| Describe the function of blood vessels | | | |  |  |  |  | |  |  |
| Describe how your heart moves blood around the body | | | |  |  |  |  | |  |  |
| Describe what affects your heart rate | | | |  |  |  |  | |  |  |
| Explore the different food groups and identify ways to eat a balanced diet | | | |  |  |  |  | |  |  |
| Describe the consequences of an unhealthy lifestyle | | | |  |  |  |  | |  |  |
| **Evolution and Inheritance** | Explain how adaptations help animals and plants survive | | | |  |  |  |  | |  |  | **Year 5 Spring 2 – Studying Living Things**  Learn about sexual reproduction. Describe the life cycles of a mammal, bird and reptile. Describe the life cycle of an insect and amphibian. Learn about asexual reproduction.  **Year 3 Autumn 1 – Rocks**  Understand what a fossil is. | | | | **Year 2 History**  Charles Darwin and Mary Anning  **Year 6 Spring RE**  How was the world created and why should I care about it today? | | |
| Describe the process or natural selection | | | |  |  |  |  | |  |  |
| Explain what fossils can tell us | | | |  |  |  |  | |  |  |
| Explain why animals can look different to their parents | | | |  |  |  |  | |  |  |
| Explore the work of palaeontologist Mary Anning | | | |  |  |  |  | |  |  |
| Describe the process of genetic modification | | | |  |  |  |  | |  |  |
| **Living Things and Their habitats** | Classify living things | | | |  |  |  |  | |  |  | **Year 6 Summer 1 – Evolution and Inheritance**  **Year 5 Spring 2 – Studying Living Things**  Learn about sexual reproduction. Describe the life cycles of a mammal, bird and reptile.  **Year 4 Spring 2 – Living Things and Their Habitats**  Understand habitats. Know how scientists classify animals. Understand the difference between vertebrate and invertebrate. | | | | **Year 6 Spring RE**  How was the world created and why should I care about it today? | | |
| Explore the kingdoms of life | | | |  |  |  |  | |  |  |
| Describe the work of Carl Linnaeus | | | |  |  |  |  | |  |  |
| Describe the different types of fungi | | | |  |  |  |  | |  |  |
| Identify different classes of vertebrates | | | |  |  |  |  | |  |  |
| Explore soil habitats | | | |  |  |  |  | |  |  |
| *Forces* | | *Electromagnets* | | *Waves* | | | | | *Earth* | | | | *Matter* | *Organisms* | *Ecosystems* | | | *Genes* |