

## WELLESBOURNE PRIMARY AND NURSERY SCHOOL

### *Living to Learn, Learning to Live*

<b>RESPECT</b>	<b>EFFORT</b>	<b>ATTEND</b>	<b>COOPERATE</b>	<b>HONEST</b>
As emotionally intelligent young people we will listen to and value other opinions. We will create a safe and supportive environment where we will feel confident to investigate without fear of being wrong. To consider social and moral dilemmas, reflect on experience, explore reasoned views and moral and ethical issues.	We will learn to take risks in our learning and challenge ourselves and each other. We will be able to explain clearly our investigations and discoveries. We will develop our thinking skills and resilience so that we become motivated and independent learners.	We will learn the importance of concentration, listening and participating during all of our lessons. We value being on time and getting the most from all of our time at school. We will develop an understanding that by being in school and joining in we will get more from our school and support our friends and fellow learners.	As co-operators we will work together and support each other in developing and listening to our ideas. In doing so we will challenge and explore new learning. We will work together being kind, helpful and gentle to all our school community and valuing its diversity.	We will learn that being honest means being true to ourselves. That by being honest with ourselves we learn more and support our friends more. We will learn the importance of honest self evaluation to help us improve and become independent learners. We will learn that honest support of our friends will help them to be better learners.

### **SCIENCE CURRICULUM**

	<b>AUTUMN</b>	<b>SPRING</b>	<b>SUMMER</b>
<b>YEAR 1</b>	MY BODY IDENTIFYING ANIMALS SEASONAL CHANGES	IDENTIFYING ANIMALS EVERYDAY MATERIALS SEASONAL CHANGES	IDENTIFYING PLANTS SEASONAL CHANGES
<b>YEAR 2</b>	GROWTH AND SURVIVAL EXPLORE EVERYDAY MATERIALS	LIVING IN HABITATS SUPER SCIENTISTS	GROWING PLANTS
<b>YEAR 3</b>	HEALTH AND MOVEMENT	FORCES AND MAGNETS LIGHT AND SHADOW	HOW PLANTS GROW ROCKS, FOSSILS AND SOILS
<b>YEAR 4</b>	CHANGING SOUND	CIRCUITS AND CONDUCTORS STATES OF MATTER	EATING AND DIGESTION LIVING IN THE ENVIRONMENT
<b>YEAR 5</b>	PROPERTIES AND CHANGES OF MATERIALS EARTH AND SPACE	FORCES IN ACTION	CHANGES AND REPRODUCTION SEX AND RELATIONSHIPS EDUCATION – LIFE CYCLES
<b>YEAR 6</b>	CLASSIFYING ORGANISMS EVOLUTION AND INHERITANCE	HEALTHY BONES SEX AND RELATIONSHIPS EDUCATION	CHANGING CIRCUITS SEEING LIGHT

# YEAR 1

## As scientists we will ....

AUTUMN	SPRING	SUMMER
<p><b>Know and understand:</b> My Body Identifying Animals Seasonal Changes</p>	<p><b>Know and understand:</b> Identifying Animals Everyday Materials Seasonal Changes</p>	<p><b>Know and understand:</b> Identifying Plants Seasonal Changes</p>
<p><b>My Body:</b></p> <ul style="list-style-type: none"> <li>• be able to identify, name and label body parts</li> <li>• explore what parts of our bodies we use for different activities</li> <li>• find out about the five senses, in particular the sense of sight</li> <li>• explore the sense of touch</li> <li>• explore the sense of smell</li> <li>• explore the sense of taste</li> <li>• explore the sense of sound</li> </ul> <p><b>Identifying Animals:</b></p> <ul style="list-style-type: none"> <li>• be able to identify and name a variety of common animals</li> <li>• be able to identify and name a variety of common UK mammals</li> <li>• be able to identify and compare a variety of common UK birds and reptiles</li> </ul>	<p><b>Identifying Animals:</b></p> <ul style="list-style-type: none"> <li>• be able to identify and sort carnivores, herbivores and omnivores</li> <li>• be able to take care of animals</li> <li>• collect data about animals and answer questions</li> </ul> <p><b>Everyday Materials:</b></p> <ul style="list-style-type: none"> <li>• be able to identify a variety of common materials</li> <li>• be able to distinguish between an object and the material from which it is made</li> <li>• be able to describe materials according to their properties</li> <li>• be able to describe why some materials suit certain objects better than others</li> <li>• carry out an experiment to find out which materials are waterproof</li> </ul>	<p><b>Identifying Plants:</b></p> <ul style="list-style-type: none"> <li>• find out what a plant is</li> <li>• identify and describe garden plants</li> <li>• identify and describe wild plants</li> <li>• identify and describe a range of trees</li> <li>• identify the different parts of a plant make observations of growing plants</li> </ul> <p><b>Seasonal Changes:</b></p> <ul style="list-style-type: none"> <li>• find out about different seasons and how to describe them</li> <li>• find out about the seasons and how they are different</li> <li>• find out about how animals are affected by the seasons</li> <li>• find out about how humans are affected by the seasons</li> <li>• find out about the day length is affected by the seasons</li> </ul>

- be able to identify and compare a variety of common UK fish and amphibians

**Seasonal Changes:**

- find out about different seasons and how to describe them
- find out about the seasons and how they are different
- find out about how animals are affected by the seasons
- find out about how humans are affected by the seasons
- find out about the day length is affected by the seasons

***These topics are linked to English and mathematics.***

- recap what we have learnt about everyday materials

**Seasonal Changes:**

- find out about different seasons and how to describe them
- find out about the seasons and how they are different
- find out about how animals are affected by the seasons
- find out about how humans are affected by the seasons
- find out about the day length is affected by the seasons
- investigate the weather during the seasons.

***These topics are linked to English and mathematics.***

- investigate the weather during the seasons

***These topics are linked to English and mathematics.***

# YEAR 2

## As scientists we will ....

AUTUMN	SPRING	SUMMER
<p><b>Know and understand:</b> Growth and Survival Explore Everyday Materials</p>	<p><b>Know and understand:</b> Living in Habitats Super Scientists</p>	<p><b>Know and understand:</b> Growing Plants</p>
<p><b>Growth and Survival:</b></p> <ul style="list-style-type: none"> <li>• find out about the offspring of a variety of different animals</li> <li>• find out about the different ways in which animals reproduce</li> <li>• explore how humans grow as they get older</li> <li>• find out what animals, including humans, need to survive</li> <li>• explore the environment as a factor of survival for animals, including humans.</li> <li>• find out how to eat a healthy, balanced diet</li> <li>• find out why exercise is important to keep our bodies healthy</li> </ul> <p><b>Explore Everyday Materials:</b></p> <ul style="list-style-type: none"> <li>• identify a variety of materials and sort them according to a variety of criteria</li> </ul>	<p><b>Living in Habitats:</b></p> <ul style="list-style-type: none"> <li>• be able to identify things that are living, things that are dead and things that have never been alive.</li> <li>• understand that living things need to live in suitable habitats.</li> <li>• explore the plants and animals that live in seaside habitats.</li> <li>• be able to explore plants and animals in an unfamiliar habitat.</li> <li>• be able to explore and describe a micro-habitat</li> <li>• explore food chains in a habitat</li> </ul> <p><b>Super Scientist:</b></p> <ul style="list-style-type: none"> <li>• investigate the effect gravity has on everyday objects</li> <li>• investigate what happens to light when it passes through different transparent objects</li> </ul>	<p><b>Growing Plants:</b></p> <ul style="list-style-type: none"> <li>• understand that different seeds grow into different</li> <li>• plants and to describe them.</li> <li>• understand that plants can be grown from bulbs</li> <li>• be able to explain why and how seeds are dispersed</li> <li>• plan, carry out and evaluate an investigation into</li> <li>• the conditions that affect germination</li> <li>• observe and describe how a plant changes as it matures</li> </ul>

- identify natural and man-made materials
- identify that some materials can change shape by squashing, bending, stretching and twisting, and others can't
- identify the suitability of metal and plastic for a variety of purposes
- identify different products that can be made from wood and their features and purposes
- identify different materials that are used for the same product.
- identify material inventions and discoveries

- investigate whether sound can pass through materials
- investigate our senses and reflexes
- investigate how germs are transferred by touching things
- investigate electrical circuits to make a lightbulb light up

# YEAR 3

## As scientists we will ....

AUTUMN	SPRING	SUMMER
<p><b>Know and understand:</b> Health and Movement</p>	<p><b>Know and understand:</b> Forces and Magnets Light and Shadow</p>	<p><b>Know and understand:</b> How Plants Grow Rocks, Fossils and Soils</p>
<p><b>Health and Movement:</b></p> <ul style="list-style-type: none"> <li>• identify that humans get the nutrition they need from what they eat</li> <li>• identify that a balanced diet is needed in order to stay healthy</li> <li>• investigate which foods different animals eat</li> <li>• carry out an investigation to find out what pets eat</li> <li>• explore human and animal skeletons</li> <li>• find out about how the skeleton supports and protects the body and to investigate how invertebrates are supported</li> <li>• find out what muscles are and how skeletal muscles help us to move</li> </ul>	<p><b>Forces and Magnets:</b></p> <ul style="list-style-type: none"> <li>• explore what forces are and notice that some forces need contact between two objects</li> <li>• compare how things move on different surfaces</li> <li>• explore how magnetic forces work</li> <li>• be able to identify magnetic materials</li> <li>• investigate uses for magnets</li> </ul> <p><b>Light and Shadow</b></p> <ul style="list-style-type: none"> <li>• recognise that we need light in order to see</li> <li>• explore the Sun as a light source and identify the</li> <li>• difference between night and day</li> <li>• investigate what shadows are and why they are formed</li> <li>• investigate how shadows behave</li> <li>• investigate how the size of shadows change</li> <li>• throughout the day</li> </ul>	<p><b>How Plants Grow:</b></p> <ul style="list-style-type: none"> <li>• identify and describe the functions of the roots of flowering plants</li> <li>• investigate the way in which water is transported within plants</li> <li>• identify and describe the functions of leaves in flowering plants</li> <li>• explore the part that flowers play in the life cycle of flowering plants, including <b>pollination, seed formation</b> and seed dispersal</li> <li>• explore some of the ways in which flowering plants disperse their seeds</li> <li>• understand the structure of seeds and their importance as a food source</li> </ul> <p><b>Rocks Fossils and Soils:</b></p> <ul style="list-style-type: none"> <li>• be able to identify naturally occurring rocks and explore their uses</li> <li>• be able to group rocks according to their characteristics</li> </ul>

	<ul style="list-style-type: none"><li>• explore how light is reflected from surfaces</li></ul>	<ul style="list-style-type: none"><li>• be able to plan, carry out and evaluate experiments to compare rocks</li><li>• identify rocks that are used for particular purposes</li><li>• explore soil and how it is formed</li><li>• explore what fossils are and how they are formed</li><li>• be able to identify fossilised remains</li></ul>
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# YEAR 4

## As scientists we will ....

AUTUMN	SPRING	SUMMER
<p><b>Know and understand:</b> Changing Sound</p>	<p><b>Know and understand:</b> Circuits and Conductors States of Matter</p>	<p><b>Know and understand:</b> Eating and Digestion Living in the Environment</p>
<p><b>Changing Sound:</b></p> <ul style="list-style-type: none"> <li>• find out that sounds are made when objects and materials vibrate</li> <li>• investigate whether sounds can travel through different materials</li> <li>• explore the relationship between distance and volume</li> <li>• find out that some materials are effective in preventing vibrations from sound sources reaching the ear</li> <li>• investigate how sounds can be different pitches and volumes</li> <li>• find out how the length, thickness and tightness of a string affects its pitch</li> <li>• find out how sounds can be made by air vibrating and how to change the pitch of notes produced by vibrating air</li> </ul>	<p><b>Circuits and Conductors:</b></p> <ul style="list-style-type: none"> <li>• investigate circuits and their different components</li> <li>• investigate the differences between mains and battery-powered circuits. recognise some common conductors and insulators, and associate metals with being good conductors</li> <li>• investigate the purposes of conducting and insulating materials</li> <li>• be able to use knowledge of conductors and insulators to create switches to complete a circuit</li> <li>• be able to plan and carry out an experiment to see how to change the brightness of a bulb</li> </ul> <p><b>States of Matter:</b></p> <ul style="list-style-type: none"> <li>• compare and group materials together according to whether they are solids or liquids</li> <li>• identify and explore the properties of gases</li> </ul>	<p><b>Eating and Digestion:</b></p> <ul style="list-style-type: none"> <li>• be able to identify and classify carnivores, herbivores and omnivores</li> <li>• be able to construct and interpret a variety of food chains</li> <li>• identify the different types of teeth in humans and identify their functions</li> <li>• explore different ways of keeping teeth healthy</li> <li>• investigate how the digestive system works</li> <li>• be able to describe the functions of the basic parts of the digestive system</li> </ul> <p><b>Living in the Environment:</b></p> <ul style="list-style-type: none"> <li>• be able to identify a variety of habitats and explore why organisms live in different habitats</li> <li>• be able to group organisms according to their characteristics</li> <li>• be able to classify animals into specific groups according to their characteristics</li> </ul>

- observe that materials change state when they are heated or cooled
- research the temperature in degrees Celsius (°C) at which materials change state. understand the process of evaporation
- understand the process of condensation. identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature

***This topic is linked to geography***

- be able to use a classification key to identify animals
- be able to identify and classify a variety of British plants. explore the human impact on habitats and environments

# YEAR 5

## As scientists we will ....

AUTUMN	SPRING	SUMMER
<p><b>Know and understand:</b> Properties and Changes of Materials Earth and Space</p>	<p><b>Know and understand:</b> Forces in Action</p>	<p><b>Know and understand:</b> Changes and Reproduction Sex and Relationships Education – Life Cycles</p>
<p><b>Properties and changes of materials</b></p> <ul style="list-style-type: none"> <li>• compare and group together everyday materials on the basis of their properties.</li> <li>• know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.</li> <li>• use knowledge of solids, liquids and gases to decide how mixtures might be separated: through filtering, sieving and evaporating.</li> <li>• give reasons, based on evidence from comparative fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</li> <li>• demonstrate that dissolving, mixing and changes of state are reversible changes.</li> <li>• explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including</li> </ul>	<p><b>Forces in action:</b></p> <ul style="list-style-type: none"> <li>• explain that unsupported objects fall towards the earth because of the force of gravity acting between the Earth and the falling object.</li> <li>• identify the effects of friction acting between moving surfaces.</li> <li>• identify and explain the effects of air resistance.</li> <li>• identify and explain the effects of water resistance.</li> <li>• recognize that that levers and pulleys allow a smaller force to have a greater affect.</li> <li>• recognize that gears allow a smaller force to have a greater effect.</li> </ul>	<p><b>Changes and reproduction:</b> <b>This topic is linked to Sex and Relationships Education from Brook visit in Autumn.</b></p> <ul style="list-style-type: none"> <li>• recognise the stages of growth and development in humans.</li> <li>• know the stages in the gestation period of humans and compare them to other animals.</li> <li>• recognize the stages of development during childhood and understand the needs of children of those stages.</li> <li>• understand the initial changes inside and outside of the body during puberty.</li> <li>• know the changes that occur during puberty and how they differ for boys and girls.</li> <li>• understand how the body changes during adulthood and old age</li> </ul> <p><b>Sex and Relationships Education Life Cycles:</b></p>

changes associated with burning and the action of acid on bicarbonate soda.

### **Earth and Space**

- describe the Earth, Sun and Moon as approximately spherical bodies.
- find out about the size of the earth sun and moon, and how far away from each other they are.
- understand the Earth's rotation to explain day and night and the movement of the Sun across the sky.
- use data to draw conclusions about the Sun at different times of the year.
- describe the movement of the Earth, and other planets, relative to the Sun in the Solar System.
- describe the movement of the Moon relative to the Earth.

- describe the process of sexual reproduction in flowering plants.
- describe the process of asexual reproduction in plants.
- describe the process of sexual reproduction in animals.
- observe and compare the life cycles of animals and compare how different animals reproduce and grow.
- our local environment with other animals around the world.
- find out about the work of naturalists.

# YEAR 6

## As scientists we will ....

AUTUMN	SPRING	SUMMER
<p><b>Know and understand:</b> Classifying Organisms Evolution and Inheritance</p>	<p><b>Know and understand:</b> Healthy Bodies Sex and Relationships Education</p>	<p><b>Know and understand:</b> Changing Circuits Seeing Light</p>
<p><b>Classifying Organisms:</b></p> <ul style="list-style-type: none"> <li>• recap ways of grouping organisms according to their characteristics</li> <li>• explore ways of distinguishing between organisms that have similar characteristics</li> <li>• be able to classify plants according to their characteristics</li> <li>• find out about Carl Linnaeus and his classification system</li> <li>• explore what micro-organisms are and how they can be grouped</li> <li>• be able to identify and classify organisms in the local area</li> </ul> <p><b>Evolution and Inheritance:</b></p> <ul style="list-style-type: none"> <li>• recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</li> <li>• identify how animals and plants are adapted to suit their environment in different ways</li> </ul>	<p><b>Healthy Bodies:</b></p> <ul style="list-style-type: none"> <li>• 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</li> <li>• investigate some different food groups and find out why a variety of foods is important for a healthy diet. find out how nutrients and water are transported in the human body</li> <li>• investigate what happens to the heart when we exercise and why. investigate how muscles move the skeleton and how muscle activity requires increased blood flow</li> <li>• investigate the effects of tobacco, alcohol and other drugs</li> <li>• evaluate what we can do to keep our bodies healthy</li> </ul> <p><b><i>Sex and Relationship Education will take place this term</i></b></p>	<p><b>Changing Circuits:</b></p> <ul style="list-style-type: none"> <li>• recap knowledge of electricity and circuits.</li> <li>• investigate ways in which the brightness of a bulb or speed of a motor is changed</li> <li>• be able to recognise and use conventional symbols for circuits</li> <li>• be able to plan, carry out and evaluate an experiment to see how changing the wire in a circuit affects the brightness of a bulb</li> <li>• be able to review and assess understanding of circuits</li> </ul> <p><b>Seeing Light:</b></p> <ul style="list-style-type: none"> <li>• review understanding of light and shadow and to explore how light travels</li> <li>• investigate how we see things through light entering the eyes</li> <li>• explore how light can be reflected and change direction</li> <li>• investigate reflections from a variety of surfaces</li> </ul>

- understand that adaptation of plants and animals to suit their environment may lead to evolution
- find out about how the work of scientists has helped develop our understanding of the process of evolution
- recognise that living things have changed over time and that a number of factors can affect a species' evolution
- understand how humans have evolved over time, and how human behaviour can affect change in species over time

- be able to plan and carry out an experiment to investigate how shadows behave
- explore the differences between shadows and reflections and consolidate knowledge of how we see things