

**Welbourn C of E Primary School**

‘Believe, Excite, Succeed, Together’

Year 3/4 Science Long Term Plan

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| Cycle A | Autumn | | Spring | | | Summer | |
| Science POS | ***Scientific knowledge:*** *It is vitally important that children develop secure understanding of each key block of knowledge and concepts in order to progress to the next stage. This allows children to avoid misconceptions and access higher-order content.*  ***Working scientifically****: Developing skills checking on pupils’ ability to, amongst other things, carry out research, ask questions and carry out tests.*  ***Working scientifically methods:*** *These types of scientific enquiry should include: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources. Pupils should seek answers to questions through collecting, analysing and presenting data.* | | ***Scientific knowledge:*** *It is vitally important that children develop secure understanding of each key block of knowledge and concepts in order to progress to the next stage. This allows children to avoid misconceptions and access higher-order content.*  ***Working scientifically****: Developing skills checking on pupils’ ability to, amongst other things, carry out research, ask questions and carry out tests.*  ***Working scientifically methods:*** *These types of scientific enquiry should include: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources. Pupils should seek answers to questions through collecting, analysing and presenting data.* | | | ***Scientific knowledge:*** *It is vitally important that children develop secure understanding of each key block of knowledge and concepts in order to progress to the next stage. This allows children to avoid misconceptions and access higher-order content.*  ***Working scientifically****: Developing skills checking on pupils’ ability to, amongst other things, carry out research, ask questions and carry out tests.*  ***Working scientifically methods:*** *These types of scientific enquiry should include: observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources. Pupils should seek answers to questions through collecting, analysing and presenting data.* | |
| Key objectives | Biology | Physics | | Biology | Physics | | Chemistry |
| Topic | Animals including humans  (yr3) | Electricity  (Y4) | | Living things and their habitat /Classification  (Y4) | Light  (Y3) | | States of matter  (Y4) |
| Science knowledge | To know and identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat.  To know about the importance of a nutritious, balanced diet.  To know how nutrients, water and oxygen are transported within animals and humans.  To know that humans and some other animals have skeletons and muscles for support, protection, and movement. | To identify common appliances that run on electricity.  To construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.  To identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery.  To recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.  To recognise some common conductors and insulators, and associate metals with being good conductors. | | To recognise that living things can be grouped in a variety of ways.  To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.  To recognise that environments can change and that this can sometimes pose dangers to living things.  To construct and interpret a variety of food chains, identifying producers, predators and prey. | To recognise that they need light in order to see things and that dark is the absence of light.  To notice that light is reflected from surfaces.  To recognise that light from the sun can be dangerous and that there are ways to protect their eyes.  To recognise that shadows are formed when the light from a light source is blocked by a solid object.  To find patterns in the way that the size of shadows change. | | To compare and group materials together, according to whether they are solids, liquids or gases  To observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)  To identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. |
| Working scientifically skills | To set up simple practical, comparative enquiries.  To make systematic and careful observations and, where appropriate, take accurate measurements using standard units.  To gather, record, classify and present data in a variety of ways to help in answering questions.  To record findings using simple scientific language, drawings, labelled diagrams, bar charts, and tables  To report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.  To use results to draw simple conclusions.  using straightforward scientific evidence to answer questions or to support their findings | To ask relevant questions and using different types of scientific enquiries to answer them.  To set up simple practical enquiries, comparative and fair tests.  To make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including data loggers.  To gather, record, classify and present data in a variety of ways to help in answering questions  To record findings using simple scientific language, drawings, labelled diagrams, bar charts, and tables.  To use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions  To report on findings from  enquiries, including oral and written explanations, displays or presentations of results and conclusions  To use straightforward scientific evidence to answer questions or to support their findings | | To report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions  To identify differences, similarities or changes related to simple scientific ideas  To record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables  To use straightforward scientific evidence to answer questions or to support their findings | To set up simple practical enquiries, comparative and fair tests.  To make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers  To gather, record, classify and present data in a variety of ways to help in answering questions  To record findings using simple scientific language, drawings, labelled diagrams,bar charts, and tables  To report on findings from enquiries, including oral and written explanations, displays or presentations of results and  conclusions  To use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions  To identify differences, similarities or changes related to simple scientific ideas and processes.  To use straightforward scientific evidence to answer questions or to support their findings | | To ask relevant questions and using different types of scientific enquiries to answer them  To set up simple practical enquiries, comparative and fair tests  To make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers  To gather, record, classify and present data in a variety of ways to help in answering questions  To record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables  To use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.  To identify differences, similarities or changes related to simple scientific ideas and processes |
| Working scientifically methods | Observing changes over different periods of time  Noticing patterns  Grouping and classifying things  Carrying out comparative and fair tests  Finding things out using a wide range of secondary sources | Observing changes over different periods of time,  Noticing patterns  Grouping and classifying things  Carrying out comparative and fair tests  Finding things out using a wide range of secondary sources | | Observing changes over different periods of time  Noticing patterns  Grouping and classifying things  Carrying out comparative and fair tests  Finding things out using a wide range of secondary sources | Observing changes over different periods of time,  Noticing patterns  Grouping and classifying things  Carrying out comparative and fair tests  Finding things out using a wide range of secondary sources | | Observing changes over different periods of time,  Noticing patterns  Grouping and classifying things  Carrying out comparative and fair tests  Finding things out using a wide range of secondary sources. |
| Working scientifically ongoing | **Year 3**  Ask their own relevant questions about what they observe and use different types of scientific enquiries to answer them.  Draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out.  **Year 4**  Ask their own questions about what they observe.  Draw simple conclusions and use some scientific language, first, to talk about and, later, to write about what they have found out. | | | | | | |
| Key vocabulary | Nutrition  Nutrients  Carbohydrates  Protein  Fats  Fibre  Vitamins  Minerals  Skeleton  Bones  Joints  Endoskeleton  Exoskeleton  Hydrostatic skeleton  Vertebrate  Invertebrate  Contract  Relax  Muscles  Ball and socket joint  Hinge joint  Gliding joint | Circuits  electricity  electrical  battery  bulb  crocodile clip  buzzer  motor  conduct  conductor  insulate  insulator  switch  break  power  bright  brightness  dim  batteries  neutrons  protons  electrons  nucleus  atom  current  mains  wires | | Source  Dark  Reflect  Visible  Bounce  Mirror  Ray  Beam  Glare  Pupil  Retina  Travel  Straight  Opaque  Translucent  Transparent  Block  Shadow  Material  Surface  Smooth  Illuminate  Shiny  Rough  Reverse  Bright  energy | Organism  Variation  Classification  Vertebrates  Invertebrates  Reptile  Bird  Mammal  Amphibian  Fish  Global  Local  Characteristic  Key  Habitat  Environment  Wildlife  Endangered  Extinct  conservation | | Solid  Liquid  Gas  Particles  State  Materials  Properties  Matter  Melt  Freeze  Temperature  Condensation  Process  Water  Evaporation  Ice  Water vapour  Precipitation  Energy  Collection  Carbon dioxide  Weigh  Mass  thermometer |