

**Welbourn C of E Primary School**

‘Believe, Excite, Succeed, Together’

Year 5/6 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 | Chemistry  | Biology  | Physics  | Physics  | Biology |
| Topic  | **Properties and changes in Materials****(yr5)** | **Living things and their habitats/ Classification** **(yr6)** | **Light** **(Yr 6)** | **Forces (Y5)** | **Animals including humans** **(Yr 6)** |
| Science knowledge  | To 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.To know that some materials will dissolve in liquid to form a solution.To know and explain how to recover a substance from a solution.To Know and demonstrate how some materials can be separated (e.g. through filtering, sieving and evaporating)To give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.To know and demonstrate that dissolving, mixing and changes of state are reversible changes.To know and 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. | To classify living things into broad groups according to observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.To know how living things have been classified.To give reasons for classifying plants and animals in a specific way | To recognise that light appears to travel in straight linesTo use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.To 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.To use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. | To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.To identify the effects of air resistance, water resistance and friction, that act between moving surfacesTo recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. | To identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.To recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.To describe the ways in which nutrients and water are transported within animals, including humans. |
| Working scientifically skills  | To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.To take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriateTo record data and results of increasing complexity using scientific diagrams and labels, tables, scatter graphs, bar and line graphsTo use test results to make predictions to set up further comparative and fair testsTo report and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.To identify scientific evidence that has been used to support or refute ideas or arguments. | To identify scientific evidence that has been used to support or refute ideas or arguments.To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs | To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.To take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.To use test results to make predictions to set up further comparative and fair tests | To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.To take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.To use test results to make predictions to set up further comparative and fair testsTo report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.To identify scientific evidence that has been used to support or refute ideas or arguments. | To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.To take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.To use test results to make predictions to set up further comparative and fair tests |
| Working scientifically methods | Observing changes over different periods of time,Noticing patternsGrouping and classifying thingsCarrying out comparative and fair testsFinding things out using a wide range of secondary sources. | Observing changes over different periods of time,Noticing patternsGrouping and classifying thingsCarrying out comparative and fair testsFinding things out using a wide range of secondary sources | Observing changes over different periods of time,Noticing patternsGrouping and classifying thingsCarrying out comparative and fair testsFinding things out using a wide range of secondary sources. | Observing changes over different periods of timeNoticing patternsGrouping and classifying thingsCarrying out comparative and fair testsFinding things out using a wide range of secondary sources | Observing changes over different periods of time,Noticing patternsGrouping and classifying thingsCarrying out comparative and fair testsFinding things out using a wide range of secondary sources |
| Working scientifically ongoing  | Asking their own questions about scientific phenomenaDraw conclusions based on their data and observations, use evidence to justify their ideas, and use their scientific knowledge and understanding to explain their findings.  |
| Key vocabulary  | MaterialsElasticWaterproofOpaqueTranslucentTransparent FlexibleRigidAbsorbentMagneticBrittleThermal conductorThermal insulatorDissolveInsolubleSuspensionChemicalPhysicalIrreversible SolutionSeparatePermeableSolublefilter | Micro-organismsOrganismCharacteristicsPlantsAnimalClassificationCompareInvertebratesInsectsVertebratesAmphibiansReptilesBirdsMammalsCarl LinnaeusLinnaean DomainKingdomPhylumGenusSpecies | ShadowLightFilterColourReflectAbsorbRefractSpectrumWavelengthPrismVisibleLensAngleIncidenceStraightRayBeamWavePhotonEnergySourceOpaqueDistantTransparentBendFocal pointPeriscopeVacuumtravel | Force PushPullOpposingGravityAir resistanceWater resistanceFrictionIsaac Newton Galileo GalileiStreamlineBrakeMechanismLeverGearCog Pulleymachine | Circulatory systemHeartBlood vesselsArteryLungs VeinPulmonaryAlveoliCapillaryDigestiveTransportGas exchangeVilliNutrientsWaterOxygenAlcoholDrugsTobacco |