

**Welbourn C of E Primary School**

‘Believe, Excite, Succeed, Together’

Year 4/5/6 Science Long Term Plan

|  |  |  |  |
| --- | --- | --- | --- |
| 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  | Physics  | Biology | Biology | Biology |
| Topic  | Properties and changes in Materials(yr5) | Earth and Space (yr5) | Living things and their habitats (yr5) | All Living things and their habitats/ Classification (yr6) | Evolution and Inheritance (yr6) |
| 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 know about and explain the movement of the Earth, and other planets, relative to the Sun in the solar systemTo know about and explain the movement of the Moon relative to the EarthTo describe the Sun, Earth and Moon as approximately spherical bodiesTo use the idea of the Earth’s rotation to explain day and night and the apparent movement of the sun across the sky. | To know the life cycle of different living things e.g. mammal, amphibian, insect and birdTo know the differences between different life cyclesTo know the process of reproduction in plantsTo know the process of reproduction in animals | 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 know that living things have changed over time.To know that fossils provide information about living things that inhabited the Earth millions of years agoTo know that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parentsTo know how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.To know about evolution and explain what it is.  |
| 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 plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.To take measurements, with increasing accuracy and precisionTo record data and results of increasing complexity using scientific diagrams and labels, tables, bar and line graphs.To 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 presentationsidentifying 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 appropriateTo record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, 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 presentationsTo 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 record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.To identify scientific evidence that has been used to support or refute ideas or arguments.To 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 |
| 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 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 | 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 |
| 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 | MercuryVenusEarthMarsJupiterSaturnUranusNeptuneRotateOrbitSatelliteHeliocentricGeocentricUniverseAxisSolar systemCelestial bodySpherical bodyGravityGravitational force | FertiliseGestationLife cycleMetamorphosisPollinationReproductionSexual reproductionAsexual reproductionCellMammalAmphibianEmbryoinsect | Micro-organismsOrganismCharacteristicsPlantsAnimalClassificationCompareInvertebratesInsectsVertebratesAmphibiansReptilesBirdsMammalsCarl LinnaeusLinnaean DomainKingdomPhylumGenusSpecies | Living thingsChangeFossilsOffspringNot identicalVaryCharacteristicsVariationMary AnningCharles DarwinAdaptEnvironmentExtremeConditionsEvolutionAdaptationInheritInheritancehabitat |