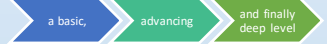
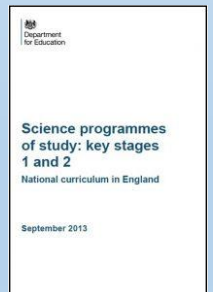
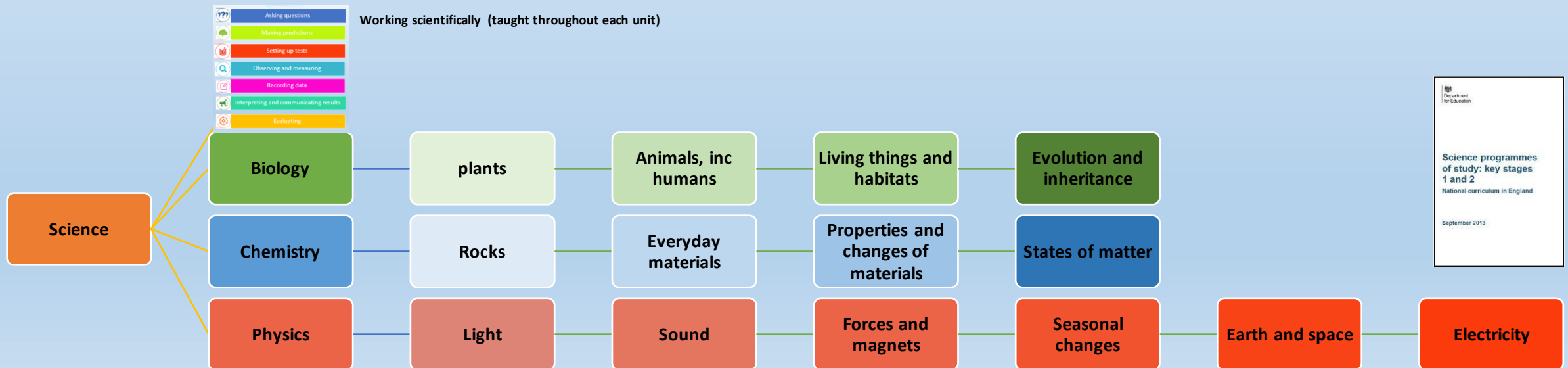




# To be a scientist at Deanery CE Primary School

Our vision at Deanery Primary School is to give children a science curriculum that enables them to experience the joy of discovery. Empower them to know and believe that one day they could be the inventor, creator, significant, key figure that future generations learn about in school because of what they brought to science. To achieve this, our aim is to encourage every child to be curious. Teachers actively encourage the children to ask questions, challenge ideas and create opportunities for them to be “active learners,” where they are in control of exciting, practical investigations that foster a love of learning and finding answers.

At Deanery, this science curriculum is taught by revisiting learning in different contexts to prevent a 'heavy short term memory overload.' It is taught using the B.A.D concept learning topics at,  (Chris Quigley). It is initially implemented by introducing each topic to a year group and learning 'fundamental foundations', followed by a period of time before learning is revisited and applied to increase exploration and understanding of knowledge. A final revisit of each topic where knowledge, skills and understanding of the fundamental foundations are used in a creative, inventive way, showing a deeper understanding of the subject and the connections across the curriculum.



## Working scientifically (taught throughout each unit)



Children are taught science specific vocabulary across all topics with teachers modelling correct use when teaching and encouraging the children to use vocabulary rich phrases and sentences when discussing and recording their scientific understanding. Misconceptions and misuse of vocabulary is corrected using a positive approach and corrected accordingly. We teach our children to “think like scientists”, particularly when working scientifically. From early years through to Year 6, children are taught and encouraged to: ask questions, make predictions, set up tests, observe and measure, record data, interpret and communicate results and evaluate their findings and ideas. These skills are developed as the children progress through their primary education, building on previous learning and continuing to work scientifically at a deeper level with increasing complexity, accuracy and control.

Through teaching styles that value collaboration, communication, creativity, critical thinking, curiosity, problem solving as important elements of science learning, children will show a deeper, more secure understanding of science. When pupils leave Deanery Primary School, we hope that we have provided them with the skills and knowledge to explore their curiosities and that they will be inspired to question, hypothesise, research and investigate through collaboration and discussion to make real life connections and understand the important role science plays in all aspects of life.

## Nursery



### Plants

- Plant seeds and care for living plants.
- Understand the key features of the life cycle of a plant.



### Animals including humans

- Understand the key features of the life cycle of an animal e.g. chick eggs or caterpillars.



### Natural materials

- Using all of their senses in hands on exploration of natural materials.
- Explore collections of natural materials with similar and/or different properties.



### Forces

- Explore and talk about different forces they can feel.
- Explore how things work. Using mechanical equipment for children to play and investigate.



### Everyday materials

- Talk about the differences between materials and changes they notice.



## Reception



### Plants

- Describe what they see, hear and feel whilst outside.
- Explore the natural world around them.



### Animals including humans

- Describe what they see, hear and feel whilst outside.



### Seasonal changes

- Explore the natural world around them.
- Understand the effect of changing seasons on the natural world around them.



# Year 1

## Plants

- identify and name a variety of common wild and garden plants, including deciduous and evergreen trees
- identify and describe the basic structure of a variety of common flowering plants, including trees

Name and describe

Similarities and differences, categorise

Suggest and generalise

## Animals, including humans

- Identify and name common animals including fish, amphibians, reptiles, birds and mammals (Y4)
- Identify and name common animals that are carnivores, herbivores and omnivores (Y4)
- Structure of common animals (Y4)
- identify, name, draw and label the basic parts of the human body and senses

Name, label, match

Point out, explain, compare, contrast

Create, prove, suggest

## Everyday materials

- Distinguish between an object and the material from which it is made
- Identify and name a variety of everyday materials (Y2)
- Describe the simple physical properties of everyday materials (Y2, Y5)
- Compare and group together a variety of everyday materials on the basis of their physical properties

Match, name, observe, arrange, complete

explain, choose, group, examples

Investigate, design

## Seasonal changes

- Observe changes across the 4 seasons and associated weather
- Observe and describe weather associated with the seasons and how day length varies

Observe, describe, name

Compare, contrast, identify patterns, explain

Plan, always, sometimes, never

# Year 2

## Animals including humans

- notice that animals, including humans, have offspring which grow into adults (Y5)
- find out about and describe the basic needs of animals, including humans, for survival (water, food and air)
- describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene (Y3, Y6)

name, list, match

Similarities and differences, explain

Deduce, suggest

## Living things and their habitats

- Explore and compare the differences between things that are living, dead, and things that have never been alive
- identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other suitable habitats for living things and why
- identify and name a variety of plants and animals in their habitats, including microhabitats
- describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food (Y4)

Observe, describe, match, draw, name

Organise, categorise, explain, differences

Give evidence, suggest, create, design

## Plants

- observe and describe how seeds and bulbs grow into mature plants (Y3)
- find out and describe how plants need water, light and a suitable temperature to grow and stay healthy (Y3)

Describe, list

Similarities and differences, apply

Propose, devise

## Everyday Materials

- Identify and compare the suitability of a variety of everyday materials for particular uses (Y1, Y5)
- Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching (Y4)

Observe, describe, list

Organise, summarise, compare, contrast

Devise, hypotheses

# Year 3

## Plants

- Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers
- Explore the requirements of plants for life and growth and how they vary from plant to plant (Y2)
- Investigate the way water is transported within plants (Y6)
- Explore the part flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal (Y5)

Describe and illustrate, observe and record, label, list

Explain, compare and contrast, summarise, demonstrate

Prove or disprove, justify, conclusions, suggest reasons

## Animals, including humans

- 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 (Y6)
- Identify that humans and some animals have skeletons and muscles for support, protection and movement

Name, describe, illustrate, label, name, observe

Compare, contrast, summarise, categorise, explain

Investigate, suggest, recommend

## Rocks

- Compare and group together different rocks on the basis of their appearance and physical properties
- Describe in simple terms how fossils are formed when things that have lived are trapped within rock (Y6)
- Recognise that soils are made from rocks and organic matter

Name, describe, label, observe, describe, illustrate

Compare, contrast, group, infer, explain, identify patterns

Generalise, use evidence, recommend, investigate

## Light

- Recognise that they need light in order to see things and that dark is the absence of light
- Notice that light is reflected from surfaces
- Recognise that light from the sun can be dangerous and that there are ways to protect their eyes
- Recognise that shadows are formed when the light from a source is blocked by an opaque object
- Find patterns in the way that the size of shadows change

Observe, record, describe, name

Explain, categorise, apply, predict

Relate, investigate, recommend

## Forces and magnets

- Compare how things move on different surfaces (Y5)
- notice that some forces need contact between 2 objects, but magnetic forces can act at a distance
- observe how magnets attract or repel each other and attract some materials and not others
- compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials
- describe magnets as having 2 poles
- predict whether 2 magnets will attract or repel each other, depending on which poles are facing

Observe, describe, table, illustrate, name, label

Identify patterns, explain, experiment with, record

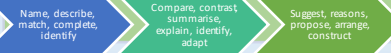
Investigate, prove with

# Year 4



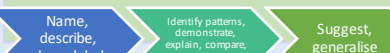
## Living things and their habitats

- Recognise that living things can be grouped in a variety of ways
- Explore and use classification keys to help group, identify and name a variety of living things (Y6)
- Recognise that environmental change can sometimes pose dangers to living things



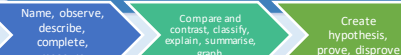
## Animals, including humans

- Describe the simple functions of the digestive system in humans
- Identify the different types of teeth in humans and their simple functions
- Construct and interpret a variety of food chains: identify producers, predators, prey (Y1)



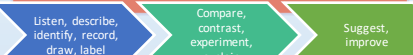
## States of matter

- Compare and group materials together, according to whether they are solids, liquids or gases
- Observe that some materials change state when heated or cooled, and measure or research temperature at which this happens in degrees Celsius
- Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature



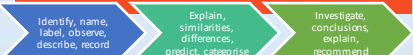
## Sound

- identify how sounds are made, associating some of them with something vibrating
- recognise that vibrations from sounds travel through a medium to the ear
- find patterns between the pitch of a sound and features of the object that produced it
- find patterns between the volume of a sound and the strength of the vibrations that produced it
- recognise that sounds get fainter as the distance from the sound source increases

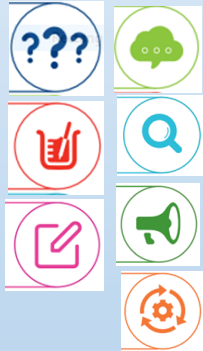


## Electricity (y6)

- identify common appliances that run on electricity
- construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers
- 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
- recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit
- recognise some common conductors and insulators, and associate metals with being good conductors

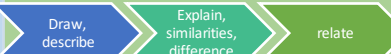


# Year 5



## Living things and their habitats

- Describe the differences in life cycles of mammal, amphibian, insect and a bird
- Describe the life process of reproduction in some plants and animals



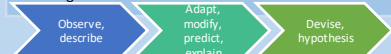
## Animals, including humans

- Describe the changes as humans develop to old age (Y2)



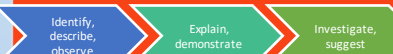
## Properties and changes of materials (Y1, Y2, Y4)

- 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
- know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution
- use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating
- give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
- demonstrate that dissolving, mixing and changes of state are reversible changes
- 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



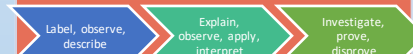
## Earth and Space

- 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 sun, Earth and moon as approximately spherical bodies
- use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky (Y1, Y3)



## Forces

- explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object
- identify the effects of air resistance, water resistance and friction, that act between moving surfaces
- recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect

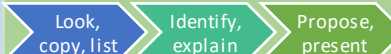


# Year 6



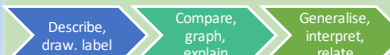
## Living things and their habitats

- describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals
- give reasons for classifying plants and animals based on specific characteristics (Y4)



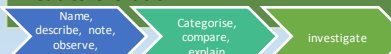
## Animals including humans

- Human circulatory system, and describe the functions of the heart, blood vessels
- Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function (Y3)
- Describe the ways in which nutrients and water are transported within animals, including humans (Y3)



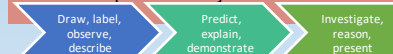
## Evolution and inheritance

- recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago (Y3)
- recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents
- identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution



## Light (Y3)

- recognise that light appears to travel in straight lines
- 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
- 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
- use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them



## Electricity (Y4)

- associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
- compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches
- use recognised symbols when representing a simple circuit in a diagram

