# Long Whatton C of E Curriculum Chemistry Road Map

**Hedgehogs**

**EYFS**

Cycle A

Once upon a time and Sparkle and Shine

To explore which materials are magnetic.

To compare, sort and group objects accordance to their material, size, shape or use.

To know that materials have different properties.

Starry Night and Winter Wonderland

To describe a simple change of state.

Cycle B

Let's Explore and Build it up

To sort and group materials according to their size, shape, colour and use.

To know that simple equipment is used to measure distance, height, weight and time.

Can you measure using simple equipment?

To name different materials and talk about their properties.

Marvellous Machines and Puppets and Pop Up's

Can you group and sort magnetic and non-magnetic materials?

On the Beach and Move it and Moving On

Why do some objects float and some sink? What are they made from?

**Squirrels**

**Year 1/2**

Cycle A

Everyday Materials

Can you identify, compare and group manmade and natural materials based on their properties?

Where do natural materials come from?

What are human-made materials made from?

Cycle B

Uses of materials

Why are materials used for different purposes?

How can materials be shaped and recycled?

**Robins**

**Year 3/4**

Cycle A

Rocks

What is the structure of the Earth?

What are the 3 main types of rock?

States of Matter

Describe the properties of a solid, liquid and gas.

What is particle theory?

**Owls**

**Year 5/6**

Cycle A

Properties and Changes of Materials

Describe the properties and uses of a variety of materials.

What is a good thermal conductive material?

Can you investigate solubility?

How can you separate heterogeneous and homogeneous mixtures?

Can you describe reversible and irreversible changes?

# Long Whatton C of E Curriculum Biology Road Map

Cycle A
Me and My Community and Exploring autumn
Describe simple changes to the body.
What can you see in our natural environment and how can you look after it?
What is a habitat?
To know that plants and trees are living things.
Starry Night and Winter Wonderland
To give examples of what living things need to survive and how they should be cared for.
Dangerous dinosaurs and Puddles and Rainbows
To describe the difference between a carnivore and herbivore.
Can you name the four seasons?
Sunshine and Flowers and Shadows and Reflections
What lives in our local environment/habitat?
To begin to name and group plants and trees according to their key features such as leaves, seeds and flowers.
To name the main parts of a plant.
How do living things change over time? - Growth and decay.
To name and describe natural phenomena.
Big Wide World and Splash!
To know that litter can be harmful.
How can we look after our environment?

Cycle A
Human senses
Can you name the five senses and their functions?
How do our senses keep us safe?
Can you label the human body parts and describe their functions?
How are humans different from one another and other mammals?
Plant Parts
To label the different parts of a plant and leaf.
What is the importance of plants.
Can you describe different types of leaves?
Can you identify different types of garden plants and talk about where they may grow?
Animal Parts
To name, classify, group and sort animals based on their key features.
What do all living things have in common?
Describe the key features of carnivores, herbivores and omnivores.

Cycle B
Human survival
To name the stages of the human life cycle.
To identify the five main food groups and four types of exercise.
What is a balanced diet?
What are humans needs and how do they stay healthy and hygienic?
Habitats
To explain what a habitat contains and provides.
To identify living and non-living things within a habitat.
Can you describe different habitats on earth?
Can you identify plants and animals within habitats and simple food chains?
How do plant and animal adapt within their habitat to survive?
Plant survival
How does germination occur and what happens next?
What do plants need to survive?
How do plants grow and survive in extreme habitats?
Animal survival
To explain what a micro-habitat is and give examples.
To know that different animals have different life cycles and produce different offspring.
Can you describe the six invertebrate groups?
How do humans harm or help habitats?

**Hedgehogs**
**EYFS**

**Squirrels**
**Year 1/2**

**Robins**
**Year 3/4**

**Owls**
**Year 5/6**

Cycle B
Let's Explore and Build it up
What is a habitat? Can you describe local habitats?
Long Ago and Stories and Rhymes
How have you changed and grown since you were a baby?
Can you describe how the weather changes with the seasons?

Ready, Steady, Grow and Signs of Spring
What are living things? How can we care for them? What do they need/do to survive?
To name different foods and their sources.
To name and use the five senses to observe.
Can you name the main parts of a plant and tree and describe their features?
To name different types of animals and their young.
To know that living things change over time - growth and decay.
To name and describe natural phenomena.
Animal Safari and Creep, Crawl and Wriggle

Cycle A
Animal Nutrition and the Skeletal System
Describe nutrition as a life process for all living things.
What are the five main food groups of a balanced human diet?
Can you label the main bones in the human skeleton?
Can you describe the function and movement of the three joint types in the human skeleton?
Describe how skeletal muscles work in pairs to create specific movement?
What are the advantages and disadvantages of different animal skeleton types?
Plants, nutrition and reproduction
Can you describe the parts of a plant and their functions?
What is the plant life cycle?
What is the process of pollination and how can it occur?
What different ways are seeds dispersed?

Cycle B
Food and the Digestive System
To know what a producer and consumer is.
What is an ecosystem and how do they function and balance?
To understand and describe food chains and food webs.
What is the digestive process and describe the digestive organs?
Describe the types and functions of human and animal teeth.
Label the structure of a tooth and understand the importance of good oral hygiene.

Cycle A
Human Reproduction and Ageing
Describe the stages and processes of a variety of animal life cycles.
What are the stages of processes of the mammalian life cycle?
Describe the human gestation time line.
What are the similarities and differences between female and male puberty?
Describe the process of human sexual reproduction.
What are the effects of human ageing?

Cycle B
Circulatory System
What are the three parts of the circulatory system?
Label each part of the heart and describe its function.
What are the three types of blood vessel?
What are the components of the blood and functions?
Investigate heart rate in relation to different exercise.
What are the negative effects of smoking, drugs and consuming alcohol on the body?
How do sugar, salt and fat effect the heart?
Can you understand a nutrition label?
Evolution and Inheritance
To know that all living things are classified into five kingdoms.
What is the difference between a microorganism and a virus?
What is a fossil and what can it tell us?
What is the theory of evolution?
Describe inheritance and variation between living things.
What is natural selection, adaption and survival of the fittest?

# Long Whatton C of E Curriculum Physics Road Map

Cycle A

Me and My Community and Exploring autumn
Describe seasonal changes.

Starry Night and Winter Wonderland
To explore different light sources.
What is a shadow and how does it change throughout the day?
To know that some objects float and some sink.
How does the weather change as the seasons change?
To describe a simple change of state.

Cycle B
Marvellous Machines and Puppets and Pop Up's
To know that some machines need electricity or batteries to work.
To explore and describe electrical and non-electrical light sources.
Are all sources of light powered by electricity?
From observations, offer explanations of why things happen.
Is a shadow the same shape as the object that makes it and how do they change during the day?
Ready, Steady, Grow and Signs of Spring
Do all objects float?
On the Beach and Move it and Moving On
Why do some objects float and some sink? What are they made from?

**Hedgehogs**

**EYFS**

**Squirrels**

**Year 1/2**

Cycle A
Seasonal Changes
Can you describe the changes that effect trees and animals through the seasons?
How does the sun effect light, temperature and heat through the seasons?
Describe different types of weather and how it changes throughout the year.
Explore how scientists measure, predict and record changes in weather.

Cycle A
Forces and mechanisms
Can you describe a list of contact and non-contact forces?
Describe gravitational force in relation to mass and weight within our universe.
Investigate frictional force and the effect of lubricants.
How can you increase and decrease air or water resistance?
How do levers, pulleys and gears provide a mechanical advantage?
Earth and Space
Name, describe and order the eight planets of our solar system.
Describe historical models of the solar system and name philosophers and scientists who created them.
Why are planets spherical and how do we know?
Describe the earth's orbit and rotation in relation to daytime and seasonal changes on a local and global scale.
What is the moon and it's different phases throughout the month?

**Robins**

**Year 3/4**

Cycle A
Light and Shadows
What is light, where does it come from and why is it important?
Describe different types of reflector - natural and artificial.
How do we see light?
To explore reflective and non-reflective materials.
Where do shadows come from and how do their differ?
What are the five ways people can protect themselves from UV light?

Cycle B
Sound
What is sound and how do we hear it?
What is pitch?
Can you represent pitch as a sound wave diagram?
How is volume measured and how can it be affected?

Forces and Magnets
What is a force and can you measure it?
Describe different types of frictional force.
What are magnets and how do they work?
Investigate magnetic fields and their relationship to our planet.
Electrical Circuits and Conductors
What is electricity and where does it come from?
What is the importance of electrical safety?
What components do we use in a circuit and how do we draw them?
Can you build simple circuits with a variety of components?
Investigate electrical conductors and insulators?

**Owls**

**Year 5/6**

Cycle B

Electrical Circuits
Can you identify complete and incomplete circuits?
Can you identify electrical hazards?
Investigate electrical current, voltage and different cells.
What are sensors and how are they used?
Light Theory
What is a light source and how does it travel?
How does the eye see light rays?
What is the electromagnetic spectrum and what is visible light?
How do we perceive colours?
Investigate reflection in different mirrors and describe the effect it has.
What is refraction?

# EYFS - Working Scientifically skills matched to enquiry skills

| | PLAN | | DO | | | REVIEW | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | To ask scientific questions  | To plan an enquiry  | To observe closely  | To take measurements  | To gather/recordresults  | To present results  | To interpret results  | To draw conclusions -KS2 only | **To make a prediction -KS2 only** | **To evaluate an enquiry - KS2 only** |
| **Identify and classify** | Ask questions tofind out more | Ask Why questions<br><br>Choose the right resources to carry out their own plan | Use new vocabulary<br><br>Talk about what theysee using a wide vocabulary | | | Write short sentenceswith words with known sound letter correspondence | | | | |
| **Comparative/ FairTests** | | | Compare quantities using language 'morethan, fewer than' | Develop their small motor skills so that they can use a range of tools competently, safely and confidently | Make comparisons between objects relating to size, length, weight and capacity | Begin to describe a sequence of events, real or fictional usingwords such as first | Articulate their ideas and thoughts in well – formedsentences | | | |
| **Observation overtime** | Talk about what they see using a wide vocabulary | | | | | Draw informationfrom a single map | | | | |
| **Pattern seeking** | | | | | | | | | | |
| **Research** | | | | | | | | | | |

# Key Stage 1 - Working Scientifically skills matched to enquiry skills

| | PLAN | | DO | | | REVIEW | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | To ask scientific questions  | To plan an enquiry  | To observe closely  | To take measurements  | To gather/recordresults  | To present results  | To interpret results  | To draw conclusions -KS2 only | **To make a prediction -KS2 only** | **To evaluate anenquiry - KS2 only** |
| **Identify and classify** | Be able to ask a yes / no questions toaid sorting | Identify the headings for thetwo groups e.g. it is … it is not… | Be able to compareobjects based on obvious observablefeatures e.g. size | | | Sort objects and livingthings into two groupsusing a basic Venn diagram or table | Talk about a number of objects in each group andwhich has less etc. | | | |
| **Comparative Tests** | Identify the question to investigate from a scenario or choosea question from a range provided | Choose equipment to use and decide what to do or what to observeor measure in order to answerthe question | Make observations linked to answeringthe questions | When appropriate measure using standard units where all the numbers are on a marked scale. | Record data in simple prepared tables pictorially or photos | Present what they have learnt verbally, using pictures or blockdiagrams | Answer their question in simple sentences using theirobservations or measurements. | | | |
| **Observation over** | Ask a question about what might happen in the future based on an observation | | | | | Present what they have learnt verbally,using pictures | | | | |
| **Pattern seeking** | Ask a question thatis looking for a pattern based on an observation | | | | Record data in simple prepared tables and tally charts | Present what they have learnt verbally | | | | |
| **Research** | Ask one or two simple questionslinked to a topic | | | | | Present what they have learnt verbally,using pictures | Be able to answer their questions using simple sentences | | | |

# LKS2 - Working Scientifically skills matched to enquiry skills

| | PLAN | | DO | | | REVIEW | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | To ask scientific questions  | To plan an enquiry  | To observe closely  | To take measurements  | To gather/recordresults  | To present results  | To interpret results  | To draw conclusions | **To make a prediction** | **To evaluatean enquiry** |
| **Identify andclassify** | Be able to ask a yes / no questionsto aid sorting | Be able to put appropriate headings onto intersecting Venn and Carroll Diagrams | Be able to compare objects based on more sophisticated observable features. | | | Sort objects and living things into groups using intersecting Venn and Carroll Diagrams | Spot patterns in thedata particularly two criteria with noexamples E.g. There are no living things with no wings and no legs | Draw conclusionswhen appropriate | | Suggest improvement e.g. looking ata wider range of objects. Suggest a newquestion which has arisen from the investigation |
| **ComparativeTests** | Ask a range of questions linkedto the topic | Decide what to change and what to measure or observe | AS for KS1 | Measure using standard units wherenot all numbers are marked on the scale and take repeat readings where necessary | Prepare own tablesto record data | Present data in barcharts | Refer directly to their evidence whenanswering a question | Where appropriate provide oral or written explanations for their findings. | Use results from an investigation to make a prediction about a further result | Suggest improvements e.g. to method of taking measurements Suggest a new question which has arisen from the investigation |
| **Observation overtime** | | Decide what to change and what to measure or observe. Decidehow often to take the measurement | Make a range ofrelevant observations | Measure using standard units wherenot all numbers are marked on the scale.Use data loggers to measure over time | | Present data in timecharts | | | | |
| **Pattern seeking** | | Decide what to measure or observe | AS for KS1 | Measure using standard units wherenot all numbers are marked on the scale | | Use ICT package topresent data as a scatter gram | | | | |
| **Research** | | Choose a source from a range provided | | | | Present what theylearnt verbally or using labelled diagrams | Be able to answer their questions using simple scientific language | | | Suggest limitations e.g. only hadone book. |

# UKS2 - Working Scientifically skills matched to enquiry skills

| | PLAN | | DO | | | REVIEW | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | To ask scientific questions  | To plan an enquiry  | To observe closely  | To take measurements  | To gather/recordresults  | To present results  | To interpret results  | To draw conclusions -KS2 only | **To make a prediction -KS2 only** | **To evaluatean enquiry -KS2 only** |
| **Identify andclassify** | Be able to ask a range of yes/no questions to air sorting and decidewhich ways of sorting will give useful information | Identify specificclear questions that will sort without ambiguity | Be able to comparenot only based on physical propertiesbut also using knowledge gained from previous enquiry | | | Create branching tree diagrams and keys to enable othersto name living things and objects | Be able to talk about the features that objects andliving things share and donot share based on information in the key | Be able to usedata to show that living things and materials thatare grouped together havemore things in common that with things in other groups. | | Be able to explain using evidence that the branching database or classification key will only work for the living things or materials itwas created for. |
| **ComparativeTests** | Ask a range of questions and identify the typeof enquiry that will help to answer the questions | Recognise and control variables | As for KS1 | Measure using standard units usingequipment that has scales involving decimals | Prepare own tables to record data including columns for taking repeat readings. | Choose an appropriate form ofpresentation | Be able to answer their questions describing casualrelationships | Provide oral or written explanationsfor their findings | Use test results to make further predictions for future investigations | Explain their degree of trust in their results. E.g. precision in taking measurements, variables that may not have been controlled and accuracy of results. |
| **Observation overtime** | | | | | AS for KS1 | Choose an appropriate form ofpresentation | Be able to answer theirquestions describing changes over time | | | |
| **Pattern seeking** | | | | | | As for LKS2 | Be able to answer theirquestion identifying patterns | | | |
| **Research** | Ask a range of questions recognising that some can be answered through research and other's can't. | Choose suitable sources | | | | Present what theylearnt in a range ofways | Be able to answer their questions using scientificevidence gained from a range of sources | | | Be able to talkabout their degree of trust in the sources they used. |