

# Year 4 Science Curriculum Overview

Where we use our enquiry skills to explore, question and talk about ourselves and the world around us.

During year 4, pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- Asking relevant questions and use types of scientific enquiries to answer them.
- Setting up simple practical enquiries, comparative and fair tests.
- Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.
- Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.
- Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.
- Using straightforward scientific evidence to answer questions or to support their findings.
- Identifying differences, similarities or changes related to simple scientific ideas and processes.
- Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.
- Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.


## Autumn One

## Autumn Two

### States of Matter- Chemistry

**'What happens when we heat solids?'**  
**'What happens to puddles after it rains?'**

**Lesson 1:** I can identify what a solid, liquid and gas is.

Enquiry type:  *Use balloons to help to show this/act out-Nicky Waller*

Enquiry skill: observe, record



Working scientifically: Making systematic and careful observations.

Identifying differences, similarities or changes related to simple scientific ideas and processes.

**Deepening Understanding:** [Think like a Scientist concept cartoon.](#)

**Lesson 2:** I can compare and group materials according to whether they are solids, liquids or gases.

**Lesson 1:** I can identify and describe the different stages of the water cycle.


Enquiry type:  

Enquiry skills: ask questions, observe, record

Working scientifically: Asking relevant questions and use types of scientific enquiries to answer them. Making systematic and careful observations.

Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Identifying differences, similarities or changes related to simple scientific ideas and processes.

**Deepening Understanding:** [Think like a Scientist concept cartoon.](#)

Enquiry type:  *shopping bag sorting Nicky Waller*

Enquiry skill: observe, record, interpret


Working scientifically: Asking relevant questions and use types of scientific enquiries to answer them. Making systematic and careful observations.

Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.

Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.

**Deepening Understanding:** *Can an object only be one state of matter?*

Lesson 3: I can understand the work of Brian Cox in particle physics.


Enquiry type: 

Enquiry skill: ask questions, interpret

Working scientifically: Asking relevant questions and use types of scientific enquiries to answer them. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.

**Deepening Understanding:** *Cause and effect because of Brain Cox.....has happened today.*

Lesson 4: I can identify and discuss materials changing state.

Enquiry type:  *Draw a labelled diagram for changing states. Class teacher to model changes in state.*

Enquiry skill: observe, record

Working scientifically: Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Identifying differences, similarities or changes related to simple scientific ideas and processes.

**Deepening Understanding:** *How can water be a solid, liquid and a gas?*

Lesson 5: I can observe that some materials change state when they are heated and **measure** the temperature at which this happens?

Lesson 2: I can observe and identify the process of evaporation.

Enquiry type:   *kettle, puddle*


Enquiry skill: observe, record,

Working scientifically: Making systematic and careful observations.

Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Identifying differences, similarities or changes related to simple scientific ideas and processes.

**Deepening Understanding:** *Talk like a Scientist what happens to the particles in the liquid during evaporation?*

Lesson 3: I can associate the rate of evaporation with temperature.


Enquiry type:   *investigate where is best to dry a towel.*

Enquiry skill: measure, record, interpret

Working scientifically: Asking relevant questions and use types of scientific enquiries to answer them. Setting up simple practical enquiries, comparative and fair tests. Making systematic and careful observations. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Identifying differences, similarities or changes related to simple scientific ideas and processes. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.

**Deepening Understanding:** *Can you think of other everyday examples where we use heat to speed up evaporation e.g. drying hair.*

Lesson 4: I can recognise and observe the process of condensation.

Enquiry type:  *mirrors, window, glass of drink*

Enquiry skill: observe, record

Working scientifically: Making systematic and careful observations.

Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Identifying differences, similarities or changes related to simple scientific ideas and processes.

**Deepening Understanding:** *Talk like a Scientist what happens to the particles in the gas during the process of condensation?*



Enquiry type: *Investigating melting points Nicky Waller. Take time to model using a thermometer.*

Enquiry skill: measure, record

Working scientifically: Setting up simple practical enquiries, comparative and fair tests. Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Identifying differences, similarities or changes related to simple scientific ideas and processes.

**Deepening Understanding:** Think like a Scientist-always, sometimes, never, solids become liquids when heat is applied to them. Think like a Scientist concept cartoon.

**Lesson 6:** I can observe that some materials change state when they are cooled and research the temperature at which this happens?



Enquiry type: *Allow children to cool materials and observe their change in state. Use the internet to research the temperature this change in state will happen.*

Enquiry skills: ask questions, observe, interpret

Working scientifically: Setting up simple practical enquiries, comparative and fair tests. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Identifying differences, similarities or changes related to simple scientific ideas and processes. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.

**Deepening Understanding:** Talk like a scientist to discuss this statement 'I want to make sure the chocolate cornflake cakes are solid for the party so I will put them outside to freeze quicker'.

**Misconceptions:** (Firmly teach the Science first before discussing any misconceptions unless they arise within children's thinking).

- Solid is another word for hard or opaque.
- Solids are hard and cannot break or change shape easily and are often in one piece.

**Lesson 5:** I can observe evaporation and condensation in the water cycle.



Enquiry type: *water cycle in a bag/bowl Nicky Waller*

Enquiry skill: observe, interpret

Working scientifically: Making systematic and careful observations. Identifying differences, similarities or changes related to simple scientific ideas and processes. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.

**Deepening Understanding:** Talk like a Scientist and explain the evaporation and condensation process in the water cycle. What is similar and what is different about the two processes?

**Misconceptions:** (Firmly teach the Science first before discussing any misconceptions unless they arise within children's thinking).

- Evaporation is irreversible.
- Liquids that evaporate disappear forever.
- Clouds are made of gas.

- Substances made of very small particles like sugar or sand cannot be solids.
- A football is not a solid because there is space inside.
- Particles in liquids are further apart than in solids and they take up more space.
- When a solid is heated particles melt.
- Water in different forms - steam, water, ice - are all different substances.
- All liquids boil at the same temperature as water (100 degrees).

**Vocabulary:** solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle.

**Resources:** balloons, objects that represent the range of states, IPADS, non-fiction texts, thermometer, tinfoil cases, bowls of boiling water, objects to heat and cool, use VR avatis world to visit a science lab and observe changing states and to travel through the stages of the water cycle

**Better Reading Better Science texts:** The Storm Whale in Winter, Charlie and the Chocolate Factory, Once upon a Raindrop, Stick, States of Matter poem Michael Rosen.

**Cross Curricular Links:**

**Maths:** Reading scales on a thermometer.

**History/Computing/Literacy:** researching the work of Brian Cox and researching the freezing points of materials.

**Geography:** Explore rivers in Autumn term- the role of rivers in the water cycle.

**Art:** Draw labelled diagrams.

**National Curriculum: By the end of the Autumn Term, pupils should be taught to**


- Compare and group materials together, according to whether they are solids, liquids or gases.
- 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).
- Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.

## Spring One

### Sound - Physics

**'How are sounds made?'**

**Lesson 1:** I can identify and explain that sounds are made when something vibrates.


Enquiry type:  *Vibration stations Nicky Waller*

Enquiry skill: observe/measure, record

Working scientifically: Asking relevant questions and use types of scientific enquiries to answer them. Making systematic and careful observations. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.

**Deepening Understanding:** [Think like a Scientist concept cartoon.](#)

**Lesson 2:** I can identify and explain that vibrations from sounds travel through a medium to the ear.


Enquiry type:  *Vibration stations 2 Nicky Waller (sounds travelling through solids, liquids and gases)*

Enquiry skill: observe/measure, record

Working scientifically: Using straightforward scientific evidence to answer questions or to support their findings. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.

**Deepening Understanding:** [Think like a Scientist to answer the question would you be able to hear sound on the moon?](#)

**Lesson 3:** I can understand the work of Alexander Graham Bell and explain how the telephone works.

Enquiry type: 

Enquiry skill: ask questions, record, interpret

Working scientifically: Asking relevant questions and use types of scientific enquiries to answer them. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.


**Deepening Understanding:** [Cause and effect because of Alexander Graham Bell.....has happened today.](#)

## Spring Two

### Living Things and Their Habitats- Biology

**'What happens to living things when their habitats change?'**

**Lesson 1:** I can recognise that living things can be grouped in a variety of ways.

Enquiry type:  *Nicky Waller-Human characteristics- start of looking at characteristics of humans to group them and then apply to animals drawing on previous learning- types of animals, vertebrates and invertebrates, cold blooded and hot blooded. Allow children to lead the way with suggestions first. Use a range of grouping methods e.g. groups, tables, venn diagrams.*


Enquiry skill: observe, record,

Working scientifically: Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Using straightforward scientific evidence to answer questions or to support their findings.

Recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations.

**Deepening understanding:** [Plants and trees are also a living thing-recognise and group these drawing on previous learning.](#)

**Lesson 2:** I can use classification keys to group, identify and name living things in the local environment. (animals, plants and trees)


Enquiry type:  *highlight the question types used and how they lead to yes and no answers.*

Enquiry skill: ask questions, observe,

Working scientifically: Asking relevant questions and use types of scientific enquiries to answer them. Making systematic and careful observations. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. They should use and develop keys and other information records to identify, classify and describe living things.

**Deepening understanding:** [Give children 6 animals/ plants/ trees -identify characteristics of these and pose questions to classify them.](#)

**Lesson 3:** I can create and use classification keys to help to group, identify and name living things in the local environment.

Enquiry type:  *Nicky Waller- start by creating classification keys to classify themselves or objects e.g. Shoes before creating classification keys for living things in the local environment.*

Enquiry skill: ask questions, observe, record

**Lesson 4:** I can find patterns between the pitch of a sound and the features of the object that produced it.



Enquiry type: *investigate different thickness of elastic bands, pan pipes, bottles of water OR investigate percussion, wind and string instrument (Nicky Waller).*

Enquiry skill: set up, observe/measure, interpret.

Working scientifically: Asking relevant questions and use types of scientific enquiries to answer them. Setting up simple practical enquiries. Making systematic and careful observations. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.

**Deepening Understanding:** Think like a Scientist to solve this problem- Jane pulled the string on her guitar and it made a high pitch. What could she do to the string to make a low pitch?

**Lesson 5:** I can find patterns between the volume of a sound and the strength of vibrations.



Enquiry type: *Nicky Waller storm in a circle.*

Enquiry skill: observe, interpret.

Working scientifically: Asking relevant questions and use types of scientific enquiries to answer them. Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Using straightforward scientific evidence to answer questions or to support their findings. Identifying differences, similarities or changes related to simple scientific ideas and processes. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.

**Deepening Understanding:** Think like a Scientist concept cartoon.

**Lesson 6:** I can recognise that sounds get fainter as the distance from the sound increases.



Enquiry type: *Fire alarm-data loggers Nicky Waller.*

Enquiry skill: measure, record

Working scientifically: Asking relevant questions and use types of scientific enquiries to answer them. Setting up simple practical enquiries,

Working scientifically: Asking relevant questions and use types of scientific enquiries to answer them. Making systematic and careful observations. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. They should use and develop keys and other information records to identify, classify and describe living things. **Deepening understanding:** Create classification keys for living things in the wider environment.

Lesson 4: I can recognise that environments can change and this can pose dangers to living things.



Enquiry type: *Discuss natural changes e.g. storms, earthquakes, floods, volcanoes and human changes. Act like a Scientist and research an endangered animal. Why are they endangered? What do they eat? Where do they live?*

Enquiry skill: ask questions, record

Working scientifically: Asking relevant questions and use types of scientific enquiries to answer them. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Identifying differences, similarities or changes related to simple scientific ideas and processes.

**Deepening Understanding:** What can we do to help save these animals and our planet? Set up a project in school-ecological garden, litter picking in the community, recycling.

Lesson 5: I can recognise positive changes that we can make to the environment through the work of David Attenborough.



Enquiry type: *limiting population growth, renewable energy sources, reduce meat consumption, establish nature reserves-create posters for a campaign march/ record a short documentary like David Attenborough.*

Enquiry skill: ask questions, record

Working scientifically: Asking relevant questions and use types of scientific enquiries to answer them. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Identifying differences, similarities or changes related to simple scientific ideas and processes.

**Deepening Understanding:** Cause and effect-Because of David Attenborough.....has happened today.

comparative and fair tests. Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.

**Deepening Understanding:** Talk like a Scientist to answer the questions-If your Teacher left their phone in the staff room would they be able to hear it in your classroom?

**Misconceptions:** (Firmly teach the Science first before discussing any misconceptions unless they arise within children's thinking).

- Sound is only heard by the listener.
- Before a sound can be heard the listener must concentrate on it.
- Sound only travels in one direction from the source .
- Sound can't travel through solids and liquids.
- High sounds are loud and low sounds are quiet.
- A sound rests inside a musical instrument waiting to get out.

**Vocabulary:** sound, source, vibrate, vibration, travel, pitch, (high, low), volume, faint, loud

**Resources:** use VR avantis world to see how sound travels as vibrations, tuning fork, bowl of water, drum, rice, string, yogurt pots, water bottles , elastic band, straws, musical instruments, IPAD, non-fiction texts, data logger.

**Better Reading Better Science texts:** Oscar and the bat, Peace at last, Little Beaver and the Echo, Moonbird

**Cross Curricular Links:**

**Maths:** draw line graph to plot results and find the pattern between sound and distance.

**D & T:** Make a musical instrument.

**Music:** Explore how musical instruments make different sounds/high and low pitches and how to change these sounds.

**History/Computing/Literacy:** researching the work of Alexander Graham Bell.

**Misconceptions:** (Firmly teach the Science first before discussing any misconceptions unless they arise within children's thinking).

- The death of one of the parts of a food chain or web has no or limited consequences on the rest of the chain.
- There is always plenty of food for wild animals.
- Animals are only land-living creatures.
- Animals and plants can adapt to their habitats, however they change.
- All changes to habitats are negative.

**Vocabulary:** classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate

**Resources:** VR CLASSIFYING NEW SPECIES, IPADS, non-fiction texts, pictures of living things, guess who game, whiteboards, whiteboard pens, a collection of an everyday object e.g. shoe, completed classification keys, classification key templates,

**Better Reading Better Science texts:** Jasper the spider, The Great Kapok Tree, The Morning I Met A Whale, Greta and the Giants

**Cross Curricular Links:**

**Maths:** grouping animals using a range of diagrams and tables.

**Geography:** Exploring the rainforests, changes to this environment and endangered species.

**History/Computing/Literacy:** researching the work of David Attenborough and the negative changes to the environment.

**Literacy:** Writing questions for classification keys, create a poster campaigning for positive changes to help the environment.

**Computing/Literacy:** Create/film a short documentary campaigning for







**Literacy:** Writing an explanation text for how a telephone works.

positive changes to help the environment.

**National Curriculum:** By the end of the Spring Term, pupils should be taught to

- 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.
- 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 in their local and wider environment.
- Recognise that environments can change and that this can sometimes pose dangers to living things.



Summer One	Summer Two
<p align="center"><b>Electricity- Physics</b> <b>'What materials conduct electricity?'</b></p>	<p align="center"><b>Animals Including Humans- Biology</b> <b>'What happens to food when we eat it?'</b></p>
<p><b>Lesson One:</b> I can identify common appliances that run on electricity.</p> <p>Enquiry type:  <i>Nicky Waller-Mimes/ cut it out. Then consider how the appliance uses that electricity e.g. to convert to heat, sound, movement.</i></p> <p>Enquiry skill: ask questions, observe, record</p> <p>Working scientifically: Asking relevant questions and use types of scientific enquiries to answer them. Setting up simple practical enquiries, comparative and fair tests. Making systematic and careful observations. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Talk about criteria for grouping, sorting and classifying.</p> <p><b>Deepening Understanding:</b> Think like a Scientist concept cartoon.</p> <p><b>Lesson Two:</b> I can understand the work of Thomas Edison and his invention of the light bulb.</p> <p>Enquiry type: </p> <p>Enquiry skill: Ask questions, interpret</p> <p>Working scientifically: Asking relevant questions and use types of scientific enquiries to answer them. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</p> <p><b>Deepening Understanding:</b> Cause and effect-Because of Thomas Edison.....has happened today.</p> <p><b>Lesson Three:</b> I can construct a simple series electrical circuit; identifying and naming its basic parts.</p> <p>Enquiry type:  <i>Nicky Waller-electrician qualification- identifying and naming parts, building a circuit, building a challenge circuit. Draw successful circuits (symbols not used in Y4)</i></p> <p>Enquiry skill: set up, observe, record</p> <p>Working scientifically: Using a range of equipment. Making systematic and careful observations. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.</p> <p><b>Deepening Understanding:</b> Talk like a Scientist to agree/ disagree with this statement 'Electricity flows out of both ends of a battery.'</p>	<p><b>Lesson One:</b> I can identify the types of teeth in humans and explain their functions.</p> <p>Enquiry type:  <i>Use mirrors and dental mirrors to make careful observations of your teeth-count them and feel them. Make a labelled model/draw a labelled model. Nicky Waller-Take a bite exercise to identify the functions of different teeth.</i></p> <p>Enquiry skill: observe, record</p> <p>Working scientifically: Asking relevant questions and use types of scientific enquiries to answer them. Making systematic and careful observations. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Identifying differences, similarities or changes related to simple scientific ideas and processes.</p> <p><b>Deepening Understanding:</b> Think scientifically to answer the statement- Do humans and animals all of the same teeth?</p> <p><b>Lesson Two:</b> I can understand and investigate the causes of tooth decay.</p> <p>Enquiry type:   <i>Eggshell enquiry-(from your findings are any further questions raised?). Record findings using photographs.</i></p> <p>Enquiry skill: observe, record, interpret</p> <p>Working scientifically: Setting up simple practical enquiries, comparative and fair tests. Making systematic and careful observations. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Identifying differences, similarities or changes related to simple scientific ideas and processes. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.</p> <p><b>Deepening Understanding:</b> Based on your results what can we do to keep our teeth clean and healthy? Think scientifically 'Why did rich Romans teeth not decay much?'</p>

**Lesson four:** I can identify and explain if a lamp will light in a simple series circuit.



Enquiry type: *Nicky Waller-electrician qualification- inspecting circuits. Discuss the terminology 'complete loop with a battery' Draw successful circuits (symbols not used in Y4).*

Enquiry skill: observe, interpret

Working scientifically: Using a range of equipment. Making systematic and careful observations. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.

**Deepening Understanding:** Act like a Scientist how can we light a lamp with the fewest components/ What happens when we add more components?

**Lesson Five:** I can recognise common conductors and insulators of electricity; associating metals as a good conductor.



Enquiry type: *Nicky Waller-electrician qualification- conductor or insulator, plan enquiry, record and interpret. Use secondary resources to confirm your findings.*

Enquiry skill: observe, record

Working scientifically: Asking relevant questions and use types of scientific enquiries to answer them. Setting up simple practical enquiries, comparative and fair tests. Making systematic and careful observations. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.

**Deepening Understanding:** Talk like a Scientist. Why has each material been used to make a plug?

**Lesson Six:** I can recognise that a switch opens and closes a circuit and associate this with whether a lamp will light or not.

*Add a range of switches into your simple circuit to explore how they work and any similarities or differences- set up enquiry and observe- discuss/record observations using videos/ discussion/ labelled drawings. Does the position of the switch affect the circuit?*

Enquiry skill: set up, observe, record

Working scientifically: Setting up simple practical enquiries. Making systematic and careful observations. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Identifying differences, similarities or changes related to simple scientific ideas and processes. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.

**Deepening Understanding:** Using your learning on conductor and insulators and switches make your own switch-Nicky Waller-challenge 4.

**Lesson Three:** I can identify the different parts of the digestive system and their functions.



Enquiry type: *Labelled diagrams*

Enquiry skill: ask questions, record

Working scientifically: Asking relevant questions and use types of scientific enquiries to answer them. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.

**Deepening Understanding:** Think like a Scientist concept cartoon.

**Lesson Four:** I can demonstrate and explain the different parts of the digestive system and their functions.

*Nicky Waller-human digestive system.*

**Deepening Understanding:** Explore the work of Paediatric surgeon Adriann Bianchi and how his work has affected children's lives today/ Nicky Waller-digestive system measuring.

**Lesson Five:** I can construct and interpret a variety of food chains; identifying producers, predators and prey.



Enquiry type:

Enquiry skill: observe, record, interpret

Working scientifically: Making systematic and careful observations.

Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.

**Deepening Understanding:** Think and work scientifically-explore undigested owl pellets to identify real life food chains.

**Misconceptions:** (Firmly teach the Science first before discussing any misconceptions unless they arise within children's thinking).

- Arrows in a food chains mean 'eats'.
- The death of one of the parts of a food chain or web has no, or limited, consequences on the rest of the chain.
- There is always plenty of food for wild animals.
- Your stomach is where your belly button is.
- Food is digested only in the stomach.
- When you have a meal, your food goes down one tube and your drink down another.

<p><b>Misconceptions:</b> (Firmly teach the Science first before discussing any misconceptions unless they arise within children’s thinking).</p> <ul style="list-style-type: none"> <li>• When you buy an electrical item from a shop electricity is already inside.</li> <li>• Electricity flows to bulbs, not through them.</li> <li>• Electricity flows out of both ends of a battery.</li> <li>• Electricity works by simply coming out of one end of a battery into the component.</li> <li>• A circuit uses up electrical current.</li> </ul>	<ul style="list-style-type: none"> <li>• The food you eat becomes “poo” and the drink becomes “wee”.</li> </ul>
<p><b>Vocabulary:</b> electricity, electrical appliance, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol.</p> <p><b>Resources:</b> use VR avantis world to look at electrical energy in the home, IPADS, Non-fiction texts Thomas Edison, light bulbs, wires, batteries, bulbs, buzzer, crocodile clips, switches, cosmic balls, circuit sticks, metals, rubber, plastic, wood, paper, coins, paper clips, cardboard, split pins, tape.</p> <p><b>Better Reading Better Science texts:</b> Oscar and the bat, The Day I met Dudley, Electrical Wizard</p> <p><b>Cross Curricular Links:</b></p> <p><b>History/Computing/Literacy:</b> researching the work of Thomas Edison.</p> <p><b>D &amp; T:</b> Drawing labelled diagrams of a circuit and designing, creating and evaluating a switch.</p> <p><b>History:</b> Looking at how electricity led to the decline of the mining industry.</p>	<p><b>Vocabulary:</b> digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, large intestine, nutrients, rectum, anus, teeth, incisor, canine, molar, pre molars, herbivore, carnivore, omnivore, producer, predator, prey, food chain.</p> <p><b>Resources:</b> kitchen utensils, teeth models, teeth mirrors, eggs, liquids, beakers, banana, biscuit, bowl, sweet cone, sandwich bag, lemon juice, tights, paper cups.VR Avantis World Our Digestive System.</p> <p><b>Better Reading Better Science texts:</b> Little People Big Dreams David Attenborough, The Story of the Little Mole Who Knew it was none of his business, Wolves, Crocodile’s don’t brush their teeth.</p> <p><b>Cross Curricular Links:</b></p> <p><b>RSE:</b> Dental hygiene.</p> <p><b>History:</b> Rich romans lifestyles and their good teeth hygiene.</p>
<p><b>National Curriculum: By the end of the Summer Term, pupils should be taught to</b></p> <ul style="list-style-type: none"> <li>• Identify common appliances that run on electricity.</li> <li>• Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</li> <li>• 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.</li> <li>• Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</li> </ul>	

- Recognise some common conductors and insulators, and associate metals with being good conductors.
- Describe the simple functions of the basic parts 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, identifying producers, predators and prey.

**Science capital:**

Educational visit: Stanley Head- river study and the role of the water cycle.

School environment: Use classification keys to identify living things in the local environment, set up a project to help to save the planet e.g. recycling, litter picking, ecological garden.

Creative Homework: Make an instrument that creates sound through vibrations/ make an instrument that can make high, low, loud and quiet sounds.

Parent workshops: Build a buzzer game/add electricity to a house (showing what led to decline of mining-their history question in the summer term), Science exhibition with sound experiments to teach parents how sound travels.

Professional visits: Dentist visit to school, Keep Stoke Smiling, musician/music teacher invite in to play different instruments to discuss how the sounds are made and can be altered. School Birdman Alan-birds of prey in school to look at food chains and predators (invite year 2).

Themed days: Annual science day/science week

