Year 1 Science Curriculum Overview

Where we use our enquiry skills to observe and experience the world around us by asking and answering questions.

During year 1 pupils should be taught to use the following practical scientific methods, processes and skills through the teaching of the programme of study content:

- Asking simple questions and recognising that they can be answered in different ways.
- Observing closely at that moment and over time, using simple equipment and begin to take measurements.
- Performing simple tests.
- Identifying and classifying.
- Using their observations and ideas to suggest answers to questions.
- Gathering and recording data to help in answering questions.
- Communicating their ideas of what they can do and what they can find out.

Autumn One	Autumn Two
Everyday Materials- Chemistry **'What are things I use made from?'**	**Seasonal Changes- Physics** **'What is it like in each season?'**
Lesson 1: I can identify and name everyday materials distinguishing between the material and the object. **(Misconception 1 & 4)** Enquiry type:  Enquiry skills: observe Working scientifically: Identifying and classifying. Observing closely at that moment. Using their observations to suggest answers to questions. **Deepening understanding: Discuss and explore the statement 'objects are made from one material'.** **Lesson 2:** I can identify and describe physical properties of everyday materials. **(Misconception 5)** Enquiry type:  ***(hard, soft, bendy, rough, smooth, shiny, dull)***	**Lesson 1:** I can observe autumn (animals, trees/plants, clothes, weather). Enquiry type:  ***Sketch what they see. Repeat this activity each time a season changes.*** Enquiry skills: observe, report Working scientifically: Observe closely at that moment and over time. Use their observations and ideas to suggest answers to questions. Record data to help in answering questions. Communicate their ideas of what they can do and what they can find out. **Deepening understanding: Do all trees lose their leaves in Autumn?** **Lesson 2:** I can identify changes in the seasons (animals, trees/plants, clothes, weather). **(Misconception 3)** Enquiry type:  Enquiry skills: observe, report Working scientifically: Observe closely at that moment and over time.

Enquiry skills: observe and measure, results
Working scientifically: Perform simple tests. Gather and record data to answer questions. Communicate their ideas of what they can do and what they can find out.
Deepening understanding: Think like a Scientist concept cartoon.

Lesson 3: I can compare and group materials based on their physical properties.

(Misconception 2 & 3)

Enquiry type: 
Enquiry skill: observe and measure
Working scientifically: Identifying and classifying. Observing closely at that moment. Using their observations and ideas to suggest answers.
Deepening understanding: Have a material in the wrong group. Children to identify and correct; explaining their reasoning.

Lesson 4: I can explore the work of Ole Kirk Christiansen and the properties of lego.

Enquiry type: 
Enquiry skill: ask questions, observe, report
Working scientifically: Ask simple questions and recognise that they can be answered in different ways. Observing closely at that moment. Identifying and classifying. Using their observations and ideas to suggest answers to questions.
Deepening understanding: Talk like a Scientist- describing its physical properties explain why lego is made from plastic. Cause and effect because of Ole Kirk Christiansen ……..has happened today.

Lesson 5: I can test materials to see if they are strong, light weight and hard to identify if they could be used to make lego.

Enquiry type: 
Enquiry skills: set up enquiry and results
Working scientifically: Ask simple questions and recognise that they can be

Identifying. Using their observations and ideas to suggest answers to questions.
Deepening understanding: Think like a Scientist spot the odd one out for each season.

Lesson 3: I can identify the changes in weather across the seasons (rain, wind, temperature).

(Misconception 1 & 2)

Enquiry type: 
Enquiry skills: observe, report
Working scientifically: Observe closely at that moment and over time. Identifying. Using their observations and ideas to suggest answers to questions.
Deepening understanding: Think like a Scientist concept cartoon.

Lesson 4: I can observe and measure the changes in weather across the seasons (Temp, wind, rainfall).

(Misconception 4)

Enquiry type:  ***build a weather station***
Enquiry skills: measure, record, interpret
Working scientifically: Observe closely at that moment and over time, using simple equipment and begin to take measurements. Gather and record data to help in answering questions. Communicate their ideas of what they can do and what they can find out.
Deepening understanding: Use your initial observations to deliver a weather forecast.

Lesson 5: I can record and describe the changes in day length across the seasons.

Enquiry type: 
Enquiry skills: ask questions, record, report

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<td>answered in different ways. Observe closely at that moment. Use simple equipment and begin to take measurements. Perform simple tests. Gather and record data to help in answering questions. Communicate their ideas of what they can do and what they can find out.
Deepening understanding: Talk like a Scientist- using your findings discuss the statement ‘Metal would be a good material to make lego.’

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

1) Only fabrics are materials.
2) Only building materials are materials.
3) Only writing materials are materials.
4) The word ‘rock’ describes an object rather than a material.
5) ‘Solid’ is another word for hard.</td>
<td>Working scientifically: Ask simple questions and recognise that they can be answered in different ways. Gather and record data to help in answering questions. Communicate their ideas of what they can do and what they can find out.
Deepening understanding: Think like a Scientist concept cartoon.

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

1) It always snows in winter.
2) It is always sunny in the summer.
3) There are only flowers in spring and summer.
4) It rains most in the winter.</td>
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<td><u>Vocabulary:</u>
object, material, wood, plastic, glass, metal, water, rock, hard, soft, bendy, rough, smooth, shiny, dull.
<u>Resources:</u>
Materials boxes, PZAZ, lego, IPADS
<u>Better Reading Better Science texts</u>:
The Three Little Pigs, The Three Little Wolves and the Big Bad Pig.
<u>Cross Curricular Links:</u>
<u>Literacy:</u> descriptions for properties of materials.
<u>History</u>: exploring historic inventions of useful materials, Toys.
<u>Maths:</u> using venn diagrams and tables to sort materials by their properties.
<u>Art:</u> collage spring term.</td>
<td><u>Vocabulary:</u>
weather (sunny, rainy, windy, snowy), seasons (winter, summer, spring, autumn), sun, sunrise, sunset, day, length.
<u>Resources:</u>
Thermometer, IPADS/cameras, Class VR to observe the different seasons, plastic bottles, weather station
<u>Better Reading Better Science texts</u>:
One Year with Kipper, Secrets of Winter, Night Monkey Day Monkey
<u>Cross Curricular Links:</u>
<u>Maths:</u> measuring and recording temperature, and rainfall. Completing a pictogram to show hours of daylight.
<u>D & T:</u> making a weather station.
<u>Geography:</u> weather and climate autumn term.</td>
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<tr>
<td colspan="2">National Curriculum: By the end of the Autumn Term, pupils should be taught to

• Distinguish between an object and the material from which it is made.
• Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.
• Describe the simple physical properties of a variety of everyday materials.
• Compare and group together a variety of everyday materials on the basis of their simple physical properties.
• Observe changes across the four seasons.</td>
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- Observe and describe weather associated with the seasons and how day length varies.

Spring One	Spring Two
Animals Including Humans- Biology **'Do all animals have the same parts?'** **'Do all humans have the same parts?'**	
Lesson 1: I can identify and name a variety of common animals. **(Misconception 1 & 2)** Enquiry type:  Enquiry skill: observe, report Working scientifically: Observe closely at that moment using simple equipment. Identifying. Use their observations and ideas to suggest answers to questions. **Deepening understanding: Think like a Scientist- 'These animals live near our school because…' 'We don't think these animals live near our school because….'** **Lesson 2:** I can group a variety of common animals (fish, amphibians, reptiles, birds and mammals). **(Misconception 4,5, 6 & 7)** Enquiry type:  Enquiry skill: observe and record Working scientifically: Asking simple questions and recognising that they can be answered in different ways. Observe closely at that moment. Identifying and classifying. Using their observations and ideas to suggest answers to questions. **Deepening understanding: Talk like a Scientist discussing the statement 'Humans belong to the bird animal group.'** **Lesson 3:** I can describe and compare the structure of a variety of common animals.	**Lesson 1:** I can identify and name different parts of the human body. Enquiry type:  Enquiry skills: observe, report Working scientifically: Observing closely at that moment. Identifying. **Deepening understanding: Children to talk like a Scientist odd one out- arm, leg, head, wing.** **Lesson 2:** I can draw and label different parts of the human body; describing their jobs. Enquiry type:  Enquiry skill: observe, record Working scientifically: Observing closely at that moment. Identifying. Using their observations and ideas to suggest answers to questions. **Deepening understanding: Children to talk like a Scientist. Have a body part wrongly named and they correct it explaining their reasoning.** **Lesson 3:** I can measure and record information about body parts. Enquiry type:  ***'Do people with big feet need big gloves?'*** Enquiry skill:- ***measure (model and practise using a ruler or non-standard unit of measure), record*** Working scientifically: Observing closely at that moment using simple equipment and begin to take measurements. Using their observations and ideas to suggest answers to questions. Gathering and recording data to help in answering questions.

Enquiry type: 
Enquiry skill: observe, record
Working scientifically: Observing closely at that moment and over time, using simple equipment. Identifying and classifying. Using their observations and ideas to suggest answers to questions.
Deepening understanding: Think like a Scientist odd one out.

Lesson 4: I can identify what different animals eat.

Enquiry type:  
Enquiry skill: ask questions, record
Working scientifically: Asking simple questions and recognising that they can be answered in different ways. Identifying. Communicating their ideas of what they can do and what they can find out.
Deepening understanding: Think like a Scientist concept cartoon.

Lesson 5: I can identify and name a variety of common animals that are herbivores, carnivores and omnivores.

Enquiry type: 
Enquiry skill: observe, record
Working scientifically: Observing closely at that moment. Identifying and classifying. Using their observations and ideas to suggest answers to questions.
Deepening understanding: Sort common animals based on all characteristics learnt (animal type and diet type).

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

1) Only four-legged mammals, such as pets, are animals.
2) Humans are not animals.
3) Insects are not animals.
4) All 'bugs' or 'creepy crawlies', such as spiders, are part of the insect group.
5) Amphibians and reptiles are the same.

Deepening understanding: Talk Scientifically 'What have you learnt?, What surprised you most?'

Lesson 4: I can identify which part of my body is used for each sense.

Enquiry type:  ***Test each sense***
Enquiry skill: record and report
Working scientifically: Observing closely at that moment and over time, using simple equipment and begin to take measurements. Performing simple tests. Identifying. Gathering and recording data to help in answering questions.
Deepening understanding: Think like a Scientist concept cartoon.

Lesson 5: I can describe and investigate what Linda Buck found out about smell.

Enquiry type:   ***smell pots***
Enquiry skill: observe/measure, interpret
Working scientifically: Performing simple tests. Gathering and recording data to help in answering questions.
Deepening understanding: Cause and effect because of Linda Buck ……..has happened today.

6) If an animal lives on land and in the water it is an amphibian. 7) A whale is a fish because it lives in the sea.	

Vocabulary:

head, body, eyes, ears, mouth, nose, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, claws, hooves, names of animals experienced first hand from each vertebrate group, touch, see, smell, taste, hear, fingers (skin), tongue.

Resources:

PZAZ, ruler, tape measure, smell pots, school reptiles, coat, book, jigsaw puzzle, lego, blindfold, objects to touch (cold, rough, heavy, smooth and light), objects to taste (sweet, sour, pleasant, unpleasant), use VR avantis world humans and anatomy to explore the 5 senses, use VR to look at models of animals.

Better Reading Better Science texts:

The Gruffalo, Here We Are

Cross Curricular Links:

History: exploring life and findings of Linda Buck.
Art: draw and label parts of the body.
Maths: sorting animals using venn diagrams and charts, measuring body parts.
Literacy: descriptions of animals.
Pe: under the sea and senses (touch).
Computing: Data gathering on minibeasts summer term.

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

- Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.
- Identify and name a variety of common animals that are carnivores, herbivores and omnivores.
- Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets).
- Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.

Summer One	Summer Two
Plants - Biology **'What is growing outside?'** **'What ways can I identify a plant/tree?'**	
Lesson 1: I can identify and name a variety of common garden plants. Enquiry type:  Enquiry skill: observe, report Working scientifically: Observing closely at that moment using simple equipment. Identifying. Using their observations and ideas to suggest answers to questions. **Deepening understanding: Compare the similarities and differences.** **Lesson 2:** I can identify and name a variety of common wild plants. **(Misconception 1)** Enquiry type:  Enquiry skill: observe, report Working scientifically: Observing closely at that moment using simple equipment. Identifying. Using their observations and ideas to suggest answers to questions. **Deepening understanding: Compare the similarities and differences.** **Lesson 3:** I can identify and name a variety of deciduous trees. **(Misconception 2)** Enquiry type:  Enquiry skill: observe, report Working scientifically: Observing closely at that moment using simple equipment. Identifying. Using their observations and ideas to suggest answers to questions. **Deepening understanding: Talk like a Scientist and explain how a deciduous tree changes over the year.**	**Lesson 1:** I can identify and describe the stem, leaves and roots of a plant. **(Misconception 1 & 2)** Enquiry type:  Enquiry skill: observe, report Working scientifically: Observing closely at that moment using simple equipment. Identifying. Using their observations and ideas to suggest answers to questions. **Deepening understanding: Think like a Scientist 'Do all plants have the same parts? Do all parts look the same?'** **Lesson 2:** I can identify and describe flowers on a plant. **(Misconception 4)** Enquiry type:  Enquiry skill: observe, report Working scientifically: Observing closely at that moment using simple equipment. Identifying. Using their observations and ideas to suggest answers to questions. **Deepening understanding: Think like a Scientist concept cartoon.** **Lesson 3:** I can identify and describe the roots, trunk, branches and leaves of a tree. **(Misconception 3)** Enquiry type:  Enquiry skill: observe, report Working scientifically: Observing closely at that moment using simple equipment. Identifying. Using their observations and ideas to suggest

Lesson 4: I can identify and name a variety of evergreen trees.

Enquiry type: 
Enquiry skill: observe, report
Working scientifically: Observing closely at that moment using simple equipment. Identifying. Using their observations and ideas to suggest answers to questions.
Deepening understanding: Think like a Scientist and sort deciduous trees and evergreen trees.

Lesson 5: I can investigate leaves to identify the type of tree.

(Misconception 3)

Enquiry type: 
Enquiry skills: observe, record
Working scientifically: Observing closely at that moment using simple equipment. Identifying and classifying. Using their observations and ideas to suggest answers to questions.
Deepening understanding: Think like a Scientist and spot the odd one out.

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

1) Plants are flowering plants grown in pots with coloured petals and leaves and a stem.
2) Trees are not plants.
3) All leaves are green.

answers to questions.
Deepening understanding: Think like a Scientist 'Do all trees have the same parts? Do all parts look the same?'

Lesson 4: I can investigate the work of Joseph Banks.

Enquiry type: 
Enquiry skill: ask questions, observe, report
Working scientifically: Asking simple questions and recognising that they can be answered in different ways.
Deepening understanding: Cause and effect because of Joseph Banks……..has happened today.

Lesson 5: I can use my learning to design my own new plant species.
Deepening understanding: Talk and think like a Scientist- analyse each other's new plants. Do these plants have all of the parts needed to survive?

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

1) All leaves are green.
2) All stems are green.
3) A trunk is not a stem.
4) Blossom is not a flower.

Vocabulary: leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud. Names of trees in local areas (deciduous, evergreen), names of garden and wild flowers in the local area.

Resources:

PZAZ, magnifying glasses, plants, identification keys, IPADS, non-fiction texts,

Better Reading Better Science texts: The Tiny Seed

Cross Curricular Links:

Art: use materials to create pictures of a tree/plant and its parts.
D & T: designing a new plant species.
Maths: sorting types of plants, trees, leaves.
Literacy: describing parts of a plant/ tree.
Computing/Literacy/History-researching Joseph Banks using secondary resources.
Geography: Human and physical features summer term.

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

- 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.

Science capital:

Educational visit: Staffordshire Wildlife Centre to explore seasons or the classification of animals, lego discovery museum Manchester

School environment: Identify materials in the environment, autumn walk, observe animal types and animal groups, observe plant and tree types and plant and tree structures.

Creative Homework: Create their new plant species.

Parent workshops: Test the properties of materials- come in and build with lego then test materials to see if they would be good to use to make lego.

Professional visits: vet, zoo worker, pet shop worker

Themed days: Annual science day/science week