

April 2023



Stoke exemplification for primary science (SEPS)

Key stage 1 pupil work collection

Compiled by Dr Sarah Earle in collaboration with
the teachers of Stoke on Trent and beyond.

Particular thanks go to the science leads and teachers at:
Burnwood, Gladstone, Hillside, Holy Trinity, Jackfield,
New Ford, Mereside, Milton, St Maria Goretti, Sutherland
and The Willows Primary Schools.

If you would like to share further examples, please contact:
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KEY STAGE 1

Stoke exemplification for primary science (SEPS)

Resource guidance

The [Teacher Assessment Framework](#) (TAF) contains a list of ‘pupil can’ statements to be used for making a statutory judgement at the end of key stage following completion of the [National Curriculum](#) (NC). The TAF splits the ‘expected standard’ for science into ‘working scientifically’ (disciplinary knowledge) and ‘science content’ (substantive knowledge). Working scientifically should be taught through, and clearly related to, the teaching of substantive science content. Both kinds of knowledge will be taught and assessed throughout the key stage.

At the end of the key stage, teachers make a judgement about whether each pupil is meeting the ‘expected standard’ statements based on their own assessments of pupils’ work. This judgement will consider a broad range of evidence and learning experiences, which will come from day-to-day work in the classroom.

To judge that a pupil is working at the expected standard in science, they are expected to meet all of the ‘working scientifically’ statements and all of the ‘science content’ taught in the final year of the key stage. Teachers might draw on assessments made earlier in the key stage, talking to previous class teachers, but there is no requirement to keep evidence from the classroom related to science lessons before the final year of the key stage.

To support teacher assessment, the Science Across the City project worked with teachers across Stoke on Trent in 2021-23 to gather a broad range of new examples. The examples presented in this resource often show the end of the learning journey in each topic, so it is worth noting that other lessons and experiences will have led up to this point. The examples are annotated to explain the context to the reader, but it is not expected that class teachers would annotate pupil work in this way. Opening the bookmarks tab on the left will help to navigate to the topic of interest.

These exemplification materials have been created to support moderation discussions, which help to benchmark judgements. Moderation discussions, across year groups or across school(s), also provide a valuable opportunity for teacher professional learning, to develop a shared understanding of progression in primary science. These materials can also be used as a source of ideas for planning learning experiences.

These exemplification materials do not dictate the evidence required, but only show how many of the statements might be met. Other examples of pupil work include the [PLAN](#) pupil work collections, the [TAPS](#) examples and the [STA](#)’s early exemplification materials.

Key Stage 1: Animals including humans + Living things and their habitats

Teaching of the National Curriculum (NC) leads to a summative teacher assessment judgement against the Teacher Assessment Framework (TAF) of 'meeting' or 'not yet meeting'. These exemplification materials provide examples of the kinds of things pupils could do in class to support ongoing assessment.

NC Year 1: Animals including humans

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.

NC Year 2: 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
- identify and name a variety of plants and animals in their habitats, including micro-habitats
- 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.

NC Year 2: Animals including humans

- observe notice that animals, including humans, have offspring which grow into adults
- 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.

KS1 TAF expected standard: Science content for animals including humans

The pupil can:

- name and locate parts of the human body, including those related to the senses [Y1], and describe the importance of exercise, a balanced diet and hygiene for humans [Y2]
- describe the basic needs of animals for survival and the main changes as young animals, including humans, grow into adults [Y2]
- identify whether things are alive, dead or have never lived [Y2]
- describe and compare the observable features of animals from a range of groups [Y1]
- group animals according to what they eat [Y1], describe how animals get their food from other animals and/or from plants, and use simple food chains to describe these relationships [Y2]
- name different plants and animals and describe how they are suited to different habitats [Y2]

KS1 TAF expected standard: Working scientifically*

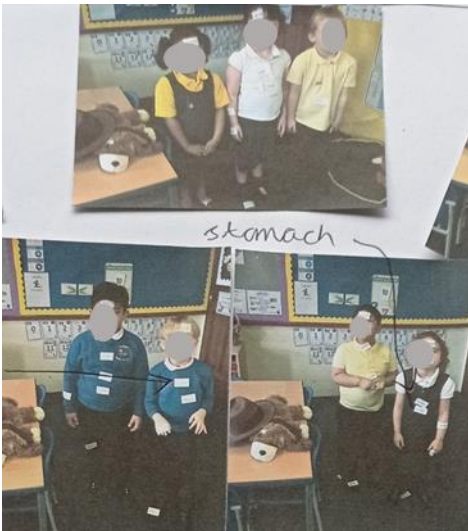
The pupil can, using appropriate scientific language from the national curriculum:

- ask their own questions about what they notice
- use different types of scientific enquiry to **gather and record data**, using simple equipment where appropriate, to answer questions: observing changes over time; noticing patterns; **grouping and classifying things**; carrying out simple comparative tests; **finding things out using secondary sources of information**
- **communicate their ideas, what they do and what they find out in a variety of ways.**

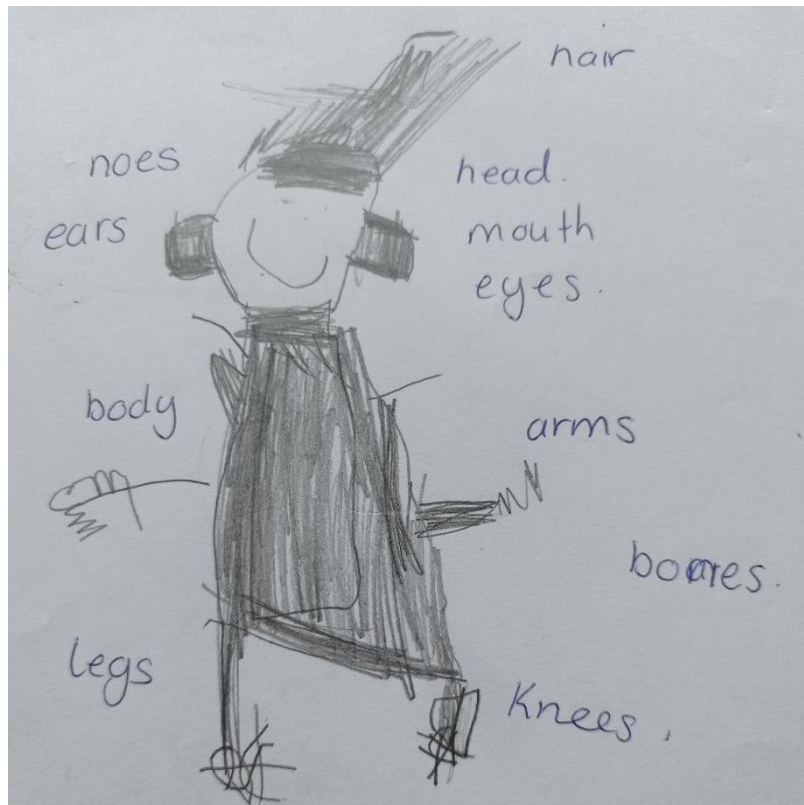
**The working scientifically objectives will be taught in conjunction with science content. Statements exemplified in this topic are in bold.*

Topic: Animals including humans	Year 1 Age 5-6	Title: Body parts
Working Scientifically Review: communicate their ideas		Science content name and locate parts of the human body

Context: Children explored body parts in a range of ways e.g. songs, drawing around each other, modelling etc. Near the end of the unit, one school asked pairs to label each other, another school asked the children to draw body parts (with adult annotation).

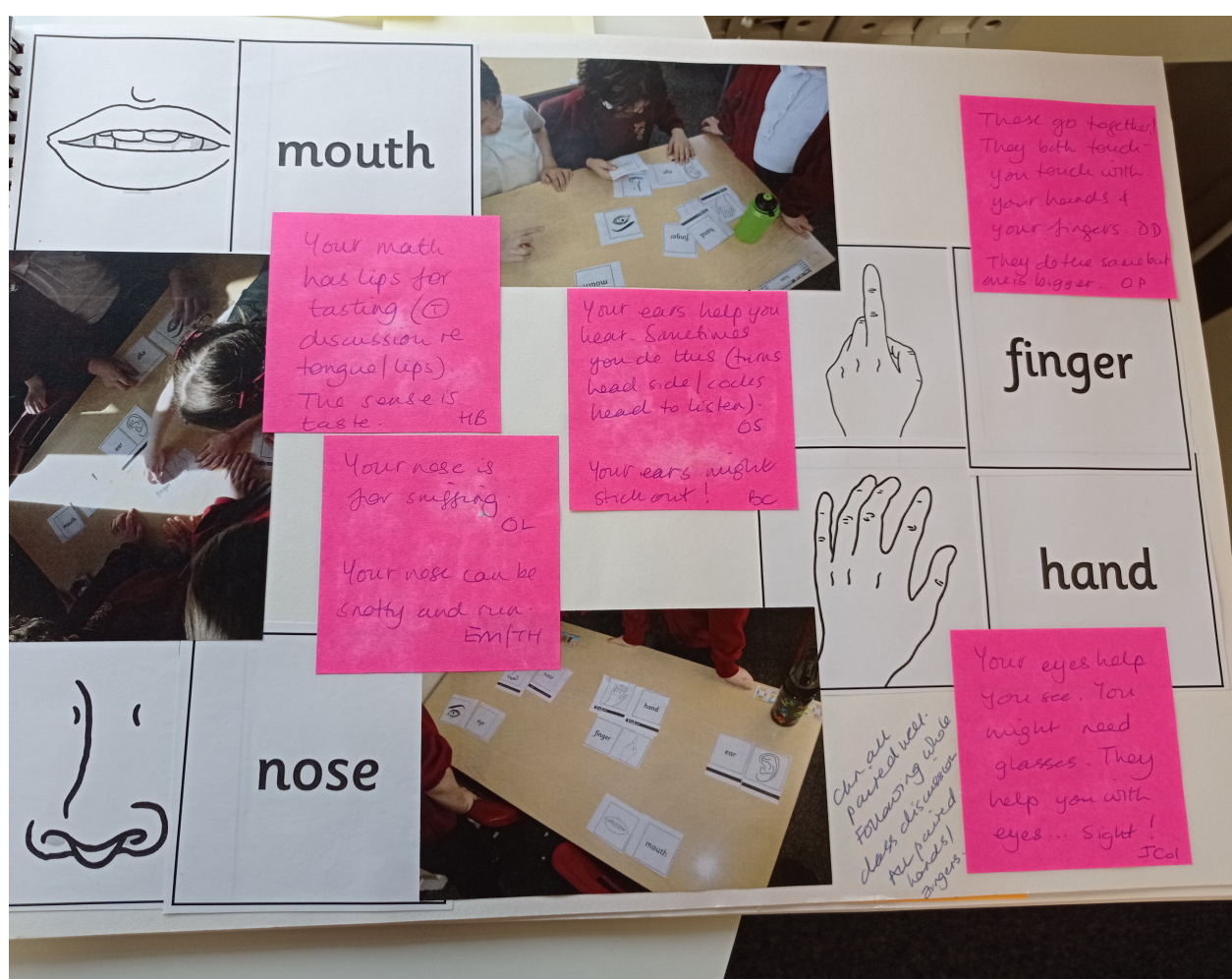


Children meeting the objective would be able to name key (external) body parts, orally or in their own drawing and writing.



Topic: Animals including humans	Year 1 Age 5-6	Title: Body parts for senses
Working Scientifically Do: communicate what they do and find out		Science content name and locate parts of the human body, including those related to the senses

Context: Children explored their senses with smelly pots, a 'taste test', a listening walk, feely bags and a 'sight test'. The next lesson they matched body parts to names and discussed what they were used each for.



Example comments:

'Your nose is for sniffing.'

'Your ears help you hear.'

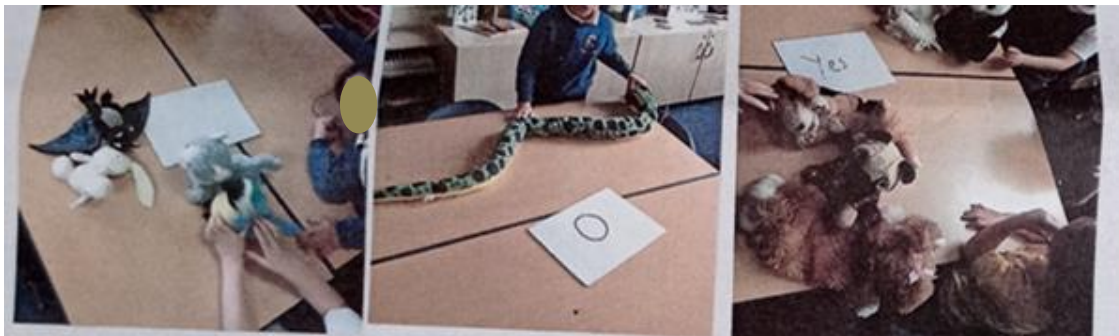
'You touch with your hands and fingers.'

'Your eyes help you see. You might need glasses.'

Children meeting the objective would be able to name key body parts related to the senses, orally or in their own drawing and writing.

Topic: Animals including humans	Year 1 Age 5-6	Title: Toy animal features
Working Scientifically Do: grouping and classifying things (grouping and classifying)		Science content describe and compare the observable features of animals from a range of groups

Context: Children brought in toy animals from home. They discussed the features of the animal with their partner. The class played a game of 'stand up if...' e.g. your animal has: legs, 4 legs, a beak, a tail, fins. They then sorted the animals into groups according to their features (in real life) e.g. number of legs, scales or fur, lays eggs or has babies. They also sorted according to their own categories (listed in the picture below).

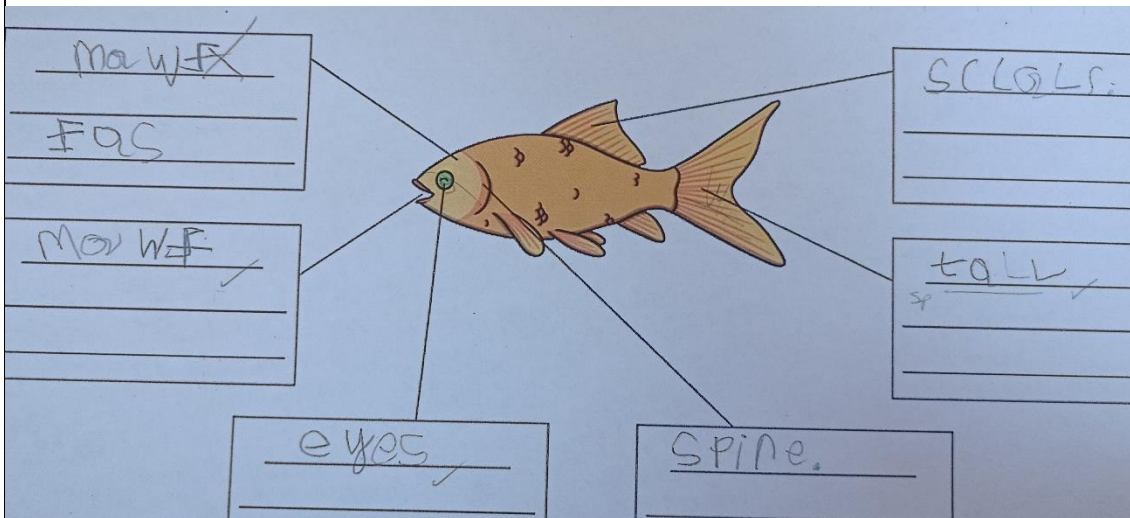


- All things with tails
 - Which run fast and slow
 - Those with ears and no ears
 - dig or not dig
 - Can jump or can't jump
 - Has a pouch for a baby or not pouch
 - eats bananas and not
 - Can climb and can't climb
 - Claws and not claws
 - wings and no wings
 - Can jump and can't jump
 - Big and Small

Children meeting the content objective would be able to describe observable features of a range of animals and explain how they grouped them.

Topic: Animals including humans	Year 1 Age 5-6	Title: Animal parts
Working Scientifically		Science content describe and compare the observable features of animals from a range of groups

Context: Children discussed the features of different animals from a range of groups, then chose one group to draw and/or write about.



Children meeting the content objective would be able to describe observable features of an animal group (fish, amphibian, reptile, bird, mammal).



A. A bird has legs. A bird has feathers. A bird has a beak. A bird has wings.

Topic: Animals including humans	Year 1 Age 5-6	Title: Herbivores and carnivores
Working Scientifically Review: communicate their ideas (grouping and classifying)		Science content group animals according to what they eat

Context: The class discussed what animals eat. In pairs they discussed what they already knew. The class then discussed the meaning of herbivore, carnivore and omnivore and the children explored this further through grouping of animal pictures and discussion.

E.g.

Child L – Lions eat meat.

Child O – Giraffes have long necks as they eat leaves from the trees.

Child J – Sharks eat fish.

Child A – Birds eat seeds.

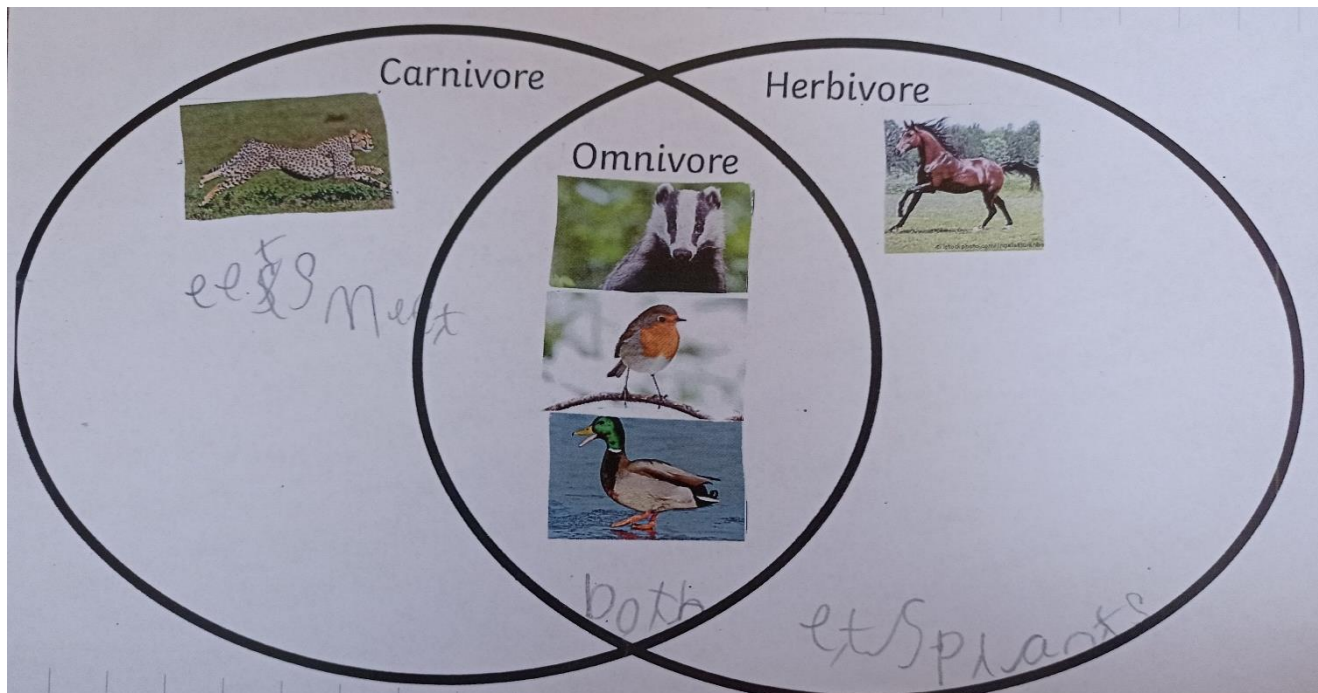
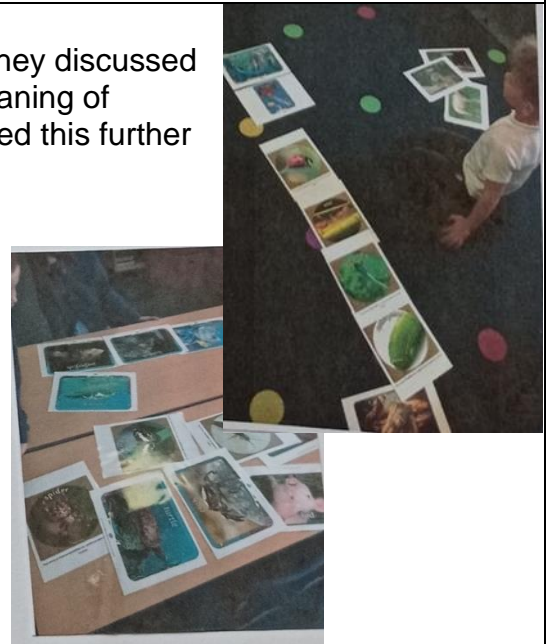
Child E – Birds eat worms and seeds. What do bees eat?

Child D – Spiders eat flies. Do spiders eat mosquitoes?

Child I – Cows eat grass.

Child M – Zebras eat grass.


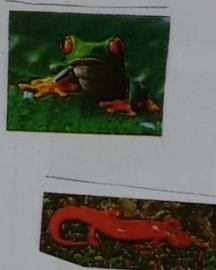



Child F – Cheetahs run fast to catch their food.



Children meeting the content objective would be able to use what they know about what animals eat to group them.

Topic: Animals including humans	Year 1 Age 5-6	Title: Animal groups
Working Scientifically Review: communicate their ideas (grouping and classifying)		Science content describe and compare the observable features of animals from a range of groups

Context: Through the term, children explored animal groupings through discussion, sorting, research and stories. Near the end of term, children were asked to review their ideas by sorting pictures into animal groups according to observable features and what they eat.

Fish	Amphibian	Reptile	Bird	Mammal
			 - because it has feathers seagull	 dog because it's got fur

What is the same about the animals in the bird group? they are covered in feathers and have powerful beaks.

How are fish different to mammals? They have scales and mammals have soft fur.

I could sort by animals that swim and not swim. A dolphin is a mammal and it swims.

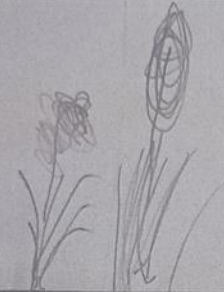
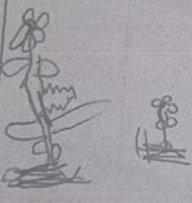
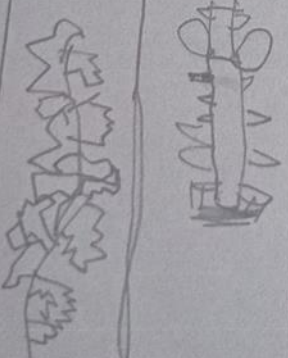
Children meeting the content objective would be able to talk about features of different animal groups e.g. feathers or fur.

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Topic: Living things	Year 2 Age 6-7	Title: Plant research
Working Scientifically Do: gather and record data (research)		Science content name different plants in their habitats

Context: After exploring plants in the local area, children chose some to find out more about using secondary sources.

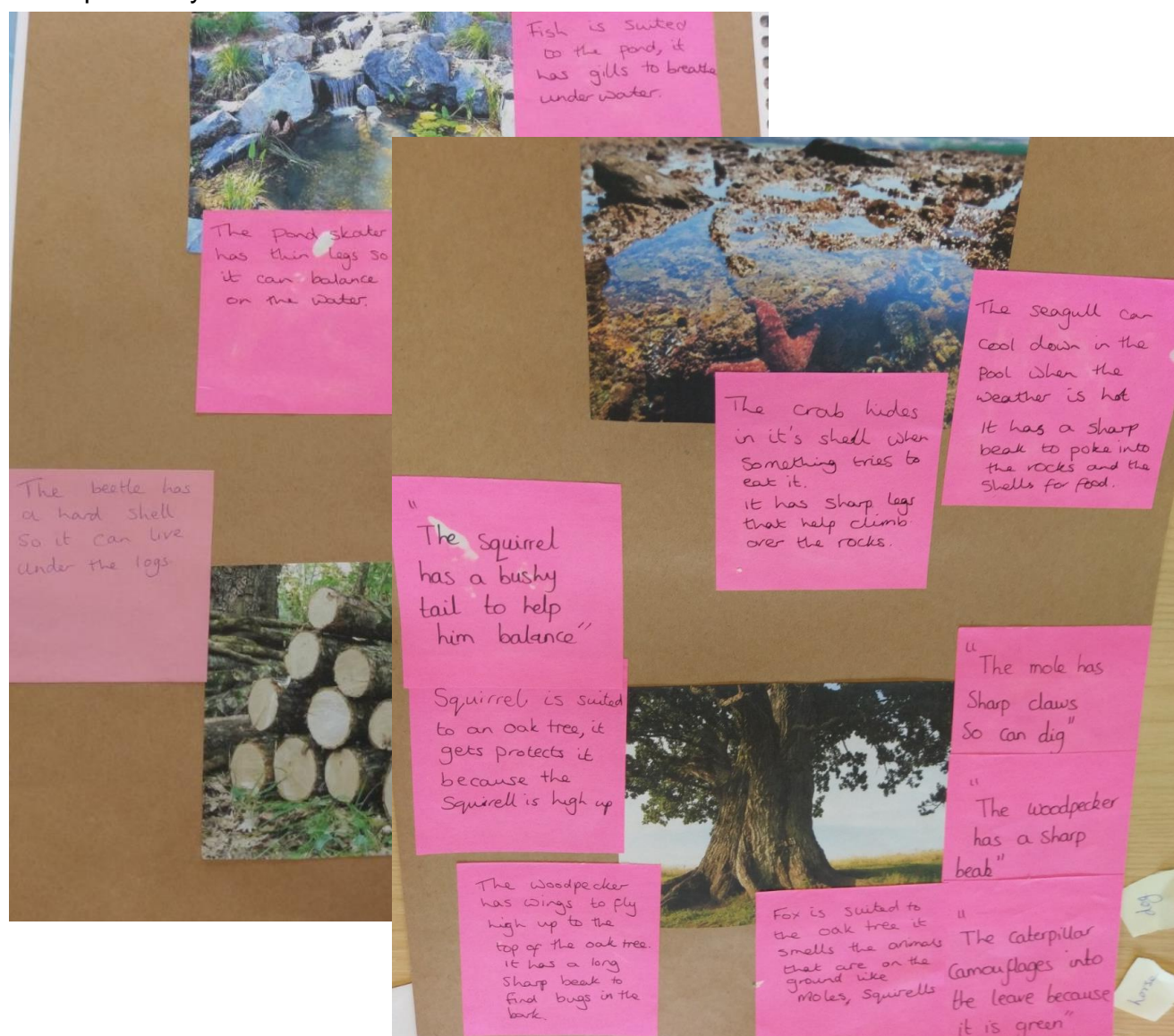
My Plant Research

Name of Plant	Picture of Plant	Where it is commonly found?	Any other facts
Bottle Bell		Woodland	they are a sleeping flowers
Buttercup		meadow	they have yellow petals
Nettle		woods	they can sting you

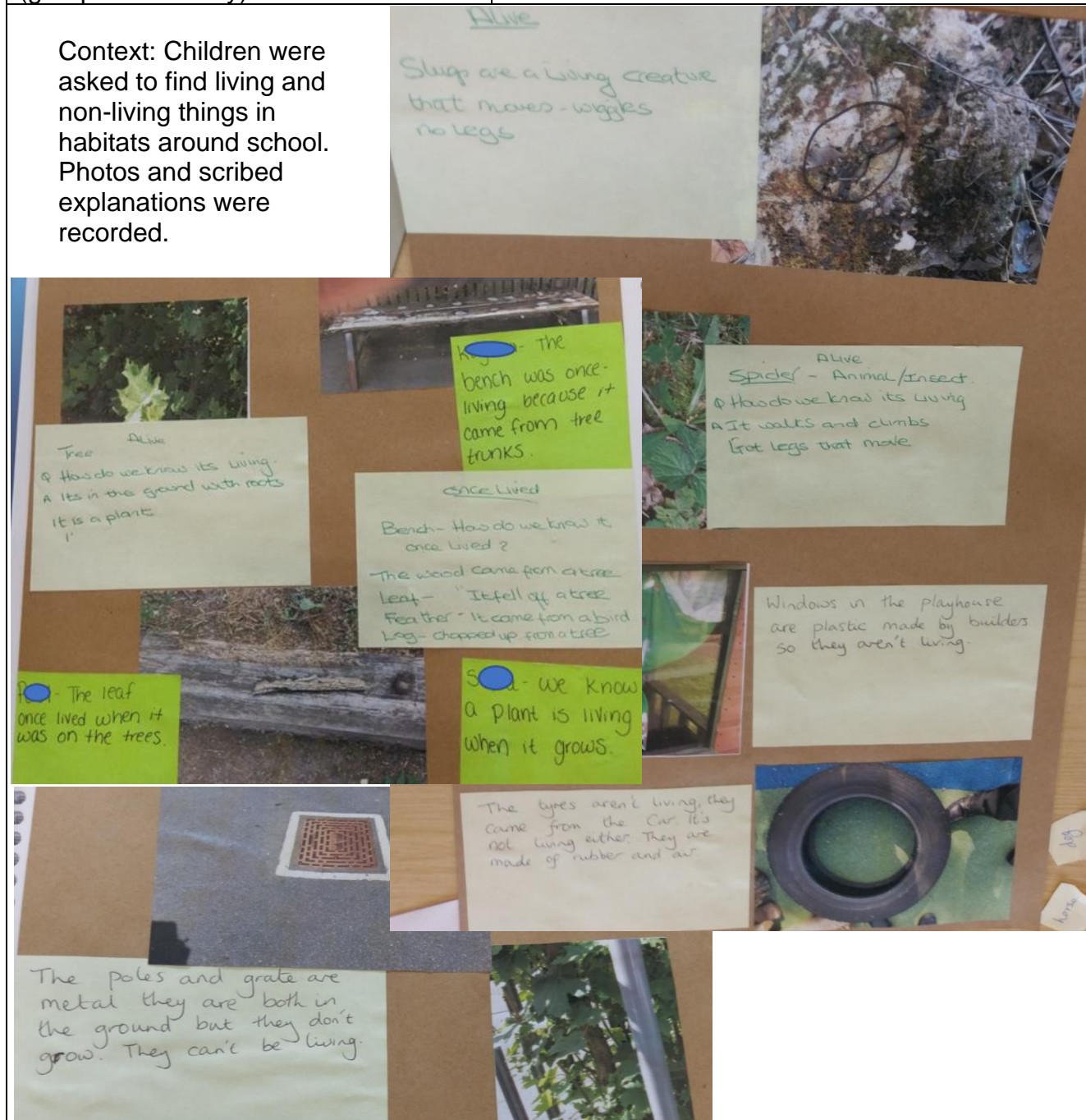
Children meeting the objective would be able to identify plants using secondary sources.

Topic: Living things	Year 2 Age 6-7	Title: Animals in habitats
Working Scientifically Review: communicate their ideas (research)		Science content name different plants and animals and describe how they are suited to different habitats

Context: After discussion of a range of animals and habitats, children were asked to explain why animals are suited to different habitats.



Children meeting the objective would be able to explain a feature of the animal which helped them to survive in their habitat.


Topic: Living things	Year 2 Age 6-7	Title: Finding living things
Working Scientifically Review: communicate their ideas (group and classify)		Science content identify whether things are alive, dead or have never lived
<p>Context: Children were asked to find living and non-living things in habitats around school. Photos and scribed explanations were recorded.</p> 		
Children meeting the objective would be able to identify living and non-living things, justifying their decision with an explanation.		

Topic: Living things	Year 2 Age 6-7	Title: Living and non-living sort
Working Scientifically Do: grouping things (group and classify)		Science content identify whether things are alive, dead or have never lived

Year 2 Scavenger hunt - Living, Dead, Never alive

Living	Dead	Never Alive
leaves	wooden logs	Fake grass in the meadow
plants	sticks	plant pots
slug	leaves	stones
snail	orange	bins
spiders	pears	foil tray

We listed all the objects we had found and categorized them into dead, living and never alive.

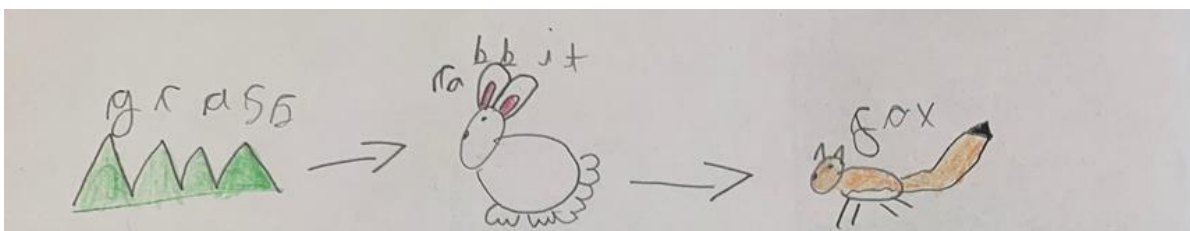
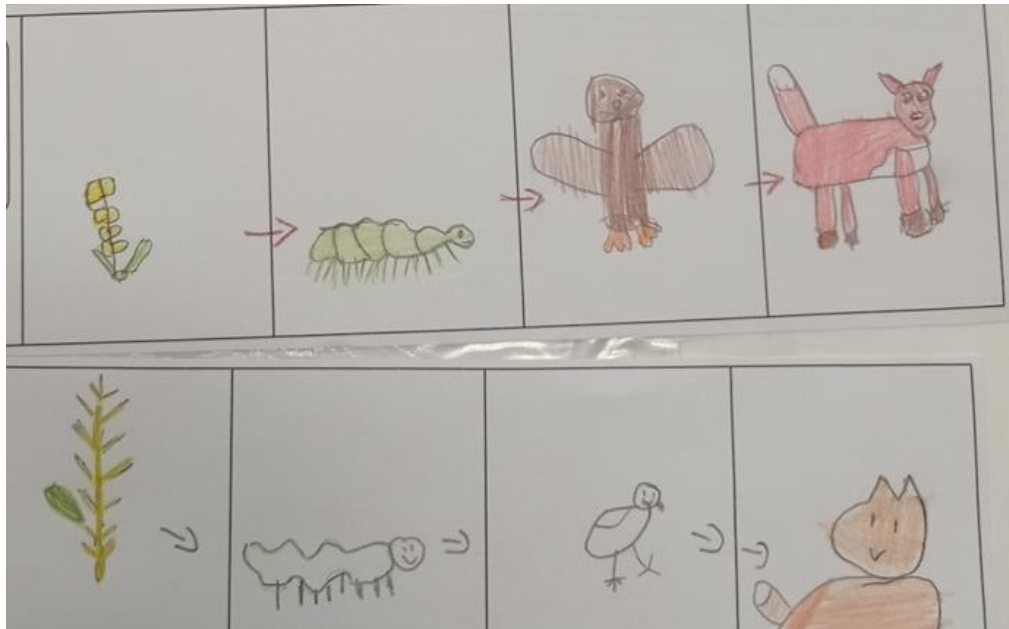


Context: Children collected things from around school on an outdoor scavenger hunt. They then sorted these into 'living', 'dead' and 'never alive' hoops. They discussed their sorting with an adult, who collated key items onto a class list.

Children meeting the objective would be able to identify living and non-living things, justifying their decision with an explanation.

Topic: Living things	Year 2 Age 9-10	Title: Food chains
Working Scientifically		Science content describe how animals get their food from other animals and/or from plants, and use simple food chains to describe these relationships

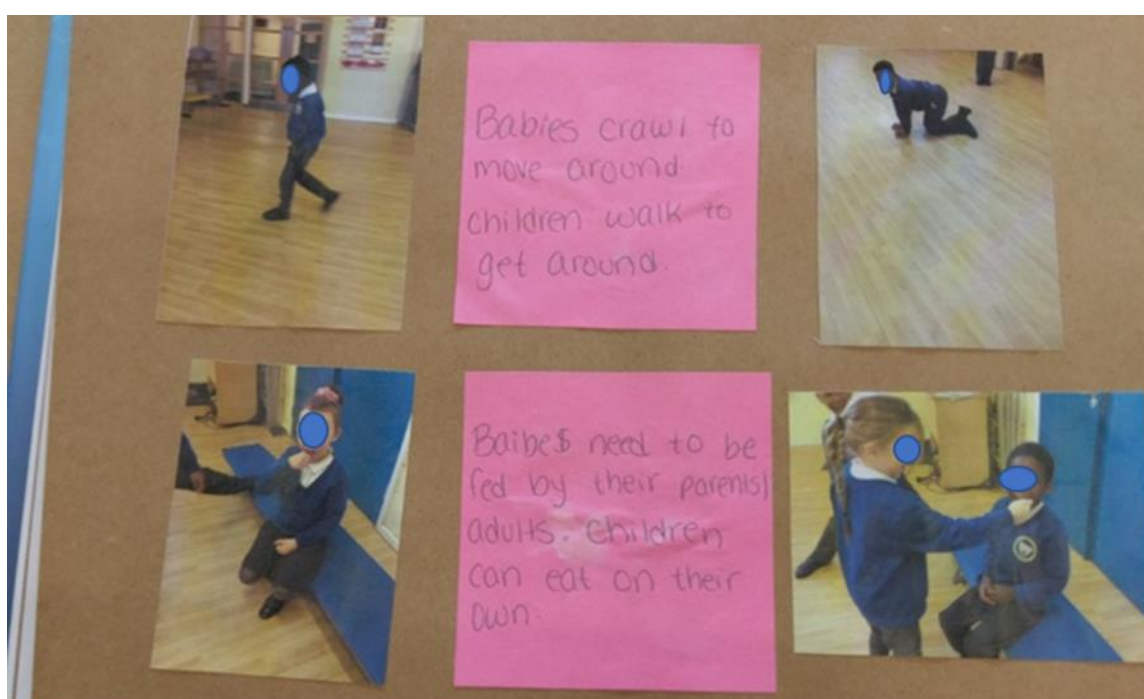
Context: After looking at a range of animals, what they eat and example food chains, children were asked to demonstrate their understanding of feeding relationships in the form of food chains.



Children meeting the content objective would be able to represent feeding relationships in a food chain with arrows (to show the flow of energy).

Topic: Animals including humans	Year 2 Age 6-7	Title: Growing up
Working Scientifically Review: communicate their ideas (observing changes over time)		Science content describe the main changes as young animals, including humans, grow into adults

Context: Children were asked to show how they are different from babies and toddlers, in words and actions.



For example, children said:

When I was a baby I could cry and sleep.

When I was a baby I could have my nappy changed and drink milk from a bottle.

When I was a toddler I could crawl and make friends.

When I was a toddler I could: eat food and use the toilet.

Babies do not have teeth so they need lots of milk. Children have teeth to chew their food.

Babies crawl to move around. Children walk to get around.

Babies need to be fed by their adults. Children can eat on their own.

Babies cannot talk so they communicate by crying. Children communicate by talking.

Children meeting the objective would be able to describe differences between babies, toddlers and older children.

Topic: Animals including humans	Year 2 Age 6-7	Title: Glitter 'germs'
Working Scientifically Review: communicate their ideas (observing changes over time)		Science content describe the importance of hygiene for humans

Context: Each table explored a different way to remove glitter 'germs' from their hands: paper towels, water, hand sanitiser, soap & running water, just rubbing hands.



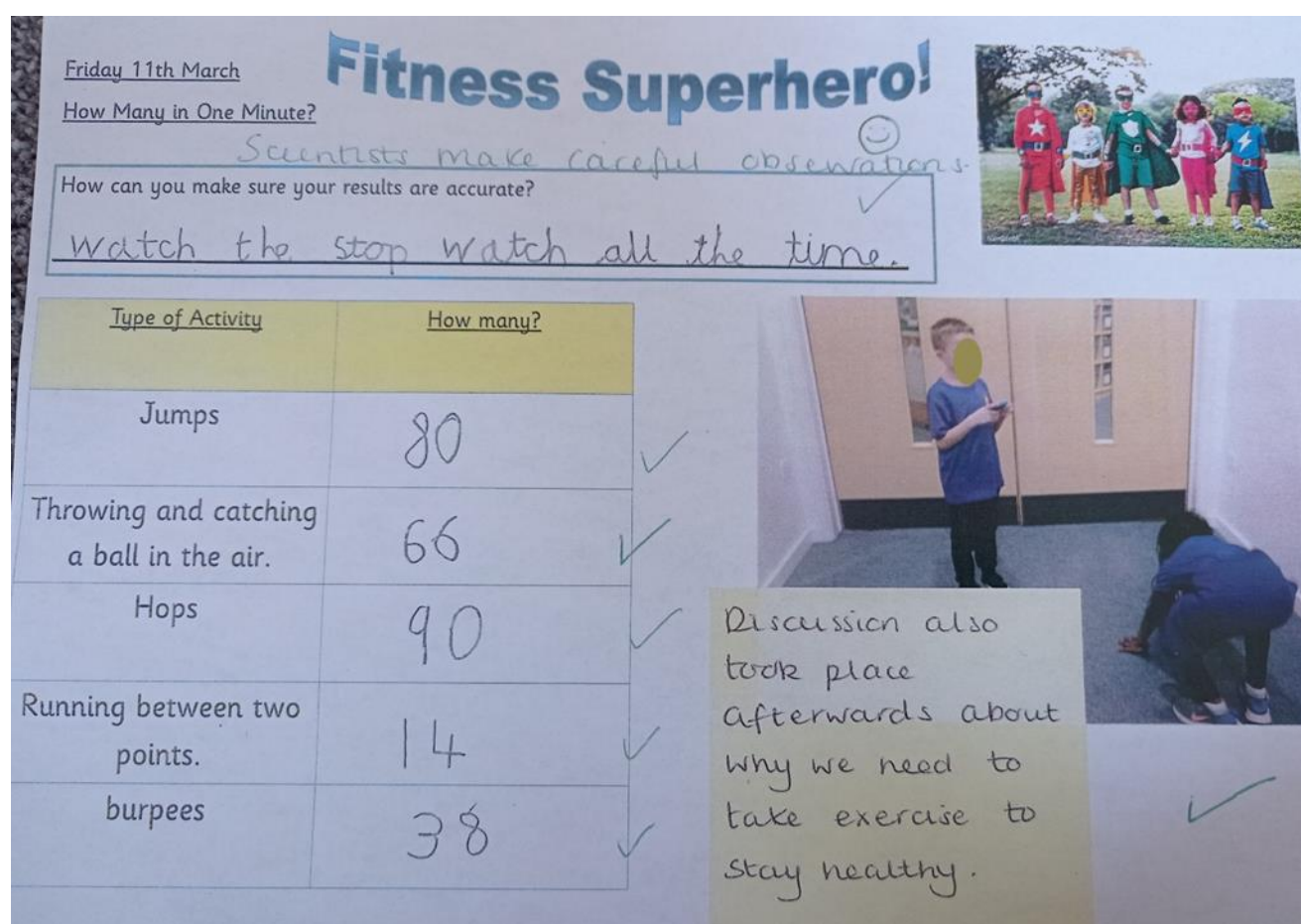
Each table reported back their findings, which were scribed by the teacher:

Science germs investigation on Wednesday 8 th September				
What happened to the germs during our experiment?				
germs (just glitter)	just paper towels	water	water and soap	hand sanitizer
Rubbed our hands together. Looked like the germs were gone. They were on the table, the floor, the chair and our clothes. When we touched the table the germs were back on our hands.	It rubbed the germs off. We had to rub really hard. The germs fell on the table. When we touched the table the germs were back on our hands.	We tried to rub it off but it spread all over our hands. It was a disaster. We needed some soap.	The water and soap helped everyone. It washed off everything. Our hands were clean. * This is the best way to keep our hands germ free.	Rub it hard. Some of the germs came off but some stayed on. Hand sanitizer doesn't get rid of all germs.

Children meeting the content objective would be able to describe the purpose of hand washing.

Topic: Animals including humans	Year 2 Age 6-7	Title: Comparing exercises
Working Scientifically Do: gather and record data (comparative test)		Science content describe the importance of exercise for humans

Context: Children counted how many of the different movements they could do in 1 minute and recorded these in a table. They also discussed why humans need to keep active.



Friday 11th March

Fitness Superhero!

How Many in One Minute?

Scientists make careful observations.

How can you make sure your results are accurate?

watch the stop watch all the time.

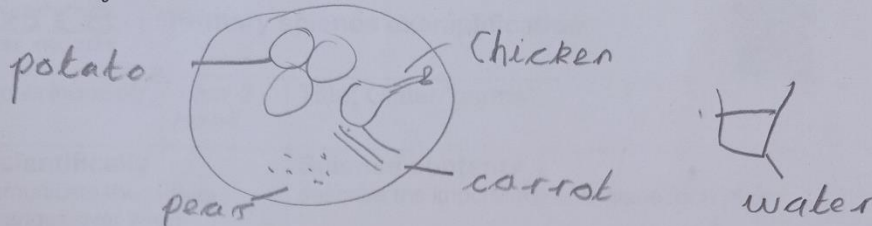
Type of Activity	How many?
Jumps	80
Throwing and catching a ball in the air.	66
Hops	90
Running between two points.	14
burpees	38

Discussion also took place afterwards about why we need to take exercise to stay healthy.

Children meeting the Working Scientifically objective would be able to carefully collect data to compare the different types of exercise, recording their results in the provided table.

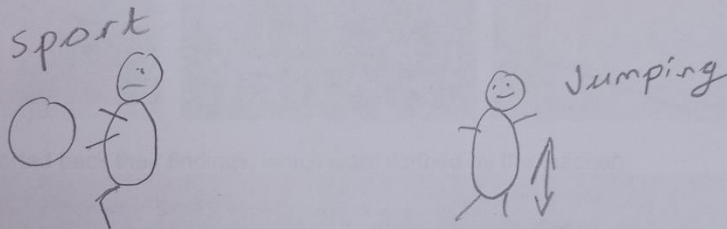
Topic: Animals including humans	Year 2 Age 6-7	Title: Keeping healthy discussion summary
Working Scientifically		Science content describe the importance of exercise, a balanced diet and hygiene for humans

The importance of: Diet



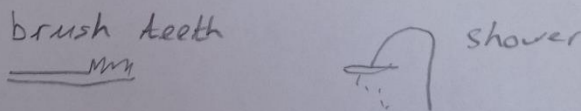
We need to eat meat and veg, not unhealthy food or fizzy drinks so we can grow

Exercise



We should exercise every day to get fit and grow muscles.

Hygiene



We need to stay clean and get rid of germs. Brushing teeth two times stops them rotting.

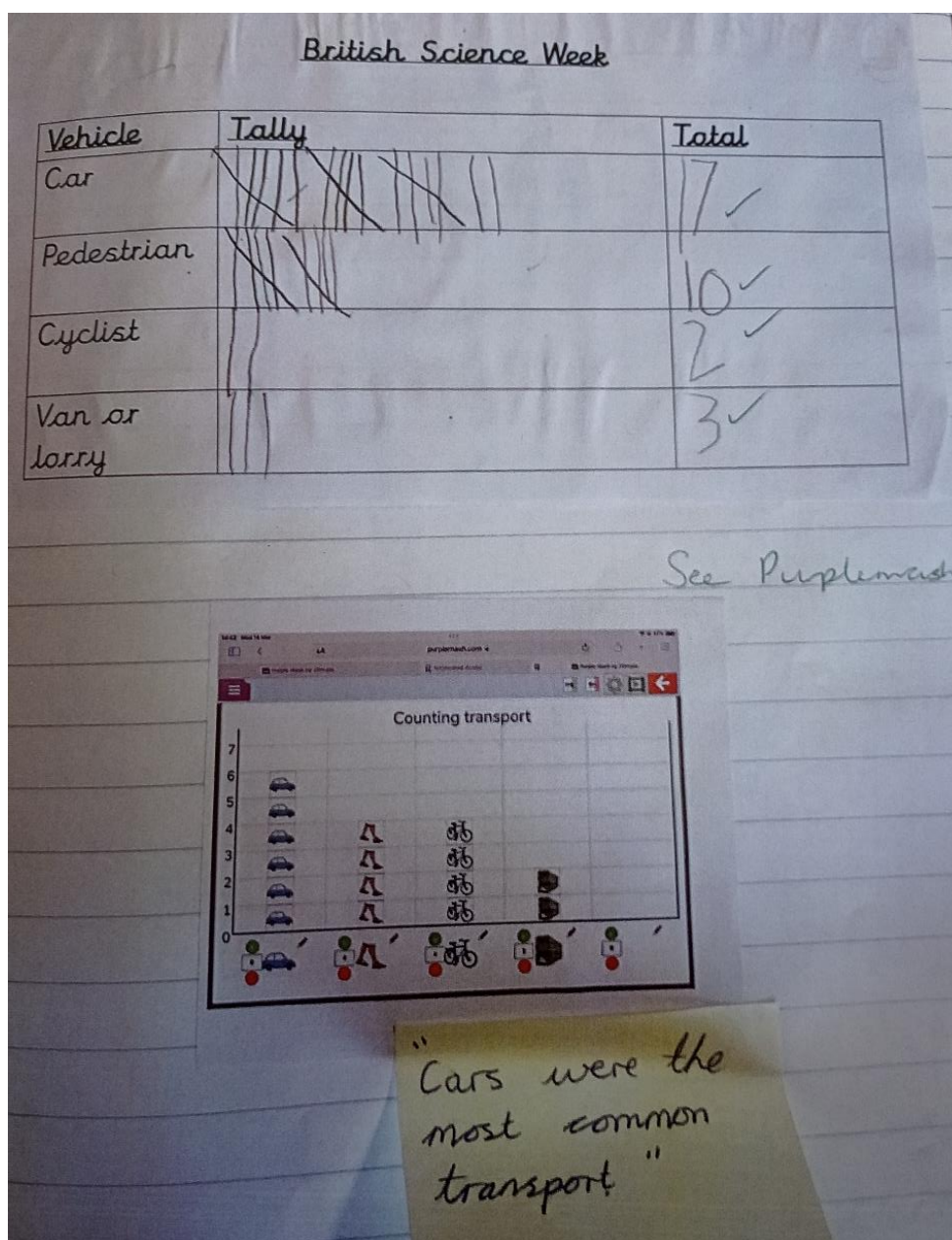
Context: At the end of the topic, the children discussed in groups with an adult what they now knew about keeping healthy, in terms of diet, exercise and hygiene.

This example was scribed by an adult.

Children meeting the objective would be able to describe why diet, exercise and hygiene are important, orally or in their own drawing and writing.

Topic: Animals including humans	Year 2 Age 6-7	Title: Traffic survey
Working Scientifically Do: gather and record data (pattern seeking)		Science content (In the context of: describe the importance of exercise for humans)

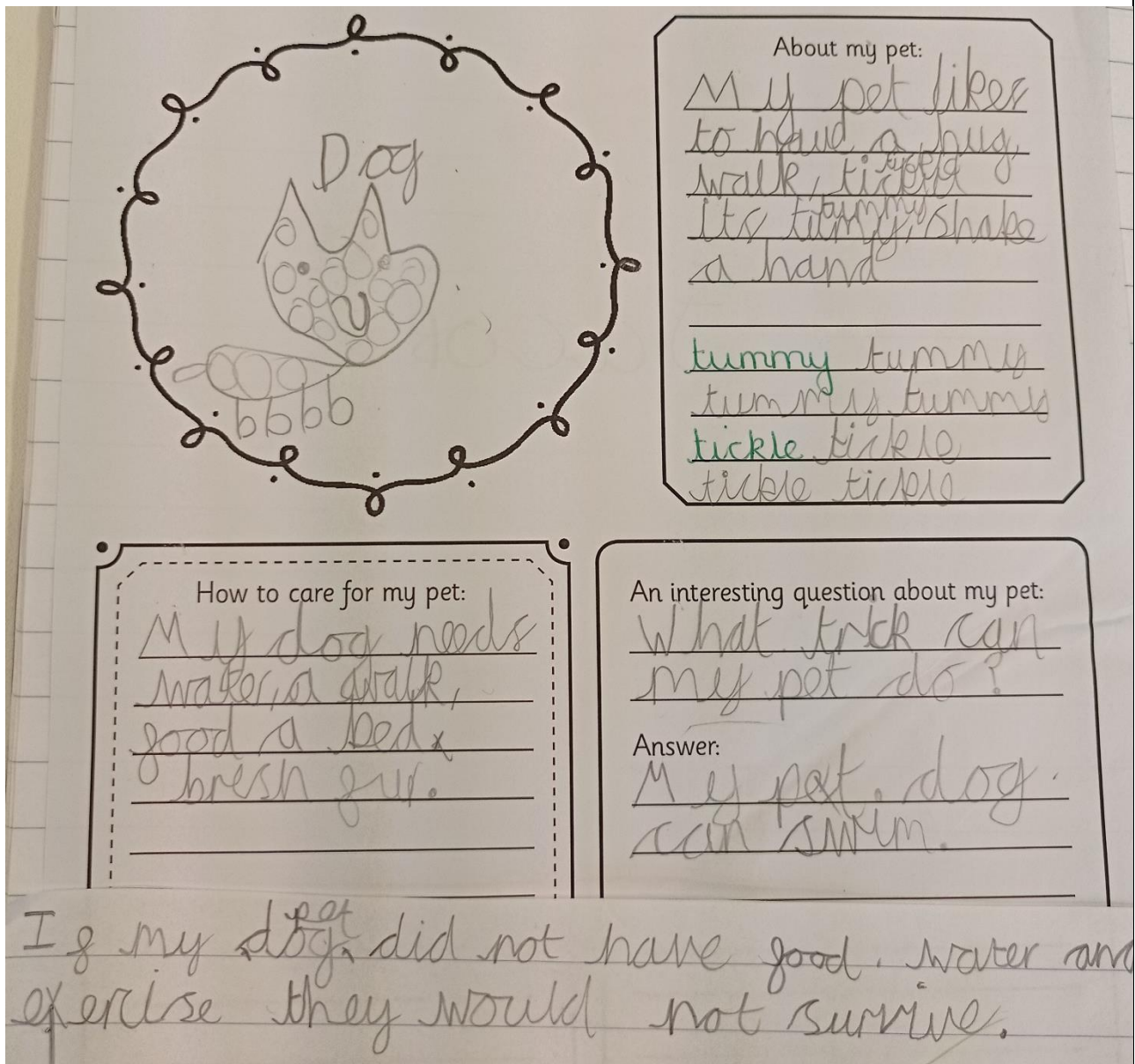
Context: For science week (linked to both 'walk to school' and climate awareness), children carried out a traffic survey. They recorded their own results in a tally chart and also made a pictogram, finding that cars were the most common transport.



Children meeting the Working Scientifically objective would be able to carefully collect data to record the type of transport seen.

Topic: Animals including humans	Year 2 Age 6-7	Title: Pet fact file
Working Scientifically Review: communicate their ideas and what they find out in a variety of ways (research)		Science content describe the basic needs of animals for survival

Context: At home and in class children had shared photos and discussed how to look after pets and other animals. **In Literacy**, they created fact files to explain how to care for a pet.



About my pet:

My pet likes to have a big walk, tickle its tummy, shake a hand

tummy tummy
tummy tummy
tickle tickle
tickle tickle

How to care for my pet:

My dog needs water, a walk, food, a bed & fresh fur.

An interesting question about my pet:

What trick can my pet do?

Answer:

My pet dog can swim.

If my dog did not have food, water and exercise they would not survive.

Children meeting the objective would be able to explain in words, pictures or orally, how to care for an animal e.g. water, food, warmth and exercise.

Key Stage 1: Materials

Teaching of the National Curriculum (NC) leads to a summative teacher assessment judgement against the Teacher Assessment Framework (TAF) of 'meeting' or 'not yet meeting'. These exemplification materials provide examples of the kinds of things pupils could do in class to support ongoing assessment.

NC Year 1: Everyday materials

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.

NC Year 2: Uses of everyday materials

Pupils should be taught to:

- identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses
- find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

KS1 TAF expected standard: Science content for materials

The pupil can:

- distinguish objects from materials, describe their properties, identify and group everyday materials [year 1] and compare their suitability for different uses [year 2].

KS1 TAF expected standard: Working scientifically*

The pupil can, using appropriate scientific language from the national curriculum:

- ask their own questions about what they notice
- use different types of scientific enquiry to **gather and record data, using simple equipment where appropriate**, to answer questions:
 - observing changes over time
 - noticing patterns
 - **grouping and classifying things**
 - **carrying out simple comparative tests**
 - finding things out using secondary sources of information
- communicate their ideas, what they do and what they find out in a variety of ways.

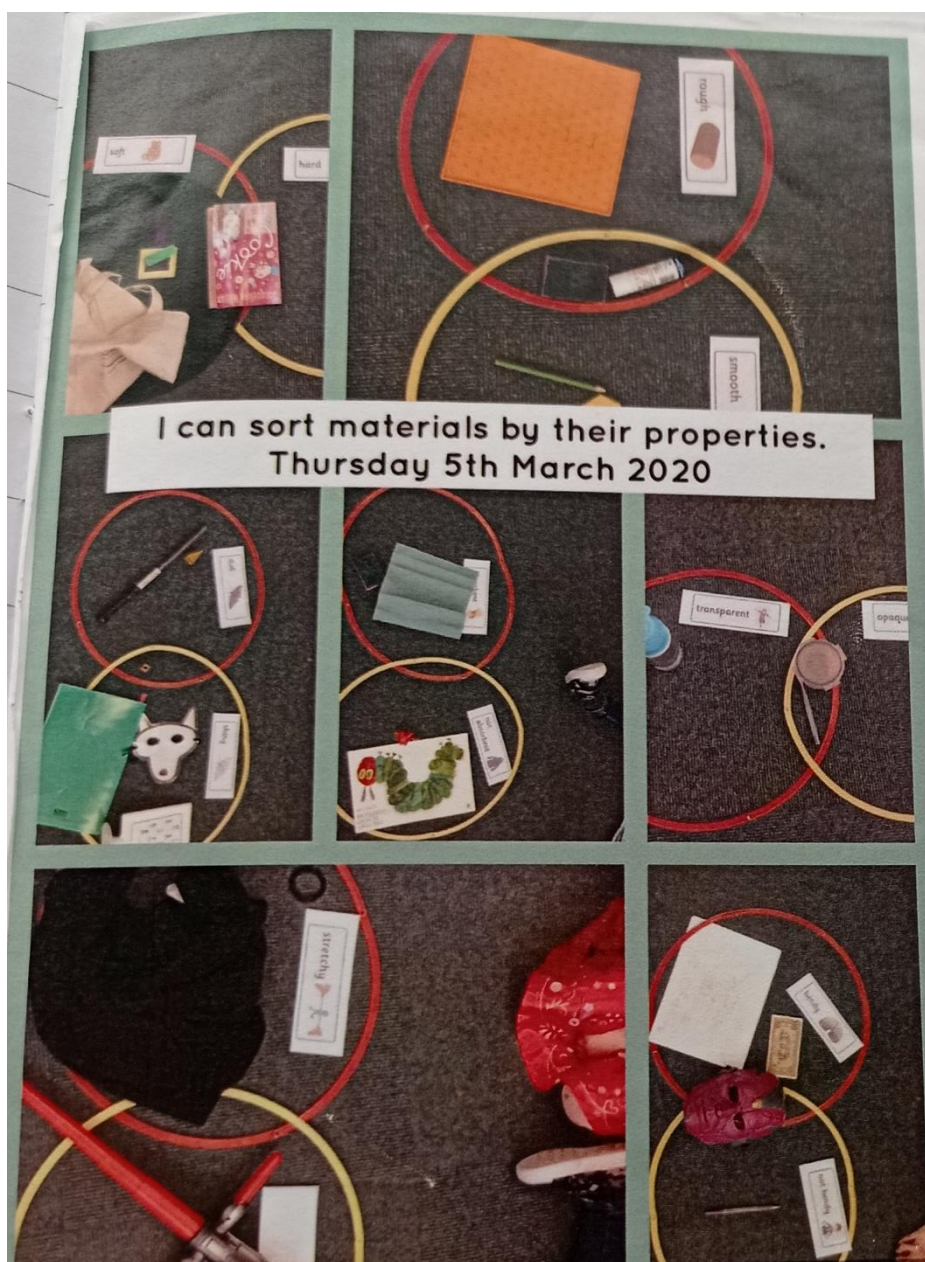
**The working scientifically objectives will be taught in conjunction with science content. Statements exemplified in this topic are in bold.*

Context: After discussing an example of each type of material (glass, plastic, paper, metal, fabric, wood etc), children were asked to find other items to add other items from around the classroom to the categories.



Children meeting the objective would be able to group objects by their material.




Context: After discussing some examples of materials and different properties, children were asked to do their own sorting with hoops and property cards (rough/smooth, transparent/opaque, soft/hard, stretchy/nonelastic, bendy/rigid etc).



Children meeting the objective would be able to group materials by their properties.

Topic: Materials	Year 1 Age 5-6	Title: Materials around school
Working Scientifically Review: communicate their ideas and what they find out (group and classify)		Science content describe the simple physical properties of a variety of everyday materials

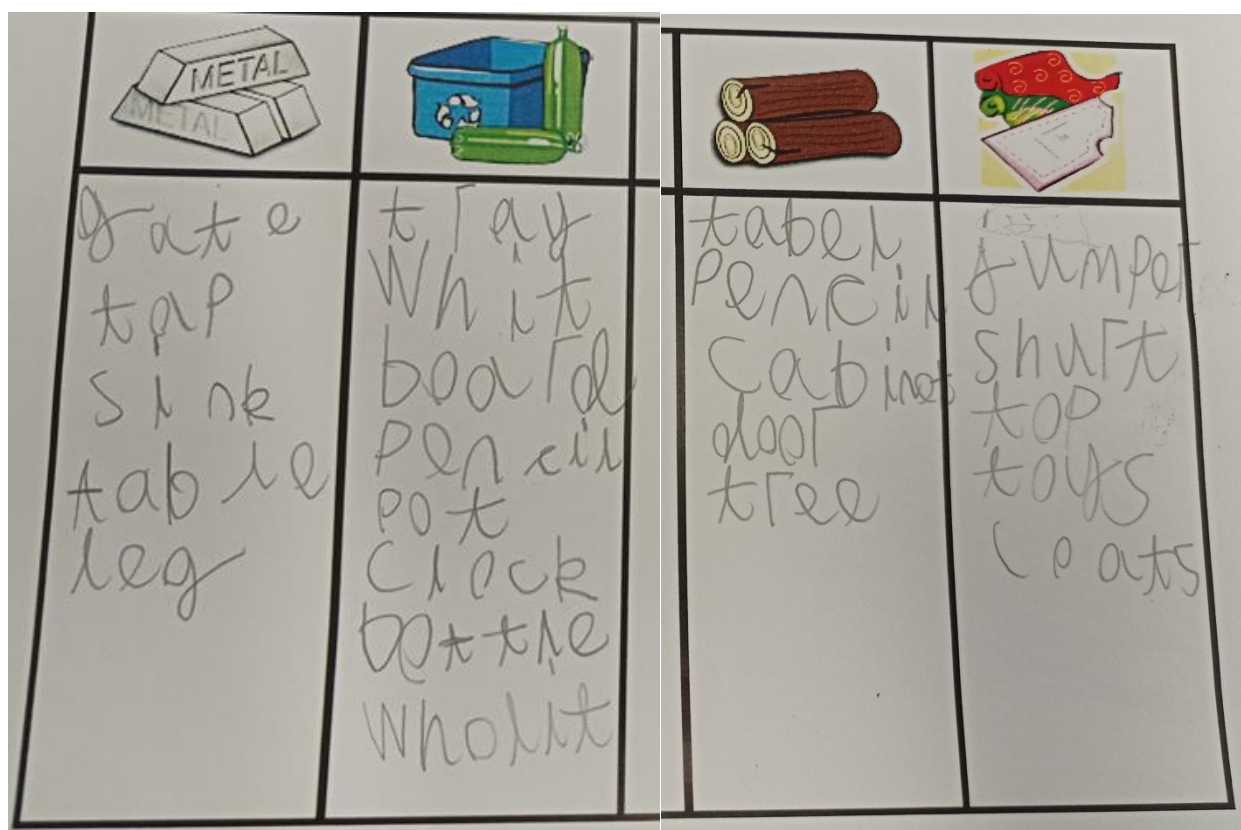
Context: Children explored the use of materials around school and were asked to name them and think about why they were chosen for that purpose:

	The window is made out of <u>glass</u> . I think this because <u>Transparent</u> ✓.
	The bench is made out of <u>Wood</u> ✓. I think this because <u>Strong</u> ✓.
	The fence is made out of <u>metal</u> . I think this because <u>Strong</u> ✓.

Children meeting the objective would be able to explain in terms of properties of materials.

Topic: Materials	Year 2 Age 6-7	Title: Materials hunt
Working Scientifically Do: gather and record data (group and classify)		Science content identify and group everyday materials for different uses

Context: After discussing some examples of metals, plastics, wood and cloth/fabric, children were asked to hunt for other objects around the class and school that were made from these materials.






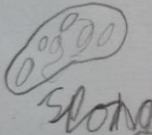
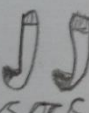
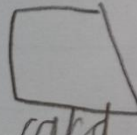
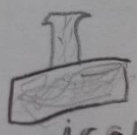


Children meeting the objective would be able to identify objects around school made from the four materials and either list them in a table or take photographs of them for the class floorbook.



Topic: Materials	Year 2 Age 6-7	Title: Properties table
Working Scientifically Do: gather and record data (group and classify)		Science content KS1 TAF: describe properties of materials Y2 NC: <i>some materials can be changed by squashing, bending, twisting and stretching.</i>

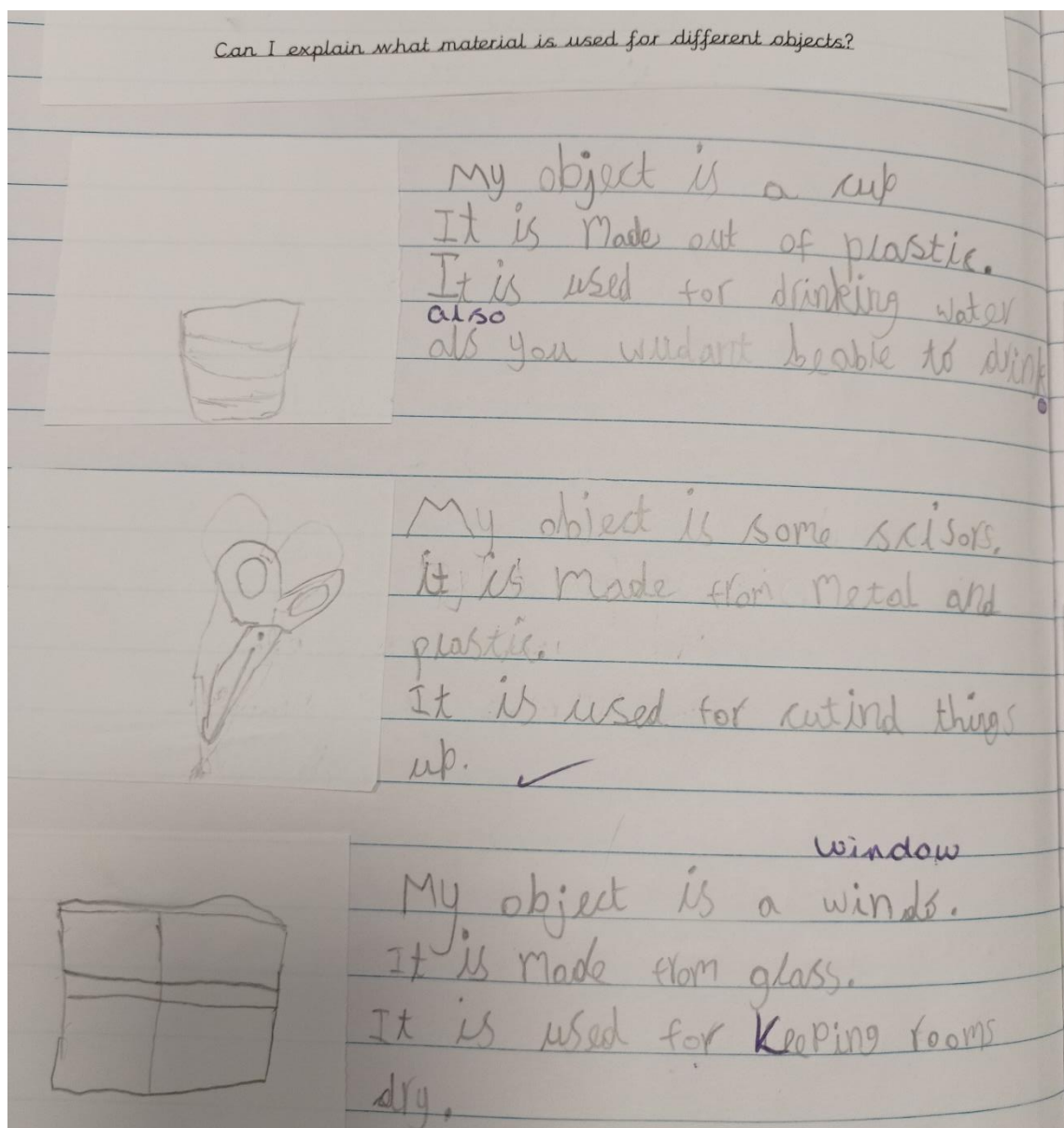
Context: In previous lessons, children learnt about properties of materials. In this lesson, children were asked to explore which materials squash, bend, twist and stretch.

Object	Can you squash it? 	Can you bend it? 	Can you twist it? 	Can you stretch it? 
can 	✓	✓	✓	X
slonge 	✓	✓	✓	X
socks 	✓	✓	✓	✓
card 	✓	✓	✓	X
tile 	✓	✓	✓	X

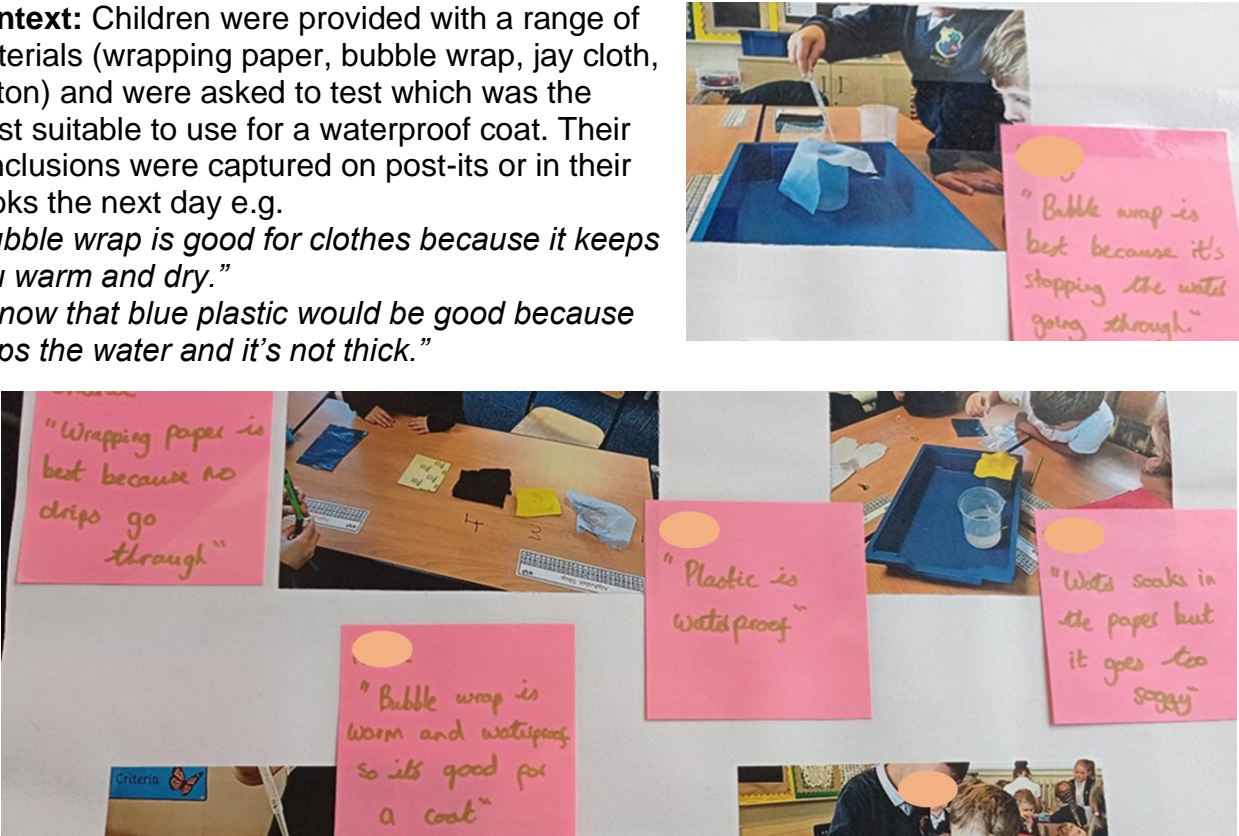
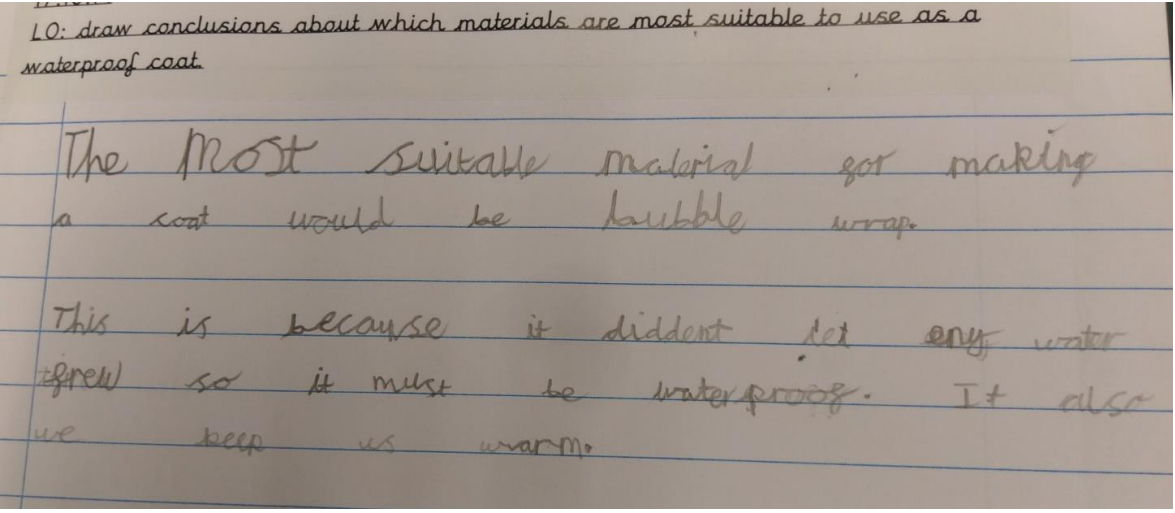
Children meeting the objective would be able to use their results to discuss the properties of materials e.g. if they can be squashed bent, stretched or twisted.

Topic: Materials	Year 2 Age 6-7	Title: Objects and materials
Working Scientifically communicate their ideas		Science content distinguish objects from materials and describe their properties

Context: After investigating a range of objects and materials, children were asked to explain how their choice of object was made of a suitable material.

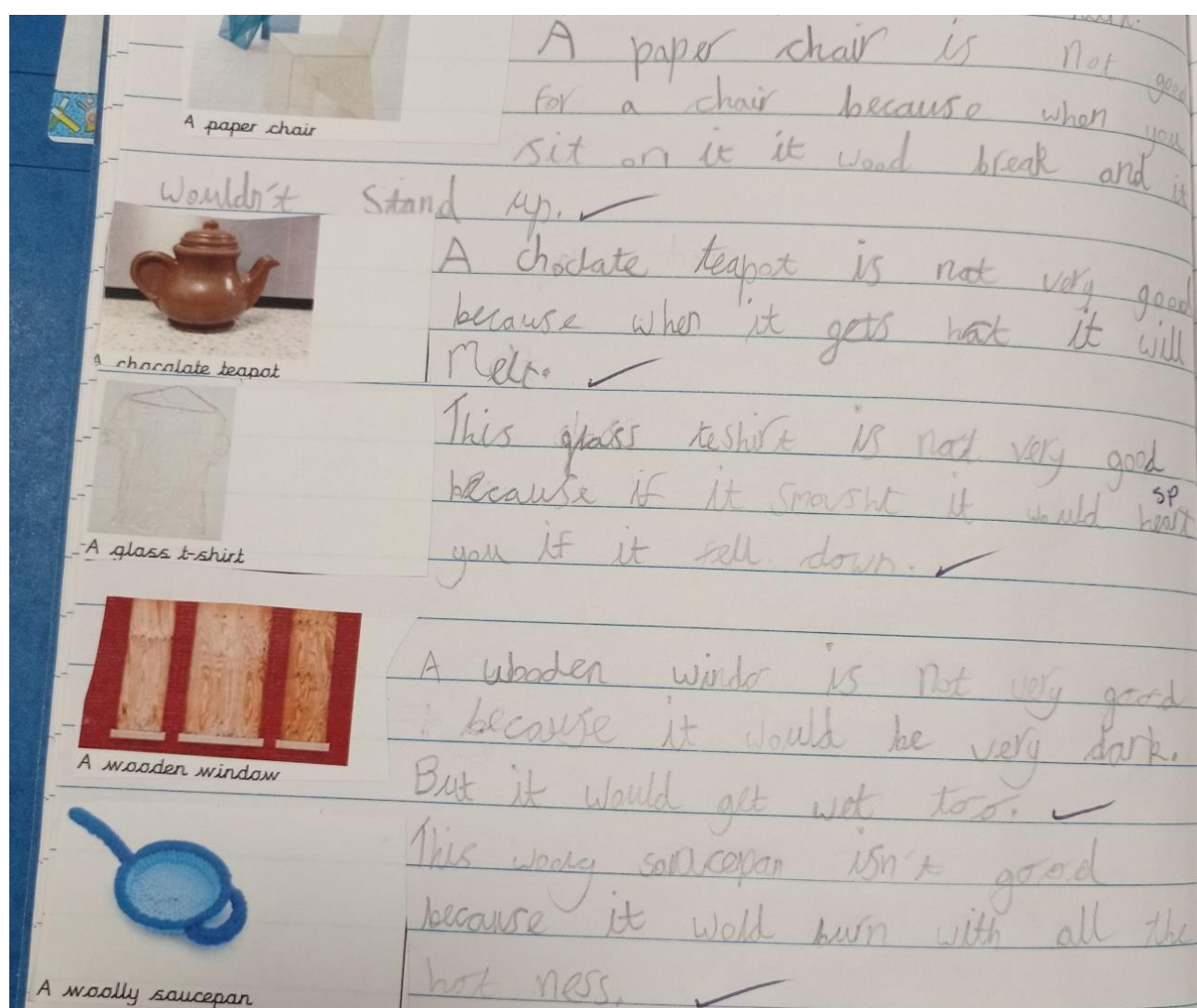


Children meeting the objective would be able to explain in words, pictures or orally, which material their object was made from.

Topic: Materials	Year 2 Age 6-7	Title: Waterproof conclusions
Working Scientifically Review: communicate what they find out (comparative tests)		Science content describe properties of materials and compare their suitability for different uses
<p>Context: Children were provided with a range of materials (wrapping paper, bubble wrap, jay cloth, cotton) and were asked to test which was the most suitable to use for a waterproof coat. Their conclusions were captured on post-its or in their books the next day e.g.</p> <p><i>"Bubble wrap is good for clothes because it keeps you warm and dry."</i></p> <p><i>"I know that blue plastic would be good because stops the water and it's not thick."</i></p>		
		
		
<p>Children meeting the objective would be able to make a recommendation using evidence from their testing e.g. <i>X is best because it stops the water going through.</i></p>		

Topic: Materials	Year 2 Age 6-7	Title: Unsuitable materials
Working Scientifically		Science content describe material properties and compare their suitability for different uses

Context: After investigating a range of properties of materials through the term, the children were asked to apply their understanding to explain poor choices in materials. E.g. a paper chair, a chocolate teapot, a glass t-shirt, a wooden window, a woolly saucepan or a stone shoe.



A paper chair is not good for a chair because when you sit on it it would break and it wouldn't stand up. ✓

A chocolate teapot is not very good because when it gets hot it will melt. ✓

This glass t-shirt is not very good because if it smashes it would hurt you if it fell down. ✓

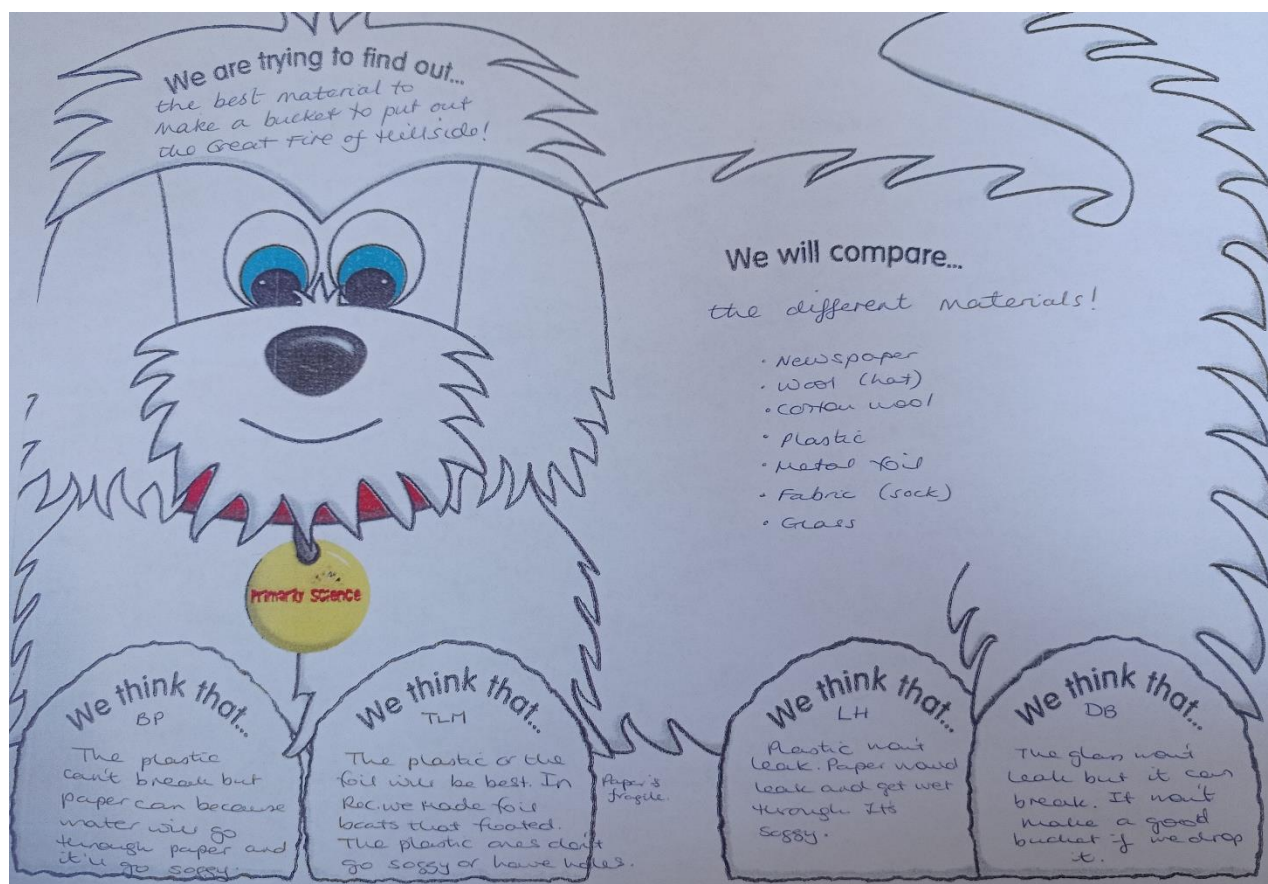
A wooden window is not very good because it would be very dark. But it would get wet too. ✓

This woolly saucepan isn't good because it would burn with all the hot mess. ✓

Children meeting the objective would be able to explain in words, pictures or orally, why materials were not some materials would not be suitable, with reference to properties.

Topic: Materials	Year 1/2 Age 5-7	Title: Water carrier predictions
Working Scientifically Plan: use different types of enquiry to answer questions (comparative test)		Science content describe material properties and compare their suitability for different uses

Context: The class used a 'Discovery Dog' format (from Primarily Science) to help plan an investigation to test which material would make the best water carrier (to put out a fire – linked to their topic). They made predictions then tested each material by doing 'relay race' to carry water to a bowl across the playground.



Children meeting the objective would be able to consider in their predictions, how the materials' properties might affect the amount of water carried e.g. *paper would leak and get wet through, the plastic won't go soggy or have holes.*

Key Stage 1: Plants and Seasonal change

Teaching of the National Curriculum (NC) leads to a summative teacher assessment judgement against the Teacher Assessment Framework (TAF) of 'meeting' or 'not yet meeting'. These exemplification materials provide examples of the kinds of things pupils could do in class to support ongoing assessment.

NC Year 1: Plants

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.

NC Year 1: Seasonal change

- observe changes across the four seasons
- observe and describe weather associated with the seasons and how day length varies.

NC Year 2: Plants

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

KS1 TAF expected standard: Science content for plants and seasonal change

The pupil can:

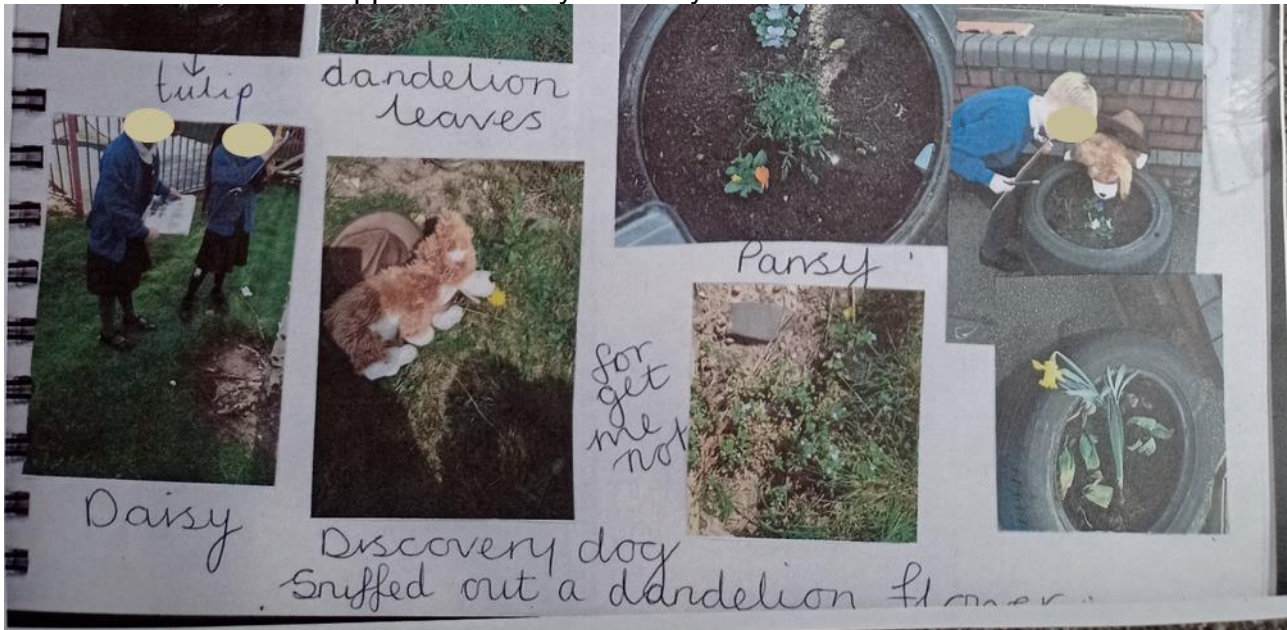
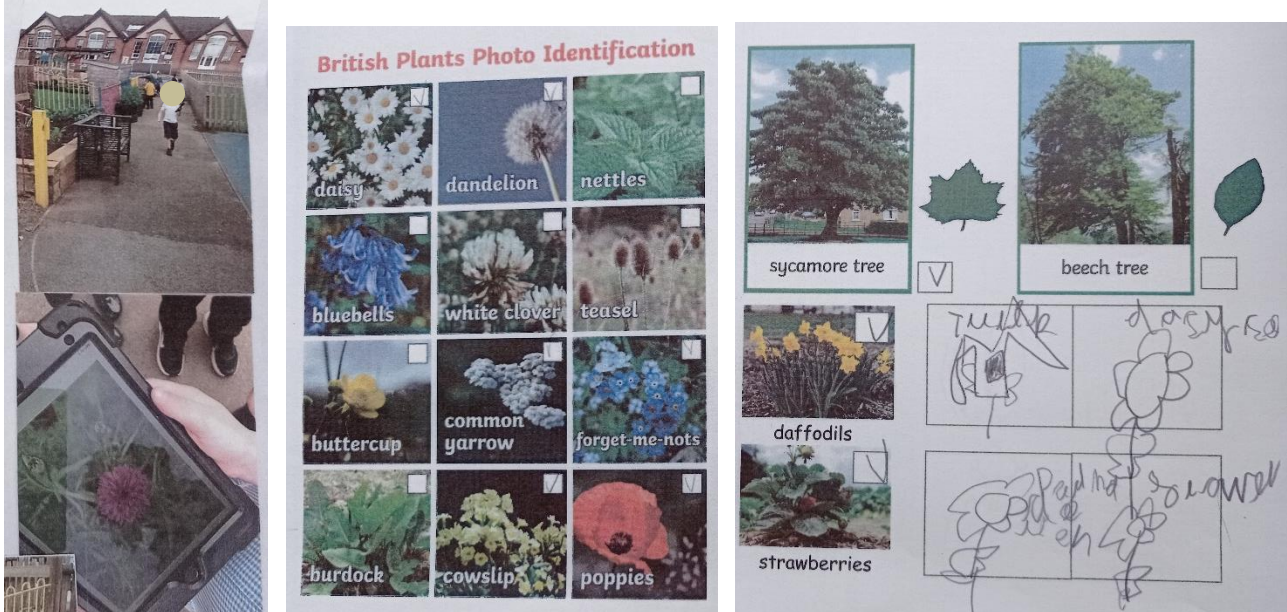
- describe seasonal changes [year 1]
- describe the basic needs of plants for survival and the impact of changing these and the main changes as seeds and bulbs grow into mature plants [year 2]
- name different plants and animals and describe how they are suited to different habitats [year 2]

KS1 TAF expected standard: Working scientifically*

The pupil can, using appropriate scientific language from the national curriculum:

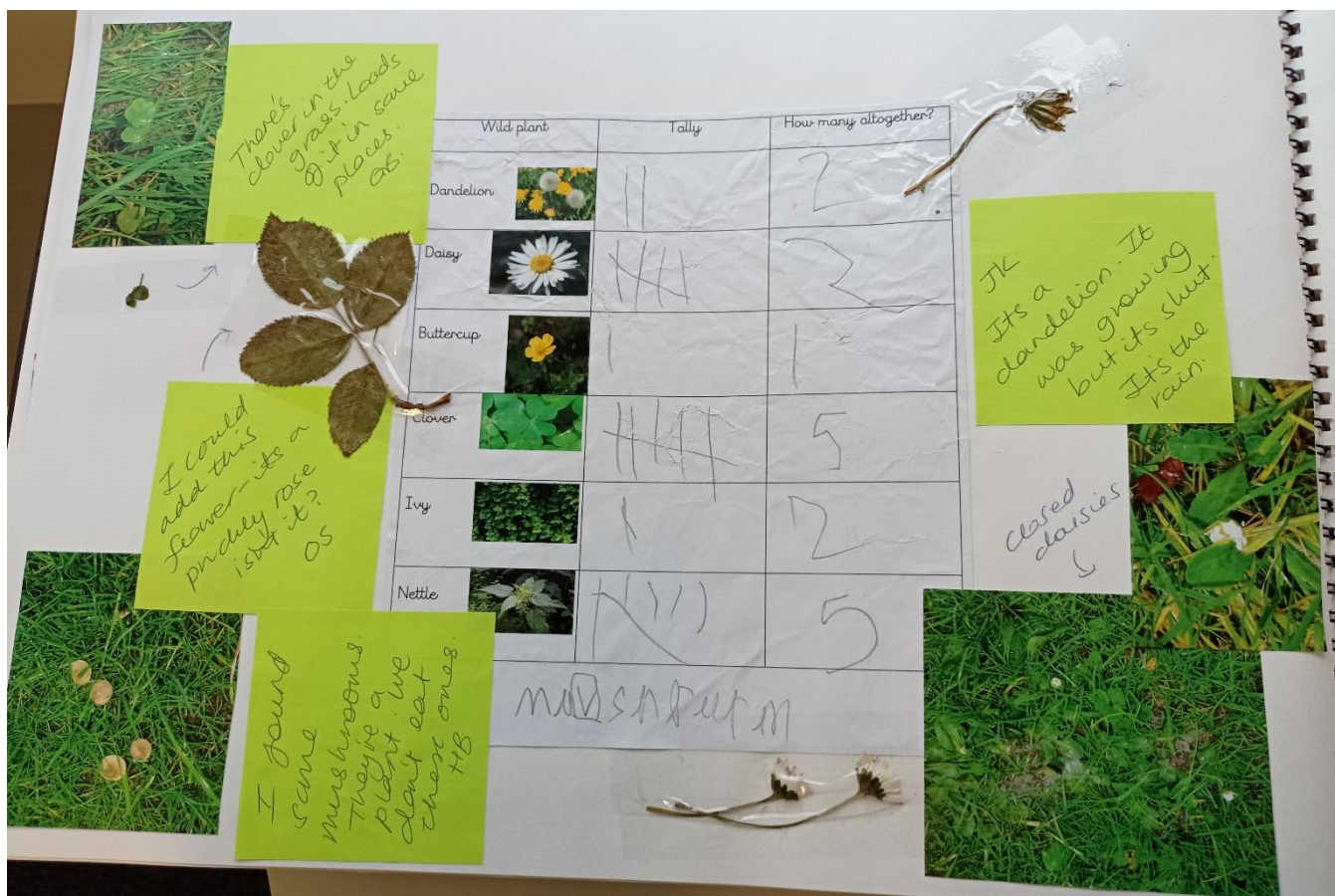
- ask their own questions about what they notice
- use different types of scientific enquiry to **gather and record data**, using simple equipment where appropriate, to answer questions:
 - **observing changes over time**
 - **noticing patterns**
 - **grouping and classifying things**
 - **carrying out simple comparative tests**
 - finding things out using secondary sources of information
- **communicate their ideas, what they do and what they find out in a variety of ways.**

**The working scientifically objectives will be taught in conjunction with science content. Statements exemplified in this topic are in bold.*

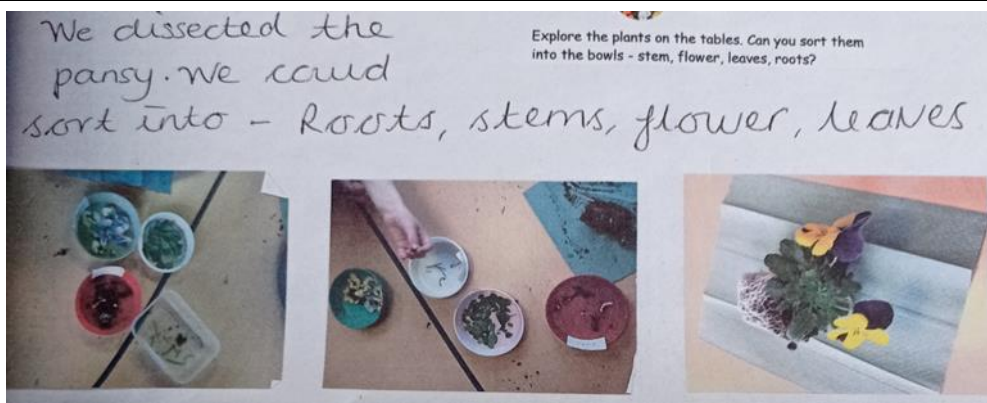


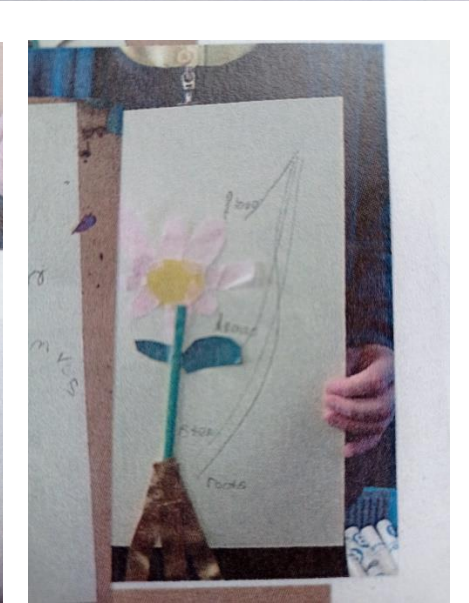

Topic: Plants	Year 1 Age 5-6	Title: Plant identification
Working Scientifically Do: gather and record data (grouping and classifying)		Science content name different plants
<p>Context: Children went around school on a spring plant hunt. They used photo identification sheets to help identify and record their findings. The class also took an ipad out so that they could use the PlantNet app to name any that they did not know.</p>		
		
		
<p>Children meeting the objective would be able to identify a range of local common plants.</p>		



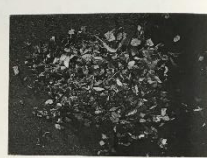







Topic: Plants	Year 1 Age 5-6	Title: Plant tally
Working Scientifically Do: gather and record data (grouping and classifying)		Science content name different plants

Context: Throughout the year, the class go on welly walks to observe seasonal change. In the Summer, this also provides the opportunity to identify common plants. In this lesson, the children did a survey to find out how many of each kind of flowering plant there were locally (in this case: dandelions, daisies, buttercups, clover, ivy and nettles).

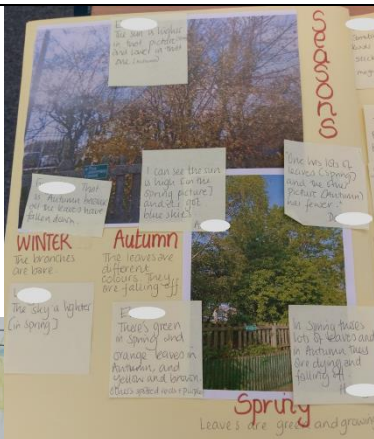
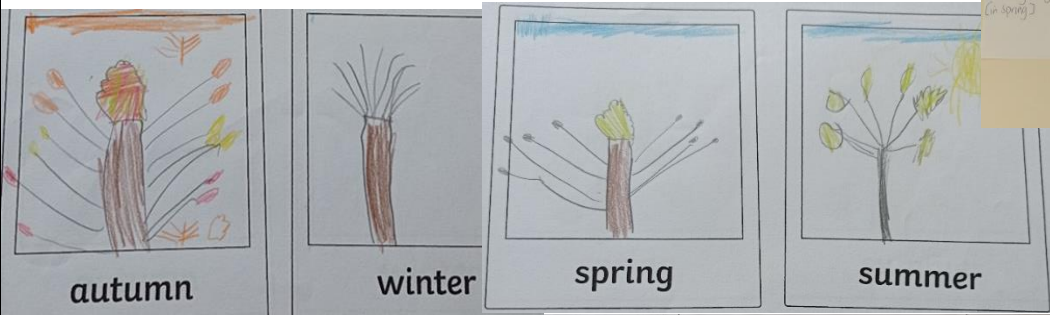
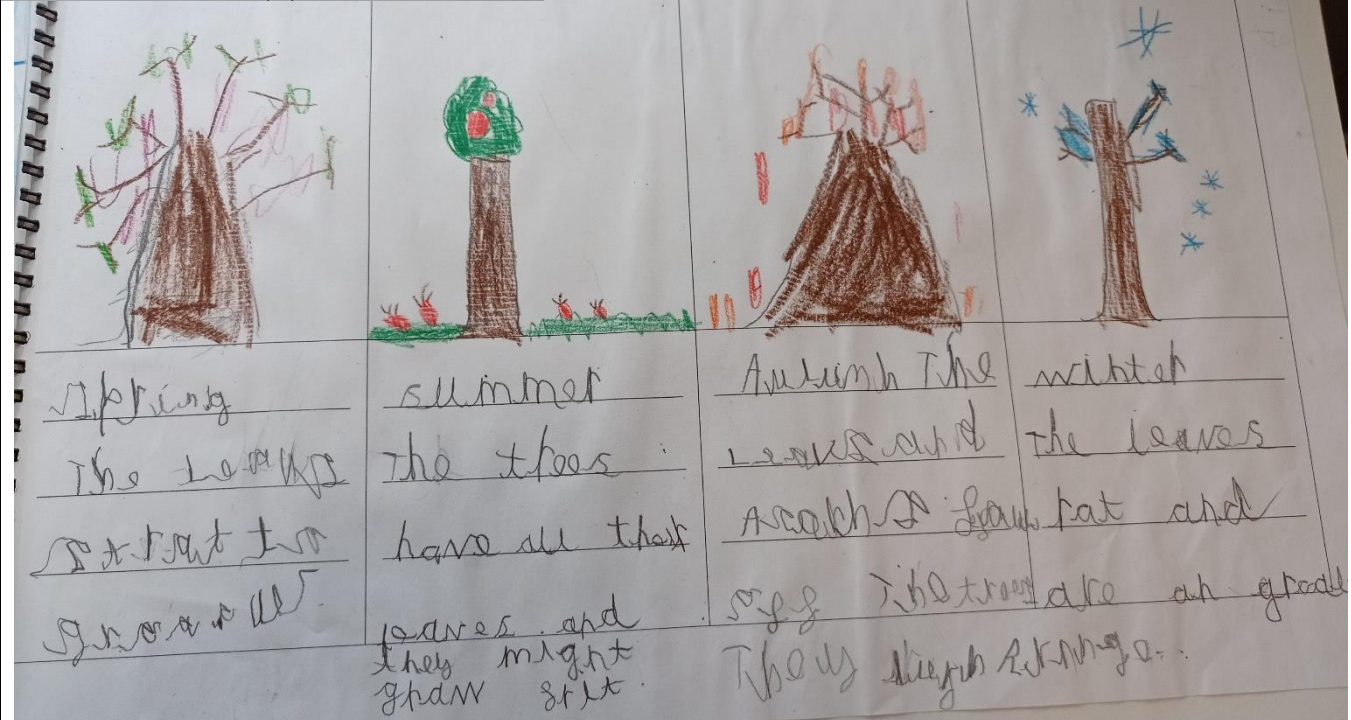


Children meeting the objective would be able to identify a range of local common flowering plants.

Topic: Plants	Year 1 Age 5-6	Title: Plant parts
Working Scientifically Review: communicate their ideas	Science content NC (not TAF): identify and describe the basic structure of a variety of common flowering plants, including trees	
<p>Context: After exploring plant parts in a range of ways (e.g. welly walks, dissecting a pansy, magnifying), children were challenged to make an artwork, with flower, stem, leaves and roots labelled.</p>		
		
	<p>Children meeting the National Curriculum objective would be able to name the main parts of a plant.</p>	


Topic: Seasons	Year 1 Age 5-6	Title: Season observations
Working Scientifically Do: gather and record data (observing changes over time)	Science content describe seasonal changes	
Context: At different times of the year, children were asked what they noticed and their observations were recorded in the class floorbook.	<div data-bbox="438 495 917 1198"> <p>AUTUMN</p>  <p>The temperature was <u>15°C</u>.</p>     <p>We went on a 'welly walk.'</p>  </div>	
<div data-bbox="87 1198 574 1895"> <p>WINTER</p> <p>The temperature was <u>6°C</u>.</p>     </div>	<div data-bbox="574 1198 1157 1895"> <p>Can I observe changes to the world around us during Winter?</p> <p>OBSERVATIONS</p> <p>"There was sticks on the floor." - J</p> <p>"The leaves have all fallen off the tree because they can't survive in winter. It's too cold." - E</p> <p>"The temperature was 6°C. It was very cold." - L</p> <p>"One tree had leaves that never fall off" - T</p> <p>"There were less animals because it was too cold for them" - S</p> </div>	

Children meeting the objective would be able to describe a change related to the season.

Topic: Seasons	Year 1 Age 5-6	Title: Seasons tree drawings
Working Scientifically Review: communicate their ideas (observing changes over time, noticing patterns)		Science content describe seasonal changes
Context: Children explored the seasons throughout the year, going on welly walks each term and recording their ideas and observations in a class floorbook. This included close observations of nearby deciduous and evergreen trees. To summarise their learning, the children were asked to draw and talk about how a deciduous tree changed through the year.		
		
		

Children meeting the objective would be able to draw and talk about seasonal change.

Topic: Seasons	Year 1 Age 5-6	Title: Seasonal clothes
Working Scientifically Review: communicate their ideas (noticing patterns)	Science content describe seasonal changes	

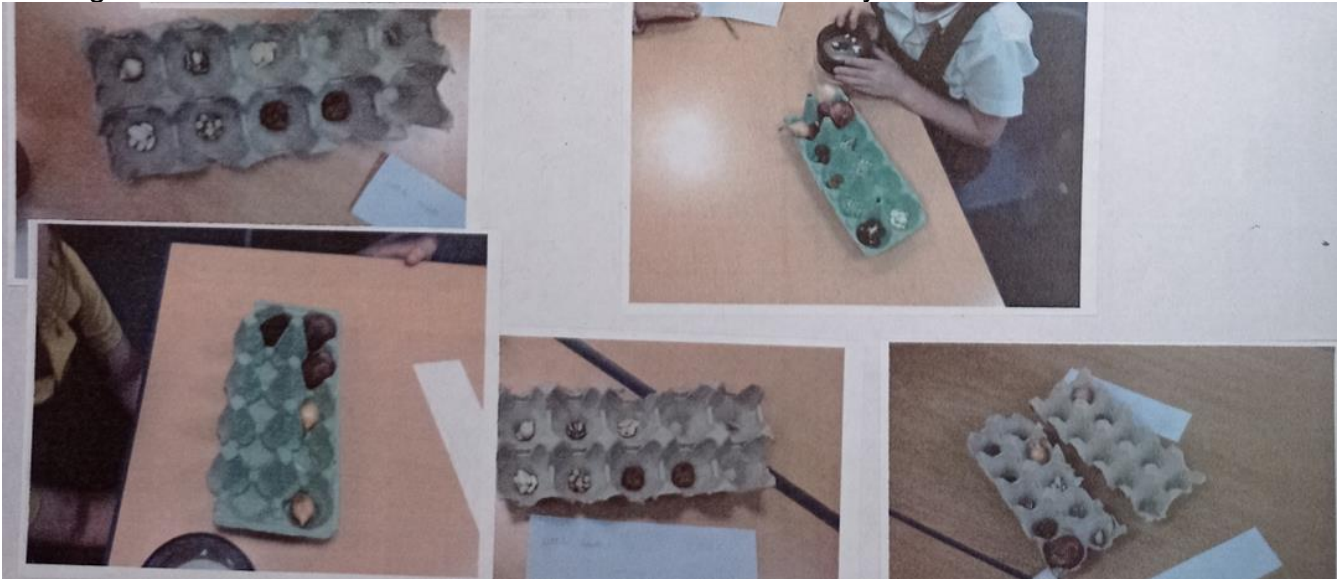


Context:
Children explored the seasons throughout the year, going on welly walks each term and recording their ideas and observations in a class floorbook. In one activity they discussed clothes and sorted them for different seasons.

Children meeting the objective would be able to explain why their chosen piece of clothing was suited to a particular season.

Topic: Plants	Year 2 Age 6-7	Title: Comparing seeds
Working Scientifically Do: grouping and classifying things (group and classify)		Science content (In the context of: describe the main changes as seeds and bulbs grow into mature plants).

Context: Children were asked: '*Do all seeds look the same?*' They were given a range of seeds and bulbs and asked to closely observe their size, colour and shape. Children made drawings and their comments were recorded in a floor book by an adult.

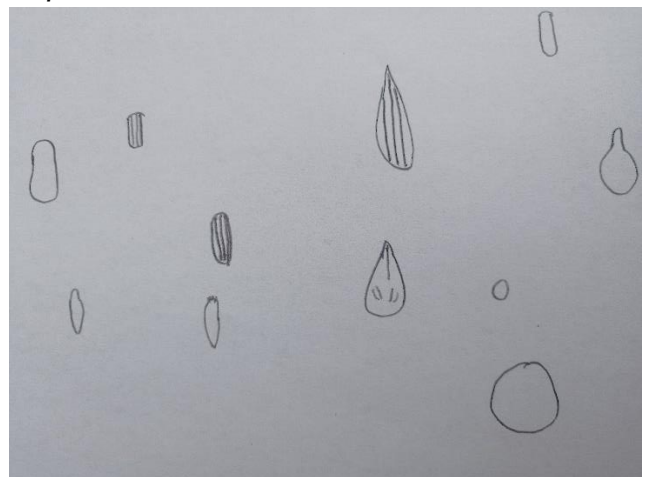
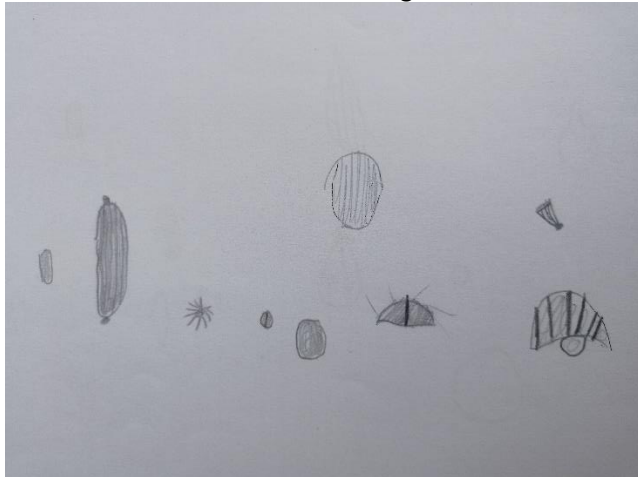


Example comments:

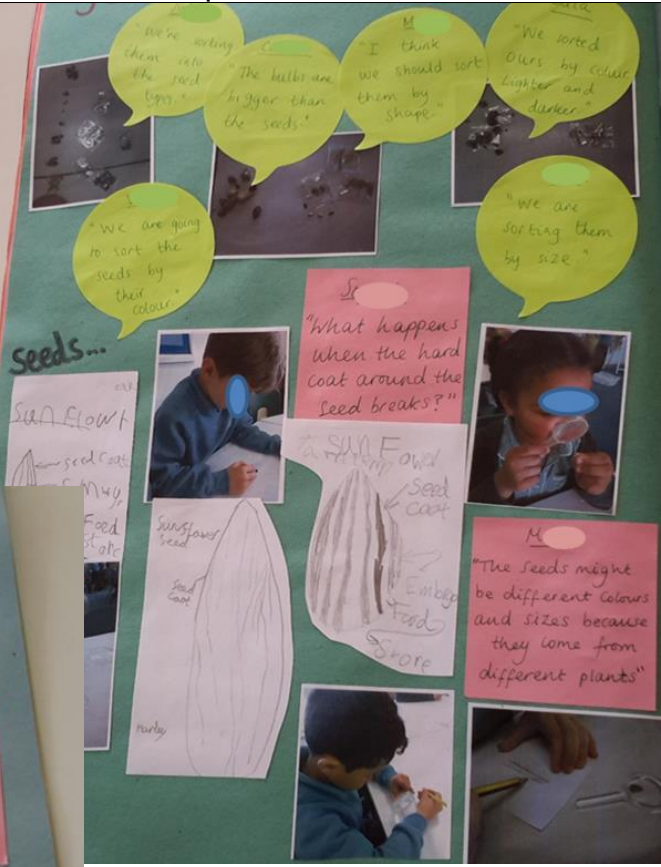


'Most seeds are oval.'

'Bulbs are all round, seeds are pointy at the end.'

'Some are white, some are green and some have patterns.'

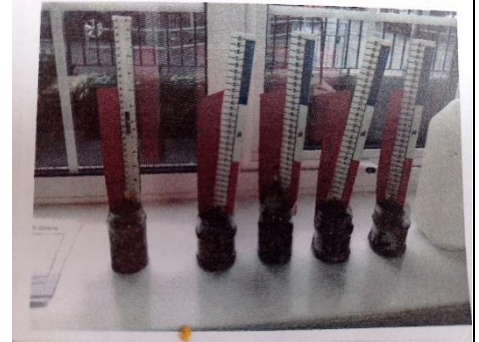


Children meeting the Working Scientifically objective would be able to observe closely to describe and compare the seeds and bulbs.

Topic: Plants	Year 2 Age 6-7	Title: Comparing seeds and bulbs
Working Scientifically Do: gather and record data (grouping and classifying)		Science content describe the main changes as seeds and bulbs grow into mature plants
Context: Children were given a range of seeds and bulbs to observe, sort and compare. They drew labelled diagrams and talked about what they noticed. e.g. "The bulbs are bigger than the seeds." "We are sorting them by size." "What happens when the hard coat around the seed breaks?" "The seeds might be different colours because they come from different plants." "The bulbs have little hairs called roots."		
		<p>Children meeting the Working Scientifically objective would be able to observe closely, noticing differences between the seeds and bulbs in their sorting and observational drawing.</p> <p>To meet the science content objective, the children would continue to observe the seeds and bulbs as they grow.</p> 

Topic: Plants	Year 2 Age 6-7	Title: Bulb growth
Working Scientifically Do: gather and record data using simple equipment (observing changes over time)		Science content describe the main changes as seeds and bulbs grow into mature plants

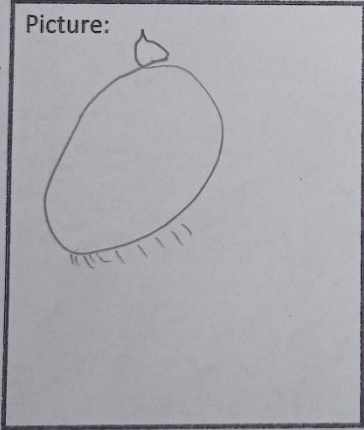
Context: Children planted bulbs in jars (half filled with stones so that they would be able to see the roots grow). They added a ruler and card strip for measuring and marking off the growth each week. They watered the bulb and observed its growth over time. The children recorded their observations at the beginning and end of term in words and/or drawings in their 'bulb diary'.



Week 1


The roots are starting to grow. The roots are wet and soggy. They are nice and kind of light yellow.

Picture:



Week 5

The leaves are popping out. The stem has grown taller. It's grown to 7cm.



Children meeting the objective would be able to describe the changes as it grows e.g. 'the leaves are popping out', 'the stem has grown taller'. They will also demonstrate that they can observe closely to mark the height of the bulb shoots e.g. 'It's grown to 7cm'.

Topic: Plants	Year 2 Age 6-7	Title: Plant conditions
Working Scientifically Plan: use different types of scientific enquiry to answer questions (comparative test)		Science content describe the basic needs of plants for survival and the impact of changing these.



Context: Children looked closely at the 'grass-head' pots and discussed what might happen if they were put in different places around the room.



What changes might we see?
'fall over', 'curve down', 'look dry', 'leaves might fall off, 'colour changes'

Why?

'If you take water away and it's a sunny day it will die'

'If you take away water it might stop growing because plants need water to grow'

'I wonder if you take away light it will still grow because it still has water - it will grow slower'

Children meeting the objective would be able to note that the grass might not be healthy or grow if it was not given light and/or water.