



Year 1 Science lessons pack

What stories could our toys and games tell?



Year 1

Science lessons pack

ENQUIRY QUESTION

What stories could our toys and games tell?

LINKED HARMONY PRINCIPLE

The principle of Health

The six lesson plans in this pack can be used to deliver the science content for the Year 1 enquiry of learning *What stories could our toys and games tell?*, linked to the principle of Health.

This science learning builds on children's understanding of materials and the foundations of science learning that will have been explored through the area of Understanding the World in the EYFS.

'We need to look after our toys and games. The materials used to make them are precious.'

Each lesson plan includes opportunities to refer to the children's prior learning, as well as questions to use to reflect on current learning and to assess the children's developing knowledge and understanding. In addition, lessons feature key elements that are distinctive to the Harmony approach to teaching and learning, for example: opportunities to **learn about Nature**, to **learn in Nature** and to **learn from Nature**.

A summary of each of these elements in relation to the six lesson plans in this pack is set out on the next pages.



01 - Learning about Nature

The statutory requirements of the National Curriculum set out what children need to learn about Nature – although, of course, their wider learning about Nature will extend beyond this.

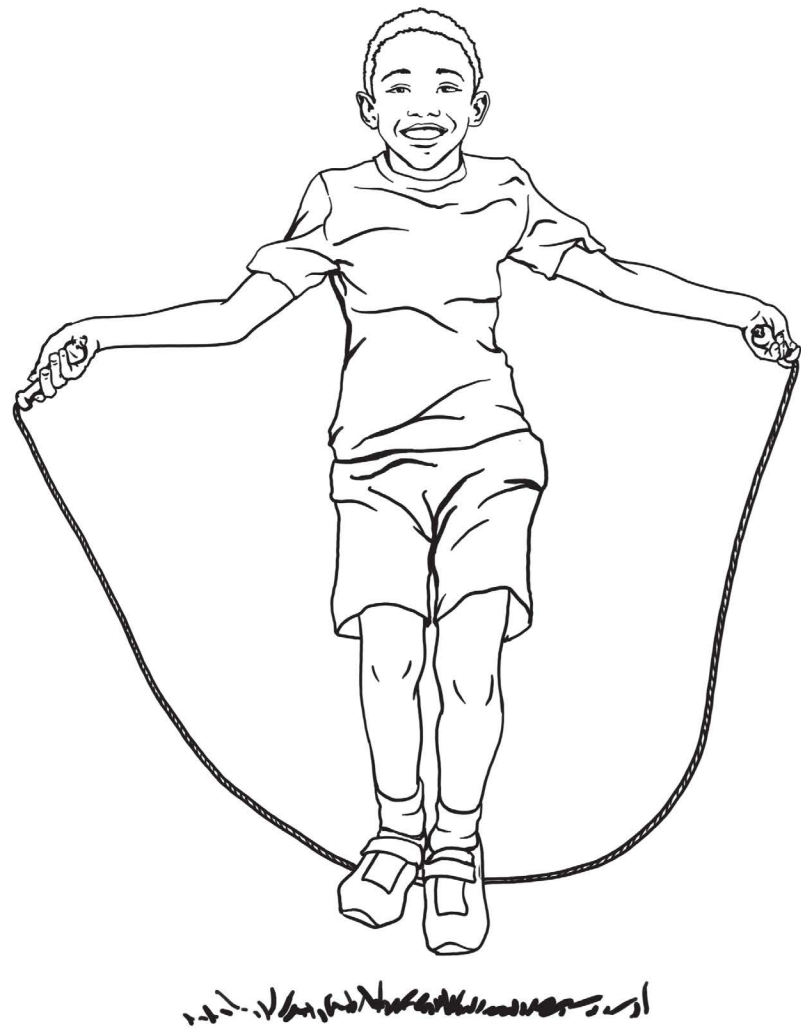
As children progress through their primary education, we can map the journey that their science learning about everyday materials takes. By understanding their prior learning about materials in the EYFS, and by looking ahead to the path that their learning about materials will take in Years 2 to 6, we are better able to plan for progression.

The table below shows where the science learning about materials covered in the lesson plans in this pack sits within this journey.

	EYFS	Year 1	Year 2	Year 2	Year 4	Year 5	Year 5
ENQUIRY	Understanding the world	What stories could our toys and games tell?	Why should we change the way we travel?	Why should we reduce, reuse and recycle?	What journey does our river take?	How can I be a sustainability champion?	How can we ensure our seas and oceans stay amazing?
SUMMARY OF LEARNING	Children will be guided to increase their knowledge and sense of the ecologically diverse world around them. They will explore everyday objects through hands-on, engaging, multi-sensory experiences, learning more about the materials that objects are made from and their properties and uses. They will begin to recognise that some materials are natural and some are made by people	Children will 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. They will be able to describe, compare and group together a variety of everyday materials on the basis of their simple physical properties	Children will identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard, for particular uses	Children will continue to explore the suitability of a variety of everyday materials for particular purposes, with a specific focus on the sustainable use of materials. Within this context, children will also find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching	Children will compare solids, liquids and gases; decide how mixtures might be separated; learn that some materials will dissolve to form a solution; describe how to recover a substance from a solution; observe how materials change state when heated or cooled; explain the part played by condensation and evaporation in the water cycle; and describe dissolving, mixing and changes of state as reversible changes	Children will consolidate their knowledge of everyday materials on the basis of their properties. They will explore that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda	Children will compare and group together everyday materials on the basis of their properties, and give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic
KEY VOCABULARY	object, material, natural, made by humans, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card, cardboard, clay, rubber, wool, cotton	properties, hard, soft, stretchy, stiff, bendy, breakable, tearable, rough, smooth, shiny, dull, transparent, weak, strong, long-lasting, waterproof, natural, made by people	absorbent, opaque, human-made, rigid, flexible, reflective, translucent, durable, reflective, (un)suitable, elastic, malleable, foam, leather, canvas, synthetic, bamboo	reduce, reuse, recycle, repurpose, source, extract, fell, gather, harvest, finite, renewable, environmental impact, single use, packaging, squash, bend, twist, stretch, expand, contract, deconstruct	solid, liquid, gas, change of state, melt, freeze, boil, condensation, evaporation, mixture, temperature, dissolve, solution, (in)soluble, filter, sieve, (ir)reversible, water cycle	thermal, electrical, insulator, conductor, (ir)reversible change, burning, rusting, new material	(non) biodegradable, pollution, lightweight, solubility, substance, buoyancy, flexibility

The table below sets out what the children’s learning about everyday materials will look like over the course of the six science lessons.

Week 1	Week 2	Week 3
What everyday materials can I name?	What are our toys made from?	Why are different toys made from different materials?
Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock.	Distinguish between an object and the material from which it is made.	Describe the simple physical properties of a variety of everyday materials.
Week 4	Week 5	Week 6
How can we group the toys in our toy museum?	Is a stick a good toy?	Which materials would I use to create a toy that’s good for my health and for Nature’s health?
Compare and group together a variety of everyday materials on the basis of their simple physical properties.	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.	Distinguish between an object and the material from which it is made. Describe the simple physical properties of a variety of everyday materials.



02 - Learning in Nature

In addition to learning about Nature, a Harmony approach also provides suggestions for rich opportunities to learn in or alongside Nature, as the six science lessons in this pack demonstrate.

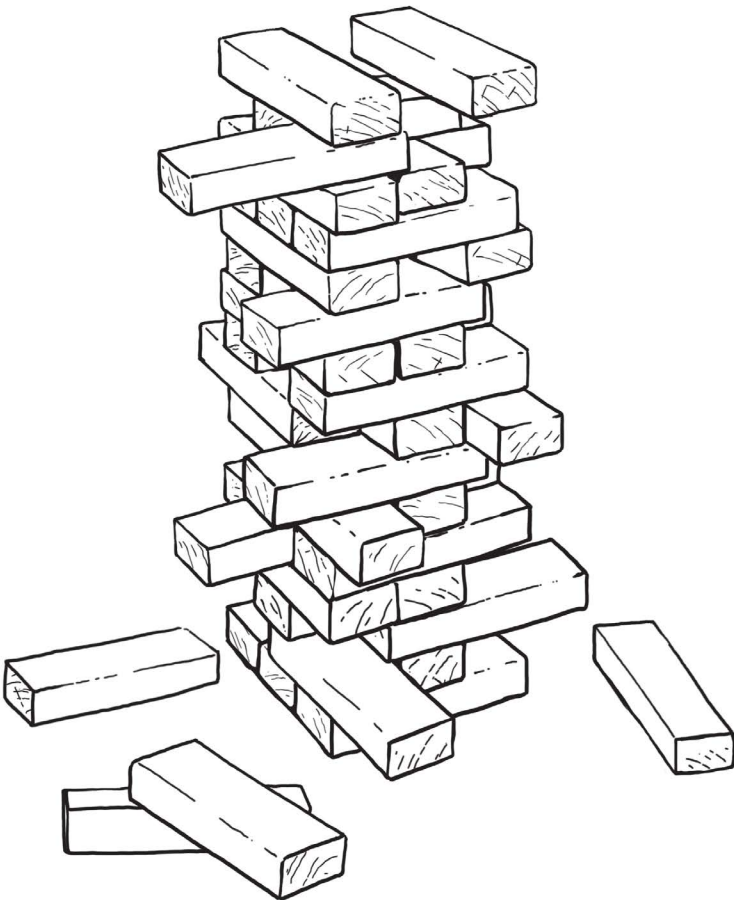
For example, the children will explore natural materials both within and outside of the classroom setting, explore the properties of naturally found materials and experience the wellbeing that accompanies opportunities to play in Nature.

As they learn in Nature, the children will also experience opportunities to develop their skills in working scientifically. Although these skills will be developed incrementally over time (as shown in Appendix A), the coverage of these skills within the sequence of these six lessons is set out below.

Week 1	Week 2	Week 3
What everyday materials can I name?	What are our toys made from?	Why are different toys made from different materials?
Identifying and classifying	Identifying and classifying	Using their observations and ideas to suggest answers to questions
Scientific enquiry type: Identifying, classifying and grouping	Scientific enquiry type: Identifying, classifying and grouping	Scientific enquiry type: Identifying, classifying and grouping
Week 4	Week 5	Week 6
How can we group the toys in our toy museum?	Is a stick a good toy?	Which materials would I use to create a toy that is good for my health and for Nature’s health?
Identifying and classifying	Performing simple tests	Performing simple tests
Scientific enquiry type: Identifying, classifying and grouping.	Scientific enquiry type: Comparative and fair testing	Scientific enquiry type: Identifying, classifying and grouping

Working scientifically vocabulary

- sort
- group
- classify
- record
- test



03 - Learning from Nature

The third key element of a Harmony approach to learning is learning from Nature, which is linked to progression in understanding of Harmony principles. This aspect of learning supports the development of children’s understanding of what it means to live sustainably.

The six lessons in this pack and the wider enquiry they are part of are underpinned by the principle of Health; they build on children’s prior learning in the EYFS and prepare them for further learning in Years 2 to 6.

The children’s progression in their understanding of the principle of Health, through enquiries of learning that help us to think and live more sustainably, is shown below.

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
ENQUIRY	Children are introduced to opportunities to explore and develop their initial knowledge and understanding about health (opportunities to explore when we feel well; when we successfully grow a plant from a seed by taking care of it; when we eat food and feel well because of it)	What stories could our toys and games tell?	What do I need to be healthy?	How did life change from the Stone Age to the Iron Age?	Where does our energy come from and how much do we use?	How can we restore our UK habitats back to health?	Where do we find awe and wonder in Nature?
PROGRESSION: CONCEPT OF HEALTH		What do we like about playing in Nature?	What do we need to be healthy?	How have our lifestyles changed since the Stone Age?	What is clean/ renewable energy and why is a clean energy future important?	When is a habitat healthy?	What have we found out about the awe and wonder of plants?
THINKING SUSTAINABLY		What do we do when we don't want our toys anymore?	What makes us unhealthy?	How can we make our lifestyles more active?	How can we be more energy efficient?	What can we do to restore our UK habitats back to health?	How can plant biodiversity help to support the future health of our planet?
THINKING SUSTAINABLY VOCABULARY	well happy unwell unhappy	play healthy unhealthy wellbeing imagination	mental health awe and wonder mindfulness alive survive thrive	relationships community ecosystem connection inspiration purpose	renewable fossil fuels clean energy balance depleted polluted	restore rewind heal rejuvenate harmony	connected guardian spirit creativity soul

Everyday materials

Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. Distinguish between an object and the material from which it is made.

Working scientifically:

Identifying and classifying

Scientific enquiry type:

Identifying, classifying and grouping

Vocabulary relating to everyday materials, working scientifically and thinking sustainably is highlighted within the unit introduction

A selection of objects made from a variety of materials (wood, plastic, glass, metal, rock and fabric)

A selection of natural, autumnal objects (such as pine cones, seeds, twigs and leaves)

Large cards displaying the words: wood, plastic, glass, metal, rock and fabric

Copies of Resource 1A (one per child)

Clipboards

Children requiring additional support may benefit from a sorting activity beforehand to ensure that they can recognise the materials that will be explored in the lesson.

Challenge children to give an example of another object made from the same material.

CLIMATE ACTION PLAN:

Biodiversity and Nature; Adaptation and resilience; Climate education and green skills

What everyday materials can I name?

What do we already know?

Through their **learning about Nature** in the EYFS, children will have explored the vocabulary needed to name specific features of the world, both natural features and those made by people. Begin the lesson by sharing a number of everyday objects that the children will encounter during their school day. Include a range of objects made from materials such as plastic, glass, metal and wood, as well as natural, autumnal resources such as pine cones, seeds, twigs and leaves. These could be placed in a bag for the children to pick out one by one.

Draw the children's attention to the difference between an object and the material from which it is made, and discuss this with reference to specific objects.

Play the game Link Two by asking the children to select an object and link it with another object in the group, or in the classroom, of the same material. Encourage the children to explain their reason for linking the two objects.

STEM SENTENCE:

The _____ and the _____ are both _____ .

Support the children's reasoning when they select a natural object, such as a seed, leaf or twig, and recap what the children have already **learned from Nature** by asking: *Were these objects made by people? How do we know? Where will we find a similar object? Do we find these natural objects all year round?*

What are we learning today?

Write the names of the following materials in large letters in the middle of A4 sheets of card: wood, plastic, glass, metal, rock, fabric.

Share one card at a time with the children and ask them if the material on the card is a natural material or a material made by people. Place the cards around the classroom.

Show the children a wooden object. Ask them: *What is the name of this object? What is this object made from? Will we find a similar object in Nature?* Place the object on the correspondingly labelled card. Repeat this for objects that are made from: plastic, glass, metal, rock, fabric.

Discuss the fact that many objects we encounter every day are made from wood, plastic, glass, metal, rock and fabric.

How are we learning today?

The next part of the lesson offers the opportunity for the children to **learn in Nature** outdoors in the school grounds. Explain to the children that they are going to hunt for objects made from the materials on the large cards in the outdoor play area and in more natural areas.

As you explore each space together, ask questions such as: *What materials can you find? What material is this object made from? Which of these materials are natural materials? Which of these objects have been made by people using natural materials?*

Encourage the children to record the objects and materials on Resource 1A by drawing and labelling. Check that the children have correctly categorised each object according to the material it's made from and address any misconceptions. Once the children have recorded their findings, explain that they are now going to take a partner on a 'materials tour'.

Choose one of the cards from the initial sorting activity and model being an expert 'tour guide' for that material. Show examples of that material and where it can be found, and share your knowledge of other objects that could be made from this material.

Assign each pair a material to talk about.

TIME TO EXPLAIN:

In pairs, the children act as a material 'tour guide', taking their partner to an example of the material and sharing their knowledge of whether this material is natural or made by people. They might also share examples of other objects they know are made from the same material.

STEM SENTENCES

The _____ is made from _____. _____ is a natural material. _____ is a material made by people.

What have we learned today?

Encourage the children to reflect on their **learning about Nature** with reference to natural materials and materials made by people, and assess their understanding, by asking: *Which everyday materials did we explore today? Which materials are natural and found in Nature? Which materials have been made by people?*

Explain to the children that in the next session they are going to think about the everyday materials that are used to make the toys and games they play with. As the children's learning develops through this unit, they will begin to make connections between the materials that we use in our everyday lives, where they come from and the impact that our use of different materials has on the world.

They will start to consider which materials we rely on the most today and what happens when a material like plastic doesn't break down naturally and creates waste, something we don't find in Nature because everything in Nature is recycled.

TEACHER TIP:

There is a good opportunity to link this learning to the concept of recycling in Nature by drawing the children's attention to the leaves that fall in autumn and what happens to them e.g. they are broken down and the nutrients they contain help to support other living things.



Fallen leaves in autumn remind us that in Nature there is no waste and everything is recycled

Draw the objects you find in the correct box.

wood	plastic	glass
metal	fabric	rock

Everyday materials

Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. Distinguish between an object and the material from which it is made

Working scientifically:

Identifying and classifying

Scientific enquiry type:

Identifying, classifying and grouping

Vocabulary relating to everyday materials, working scientifically and thinking sustainably is highlighted within the unit introduction

Toys made out of a variety of materials (wood, plastic, glass, metal, rock and fabric) to create a toy museum

Other objects made from wood, plastic, glass, metal, rock and fabric

A picture book about toys such as *Toys In Space* by Mini Grey

Large hoops or rope

Children requiring additional support may benefit from further consolidation of the concepts of natural materials and materials made by people prior to the lesson

Challenge children to identify toys where more than one material may be used

CLIMATE ACTION PLAN:

Biodiversity and Nature; Adaptation and resilience; Climate education and green skills

What are our toys made from?

What do we already know?

Revisit the children’s prior **learning about Nature** with reference to natural materials and materials made by people by sharing a picture book about toys, such as *Toys In Space* by Mini Grey.

Ask the children to ‘jump into’ the illustrations and look around for pairs of examples of the materials that they explored in the previous lesson. For example, in *Toys In Space*, the robot and the spaceship are made of metal, the cowboy

and the shelves in the Room of a Thousand Lost Toys are made of wood, and the musical statue plinths and asteroids are made of rock. Highlight that although the objects paired together look different, they are still made from the same materials.

Ask the children: *Can we find any natural objects in the illustrations? Or are all the objects made by people?*

What are we learning today?

Remind the children of the key phrases used in the first lesson: ‘natural’ and ‘made by people’. Record them on a learning wall so that they can be referenced throughout this sequence. Ask the children to describe what each phrase means to a partner.

Explain that in this lesson the children will be thinking about the different materials that are used to make toys today. Show them a wooden brick alongside a Lego Duplo brick. Ask the children to tell you if they are the same or different. Ask them: *How would we use the words on our learning wall to describe these objects? How would we describe the materials they are made from?*

With a focus on the Lego Duplo brick, you may wish to watch [Maddie Moate visits a Lego Duplo factory](#) to see how the toy bricks are made, before heading outdoors with the wooden brick.

TEACHER TIP:

When we talk about natural objects and materials, we are referring to objects and materials that exist in Nature and aren’t made by people. Objects and materials that we refer to as being made by people have been manufactured, created or constructed by people.

Although materials such as glass are created from natural materials, including silica sand and limestone, the glass that we see in windowpanes has been manufactured by people and combined with other engineered substances. So we would say that both the glass (the material) and the windowpane (the object created from material) have been made by people.

A natural object such as a tree trunk or log is made from wood, a natural material. However, we can also find this natural material used in objects that are made by people, such as pencils and furniture.

How are we learning today?

The next part of the lesson offers the opportunity for the children to **learn in Nature**. Gather around a tree with a collection of toys from the toy museum and other objects made from wood, plastic, glass, metal, rock and fabric. Ask the children: *What material do we get from trees? Was a tree used to create our wooden brick? Can we find an object or toy in our collection that is made from wood?*

Explain to the children that the wood used in wooden toys comes from trees. Ask: *Can we find another wooden object?* Place a hoop around the two wooden objects and explain that this will be the place where we will group all the objects made from wood. Explain to the children that they are going to think about all the toys or objects in the collection and the materials from which they are made.

TIME TO EXPLAIN:

Allow the children time to sit and look at all the objects in the collection and explain to a partner which objects should be grouped together and why. Address any misconceptions that may occur (for example, if there is a wooden car and a metal car in the collection and the cars are incorrectly grouped together).

Ask a group to select the toys or objects that they think should be grouped together and begin to create groups (they can use hoops or ropes to help delineate the groups).

As toys made from different materials are selected, ask the children: *Is a plastic toy made from wood? Should all the plastic objects be placed near the tree or would we choose to group them somewhere else? Why?* (e.g. they may choose to place groups

of objects made from natural materials near the tree, with the wooden objects the closest) Give the children time to explain why they are grouping objects together and why they are placing different groups in specific locations.

As they are sorting, support the children to help them observe and recognise the toys made from natural materials, those made from materials made by people and those made from more than one material.

What have we learned today?

Encourage the children to reflect on their **learning about Nature** with reference to natural materials and materials made by people, by asking: *What are our toys made of? Which toys are made from natural materials? Which toys are made from materials that are made by people? How many are made from plastic? Are there any things you play with that are natural objects?*

Return to the tree and draw out the **learning from Nature** and learning linked to the **principle of Health** by asking the children: *Why are toys good for our health? Are all toys good for Nature's health? Why or why not?*

During this discussion, you may wish to highlight two key areas. Firstly, the wood that is used to create wooden toys comes from trees that are felled (cut down). Ask the children: *How can we do this in a way that ensures we don't run out of trees?* For example, by only cutting down a few trees and leaving the rest standing or by planting at least the same number of trees we cut down. Wood from trees that are managed in a sustainable way often carry the FSC logo.

Secondly, we see that Nature has no waste - everything in the natural world is reused

or recycled. A decaying tree provides a habitat for myriad species and even animal droppings are recycled.

Back in the classroom, you may also wish to watch [Maddie Moate visits a Lego Duplo factory](#) again, but this time, pause the video at 1:20 after Maddie has explained that they use plastic that is very strong and long-lasting.

Highlight to the children that some plastic toys will last for a long time and can be passed on: *Do you have any toys that belonged to your parents, carers or grandparents when they were little? Are there any toys in our toy museum that we still play with now? Should we throw away our toys when we are finished with them? What can we do to recycle or reuse them?*

TEACHER TIP:

We know that our human health is inextricably linked to Nature's health. Nature's health is impacted by the choices we make about how we source materials and how we manufacture objects, including toys, from them. We need to think carefully about how we enjoy our toys responsibly and what we do with them when we have finished with them.



Everyday materials

Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. Distinguish between an object and the material from which it is made

Working scientifically:

Using their observations and ideas to suggest answers to questions

Scientific enquiry type:

Identifying, classifying and grouping

Vocabulary relating to everyday materials, working scientifically and thinking sustainably is highlighted within the unit introduction

A range of toys made from different materials arranged on tables around the classroom

Metre stick

Copies of Resource 3A (one per child)

Copies of Resource 3B (one per pair)

Optional: *The Everywhere Bear* by Julia Donaldson and Rebecca Cobb

Children requiring additional support could use the word bank (see Resource 3B) and/ or visual images to access new vocabulary such as transparent, flexible, smooth etc.

Challenge children to think of their own ‘What if?’ questions to get them thinking about the suitability or unsuitability of materials.

CLIMATE ACTION PLAN:

Biodiversity and Nature; Adaptation and resilience; Climate education and green skills

Why are different toys made from different materials?

What do we already know?

Begin the lesson by recalling the children’s prior **learning about Nature** with reference to natural materials and materials made by people by sharing some of the toys from the class toy museum.

Present the toys in groups of three, with two toys made from the same material and one toy made from a different material. Ask the children to spot the ‘odd one out’ and to explain why.

Be sure to include examples from each of the materials that you have explored so far in this learning sequence.

What are we learning today?

Remind the children of their learning about the **principle of Health** at the end of the last lesson and the link between the materials that are used to make a toy and the impact that this has on Nature’s health.

Explain that in this lesson they will be finding out why some materials are better than others for our health and Nature’s health.

Move the children’s learning on by watching the BBC Bitesize film clip [How to identify materials](#). Ask the children a series of ‘What if?’ questions to introduce the properties of materials, such as: *What if skateboards were made of glass? What if windows were made of paper? What if duvets were made of metal?*

Challenge the children to think of their own ‘What if?’ questions to get them thinking about the suitability or unsuitability of materials for different uses.

Write the word ‘properties’ on the learning wall and explain that the properties of a material describe what the material is like.

Explain to the children that when toys and other items are made, designers have to think carefully about the properties of different materials to decide whether they are the best materials for the job.

How are we learning today?

Take the children to suitable outdoor spaces where they can see the exterior of the school building and some outdoor toys. Ask them to identify the materials that they can see and begin to discuss their properties.

Ask the children questions to get them thinking about why outdoor objects have been made from certain materials due to the properties of that material.

For example:
Why are windows made of glass?
(They are transparent, which means we can see through to the other side and they let light in.)
Why is the play equipment made of wood?
(Wood is strong and long-lasting.)
Why is the slide made of metal?
(It is smooth to help us slide.)
Why are the skipping ropes made of plastic?
(They are flexible and lightweight for skipping.)

During this discussion, draw out and model the use of appropriate scientific vocabulary to describe the properties of materials e.g. **transparent** rather than **see-through**.

The properties of the materials can be recorded by an adult as a list that can be taken back into the classroom and added to the learning wall.

Return indoors and explain to the children that their tables have been set up with a variety of different toys from the toy museum. They will be investigating the properties of the materials each toy is made from – for example, exploring whether each the materials are hard, soft, rough, shiny, flexible (bendy) or transparent.

Provide each child with a copy of Resource 3A and model how to complete it for one toy. Provide copies of the word bank on Resource 3B for support.

TIME TO EXPLAIN:

In small groups, the children investigate the properties of the materials different toys are made from, recording their ideas and observations on Resource 3A. In pairs, the children then describe one toy and its properties.

STEM SENTENCES

The _____ is made of _____
_____ is _____ and _____
_____ is not _____.

e.g. The car is made of metal. Metal is hard, smooth and shiny. Metal is not rough.

What have we learned today?

Encourage the children to reflect on their **learning about Nature** with reference to natural materials and materials made by people, and assess their understanding, by asking: *Which of our toys are made from wood? Which are made from metal? Which are made from plastic? Do they have any properties in common?*

Focus the children's attention on the toys in the class toy museum and ask them: *Which of our toys look like they will last a long time and can be passed on?* Explain that it is important that we pass on our toys when we've finished with them rather than throwing them away. This way, the materials used to make them aren't wasted.

Link the learning to the **principle of Health** by placing the word 'healthy' at one end of a metre stick and 'unhealthy' at the opposite end.

Encourage the children to think about what they have already learned about the impact that different materials have on our planet.

Choose one of the toys from the toy museum and ask the children: *Could this toy contribute to a healthy planet or an unhealthy planet?* Note that there will be no straightforward answers, as most materials have an environmental impact and this will vary even for the same material according to how it is sourced and what happens to it at the end of the toy's life. The focus of the discussion should be on agency, responsibility and choices.

TEACHER TIP:

Either in this lesson, or at another point in the school day, you could share with the children the book *The Everywhere Bear* by Julia Donaldson and Rebecca Cobb, which works well to support this learning.



Complete the table.

toy	materials	properties

Resource 3B

hard

soft

stretchy

stiff

bendy

breakable

tearable

rough

smooth

shiny

dull

transparent

strong

weak

waterproof

long-lasting

natural

made by
people

Everyday materials

Compare and group together a variety of everyday materials on the basis of their simple physical properties

Working scientifically:

Identifying and classifying

Scientific enquiry type:

Identifying, classifying and grouping

Vocabulary relating to everyday materials, working scientifically and thinking sustainably is highlighted within the unit introduction

A disorganised collection of toys from the class toy museum and other objects made from the same materials for each table (e.g. a toy car made from metal, a metal spoon and a metal pencil sharpener)

Hoops and rope

Small whiteboards and pens

Optional: A copy of *Lost In The Toy Museum* by David Lucas

Organise the children into mixed-ability groupings, assigning roles to individuals within the group. The ‘Presenter’ can describe how they have grouped their toys to the rest of the class, whereas the ‘Material’ and ‘Property’ experts will just focus on matching toys with pre-prepared labels.

CLIMATE ACTION PLAN:

Biodiversity and Nature;
Adaptation and resilience;
Climate education and green skills

How can we group the toys in our toy museum?

What do we already know?

To retrieve the children’s prior **learning about Nature** with reference to natural materials and materials made by people, begin the lesson by sharing images of the materials that the children have explored so far and prompt them to consider: *What is its name? Is it a natural material or is it made by people? What are its properties?*

Play ‘Speak like an expert’ by giving the children three pieces of information about each material. Model this using the vocabulary listed on the learning wall and the stem sentences as a framework.

STEM SENTENCES:

This material is _____.
(e.g. *This material is wood.*)
_____ is a _____ material. (e.g. *Wood is a natural material.*)
_____ can be _____ and _____. (e.g. *Wood can be strong and long-lasting.*)

Recap what the children have already learned from the **principle of Health** by asking them: *Why is it good for Nature’s health and for us if toys are made from materials that last?* (e.g. Toys can be used again; we’re not always having to make new toys with more materials)

What are we learning today?

Move the children’s **learning about Nature** with reference to natural materials and materials made by people on by asking them: *How have we organised our toys so far?* Remind the children how they grouped toys and objects according to the materials from which they are made.

Ask the children: *How can we organise our toys?* Encourage the children to think about grouping toys in the toy museum according to the material or materials from which they are made, whether those materials are natural or made by people, and what the properties of the materials are.

Model this first e.g. a Nerf gun, Lego bricks and remote-control car are all made from plastic; a Jenga set and cricket bat are

made from a natural material; the wood and the plastic are both strong and smooth.

TEACHER TIP:

Either at this point in the lesson, or at another point in the school day, you could share with the children the book *Lost In The Toy Museum* by David Lucas, which works well to support this learning. You could ask the children to imagine that they are the old toy cat from the book, Bunting, who has the job of inspecting and organising the toys in the class toy museum.

How are we learning today?

Arrange the children into smaller groups and provide each group with a disorganised group of toys and objects made from a variety of materials with varied properties. Some should be made from natural materials and others should be made from materials made by people.

Ask the children to organise the toys and objects in different ways, drawing on their learning about everyday materials so far.

Provide hoops and rope that the children can use to group objects if they wish, and whiteboards and whiteboard pens for labelling. Encourage the children to look at how other groups have organised their toys.

TIME TO EXPLAIN

Come back together as a class and visit each group so they can share their groupings and why they have chosen to sort their toys in this way. Address any misconceptions.

STEM SENTENCE

We have grouped the toys this way because _____.

Decide how the toys are going to be grouped and organised in the class toy museum. Arrange the toys in the class museum and use whiteboards to create labels for them.

What have we learned today?

End the lesson in an outdoor space. Allow the children time to reflect on their learning and assess their understanding, by asking: *How did we group the toys in our toy museum?* Discuss some of the many different ways that these toys can be sorted and grouped according to the materials from which they are made and the properties of these materials.

Allow the children time to collect a group of natural objects. Ask the children: *Can we use the same labels with objects found in Nature?*

Allow the children time in pairs or small groups to share and sort their natural objects. Ask them: *Can we group these objects in the same way that we grouped the toys? What do you notice?*

Draw out the learning linked to the **principle of Health** by discussing with the children the fact that Nature is full of natural materials, and many are in abundance, but the overuse of them, without opportunities for restoration, can put Nature's health at risk.

Everyday materials

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

Working scientifically:
Performing simple tests

Scientific enquiry type:
Comparative and fair testing

Vocabulary relating to everyday materials, working scientifically and thinking sustainably is highlighted within the unit introduction

A collection of sticks

Optional: Copies of *Stanley's Stick* by John Hegley and Neal Layton, and *The Magic & Mystery Of Trees* by Jen Green and Claire McElfatrick

Children requiring additional support could play a game to match words that best describe the properties of their stick (e.g. stiff, stretchy, strong, transparent, hard, soft). An adult can assist with reading, where needed.

Challenge children to find a stick that is more suitable for a specific task and explain why eg a stick that is stiff and strong to stir a mixture in the mud kitchen.

CLIMATE ACTION PLAN:
Biodiversity and Nature;
Adaptation and resilience;
Climate education and green skills

Is a stick a good toy?

What do we already know?

Begin the lesson by recalling the children's prior **learning about Nature** with reference to natural materials and materials made by people by asking them: *Do you have any toys made from wood? Can you give some examples? Where does the material used to make wooden toys come from?* Create a mind map for the word 'wood'.

Recap what the children have already learned about the **principle of Health** by asking them: *How many of our toys and play equipment today are wooden?*

You may wish to share a selection of images of modern wooden toys and play equipment to support the children's thinking.

What are we learning today?

Move the children's **learning about Nature** and learning linked to the **principle of Health** on by asking them: *Have you ever found and played with a stick in Nature? How did you play with your stick? Is a stick a good toy to play with?*

TEACHER TIP:
Either at this point in the lesson, or at another point in the school day, you could share with the children the book *Stanley's Stick* by John Hegley and Neal Layton, which works well to support this learning.

Draw the children's attention to how easy it is to find a stick, the fun that we can have inventing games and how this kind of play can be beneficial for our brains and our imagination.

How are we learning today?

Take the children outdoors to play and **learn in Nature** in the school grounds or to a local park or woodland. Ask them to find a special stick. Alternatively, provide the children with a collection of sticks to choose from.

Encourage the children to look closely at their stick. Ask them: *What does your stick look like? Does it remind you of anything? How would you describe it? What are its properties? What could your stick be used for?*

In pairs or small groups, ask the children to invent a game using their sticks e.g. the stick could be used as a character in a play, as a piece of equipment in a game (for example, in noughts and crosses), as a utensil for imaginary cooking or to make a den for one of the toys in their toy museum.

TEACHER TIP:
Ask the children to choose a stick, but tell them not to remove any sticks from living trees. Set some ground rules for playing with the sticks e.g. don't point a stick at someone else or poke anyone with a stick; don't choose sticks to play with that are longer than your arm.

TIME TO EXPLAIN:
After the children have had time to invent games and play with their sticks, encourage them to share their games with another pair or group. Encourage them to think about how well their stick performed by asking: *Did your stick last or did it break? What is it about your stick that has made it last or not last?*

STEM SENTENCES:
My stick is made of _____ (wood).
Wood is a _____ (natural) material.
My stick did/did not last because it is _____.
(too thin, too stiff, too dry etc)

What have we learned today?

Encourage the children to reflect on their **learning about Nature**, and assess their understanding, by asking: *Is a stick a good toy? Is it a healthy toy? Is it a better toy than a plastic one? Why? Why not?*

Draw out the learning linked to the **principle of Health** by asking the children: *How do you feel when playing outside? Why is playing outdoors good for our health? Why is playing imaginative games good for us?*

TEACHER TIP:

You may wish to share a book such as *The Magic & Mystery Of Trees* by Jen Green and Claire McElfatrick at the end of the day or during a PSHE lesson to explore further the impact that being outdoors can have on our wellbeing. You may also find the [*Improve wellbeing in school*](#) article on The Woodland Trust website useful in explaining the benefits of spending time and playing in woodland and the benefits to our physical and mental health.

The more we can provide experiences that take our young people beyond the classroom and help them to connect with Nature, the more their wellbeing is likely to improve.

Enquiries of learning linked to the **principle of Health** help children to make choices that contribute to healthy lives. They remind us of the need for balance and the link between our individual health and the health of the world around us – what better way to do this than by simply seeing what happens when we ask children to play with a stick?



Everyday materials

Distinguish between an object and the material from which it is made. Describe the simple physical properties of a variety of everyday materials

Working scientifically:

Performing simple tests

Scientific enquiry type:

Identifying, classifying and grouping

Vocabulary relating to everyday materials, working scientifically and thinking sustainably is highlighted within the unit introduction

Optional: A copy of *Here We Are: Notes For Living On Planet Earth* by Oliver Jeffers

Children requiring additional support may benefit from having fewer choices they will need to make so that the focus remains on sustainable materials e.g. Can you make a game using a preselected group of natural objects? Create a specific toy such as a ball or a robot.

Challenge children to reflect on what makes their toy or game healthy.

CLIMATE ACTION PLAN:
Biodiversity and Nature;
Adaptation and resilience;
Climate education and green skills

Which materials would I use to create a toy that is good for my health and for Nature's health?

What do we already know?

Begin the lesson by recalling the children's prior **learning about Nature** with reference to natural materials and materials made by people by playing the 'What if?' game. Use each of the everyday materials that have been explored in this learning sequence in a way that will challenge children's thinking, for example, by asking: *What if our dressing-up clothes were made from wood? What if cricket bats were made from glass? What if slides were made from rock?*

Revisit what the children have already **learned from Nature** and the **principle of Health** by asking: *What makes a stick a good toy?* (e.g. sticks found on the ground are a natural, abundant resource. Using found resources is good for Nature's health. Playing outside is good for the health of our brains and bodies). Allow some space in the discussion for children to suggest ways in which a stick might be a good toy.

What are we learning today?

Move the children's **learning about Nature** with reference to materials and their properties on by reminding them of their learning about materials so far.

Recap that we have a responsibility to think about how we make things and how we make things last, and how we use materials in a responsible way that isn't damaging to Nature.

Explain to the children that in this lesson they will consider and choose materials that have suitable properties and are good for our health and for Nature's health. They will use them to make a toy or a game.

TEACHER TIP:

Either in this lesson, or at another point in the school day, you could share with the children the book *Here We Are: Notes For Living On Planet Earth* by Oliver Jeffers, which works well to support this learning.

How are we learning today?

The next part of the lesson offers the opportunity for the children to **learn in Nature**, either in the school grounds or on a suitable local welly walk.

Explain to the children that they are going to create a toy or game in pairs or small groups. Challenge them to create this toy or game using only natural materials. Remind them only to gather natural materials from the ground and not from living trees or plants.

You might want to model two examples before the children then explore their own ideas, for example: throwing conkers on to a target drawn in the soil using a stick; using a pine cone as a football; creating a leaf boat to sail in a puddle.

Draw the children's attention to items that are found in abundance e.g. pine cones, leaves and twigs.

TEACHER TIP:

Remind them that they are going to 'take only memories, leave only footprints' by simply photographing the toys and games once they have been completed. Ask the children: *Why is it important to leave tree nuts and seeds behind?* (e.g. They are an important food source for wild birds and mammals)

TIME TO EXPLAIN:

During this activity, allow children time to explain why they have chosen specific natural materials to play their game with others. Back in the classroom, provide children with a photograph of their toy or game or allow them time to draw it. Ask the children to label and annotate their drawing.

STEM SENTENCES:

My toy or game uses _____.
_____ are natural materials.
They worked well/didn't work well because they are _____.

What have we learned today?

Encourage the children to reflect on the **learning about Nature** with reference to natural materials and materials made by people, and assess their understanding, by sharing some examples of the children's toys and creations.

Ask: *Which material(s) did they use to create a healthy or sustainable toy or game? Why? Is there a material that could be used to improve it? How can we ensure that we use this material in a way that is good for our health and Nature's health?*

As this is the final lesson in this sequence, draw out the learning linked to the **principle of Health** by asking the children: *Why is it important that we think about the materials our toys and games are made from? Are toys and games always made by people?*

TEACHER TIP:

There is an opportunity to link the learning in this sequence to whole-school sustainable practices, such as toy swaps and preloved uniform sales. These highlight the importance of not buying too much and of passing on things we don't need any more to make better use of the materials from which the things we own are made.



Natural, autumnal objects can inspire play when we use our imaginations