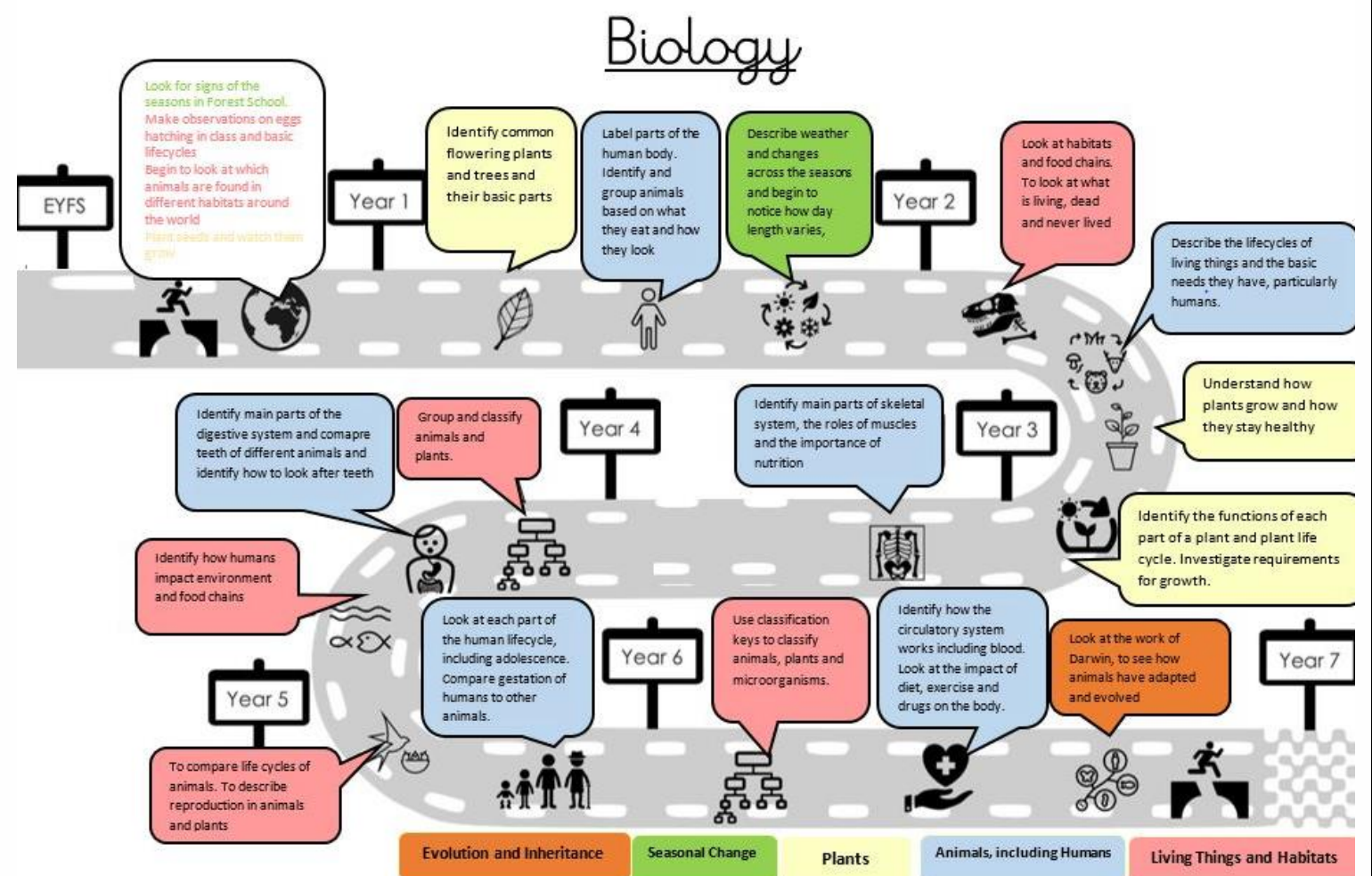
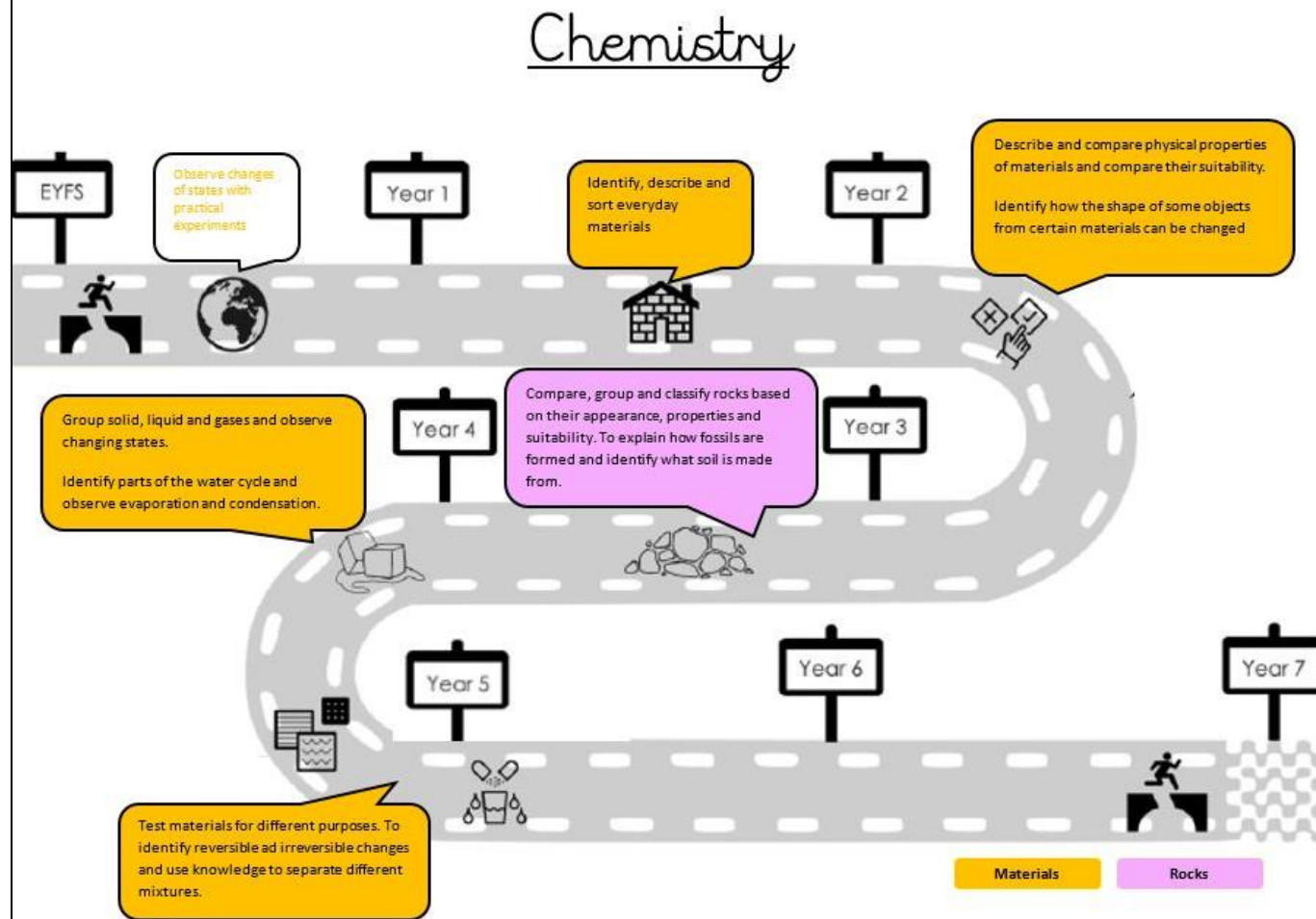


SCIENCE in EYFS

WORKING SCIENTIFICALLY

Seesaw should be used to evidence the working scientifically objectives that are not always written in floorbooks as the specific learning objective. There is a separate folder on seesaw **Working Scientifically** for these objectives.

Year Group	Objectives	Vocabulary
EYFS	(A) Shows curiosity and questions why things happen (Communication and Language) (B) Ask questions to find out more and check their understanding (Communication and Language) (C) Engage in open-ended activity and new experiences (Playing & Exploring) (D) Choose the right resources to carry out their own plan (Physical Development) (E) Find ways to solve problems and keep trying when things are difficult (Active Learning) (F) Develop ideas of grouping, sorting (e.g sorting materials) (Creating & Thinking Critically) (G) Make links between similarities and differences in relation to places, objects, materials and living things (Creating & Thinking Critically) (H) Explore materials and talk about the differences between materials and changes they notice (Understanding the world) (I) Explore and observe the natural world around them and begin to understand growth, change and decay within nature (Understanding the World) (J) Use senses to describe what they see, hear and feel whilst outside or handling natural materials (Understanding the World) (K) Explore how things work and use talk to explain how things work (Understanding the World and Communication and Language) (L) Explore and talk about different forces they can feel (Understanding the world) (M) Use talk to explain why things might happen (Communication and Language) (N) Builds up and uses a range of vocabulary that reflects their experiences and what they see (Understanding the World and Communication and Language) (O) Engage in non-fiction books, talk about new knowledge and vocabulary. (Communication and Language)	Notice Observe Explore Senses – see, smell, hear, touch Questions – what, how and why Explain/talk Non-fiction Choose Experiment



Current Units Taught in EYFS	Working Scientifically Skills	Possible Activities	Vocabulary	Possible Misconceptions
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<p>Seasonal Change Forest School</p>	<p>(A) Shows curiosity and questions why things happen (Communication and Language) (B)Ask questions to find out more and check their understanding (Communication and Language) (C) Engage in open-ended activity and new experiences (Playing & Exploring) (G) Make links between similarities and differences in relation to places, objects, materials and living things (Creating & Thinking Critically) (I)Explore and observe the natural world around them and begin to understand growth, change and decay within nature (Understanding the World) (J) Use senses to describe what they see, hear and feel whilst outside or handling natural materials (Understanding the World) (M)Use talk to explain why things might happen (Communication and Language) (N)Builds up and uses a range of vocabulary that reflects their experiences and what they see (Understanding the World and Communication and Language)</p>	<p>playing in the rain and snow • Drawing around puddles • Catching rain and hail in buckets • Catching snowflakes on frozen black paper and looking at them with magnifying glasses or an app on a tablet • Making icicles • Using scarves or pinwheels to explore the strength and direction of the wind • Looking at photographs of different seasons and types of weather • Sharing books about different seasons and types of weather</p> <p>go in to forest school</p> <p>Going on seasonal walks to observe key features of the seasons • Making artwork with seasonal found objects • Visiting a canal or pond to look for birds and their young in spring • Visiting a farm to see the young animals in the spring</p> <p>Encourage children to talk about how they feel in different types of weather/seasons. • Encourage children to talk about the clothes they wear in different seasons and why. • Encourage children to talk about the weather throughout the year. • Encourage children to find shelter or make shelters to keep themselves dry in the rain or shade themselves when it is sunny. • Encourage children to talk about how the ground changes when it rains. • Encourage children to measure the size of puddles using their feet after it rains. • Encourage children to talk about how puddles change over time after it rains. • Encourage children to talk about the animals and plants that they find in different seasons. • Encourage children to ask questions about the weather and seasonal changes.</p> <p>Taking photographs of the minibeasts they find in the school grounds at different times in the year • Looking for birds and other animals throughout the year using binoculars • Taking photographs of the plants they find in the school grounds at different times in the year • Observing closely and drawing the plants in the school grounds at different times in the year • Matching animals and plants they find to pictures that identify them</p> <p>How does the natural world change with the seasons? Researching using secondary sources • Find out about how animals behave in different season</p> <p>Which clothes are suitable for each season?</p>	<p>Season Spring, summer, autumn, winter Weather hot cold, sun, snow, wind, rain , temperature Leaves Seeds Grow Water Flowers Trees Water Forest</p>	<p>It always snows in winter • it is always hot in the summer • all babies and young animals are born in spring • plants only have flowers in the spring and summer • animals sleep during winter • it rains to help the plants grow • when it is hotter, it is because the Sun is closer • God controls the weather.</p>
<p>Changing states of matter (Ice and Cooking)</p>	<p>(A) Shows curiosity and questions why things happen (Communication and Language) (B)Ask questions to find out more and check their understanding (Communication and Language) (C) Engage in open-ended activity and new experiences (Playing & Exploring) (D)Choose the right resources to carry out their own plan (Physical Development) (E)Find ways to solve problems and keep trying when things are difficult (Active Learning) (F) Develop ideas of grouping, sorting (e.g sorting materials) (Creating &Thinking Critically) (G) Make links between similarities and differences in relation to places, objects, materials and living things (Creating & Thinking Critically) (H) Explore materials and talk about the differences between materials and changes they notice (Understanding the world) (J) Use senses to describe what they see, hear and feel whilst outside or handling natural materials (Understanding the World) (M)Use talk to explain why things might happen (Communication and Language) (N)Builds up and uses a range of vocabulary that reflects their experiences and what they see (Understanding the World and Communication and Language)</p>	<p>Looking for dew, ice, icicles and frost in the playground • Using their senses to explore</p> <p>Making ice pictures by putting water in a shallow tray and adding natural objects gathered from the environment and then leaving them outside to freeze or putting them in the freeze</p> <p>Making popcorn in a microwave and on a fire • Making pizza dough with different flours • Baking bread in different tins or for different times to compare the outcome • Baking cupcakes and removing one after every five minutes • Choosing where to put ice cubes in the playground and observing how quickly they melt • Observing how a large block of ice changes over time, using string to measure around it • Putting wax crayons in different areas of the playground and observing how they change • Making a snowman and observing how it changes over time • Making snowballs and putting them in different parts of the playground and observing how they change over time</p> <p>Baking cakes</p> <p>How does popcorn made in a microwave compare to popcorn made on a fire? • How quickly do ice cubes melt in different areas of the playground? • How are pizza bases different when made with different flours? • How does a loaf cook differently in different tins? • How do cupcakes cook if they have different amounts of mixture? Observing over time • How does the block of ice change over time? • How does a snowman change over time?</p> <p>ncourage children to take photographs or draw pictures to record how materials change. • Encourage children to measure how objects change when they melt. • Encourage children to ask questions about materials and how they change.</p> <p>Role play as a chef</p> <p>Support children to list the properties the material has. • Encourage children to compare and describe how materials change over time and in different conditions</p>	<p>Solid Liquid Ice Melt Heat /Hot Cooking</p>	<p>Support children to list the properties the material has. • Encourage children to test that their model is fit for purpose and that the materials are suitable. • Encourage children to compare and describe how materials change over time and in different conditions</p>

<p>Living Things (Lifecycles and Observing Eggs Hatch)</p>	<p>(A) Shows curiosity and questions why things happen (Communication and Language) (B)Ask questions to find out more and check their understanding (Communication and Language) (C) Engage in open-ended activity and new experiences (Playing & Exploring) (G) Make links between similarities and differences in relation to places, objects, materials and living things (Creating & Thinking Critically) (I)Explore and observe the natural world around them and begin to understand growth, change and decay within nature (Understanding the World) (M)Use talk to explain why things might happen (Communication and Language) (N)Builds up and uses a range of vocabulary that reflects their experiences and what they see (Understanding the World and Communication and Language) (O)Engage in non-fiction books, talk about new knowledge and vocabulary. (Communication and Language)</p>	<ul style="list-style-type: none"> • Caring for eggs and the young animals that emerge, such as chicks, caterpillars, frogs • Sharing books with information about animal life cycles (fiction and nonfiction) • Looking at and matching pictures of animals and their young • Watching videos of animals and their young and how they change over time • Encourage children to observe young animals closely and talk about how they change over time. • Encourage children to name and describe animals and their young, including how they change over time, while reading books, watching videos, looking at pictures or playing matching games. • Encourage children to ask questions about different animals and their young. • Playing games involving matching or describing animals and their young • Playing with small world animals, matching adults to their young • Visiting a farm, zoo or pet shop, particularly to see young animals • Talking about the sounds adult and young animals make and comparing them • Drawing adult animals and their young <p>Encourage children to talk about similarities and differences between animals and their young, including patterns, spots or stripes. • Encourage children to draw animals and their young.</p>	<p>Life cycle Chicks/Ducklings Chicken/Hen/Duck Eggs Hatch Warmth Wildlife</p>	<p>all animals lay eggs • the young animal is fully formed inside an egg and just waiting to hatch • the young animal is fully formed inside an egg and just grows until it is big enough to hatch • animals are assembled from body parts within the egg • all animal young are just small versions of the adult and get bigger • animals such as cows and hens “make” milk and lay eggs for us [humans] • humans are not animals.</p>
<p>Animals/Habitats (Links to Geography)</p>	<p>(A) Shows curiosity and questions why things happen (Communication and Language) (B)Ask questions to find out more and check their understanding (Communication and Language) (C) Engage in open-ended activity and new experiences (Playing & Exploring) (G) Make links between similarities and differences in relation to places, objects, materials and living things (Creating & Thinking Critically) (M)Use talk to explain why things might happen (Communication and Language) (N)Builds up and uses a range of vocabulary that reflects their experiences and what they see (Understanding the World and Communication and Language) (O)Engage in non-fiction books, talk about new knowledge and vocabulary. (Communication and Language)</p>	<ul style="list-style-type: none"> • Sharing books about animals in the local area and animals in other countries e.g. jungle, polar regions, desert, ocean • Looking at pictures of animals in different habitats • Watching videos of animals in different habitats • Playing games involving matching animals to their habitats • Playing with small world animals in different habitats • Visiting the zoo, focusing on animals that live in different habitats • Caring for pets from a different habitat e.g. tropical fish • Creating pictures of animals in their habitats • Pretending to be animals • Naming and describing animals they see in books, pictures, videos or while on a trip • Describing different habitats • Encourage children to name and describe animals that live in different habitats while reading books, watching videos, looking at pictures or playing matching games. • Encourage children to ask questions about different animals and the habitats they live in. • Encourage children to describe habitats. • Encourage children to talk about how animals are cared for when they live outside their natural habitat. • Encourage children to move like different animals. • Sort animals according to where they live. • Learn how animals from a different habitat are cared for. • Learn about animals in a different habitat. 	<p>Habitats Pets Wild Animals Amazon Africa Savannah Grasslands Antarctica</p>	<ul style="list-style-type: none"> • All animals are furry and have four legs • a bee is not an animal because it is an insect • animals adapt to their surroundings, e.g. a brown bear turns white and becomes a polar bear • animals living in the soil breathe by coming to the surface • dragons and other mythical creatures are real animals.

Further Activities to meet Early Years Framework

Please also see PLAN EYFS Matrice on the Server for Further Ideas

Observations over Time`	Identifying, classifying and grouping	Practical Tests	Pattern Seeking
<ul style="list-style-type: none"> • Windmills and streamers-on a regular basis through the coming week, draw the children’s attention to what is happening to the streamers. Ask: Are they hanging down vertically or blowing out horizontally? Do they always blow out in the same direction? Which material makes the best streamer? What happens when it rains? https://www.nurseryworld.co.uk/nursery-world/feature/1102524/science-air 	<ul style="list-style-type: none"> • Construction - Identify materials in a Builders’ yard- A large plastic tool box containing a selection of building materials and tools that are safe for children to handle. You could include off-cuts of wood, plastic drainpipes, metal brackets, paintbrush, measuring tape, spirit level, hard hat, safety goggles Discuss all the different tools and materials found. What are they used for? What are they made of? Go for a ‘building walk’ inside and outside the setting and see how many different types of building materials you can spot. What are they made of? https://www.nurseryworld.co.uk/nursery-world/feature/1099530/science-materials 	<ul style="list-style-type: none"> • Will it Sink or float? - Get a large container (eg a bowl or plastic box), fill it with water, and with the children collect a range of objects from around the nursery. The children then take it in turns to drop an object into the water – after guessing whether it will sink or float. • Crazy cornflour slime - This activity is a bit messy but really fun and hands-on; children love exploring the strange properties of this cross between a liquid and a solid. For best results use a large shallow container that you can put on the floor, like a sand/water tray. Mix together cornflour and water until you have a slime consistency. Try punching the slime – it instantly turns solid. Roll some slime into a ball in your hand and then stop – it turns back into a liquid. • Skittle Science - https://homeschoolpreschool.net/skittles-candy-science-experiment-for-summer/ • Discovering magnification- This is a nice easy activity that you can set up and leave the children to explore on their own (or in small groups). You’ll need a tray (or shallow box/crate), a selection of objects with interesting 	<ul style="list-style-type: none"> • HOW MANY FEET TALL ARE YOU?- Work with children to discover how many feet tall they are. If they measure several people, there might be a pattern to spot too! • Colour mixing - https://www.science-sparks.com/mixing-

<ul style="list-style-type: none"> Composting- The 'magic' of watching food leftovers turning into soil. Later on, you can use the soil for planting activities. https://family.co/blog/inspiration/eyfs-focus-9-activities-to-help-kids-in-understanding-the-world/ Creating a big hotel/Wildlife Gardening- A simple twig pile in an undisturbed corner of the garden or a rotting tree trunk is enough to attract a range of wildlife to your setting's outdoor area to observe how different insects and invertebrates find shelter, feed, and collaborate. Use forest school to observe the natural environment and explore how it changes across the seasons After close observation, draw pictures of the natural world, including animals and plants. plant seeds and bulbs so children observe growth and decay over time observe an apple core going brown and mouldy over time help children to care for animals and take part in first-hand scientific explorations of animal life cycles, such as caterpillars or chick or duck eggs 	<ul style="list-style-type: none"> Identifying sounds -Ask the children to choose from each group a selection of utensils that they think would work well on the 'musical' washing line.Help the children to hang the utensils on the line, evenly spaced.Choose a utensil to use as a beater and investigate the sounds that the tools make when struck. Which ones make a loud/soft noise? Which ones make a high/low sound? What happens when you use a beater made of a different material? Could you play a tune on your musical washing line? Can you make a 'kitchen band'? https://www.nurseryworld.co.uk/nursery-world/feature/1078867/science-sound Magnetic and non magnetic table in continuous provision - https://www.pinterest.co.uk/pin/189995678004844464/ Observe plants and seeds using microscopes and hand lenses - https://www.nurseryworld.co.uk/nursery-world/feature/1102356/science-life-cycles-plants Identify things using senses - e.g. blindfold taste tests. Identify how nature changes in the seasons - go season walks throughout the year,around school and in forest school . Sort and group objects by colour, texture, weight, height and uses look together at woodlice and caterpillars outdoors with the magnifying app on a tablet. You could ask: "What's similar about caterpillars and other insects?" You could use and explain scientific terms Make collections of natural materials to investigate and talk about. (Suggestions :contrasting pieces of bark,different types of leaves and seeds, different types of rocks, different shells and pebbles from the beach) 	<p>details and/or textures, and a few magnifying glasses. To extend this activity you could ask the children to draw some of the details/patterns that they find.</p> <ul style="list-style-type: none"> Shadow dance-Encourage the children to investigate all the shadow shapes they can make with their bodies - to move their arms around, sit down, stand up. What happens to your shadow? Who can make the tallest shadow? Who can make the smallest shadow?Talk about where your shadow seems to join your body. What happens when you stand on one leg, hop or jump in the air? Can you make your shadow disappear? https://www.nurseryworld.co.uk/nursery-world/feature/1080178/science-light Can pumpkin seeds float or do they sink? What happens to cotton wool in water? Investigation area. Enhanced with brightly coloured water (just using a small squirt of paint!), transparent pipettes, jars, tubes etc. encouraging the children to explore with colour mixing, and allowing them to watch the water travel through the various objects. https://www.pinterest.co.uk/pin/189995678004759611/ Make your own bubbles - https://www.earlylearninghq.org.uk/latest-resources/blowing-bubbles-activity/ Which car will go down the hill the fastest? Why do some roll faster than others? (car ramp investigations) Use sound bars to change sounds Make ice decorations - which will melt first? https://www.science-sparks.com/ice-decorations/ Magic milk investigation -https://www.science-sparks.com/colourful-milk-display/ Ice balloons -how can you melt the ice to get to the toys inside? Make a marble run using a variety of materials Which material will be the best to keep us dry when playing outside? Waterproofing. Provide children with opportunities to change materials from one state to another.(Suggestions: cooking – combining different ingredients, and then cooling or heating them and melting – leave ice cubes out in the sun, see what happens when you shake salt onto them (children should not touch to avoid danger of frostbite) Explore how you can shine light through some materials, but not others. Investigate shadows. Draw children's attention to forces. (Suggestions: how the water pushes up when they try to push a plastic boat under it, how they can stretch elastic, snap a twig, but cannot bend a metal rod magnetic attraction and repulsion) Provide mechanical equipment for children to play with and investigate. - Suggestions: wind-up toys, pulleys, sets of cogs with pegs and boards. 	<p>colours-with-squishy-bags/</p> <ul style="list-style-type: none"> SAND (Wet/Dry)- explore the properties of dry/wet sand – compare and look at similarities, differences, patterns in dry/wet sand and use their senses to observe changes in sand e.g. adding water to dry sand Can you spot patterns in our local buildings? What is the same and what is different? Space - How is space different to life on Earth? Bring in objects, pictures and photographs to talk about, for example vegetables to taste, smell and feel. What is similar, what is different?
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Possible Trips/Experiences

- Ouseburn Parks Education Programme Jesmond Dene - https://www.newcastle.gov.uk/sites/default/files/wwwfileroot/leisure-libraries-and-tourism/parks-and-countryside/education_workshops_spring_2015_.pdf - Billy goats Gruff and Stickman Workshops
- Edinburgh Zoo and local farms (eg Hall Hill Farm) to look at animals and discuss similarities and differences.
- Beamish - <http://www.beamish.org.uk/learning-activity/waterplay/>
- Mobile Planetarium into school - <http://immersive-experiences.co.uk/education/planetariums> - Night Sky component: Early Years / Reception and other workshops
- SciBabies - Workshops into school designed for EYFS - <http://scibabies.co.uk>
- Life Centre - <https://education.life.org.uk/learner-level/eyfs> -Range of EYFS Workshops as well as Planetarium
- Great North Museum/Hancock - <https://greatnorthmuseum.org.uk/whats-on/creatures-great-and-small> - (Free Wednesday and Friday)
- Sunderland Winter Gardens - Dino Delights and Under the Sea - <https://www.seeitdoitsunderland.co.uk/learning-sessions/295/natural-world>
- <http://www.bugsnstuff.com/our-workshops/schools/> - Bugs N Stuff Workshops
- Gibside - <https://nt.global.ssl.fastly.net/gibside/documents/gibside-information-packs-for-primary-schools.pdf> - Fairytale Trail, Art in Nature, Seasonal Activities
- Discovery Museum

Possible Books to Use

Animals and Humans

- Once we were Giants by Martin Waddell
- From head to toe by Eric Carle

Living Things and Habitats

- Hooray for Fish by Lucy Cousins
- The Dawn Chorus by Suzanne Barton
- Superworm by Julia Donaldson
- Sharing a Shell by Julia Donaldson
- Panda Bear, Panda Bear, What do you see? Bill Martin and Eric Carle

Materials

- Stick Man by Julia Donaldson

Light

- The Black Rabbit by Philippa Leathers

Forces

- Mr Grumpy's Motor Cat

Plants

- How a Seed Grows by Helene J Jordan
- Oliver's Vegetables by Alison Bartlett and Vivian French

- Ben Plants a Butterfly Garden by Kate Petty

Earth and Space

- Whatever next by Jill Murphy
- The Way Back Home by Oliver Jeffers
- How to Catch a Star by Oliver Jeffers
- Man on the Moon (a day in the life of Bob) by Simon Bartram

Seasonal Change

- One Year With Kipper by Mick Inkpen
- Leaf Man by Lois Ehlert

My Friend the Weather Monster by Steve Smallman