Explorify Guidance on Materials ages 4-7

Curriculum statement	Explorify activities	Suggested use
Reception (EYFS)		
Understand some important processes and changes in the natural world around them, including the seasons and **changing states of matter.**	White and Spiky ZIZO or Frozen desert Baking cookies - Explorify WGO	Use the activities at milk/fruit/break time (or a spare 5 minutes) especially when they link to your classroom play activities suggestions (from link below) for sensory play and water play include: Freeze watered down paint into ice cube trays with lolly sticks. In 'Sensory play' children can 'paint' with the 'ice-cube paint' and observe and discuss what happens referring to freezing in the freezer and melting when out of the freezer. Explore snow made from artificial snow powder - how is it similar and different to real snow? Investigate what happens to balloons of ice in a tray of warm water. **https://pstt.org.uk/resources/curriculum-materials/eyfs-science Go to provision maps and download: Winter/ Snow & Ice** Observe jelly making (with an adult) **https://pstt.org.uk/resources/curriculum-materials/eyfs-science Go to provision maps and download: Birthdays/celebrations**
Creating and thinking critically - children have and develop their own ideas, make links between ideas, and develop strategies for doing things Through creative play, I explore different materials and can share my reasoning for selecting materials for different purposes. SCN 0-15a	ZIZO The space between LWCYH? Scrub-a-dub-dub ZIZO Glorious grains ZIZO Creature comforts ZIZO Rugged ridges	Start to introduce simple adjectives to describe the properties of materials. Play with sponges in water play or junk modelling a boat Sand play – What happens to the sand when you add water? Which sand-water mixture makes the best 'cake'? How can we test this? Use books to inspire exploration of materials especially in construction and malleable play suggestions (from links below) include: Make a scarecrow 'sensory bin' with a variety of related materials (hay/grass, straw, pine cones, shells, feathers, sensory objects (small bells), fabric pieces, stones, leaves, sticks, etc.) Play, observe & ask • Can you name these objects? • Where do you think

		they came from? • How would you describe the objects? • Are they natural/not natural? • Can you sort these objects? How? **https://pstt.org.uk/resources/curriculum-materials/eyfs-science Go to provision maps and download: The Scarecrow's Wedding**
Year 1		
Distinguish between an object and the material from which it is made Through creative play, I explore different materials and can share my reasoning for selecting materials for different purposes. SCN 0-15a The range of materials used in my area	Cosy comforts ZIZO Fuzzy friend ZIZO Point of View ZIZO	**These 3 activities could be used when teaching how items of clothing are made from fabric.** Be aware that some children will use the words material and fabric interchangeably. Fabric refers to cloth, material is what any object is made from. Use these as a starting point for a walk around school looking for different fabrics. You could also give children different fabrics/materials to sort. They could decide how to sort, or you could get them sorting by simple properties like soft, shiny, dull etc.
Understanding how some materials are made	Spinning a yarn WGO Fantastic Fabrics	Children see that wool comes from a sheep and that paper comes from wood.
Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock By investigating how water can change from one form to another, I can relate my findings to everyday experiences. SCN 0-05a / SCN 1-05 I can talk about science stories to develop my understanding of	Material world Listen Bright spark Rocky landscapes ZIZO Write away OOO	Show the children a selection of objects: ceramic plates, metal (knives and forks?), pieces of sandpaper, wood. What are they made of? What can they find out by looking? What can they find out by touching? What can they find out by listening? - use 'Material world' to match the material to the sound. Can they make the same sound? Take the class for a walk around school and classify the different materials they see. Ask what materials can they see in the classroom then use activities. Material hunt – draw, note what is metal, wood, glass, fabric, plastic. With Year 1 children, these activities can be used to discuss the different materials. It is important to follow this up with hands on activities where they can feel and explore

science and the world around me. SCN 0-20a I can identify, follow and begin to create sequences and patterns in everyday activities The range of materials used in my area		the materials. For example, comparing how cool metals feel compared to wood or plastics. Lots of children get confused about plastic (it can be shiny, look like wood, flexible or rigid etc). This could be extended by looking at the properties of each material.
Describe the simple physical properties of a variety of everyday materials Through creative play, I explore different materials and can share my reasoning for selecting materials for different purposes. SCN 0-15a I can explore the properties of materials and chose different materials for a particular use	Bottle it Up Listen Through the looking glass OOO Shiny Objects MB The space in between ZIZO Synthetic selection MB	**These 2 activities can be used to teach children about glass.** Children identify that they can hear glass. Leads onto discussion of the properties of glass. Follow up with Through the Looking Glass OOO. Where children can compare the glass in everyday objects. **Metal** Children shown a selection of objects made of metal. Name the object and its use. Describe its properties. **Absorption** Look at the properties of a sponge and understand that some objects are absorbent. This could be followed by children investigating which objects are absorbent. **Plastic** Look at different objects made of plastic. How do they know they are made of plastic? Children answer the questions based on handling the objects, drawing on previous knowledge. Give children a range of different materials and get them to sort them by different properties. You could also discuss the properties of different materials on a walk around the school, or even just in the classroom.

Compare and group together a variety of everyday materials on the basis of their simple physical properties Through creative play, I explore different materials and can share my reasoning for selecting materials for different purposes.SCN 0-15a I can explore the properties of materials and chose different materials for a particular use.	Funky junky boats Problem solver	Children can explore which materials float by putting different materials in bowls of water. You could then develop the investigation by asking children to think of other properties a boat would need to have. For example, is it strong? Children could then discuss strength. This could be linked to the story ***Lost and Found*** by Oliver Jeffers.
Year 2		
Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses Through exploring properties and sources of materials, I can choose appropriate materials to solve practical challenges. SCN 1-15a Throughout all my learning, I take appropriate action to ensure conservation of materials and resources, considering the impact of	Fit for purpose OOO It's in the bag! OOO Bottle it Up Listen Fascinating Forks OOO Brushing Up OOO Sew what Listen	**A good introduction to the suitability of materials:** Discuss why materials have certain properties and why certain materials are suited for that purpose. Children could then design their own "useless" invention. Michael Rosen's poem ***Woolly Saucepan*** is a great stimulus. **Items that are fit for purpose but made from different materials** Children identify the material and look at the physical properties. You could also discuss why mesh and paper bags may become more common. Children could explore which bag is strongest, comparing how many books each bag can carry without breaking. Children could compare different bottles/containers made of different materials, e.g. milk containers made of plastic, glass and card. A similar activity would be to compare forks different made from different materials. Why and when would you use each one? Take it further in the classroom by tasking children compare a selection of brushes, grouping them together based on particular properties, justifying why these have been chosen

my actions on the environment. TCH 1-02a I have contributed to discussions of current scientific news items to help develop my awareness of science. SCN 1-20a I can explore the properties of materials and chose different materials for a particular use.	All your clothes were shiny? WI Dressed for the weather MB Dressed for action OOO Protective measures MB Design a sports kit PS Functional footwear OOO What are the best shoes for running? PS Gear Up OOO What if all the materials were transparent? WI What if every material was rigid? WI What if your school banned paper? WI How would you make a shelter for a human? PS Unusual houses OOO	**Suitability of materials for clothing and footwear** These are good for rehearsing and exploring different properties of materials and their suitability. Children could sort materials into shiny and not shiny, using a torch to begin to understand that shiny objects reflect light. You could then challenge them to design a suitable object that requires either shiny or dull materials. They could explore which materials are reflective and design coats for walking home in the dark in winter. Children could look for reflective stripes on their own clothing and shoes and think about how these help them. Children could use their knowledge of the suitability of materials to design a sports kit – it needs to be stretchy for a gymnastics kit, thick and strong for a goalie glove. In each case, they can compare different fabrics and conduct simple tests for suitability. There's a good investigation about waterproof materials linked to Charles Macintosh at this website : https://pstt.org.uk/resources/resources-available-through-tts/sotsog (look for tab *free sample unit* as it is a free sample from the book **Standing on the Shoulders of Giants**) Functional footwear can be used to think about the different materials used to make shoes. Children could select appropriate materials to make a particular type of shoe and draw a labelled diagram of their design. Children will have strong views about the kind of shoe they want to design! **How suitable and useful would it be if all materials were...?** All materials were transparent? Children could then test different fabrics that would be suitable to for curtains. This would introduce the vocabulary of translucent and opaque. They could shine torches through the fabric to reach conclusions. Look around the classroom. What objects need to be rigid? Which objects would not work if they were rigid?

	Bird Feeders PS	Children could brainstorm what properties the materials need to have to be suitable for a human shelter. For example, it needs to be waterproof, strong and allow in some light. Children could then perform simple tests on a range of materials like wood, cardboard, metal, plastic, paper and rock and record their results in a simple table. In order to avoid confusion, separate when the children do each test. Children could look at the properties of the different materials to say why these would be good for a bird feeder. Consider whether you have squirrels in your school ground. Do you want to feed them as well? This could affect the design.
Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching I can safely use simple tools, materials and equipment to construct and deconstruct?	Which is the bendiest? TBQ Changing shape MB What if every material was stretchy? WI WGO The Big Squeeze All crushed up Listen	This can spark a discussion about which materials are bendy and why they need to be so. They could then discuss how they will find the answer to the question. This is a fun way of giving the children a selection of objects to explore. This should be followed up with children exploring and sorting a variety of materials by whether they can be squashed, bent, twisted or stretched. A fun follow-up activity is either: (a) challenge the children to make something in playdough by stretching, bending, twisting and squashing - then explain to their partner how they did it using the vocabulary. (b) The Curly Wurly Challenge! The longest Curly Wurly stretched in three minutes is 426.2 cm and was achieved by Tracy Jane Sullivan, in Frome, Somerset, UK, on 22 November 2015 (Curly Wurly Guinness World Record - YouTube) Give children a piece of play dough and see how far they can stretch it in three minutes! The shape of steel can be changed when cars are scrapped, and it can be recycled.