SW9 Partnership SCIENCE Medium Term Plan: Year Group: 1 Term: Teacher:

TOPIC	NATIONAL CURRICULUM	KEY VOCABULARY	POSSIBLE TRIP
USES OF EVERYDAY MATERIALS 2 (CHANGING SHAPE)	Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	**TIER 2** (Academic): Force, action, reaction, investigation, observation, effect, compare, record, change. **TIER 3** (Topic Specific): Shape, push, pulling, twist, twisting, squash, squashing, bend, bending, stretch, stretching, physical force, flexible, rigid, elastic.	**Young V&A** (Bethnal Green): Interactive galleries designed to help pupils distinguish between objects and their underlying materials (wood, plastic, metal, fabric, glass) and evaluate physical properties like flexibility and transparency. **Science Museum** (South Kensington): Interactive exhibits where children conduct simple comparative tests on material properties (hard, soft, rough, smooth, bendy, stiff) and evaluate material suitability for real-world tasks.
PRIOR LEARNING	**Y1:** Identifying materials and their basic physical properties (flexible, rigid).		

	WEEK 1	WEEK 2	WEEK 3	WEEK 4	WEEK 5	WEEK 6
ENQUIRY QUESTION	How can we change the shape of solid objects using our hands?	What happens when we squash different materials?	Which materials can be bent without snapping?	How do different materials react to twisting forces?	Which plastic is flexible enough to make a belt?	Which materials return to their original shape after stretching?
LEARNING OBJECTIVES	To identify physical actions that change object shapes (push/pull).	To investigate squashing forces on solid materials.	To test and classify materials by bending ability.	To explore twisting forces on various flexible materials.	To evaluate plastic flexibility for functional accessory design.	To investigate stretching forces and elasticity.
ACTIVITY **WORKING SCIENTIFICALLY SKILLS**	**OBSERVING & CLASSIFYING:** Apply push/pull forces to playdough, sponge, wood, wire. Record shape changes.	**TESTING:** Apply squashing force to clay, foam, rock, bread, and plastic bottles. Group into squashable vs non-squashable.	**CLASSIFYING:** Bend plastic rulers, wooden sticks, pipe cleaners, and metal spoons. Classify as flexible or rigid.	**OBSERVING & TESTING:** Twist damp cloths, rubber strips, paper, and metal wires. Compare shape memory.	**COMPARATIVE TESTING:** Test various plastic strips (hdpe, soft vinyl, acrylic) for belt flexibility.	**COMPARATIVE TESTING:** Pull rubber bands, elastic bands, fabrics, and string using force meters. Record extension.

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ASSESSMENT	Demonstrate push, pull, squash, bend, twist, stretch correctly.	Describe squashing as crushing or squeezing with force.	Categorize objects as bendy or rigid accurately.	Describe twisting as applying force in opposite directions.	Select flexible plastic suitable for a waist belt.	Define elasticity and differentiate stretchable from rigid items.
END POINT ASSESSMENT	Pupils can demonstrate and explain how solid objects can change shape through physical forces: squashing, bending, twisting, and stretching. They can categorize materials as flexible, elastic, or rigid based on how they respond to force.					
HIGHER ORDER QUESTIONS	Why does playdough stay squashed while a sponge bounces back?	What makes an object hard yet squashable?	Why would a rigid ruler snap if you applied a bending force?	Why do we twist a towel to remove water rather than squashing it?	Why would a rigid plastic belt be uncomfortable to wear?	What would happen if clothing elastic lost its ability to return to shape?
FURTHER OPTIONAL QUESTIONS/BIG QUESTIONS FOR DISPLAY	Can all solid objects change shape if you apply enough force? What happens to a material when it stretches so far it breaks? Why are some plastics flexible while others are rigid?					
INCLUSION & ADAPTATION	Direct physical manipulation with soft clay and wooden blocks.	Pressing weight blocks onto sponges and foam with visual record sheets.	Bending pipe cleaners vs wooden dowels with visual sorting circles.	Tactile twisting of soft ropes and fabric ribbons.	Direct fitting test of pre-cut plastic strips around a doll or mannequin.	Stretch testing with visual color-coded ruler markers.
GREATER DEPTH	Research permanent deformation vs temporary elastic deformation.	Measure height reduction of materials when under set weights.	Rank materials by angle of bend achieved before breaking.	Evaluate how structural twisting increases rope/string strength.	Design a fashion belt combining flexibility and tensile strength.	Plot stretch distance relative to added mass on a bar graph.