

Making Footprints !

Exploring 3D shapes



Children often enjoy making footprints in soft materials.

Adults could use this idea to encourage children to develop an awareness of the faces of 3D shapes.

The Activity

Provide children with soft dough and a selection of small wooden blocks of various shapes. Talk about experiences of making footprints in sand or snow. Encourage children to select a block and press it into the dough making a 'footprint'. Show how to run a finger around the edge of the impression to feel the perimeter.

Encouraging mathematical thinking and reasoning:

Describing

Tell me about what you've made.

Can you see other blocks that might make the same footprint?

Look at the block and the footprint it has made side by side. What's the same and what's different?

Reasoning

What will happen if we stand the shape back in its footprint?

How do you think this shape made this footprint?

Opening Out

What will happen if we turn the shape over and make a new footprint?

How many different footprints do you think you can make with this shape?

Which shapes might have made this footprint?

Recording

Draw around a block. Look at the shape you have made.

Is it the same shape as the footprint?

The Mathematical Journey

Properties of shapes:

- Using everyday language to describe the shape of each block and the impressions it makes e.g. flat, sharp, slopey, pointy, like a brick, ball, box, roof etc.
- Using mathematical language to talk about the attributes of each block and the impressions it makes e.g. curve, side, corner, flat, rectangular ...
- Connecting the shape of a face of the block to the shape of the impression made by it

Same and different:

- Developing language to describe similarities and differences e.g. bigger, smaller, longer, shorter, like a ..., same as ..., straighter, more curved, rounder, more pointy ...

Development and Variation

- Printing with cut vegetables and paint
- Solving old-fashioned picture cube puzzles
- Shadow play
- Pressing natural materials such as pebbles, twigs, cones and flowers into soft earth
- Making handprints in salt dough that can be baked to keep
- Dipping feet in baby talc to make prints on black paper
- Balloon printing – dip a partially-blown balloon into paint to print
- Playing with shape sorter toys in which blocks are fitted into shaped slots
- Using cutters to make gingerbread or pastry shapes.

Story, rhyme and song links

- The Blue Balloon by Mick Inkpen
- Changes by Anthony Browne
- The Six Blind Men and the Elephant by Clare Boucher and Rachel Merriman
- Jack and Jill (good for slopes and rolling)



Resources

- Soft dough
- Selection of wooden blocks of various shapes
- Rolling pin to “re-flatten” the dough
- Camera or video camera for recording results.

Optional: Encourage children to explore making “footprints” using everyday objects such as hands and feet, spoons of different sizes, dice, lolly sticks, leaves, shells, small world play equipment, pieces of other construction kits.



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