

Science Time



Experimenting at Home – Parent Resource

Ramps and Rolling

To compliment this resource, watch the ‘Experimenting at Home – Ramps and Rolling’ video online and read the ‘Exploring with your Little Scientist Parent Resource’ sheet.

Resources

- Things for making ramps (e.g. chopping boards, books, cardboard, blocks, tins)
- Different surfaces for ramps (e.g. towels, scarves, alfoil, wet or dry)

Safety

- Ensure you have adequate space for making ramps and rolling various objects
- Avoid use of valuable or breakable objects (e.g. glass jars, electronic equipment)

Getting started

What rolls?

Collect some toys and investigate which ones roll? How could you make them roll? Encourage your child to explore different ways to make them roll (i.e. push, kick etc.)



Making a ramp

Could we build something to make things roll without pushing them? Some children will suggest making a ramp others may need to explore some of the ramp materials first.

Build a ramp together using something hard for the ramp and something to lift up one end of the ramp. Explore different options.

Sorting

Use your ramp and different objects from around the house to investigate rolling. Encourage children to predict what will happen, experiment and then sort their objects into two groups, rolling and not rolling. Explore the similarities between the objects that roll. What shape are the ones that roll? Why do you think they roll?

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Exploring further

What rolls further?

Test which object rolls the furthest? Make predictions, use your ramp to experiment then use a block or similar to mark how far each object goes. Why do some roll further than others? What object in your house rolls the furthest?

Experimenting with the ramp design

Encourage children to experiment with the design of the ramp. What could we change about the ramp?

Experiment with;

- **Height:** change the height of the ramp, what will happen? Using blocks is an easy way to do this
- **Surface:** change the material your ramp is made of or cover it with a different material, feel and describe the different materials and predict what will happen

You may discover that children want to change many things at once, for example they may change the height and surface at the same time, but even if the car goes further we won't know if it was because of

the change in height or the change in surface. Let them make multiple changes and then discuss. To do a 'fair test' only one variable, e.g. height of the ramp, can be changed at a time. Encourage children to change one thing and see what happens. Try measuring how far different objects travelled – you could use blocks or count footsteps.

Extra Challenges

Encourage children to use their understandings of the ramp to attempt the following challenges;

- **Bump along:** Could you make something at the bottom of your ramp move? Experiment with rolling one object down the ramp to hit another. Experiment using different objects and trying to move multiple objects.
- **Target practice:** place a piece of coloured paper or fabric on the floor, could you get an object to land on top of the fabric? Encourage lots of testing and adapting so that it lands on top, not before or past the target. Once you land on the target try putting it in a different spot and repeat the experiment.