



# Experimenting with Friction



Jump on Azoomie and watch Jiwi's Machines Episode 2B to learn about friction and inclined planes. Friction is the force between two objects which rub against each other. An incline plane is a sloping ramp which is particularly useful in some of Jiwi's Rube Goldberg Machines.

In this simple experiment you can find out how friction slows objects down and begin to think about when we might want to increase or decrease friction.

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## Curriculum Links

In both Key Stage 1 and Key Stage 2 children are taught how to work scientifically. This involves carrying out simple tests and experiments, making predictions and reporting observations. Forces are explored in Year 3 and 5.

## You will need

- A table
- Some books to prop one end of the table up
- A plastic cup
- A small ball or large marble
- A bed sheet or duvet cover
- A large towel
- Tinfoil
- A small rug or mat

## Setting up the experiment

1. First create an **inclined plane** using some books to prop up the end of a table or desk. You can make your incline as steep as you wish. What do you

think you will observe if you make the incline steeper?

2. Place the ball or marble under the cup and hold it at the top of the incline. Let go and watch how quickly the cup slides to the bottom of the incline you have created. It might be a good idea to have a box or bag at the bottom to catch your ball and cup.

## Hypothesise

Now that you have observed the cup sliding down the table it is time to test some different surface coverings and this is where the tinfoil, sheet, rug and towel will be used.

Before placing each of the materials onto the table have a think about what you think might happen to the speed of the cup as it slides over each of these surfaces on the incline.

This is called **hypothesising**.

Next you can test your hypothesis by placing each of your materials on the inclined plane and testing the speed of your cup and ball again. Did it travel slower or faster than before?

## Reflective Questions

- Can you think of anywhere you have seen an inclined plane in the real world? Some
- When might we want to increase or decrease friction in the real world?

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