

FRICITION

Time: 30-45 minutes

Activity Overview



This activity is suitable for children in years 5 and 6. The aim of these activities is for pupils to experience the effect that friction has on a bicycle. You can choose to do some or all of the activities listed on the next page.

What you'll need:

- Bicycle/Scooter
- Computer/mobile device
- Paper
- Hairdryer/Fan

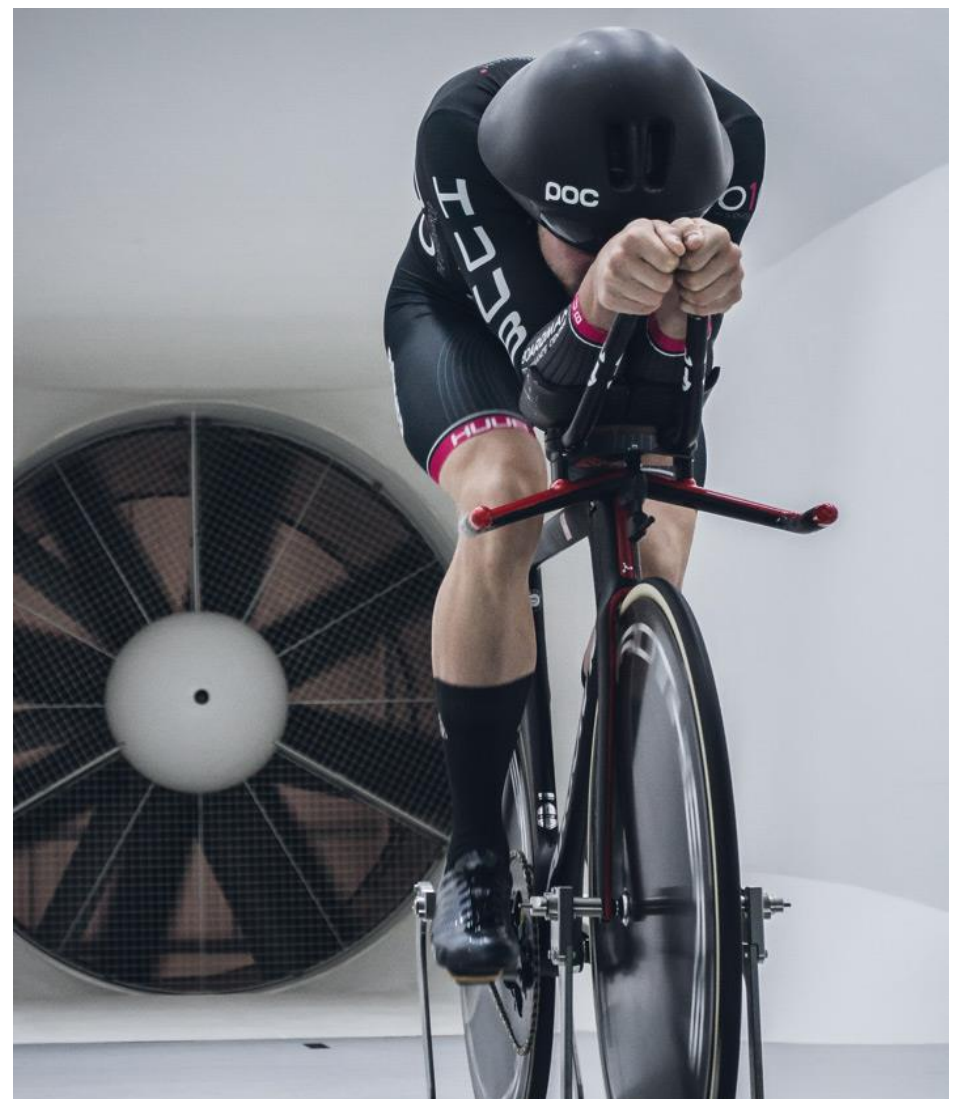
Background Science

What is friction and where can it be found?

Friction is a force that restricts or stops the movement of two solid objects sliding along each other. The force of friction acts in the opposite direction of a moving object. When two or more objects rub against each other, they cause friction where they touch. On a bike, there is friction between the brake pad and the wheel rim when we pull on the brake lever.

Is friction good when we are on our bike or scooter?

Sometimes friction on our bike is good. E.g. when we want to stop and pull on our brakes! Sometimes friction is not good. E.g. when our bike chain is dry or rusty and we can't pedal efficiently.



DID YOU KNOW...



Liquid makes a surface smooth. E.g. it's harder for a car to stop on a wet road than a dry one because the water creates a barrier between the car and the road.

RUN THE ACTIVITY



Activity 1 - Fingers and hands

- Using one finger, feel a variety of surfaces around your house (e.g. carpets, worktop, radiator, sofas) Think about how the surface feels and if your finger can move across it easily. Does the surface make your finger feel warm? Or slow down? This would show that the surface is creating quite a lot of friction.
- Next, with the palm of your hand feel the same surfaces. Does your hand move across the surface as easily?

Activity 2 - Flat and inflated tyres

- For this activity you will need a few sheets of **paper** and a **bicycle**.
- Starting with your tyres fully inflated, wet the front wheel and roll it across a piece of paper.
 - What can you see? How big is the mark?
- Next, let all of the air out of the front tyre and re-wet it. Roll the wheel across a sheet of paper again.
 - What can you see now? Is this mark different? How?
- How would it feel to ride the bike with a flat tyre and a pumped up tyre?

Activity 3 - Air resistance

- For this activity you will need a **hairdryer/fan**.
- Turn on the hairdryer and put the palm of your hand in front of the air.
 - How does it feel? Is the air pushing your hand?
- Next, point the palm of your hand at the floor.
 - How does it feel now? Is the air pushing your hand more or less than before?

Activity 4 – Braking friction

- For this activity you will need a **bicycle/scooter**.
- Roll the bicycle/scooter back and forth.
 - Where is there friction or resistance when you do this?
- Whilst rolling the bike/scooter, slowly apply on the brakes.
 - Where is there friction now? Do we want there to be friction on the brakes?

Activity 5 – Video

- For this activity you will need a **computer/mobile device**.
- The links below are examples of mountain biking and track cycling.
 - Which cyclist in the videos wants lots of friction? and which one wants less friction? Why?
- [Mountain biking / Track cycling](#)

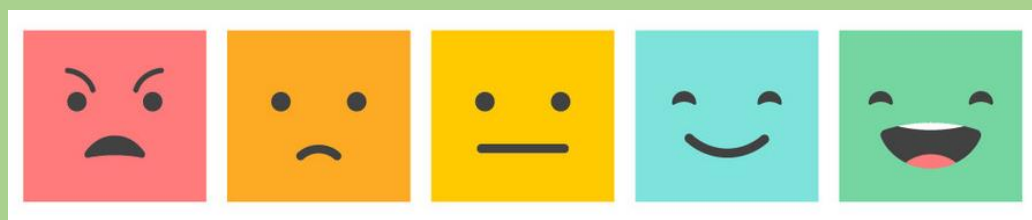
WE'D LOVE TO HEAR FROM YOU!

Share pictures/videos of you taking part in our activities on....



#BIKEITATHOME

Tell us what you think of this activity



Click on the faces to link to our activity feedback survey