

# Question: How do some things move quicker than others?

## National Curriculum Link

**KS1 Science: Y2 Forces and Movement (non statutory)**

KS1 Science Working Scientifically

### IB Learner Profile Links

Inquirers – Nurture skills for research and curiosity

Knowledgeable – Develop conceptual understanding and engage with issues and ideas

Thinkers – Use critical and creative thinking skills

Reflective – Consider the wider world and our own ideas and experience

### Prior Skills – Y1

- Distinguish between an object and the materials from which it is made
- Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock
- Describe the simple physical properties of a variety of everyday materials
- Explain why a material might be useful for a specific job
- Compare and group together a variety of everyday materials on the basis of their simple physical properties
- Ask questions and decide how they might find answers to them
- Identify and classify things they observe, also classify following a given criteria
- Explore, using the senses (see, touch, smell, hear or taste)
- Use first-hand experience to answer some scientific questions
- Record observations and results to a test using drawings and in simple tables
- Explain their findings through talk and show their work using pictures, labels and captions

### New Skills – Y2

- Understand that forces make things move.
- Know that forces are pushes and pulls and make things speed up and slow down.
- Recognise that when things speed up, slow down or change direction there is a cause.
- Describe how things move at different speeds, speed up and slow down, using simple comparisons, comparative vocabulary and superlative vocabulary.
- Ask questions and decide how they might find answers to them.
- Use simple scientific language to communicate ideas and describe phenomena.
- Make simple predictions based on a previous experience or learning
- Make observations linked to the test and record results in a table with support
- Learn that it is important to collect evidence by making observations when trying to answer a

### Future Skills – Y3

- Compare how things move on different surfaces.
- Notice that some forces need contact between two objects, but magnetic forces can act at a distance
- Observe that magnetic forces can be transmitted/act without direct contact unlike most forces, where direct contact is necessary (for example, opening a door, pushing a swing).
- Observe how magnets attract or repel each other and attract some materials and not others
- Classify which materials are attracted to magnets and which are not?
- Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet
- Identify some magnetic materials
- Describe magnets as having two poles (N & S)
- Predict whether two magnets will attract or repel each other, depending on which poles are facing.
- Use different ideas and suggest how to find

<ul style="list-style-type: none"> <li>• Make simple predictions and make links to prior learning or something they have observed before</li> <li>• Explain what they have found out and use them to draw conclusions and answer questions</li> </ul>	<p>question.</p> <ul style="list-style-type: none"> <li>• Review their work and explain what they did to others.</li> <li>• Communicate findings in a variety of ways</li> <li>• Draw conclusions (find an answer to the question) from results and observations</li> </ul>	<p>something out</p> <ul style="list-style-type: none"> <li>• Make and record a prediction before testing</li> <li>• Plan a fair test and explain why it was fair</li> <li>• Set up a simple fair test to make comparisons</li> <li>• Explain why they need to collect information to answer a question</li> <li>• Report on finding from enquiries in a variety of different ways.</li> <li>• Use scientific evidence to draw conclusions to answer questions</li> <li>• Identify simple patterns from observation and data base on everyday experience.</li> </ul>
---	---	--

### **Knowledge, Skills and Understanding for topic area**

- Understand that forces make things move.
- Know that forces are pushes and pulls and make things speed up and slow down.
- Recognise that when things speed up, slow down or change direction there is a cause.
- Describe how things move at different speeds, speed up and slow down, using simple comparisons, comparative vocabulary and superlative vocabulary.

### **Knowledge, Skills and Understanding for Working Scientifically**

- Ask questions and decide how they might find answers to them.
- Use simple scientific language to communicate ideas and describe phenomena.
- Make simple predictions based on a previous experience or learning
- Make observations linked to the test and record results in a table with support
- Learn that it is important to collect evidence by making observations when trying to answer a question.
- Review their work and explain what they did to others.
- Communicate findings in a variety of ways
- Draw conclusions (find an answer to the question) from results and observations

### **Challenge**

- Can children use the findings from one of their fair tests to think of another question or idea to test?

## **Resources**

- materials such as plasticine or dough
- collection of toy cars and other toys that move
- Ramps, blocks, a variety of surfaces e.g. carpet, bubble wrap, wood, fabric, paper, corrugated card
- apparatus for measuring length *eg metre sticks or tape measures*
- bean bags and/or soft balls
- bricks and pieces of wood/thick card to make ramps
- collection of pictures or video clips showing moving objects
- access, if possible, to large moving apparatus

## **Suggested Quality Texts**

Fiction:

Pig's Wild Cart Ride: An Early Learner Book About Motion by Bob Graham

## **Website/Apps**

Explore forces on

[http://www.bbc.co.uk/schools/scienceclips/ages/6\\_7/forces\\_movement.shtml](http://www.bbc.co.uk/schools/scienceclips/ages/6_7/forces_movement.shtml).

## **Extended Writing Opportunities**

Children could write a non chronological report in the style of e.g. a leaflet to give information about forces and movement using key scientific vocabulary. Children will carry out research on different modes of transport starting with asking a range of questions which they will then research.

## **Numeracy Skills**

While allowing the children to explore toy cars rolling down a ramp ask them to record the results from their various investigations into prepared spreadsheets and produce block graphs. If one is available they could use an automatic timer to measure the speed that different cars travel down the ramp and link to vocabulary slowest/quickest and compare times.

## **Wow starter/experience**

Children to have a set of races where children have different ways they must move. E.g. skipping, riding a 2 wheel bike, a scooter etc and think carefully about the winning results to lead into topic discussion. Give children a box with magnets, different stretchy/squashy materials/ paper planes and a range of cars to explore.

## **Cross Curricular Links/ enquiry time activities:**

**PE/Numeracy:** Children could create time trials for the wheeled structures and time them to see which is best suited for each task. Create a straight run; a slalom; different terrain, etc.

**Art/DT:** Children produce labelled drawing of different vehicles to win a race. Children create their own vehicles and then test them to see what will help them move more quickly.