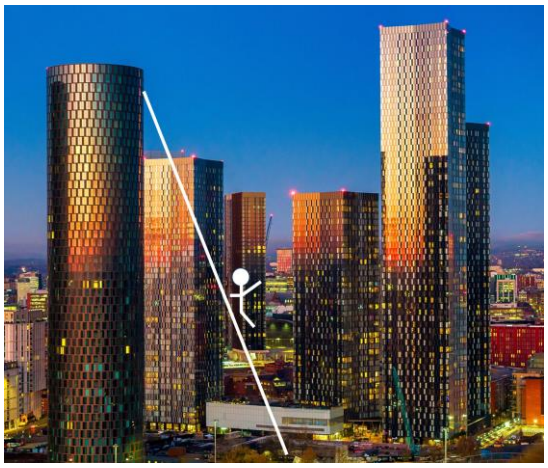
Whoosh Water Slides

Introduction



Whoosh Water Slides is a practical activity for students to investigate the **interactions between water droplets and materials.**

The activity is framed as a narrative about **building a water slide from a tall skyscraper.** This involves getting the audience to **predict the 'best' material to build a water slide out of, before performing a race between water droplets on different materials.**

The activity promotes the **need for materials selection and getting the audience to describe and explain their thought processes in selecting the 'best material'.**

Will this be the fastest? **Will this be the cheapest?** **Will this be the safest?**

Equipment List:

Masking tape

Sand paper

PVC Tape

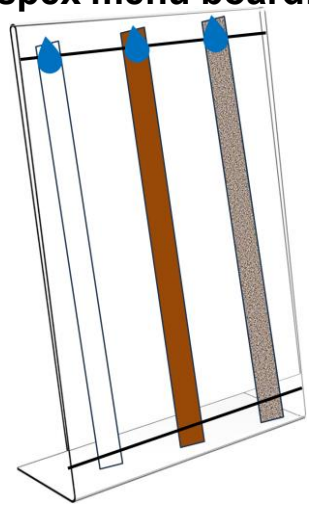
Selection of materials:

PTFE (Polytetrafluoroethylene)

Perspex

Copper tape

Perspex menu board:



Insert a picture as your racecourse.

Curriculum links:

- Key Stage 1 - Understanding suitability of materials for specific uses.
- Key Stage 2 - Forces– Gravity, Friction, Water resistance.
- Key Stage 2 - Properties and Changes of Materials.
- Key Stage 3 - Design and Technology - Materials selection based on their properties
- Key Stage 3 and Key Stage 4 – Physics - Forces

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What to do...

1. Assemble the activity with a variety of tapes/sand-papers (different grit sizes) stuck to the Perspex menu board.
2. Print off a picture to insert inside the menu board as your racecourse. This could be a skyscraper nearer the audience – for example in Manchester this might be one of the Deansgate-Castlefield towers, or in London the Shard.
3. Place the assembled water slides on a tray and ensure you have cloths to mop up any spills.
4. Fill up the water droppers with water for the activity.

You're now ready to commence the activity.

Suggested narrative for an audience:

1. We've been asked to build a big water slide from the top of a skyscraper and need to decide what's going to be the best material.

2. What do you think will be the best? (Audience makes hypothesis)

3. Why do you think that will be the best? (Audience explains their hypothesis)

4. *Test their hypothesis. Apply water droplets with the water droppers to the top of the tapes/sand-papers and then watch the droplets slide down.

5. Allow the audience to reflect on their hypothesis.

6. See if the audience want to test another hypothesis depending on their reflection.

Things to think about

Materials selection is essential for engineering. Sometimes the 'best' material cannot be used as compromises need to be made. This is an essential skill when making decisions as a materials scientist and engineer.

Credits

Written by: Dan Scotson
Activity developed by: Dan Scotson, Tess Knowles and Niamh Fox

This activity is part of Mapping Materials Science and Engineering' project funded by the Royal Academy of Engineering's Ingenious Awards`

To watch the video of this activity, and to see other activities and videos developed during this project, following this link or QR code:

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