

Year 3 Slippy Shoes with Melanie Windridge

Part of the Ogden Phizzi CPD Forces programme Slippy Shoes is an investigation into friction. Can you design a comparative test to find out how the surface you are walking on affects the size of the frictional force acting on your shoe? A Phizzi enquiry resource sheet to support your classroom activities can be found at www.ogdentrust.com/resources.

Transcript

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Phizzi Forces - Slippy Shoes Dr Melanie Windridge - Physicist

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Friction is a force that opposes motion - it allows us to walk. When our foot touches the

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ground, friction stops it from slipping away and it allows our body to push forward - that's how we

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walk. But what if the surface we're walking on is slippery, like ice. How does that affect things and

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what about different shoes? Now I'm here at Everest base camp - I'm in the icefall but lower down the

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mountain I was using walking boots like these - they have a fairly grippy sole, so on the paths they

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have more grip than the say my trainers would or a pair of flip-flops. But up here in the ice, where

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it's slippery, we need to use something different. So, up here, I have these big boots. Now part of the

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reason that they're big is that they're very insulated so they keep my feet warm but look

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at my soles - I have really grippy soles and on top of that I can put these things. These are called

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crampons- they're spikes that stick into the ice. So I'd attach these to my boots and these spikes,

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they stick into the ice and that means that we have a much higher frictional force and much more

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grip, and this allows us to walk happily and safely on the ice.

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Can you investigate the factors that affect the frictional force between surfaces?

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Your challenge is to plan a comparative test to find

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out how the surface you are walking on affects the size of the frictional force acting on your shoe.

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Presenter: Dr Melanie Windridge

Camera: Robert Hollingworth

Editor: Dave Thomas

Filmed on the Khumbu glacier, Mount Everest