Snow & Ice - How do they travel over snow and ice?

Fact

- First of all think about the properties of snow and ice so you can work out how to move things over them.
- Freshly fallen snow is very softly packed and would feel like walking in very soft sand. After a few days the snow may become more tightly packed and it may also have frozen so it would be a bit like walking on a slippery wet path.
- To stop sinking into fresh snow we need to spread the weight or load of the thing that's travelling over the snow so it's easier to travel.
- When the weight is concentrated into one small area the pressure on the snow causes it to compact down or shift so you sink into the snow.
- If the weight is spread over a greater area the pressure on each area isn't as great so you don't sink so much.
- To move over ice we need to make the most of the fact that there is very little friction but we need to be able to start, stop and turn easily.
- We use sharp blades or toe blocks to give us friction with the smooth ice to help control our movement.

Do you know

- Huge vehicles like a Hagglund vehicle can sit 16 people and it can move across snow and ice easily because of the tracks a Hagglund uses instead of wheels. A bit like the tracks on a digger. This means the weight of the Hagglund is spread out over a much bigger area so the pressure on the ground is much lighter than if it had several small wheels.
- Hagglunds are the vehicles used in both the American Antarctic Programme and Antarctica New Zealand in Antarctica and you can ride in one at the Christchurch Antarctic Centre.
- Antarctica is the coldest, windiest and driest place in the world. It's the driest because it is so cold there that the water does not even evaporate and change into water vapour in the air. In the coldest winter temperatures, most of the water there is solid ice!
- Winter lasts for 6 months and it's dark all day and night. In summer it's still not very sunny because the sun is never overhead it's only low on the sky's horizon and there's very little heat from the sun at that angle!

Experiments you can do

If you get a chance to visit a place that has snow test out the pressure points. You can also try this at the beach or in a sand pit!

What you do:
Find some fresh snow or dry sand. Press your finger (if you're in the snow make sure you've got a glove on!) into the snow or sand. Does your finger sink in easily? Now try your flat hand. Does it sink in as easily? That's because the weight of your push has been spread out over the snow or sand so the pressure isn't as strong as it is just under your fingertip.

Women's shoes that have very thin high heels called stilettos focus the pressure so much that the heels can damage wooden floors.

Look at the soles and heels of different shoes. Look at high heeled shoes and compare them to shoes used for sport or walking. Compare shoes that are the same size (not kids with adults' shoes!) How are they different and why do you think that is?

Other Investigations
Find out more about Antarctica. What animals live there and how do they get across the snow? Or do they spend most of the time under the snow in the ocean?

Jokes
Where does ants go for a vacation? Ant-artica
From A Cefre

How do you clear ice off windows on tall buildings? With a Sky Scraper
From Shanice

Why shouldn't you tell jokes when you're ice-skating? Because the ice might crack up
From Kirstey

Knock Knock
Who's there?
Snow
Snow who?
umm... umm... snow-use, I can't remember! (it's no use I can't remember)

From Danting Chen