



Cold - How do you keep warm in Antarctica?

Fact

- The simple answer is lots of insulation and you get that by putting on layers of clothes which trap the air between layers to keep your body heat in. Plus a windproof layer to keep the chilling wind out.
- Our bodies do have a few natural ways of keeping warm besides clothing. Hair (especially on our heads), body fat which gives a layer of insulation, and shivering which is our bodies way of trying to warm up.
- But in Antarctica you need more than your body to keep warm. The first layer would consist of Polyprop thermal underwear followed by polar fleece for your top and bottom. Next comes overalls and a bush shirt plus an anorak especially designed to keep the wind out and then an outer jacket for added insulation. On your feet you would have special boot liners and special boots called "mukluks". Polyprop gloves plus woollen gloves for insulation, followed by leather gloves to keep the wind out and then mittens. On your head you would have a neck gaiter, headband, balaclava and polar jacket hood.

Do you know

- The average temperature at Scott Base is minus twenty two.
- Clothing in Antarctica doesn't need to be waterproof because it is one of the driest places on earth. It gets about as much rain as the Sahara Desert.
- Wind chill is caused by Convection. The heat from your body gets moved by the fast moving air.
- Antarctic has massive winds that blow off the icy cold continent so fast that they would break the speed limit

Experiments you can do

On a cold windy day experiment with layering. Explain to your folks what you're doing first so they don't think you're crazy!

First of all go outside with just your long sleeved skivy on. How do you feel? Do you feel cold? Can you feel the wind pushing through the fabric to your skin?

Go inside and warm up then put on another tight fitting skivy. Go outside and see if that keeps you warm. (don't stay out too long)

Warm up inside again then take your extra skivy off and put on a jumper and maybe a windbreaker. Go outside and see how cold you feel now? The windbreaker should keep the wind out of your clothing and the loose weave of your jumper will trap lots of air next to your skivy and your body which will warm up and give you good insulation to keep you warm.

Other Investigations

Think about the kinds of insulation animals use. Farm dogs, sheep, cows and penguins don't wear layers of clothing to keep them warm. What do they have that will keep them warm in winter?

Think about how some animals moult (shed their hair) in spring. How would that affect them? Next time you're having a roast or maybe a pork chop look at the fat on the outside of the meat. Why would an animal store its fat there?

Jokes

What do you drive when you're at the South Pole. An Antarcti car (Antartica)