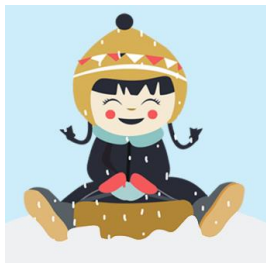


Snow + Sled + Slope = Science!

When you head out for a day of sledding, why not add a bit of science to the adventure!



You will need:

Snow (lots of it)

A sled (see if you can gather sleds made of different materials, e.g. wood, plastic, foam)

A hill (make sure it is steep, away from a road, and has a long flat straightaway at the bottom)

Gloves, hats, coats, snow pants, and lots of curiosity!

What to do:

Take a moment to sit on your sled at the top of the hill (without angling the sled). What do you notice? Are you moving? Chances are, you aren't moving at all. This is Newton's First Law of Motion! Newton's first law says "an object at rest will stay at rest". In other words, objects keep doing what they are already doing unless acted upon by an unbalanced force. The reason you don't move at the top of the hill is that all of the forces acting on you while sitting on a sled are balanced. In order to move down the hill, you need an external force to start you moving. In other words, you need a push!

Go ahead and push yourself. Yippee!

So if Newton's first law is correct you should continue moving in a straight line at the same speed. Why do you eventually stop at the bottom of the hill? The answer is that there is another force that acts on you and your sled to stop you from moving. This force is called friction and it acts between the sled and the snow to eventually slow you down. There is usually less friction between two smooth objects than two rough objects.

To test this theory, try going down the hill with different sleds made of different materials.

Observe which sleds move the fastest? Which go the furthest? What would happen if you added wax to the bottom of your sled? Does the mass (how heavy the sled is) affect the speed at which the sled moves? Try adding weights to your sled, or add a friend. Does this make your sled go faster or farther?

So many sledding experiments await for you on the slopes this winter.

Be curious, ask questions, be safe but most of all, have fun!



Scientists in School has lots of fun, hands-on activities! Check them out on our website:
<https://scientistsinschool.ca/resources/>