Make a Mini Hovercraft

What you need:

- Old CD Disk
- Top of a plastic bottle
- Duct Tape
- Balloon

Instructions:

1 Cut the top off the bottle and leave about 2cm of the funnel part of the bottle. Any bottle top can work but a bottle top with a valve like a pump water bottle is handy as you can use this to let the air through or not.

2 Tape this over the hole in the centre of the CD. Make sure there is tape all the way around so that no air can escape. You can use a glue gun but I have found duct tape effective.

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Instructions:

3 Blow up the balloon and place this over the bottle top, holding it so that the air cannot escape. A trick to make this easier is to twist the balloon a couple of times. It is a bit awkward but once you have done it once it is easy!



4 Choose which surface you want to run your hovercraft on, and let go of the balloon giving it a little push at the same time.



5

Repeat as many times as you want by removing the balloon and reflating.

If someone different is having a turn make sure you use a new balloon.

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The Science Behind it:

A HOVERCRAFT

A hovercraft is a vehicle that glides over a smooth surface by riding on a cushion of air.

The air cushion greatly reduces friction, allowing the vehicle to glide freely over a smooth surface.

The cushion of air created by the air leaving the balloon reduces the friction between the CD and the tabletop, allowing your hovercraft to fly across the top. This is just like a puck on an air hockey table.

Friction is the action (force) of one object rubbing against another surface.

When you test your hovercraft on carpet v wooden floor v concrete v tabletop there will be different amounts of friction. In general a smoother surface will have less friction and the hovercraft will run faster and further. More friction will slow this down, meaning the hovercraft will run slower and not as far.

Results:

Observe and describe what is happening.

Measure using a tape measure and record how far your hovercraft can travel?

Can you work out the speed of your hovercraft?

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

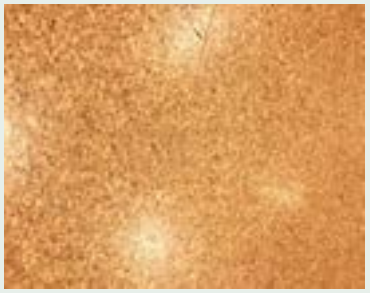
Act Like a Scientist:

Good Scientists like to explore and ask more questions!

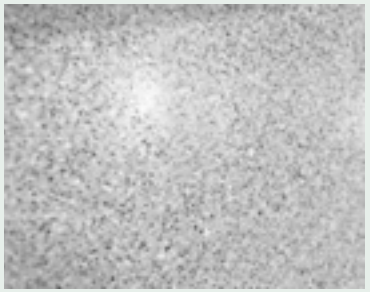
Repeat this experiment and observe the changes

- What would happen if you used a larger balloon?
- Could you use a smaller CD
- What would happen if you did this on different surfaces?

Wooden surface



Cork



Bench Top

Carpet