Arable kids

Lets get experimenting!

Winter is a great time to get creative indoors. Give these activities a go. Try modifying them to see what unique things you can create and exciting discoveries you will make!

Coin Cleaning

You will need:

- A few old (not shiny) 10 cent coins
- 1/4 cup white vinegar
- 1 teaspoon salt
- Non-metal bowl
- Paper towels

What to do:

1. Pour the vinegar into the bowl and add the salt – stir it up.
2. Put about 5 coins into the bowl and count to 10 slowly.
3. Take out the coins and rinse them off in some water. Admire their shininess!

How does it work?

There is some pretty fancy chemistry going on in that little bowl of yours. It turns out that vinegar is an acid, and the acid in the vinegar reacts with the salt to remove what chemists call copper oxide which was making your coins dull. You're not done yet, though, lets try another experiment:

Add more coins to the bowl for 10 seconds, but this time, don't rinse them off. Place them on a paper towel to dry off. In time the coins will turn greenish-blue as a chemical called malachite forms on the coins. But wait, you're still not done yet.

Place one or two nuts and bolts in the vinegar and watch - they may become COPPER in color! The vinegar removed some of the copper from the coins, if there is enough copper in the vinegar, the copper will become attracted by to the metal in the nuts and bolts and they will take on a new copper color – cool!

Questions to ask yourself:

1. Will other acids (like lemon juice or orange juice) work as well?
2. Does this cleaning chemistry work on other coins?
3. Do other amounts of salt make a difference in the chemistry of the experiment?

Build a Tabletop Hovercraft

You will need:

- An old CD or DVD disc
- A balloon
- A pop-top cap from a liquid soap bottle or water bottle
- A hot glue gun, or reasonably strong glue

What to do:

1. If you are using the cap from a water bottle, cover the center hole of the CD with a piece of tape and poke about 6 holes in the tape with a push-pin or small nail. This will slow down the flow of air and allow your hovercraft to hover longer.
2. Glue the cap to the center of the CD or DVD disc. Create a good seal to keep air from escaping.
3. Blow up the balloon all the way and pinch the neck of it. (Don't tie it.)
4. Make sure the pop-top is closed and fit the neck of the balloon over the pop-up portion of the cap. (This is usually easier with two people).
5. That's it! When you're ready to commence hovering, simply put the craft on a smooth surface and pop the top open.

How does it work?

The air flow created by the balloon causes a cushion of moving air between the disc and the surface. This lifts the CD and reduces the friction which allows the disc to hover freely. Large scale hovercraft are capable of traveling over land, snow and water.

Questions to ask yourself:

1. Do larger discs make better hovercrafts? Try using something else as your base – plastic picnic plate, old record album…
2. Does the size of the balloon affect the CDs ability to hover?