



Magic Sand

What seems like **magic** is actually... science! Explore the mesmerising way that sand submerged in water stays completely dry! You'll get to use your "Magic Sand" to build underwater castles, as well as investigate the difference between Hydrophobic and Hydrophilic materials.

Materials

- 🚀 1 flat pan
- 🚀 1 sheet of aluminium foil
- 🚀 Fine sand
- 🚀 Scotchgard or other fabric protector



Method

Step 1: Cover the pan with aluminium foil.

Step 2: Spread the sand evenly on the pan, making a layer as thin as possible.

Step 3: Spray a good amount of fabric protector over the sand and mix it around.

Step 4: Wait until the sand is completely dry and repeat steps 2 and 3, three times.

Step 5: Test your hydrophobic sand! Put a small amount of the sand into a container or spoon and pour some drops of water on it. If the sand gets wet, you need to repeat steps 2 and 3. If the sand stays dry, you are ready to play with it. Don't forget to wash your hands after playing with your magic sand!

What is happening? The Science explained.

Hydrophobic ("water-fearing") substances do not mix with water, whereas Hydrophilic ("water-loving") substances do. Oil is hydrophobic, so it does not mix with water and floats on top of it. Food dye is hydrophilic, so it completely mixes and changes the colour of the water. In a normal situation, the surface of sand grains gets wet by water, that is, water molecules are attracted to sand grains. Your magic sand, on the other hand, is coated with a hydrophobic substance which does not allow the sand to mix with water.

Stop & Think: When you are playing with your finished hydrophobic sand, what happens when you mix it with oil instead of water?

