

## Conductive Play Dough

### Ingredients

1 1/2 cup (355ml) Flour  
1 cup (237) Water  
1/4 (59ml) Salt  
3 tbsp. (15ml) Cream of Tartar  
1 tbsp. (15ml) Vegetable Oil  
Optional : Food Colouring

### Notes:

A conductor allows electricity to flow through it. The salt and water in the dough allow the electricity to flow through making your project light up.

This will also work with dough that you buy at the shop. It must be play dough, not clay.

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### Method

#### Step 1

Mix water, 1 cup of flour, salt, cream of tartar, vegetable oiled food colouring in a medium sized saucepan. A non-stick pan works best.

#### Step 2

Cook over medium heat, stirring continuously. The mixture will thicken, and lumps will begin to form.

#### Step 3

Continue heating and stirring until the mixture forms a ball and pulls away cleanly from the sides of the pan.

#### Step 4

Turn the dough out onto a floured surface. Use caution, as it is very hot at this point.

#### Step 5

Allow dough to cool for a few minutes before kneading flour into it until the desired consistency is reached.

Keep dough in a air tight container for several weeks. If water condensation appears work dough before using.

# Insulating Dough

## Ingredients

1 1/2 cup (355ml) Flour  
1/2 cup (118ml) Sugar  
3 tbsp. (44ml) Vegetable Oil  
1/2 cup (118ml) Deionised Water

Note : You can use regular water but the resistance of the dough will be lower. Deionised water can be purchased in the supermarket.

## Notes:

Insulators don't let electricity pass through them easily. Resistance is a measurement of how insulating something is.

This dough is resistive which means little electricity can pass through it.

You can also use clay which is resistive.

## Method

### Step 1

Set aside 1/2 cup of flour to be used later. Mix remaining flour, sugar and oil in a large pot or bowl.

### Step 2

Mix in a small amount (about 1 tbsp) of deionised water, stirring until the water is absorbed. Repeat this step until large, sandy lumps begin to form.

### Step 3

Turn the dough out onto a floured work surface, gathering it into a single lump.

### Step 4

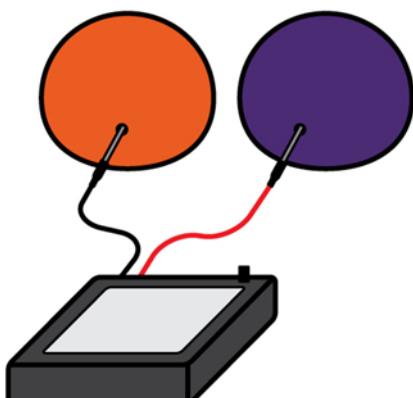
Add small increments of flour or water to make a dough-like pliable consistency.

Keep the dough in an air tight container for up to a week. For longer periods it can be frozen. When not used the oil may separate. Simply add flour before use to remove stickiness and knead before using.

## Let's investigate a simple circuit using Squishy Circuits.

1

Take two pieces of conductive dough and put each battery terminal into one of the pieces.



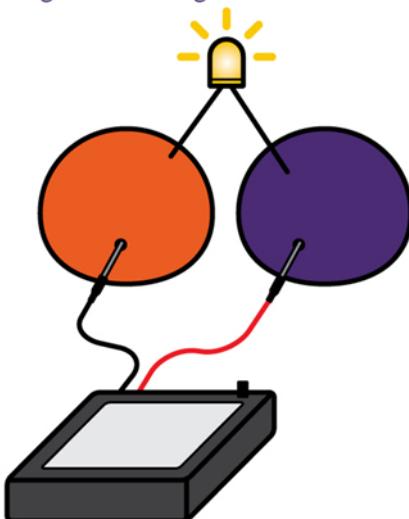
2

Find a LED and separate the terminals apart. Notice one is longer than the other.



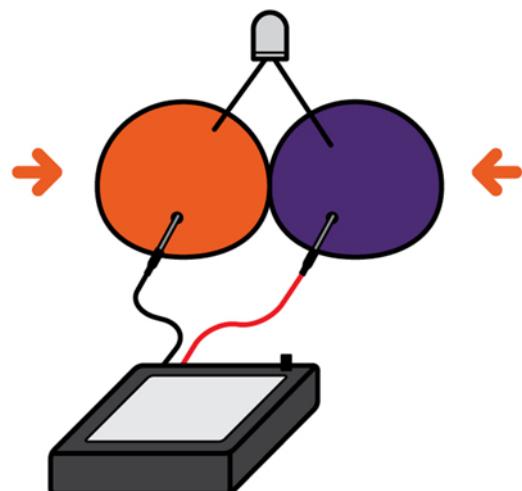
3

Create a circuit by placing each terminal of the LED in the conductive dough pieces. The longer LED terminal should go in the dough with the red battery pack wire.



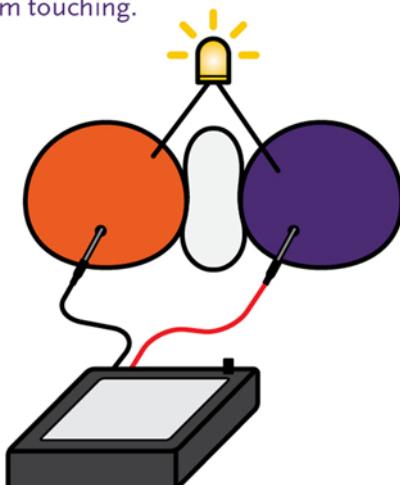
4

Try making a short circuit by pushing the dough pieces together. Notice the LED dims or goes out.



5

Optional: To prevent short circuits, use the insulating dough to keep the conductive dough from touching.



6

Get creative! Try using motors, buzzers, and more LEDs for your creations!

