

How can we use play-dough to make circuits?

Ingredients in conductive play-dough:

Flour
Water
Salt (NaCl)
Lemon Juice
Vegetable Oil

Are there any ingredients here that will make a good conductor? Which one(s)?

Salt (NaCl) would make a good **electrical conductor** because of the metal, Sodium, that makes up salt. Tap water is also a good conductor because it has **ions** such as lead, copper, and nickel.

BONUS: Lemon Juice is made of citric acid, and acids are also good conductors because they break up into charged ions.. Therefore, the lemon juice also contributes to making the conductive play-dough good at its job!

Ingredients in insulating play-dough:

Flour
Deionized Water (water without any metal **ions**)
Sugar

Are there any ingredients here that will make a good conductor? Which one(s)?

None of the ingredients are a conductor, so this play-dough acts as an **insulator**!

BIG IDEA:

We can make play-dough that functions as an electrical conductor by adding salt. The Sodium in the salt is an alkali metal and can therefore conduct electricity.

To make insulating play-dough, we need to make sure none of the ingredients have traces of metal, including the water.

Materials for play-dough (squishy) circuits

Flour	Vegetable Oil	Circuit-Building LED Bulb
Salt	Sugar	Water
Lemon Juice	Food Coloring	Battery Pack
Deionized Water	Flour	Connecting Wires