

Kitchen Chemistry Recipe Book

1. Cornflour Custard or Oobleck

2 parts cornflour to 1 part water + a few drops of food colouring

Add water slowly mixing continuously until you get the right consistency. The oobleck acts more like a solid when impacted but more like a liquid when it relaxes.

Video extensions:

- Creeping Oobleck <http://www.youtube.com/watch?v=Yp1wUodQgqQ>
- Brainiacs – Walking on custard <http://www.youtube.com/watch?v=BN2D5y-AxIY>

2. Flubber

Mix 1 teaspoon of Metamucil with 1 cup of water (+ food colouring) in a microwaveable bowl.

1. Place bowl in the microwave and nuke on high for 4-5 minutes (actual time depends on microwave power) or until the goo is about to bubble out of the bowl. Turn off the microwave.
2. Let the mixture cool slightly, then repeat step 1 (microwave until about to overflow). The more times this step is repeated the more rubbery the substance will become.
3. After 5-6 microwave runs, (carefully - hot hot HOT) pour the flubber onto a plate or tray. A spoon can be used to spread it out.

Alternatives:

Adding some drink mix or jelly crystals can give your slime enough flavour to make it edible

Or you could add glitter for a bit more interest.

3. Fantastic Plastic

In a beaker combine:

60ml water

15 ml glycerine

15ml white vinegar

1 T cornflour

1-2 drops food colouring

1. Stir to mix. Heat the beaker over low heat until the mixture becomes less cloudy, bubbles, and becomes thicker.
2. Pour out on to a sheet of tin foil and leave to dry for a couple of days.

This forms a “biodegradable plastic” with a gel-like consistency.

4. Gluep

Water, PVA glue (Bic), Food colouring, Borax (Sodium Tetraborate), disposable cups and popsicle sticks.

Make a borax solution up by adding 2 teaspoons of borax to 5 tablespoons of water and stirring until the borax dissolves

In a disposable cup, combine 1 tablespoon of water and 1 tablespoon of PVA glue. Add a couple drops of food colouring. With a clean stick, stir the mixture thoroughly until it is uniform.

Add 2 teaspoons of the borax solution into the glue mixture and stir. As you stir, it will stiffen into a soft lump. After the lump has formed, take it from the cup and knead it in your hand for a couple minutes. This is your Gluep. It may start off quite wet and lumpy but it should dry out and become smooth with the heat from your hands. The gluep has a consistency like silly putty – it will bounce and roll like a rubber ball, but flatten out if left to sit.

5. Chemical Reactions in bag

#1 Endothermic (Cold)

2 t baking soda + 2 t tartaric acid or citric acid – mix together in a plastic bag.

Add a small shot glass ½ filled with water. Sit it carefully in the bag.

Squeeze the air from the bag and seal it. Over the sink, tip the bag so the water mixes with the powders. Observe the reaction.

#2 Exothermic (Warm)

2 t baking soda + 4 t calcium chloride (damp rid) – mix together in a plastic bag.

Add a small shot glass ½ filled with water. Sit it carefully in the bag.

Squeeze the air from the bag and seal it. Over the sink, tip the bag so the water mixes with the powders. Observe the reaction.

Both reactions demonstrate a chemical change, producing products that have very different properties to the reactants (e.g. carbon dioxide gas). Relate to the reactions produced in instant cold/heat packs used for treating sports injuries.

6. Frozen Treats thanks to Freezing Point Depression

Sorbet: 1 Cup of Juice

Ice cream: ½ Cup Milk, ½ Cup Cream, ¼ Cup Sugar, ¼ teaspoon of vanilla essence

To freeze: 2 Cups crushed ice, 1 Cup salt, ½ Cup water, small and large ziplock bags

Place the ice cream or sorbet ingredients in the small ziplock bag, seal, and shake to mix.

In the large ziplock bag, place the ice, water and salt. Carefully place the smaller ziplock bag inside the larger bag and seal. **Gently** shake the bag to move the contents around for 10-15 minutes.

If the contents of the smaller bag have frozen you can remove it, or else add more ice and continue for 5-10 minutes.

Enjoy!

Video extensions:

- <http://www.mnn.com/earth-matters/translating-uncle-sam/stories/de-icing-dilemma-do-streets-need-salt>

7.Puff paint

1 T Self-raising flour, 1T Salt, Food colouring, Water, Heavy paper or card small enough to fit in the microwave, Microwave, Paintbrushes or teaspoons

1. Use one small container for each colour you wish to make.
2. In each of the small containers mix a tablespoon of salt with a tablespoon of self-raising flour.
3. Add a few drops of food colouring to the mix, with a different colour in each container.
4. Add a few drops of water at a time to each container, stirring to make a paste. Hint: A thicker paste will end up with more texture but be harder to paint with.
5. Paint your designs using brushes or teaspoons.
6. Place your designs in the microwave on a medium setting for 10 to 20 seconds ONLY.
7. Check on the designs. Repeat step 6 until the designs are dry and the paint has puffed up. Be careful not to burn the paper. Do not touch the paint until it is dry.

The raising agents in the self-raising flour produce carbon dioxide gas that causes the paint to puff up.