Bioplastics recipes

**Year 4**

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# Cornflour-based plastic recipe

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|  | **Bioplastic Film** |
| Cornflour | 1 tablespoon |
| Water | 4 tablespoons |
| Food colouring | Few drops (optional) |
| Vinegar | 1 teaspoon |
| Glycerine | ½ teaspoon |
| Instructions | * Mix ingredients in a saucepan. * Get an adult to heat on hotplate or stove until the mixture starts to boil (bubble). * Reduce heat and continue to heat for 2-3 mins. * Pour mixture onto a baking tray and spread out to make a thin sheet. * Leave to cool and dry for 1-2 days.   Note: Mixture can also be poured into silicone ice-cube tray moulds. |
| Properties |  |

# Milk-based plastic recipe

**(optional extra recipe)**

### Materials

* Milk (1 cup)
* White vinegar (4 teaspoons)
* Measuring cup
* Measuring spoons
* Flask (if you want to heat the milk in advance)
* Mug/heat-resistant cup large enough to hold at least 1 cup of milk
* Paper towels
* Spoon
* Cookie cutters, food colouring, markers
* Stovetop oven and pan */* microwave and microwaveable container

### Instructions

1. **Heat the milk**: Heat 1 cup of milk in a pan over medium heat until it begins to steam. Alternatively, microwave the milk in a microwave-safe container at 50% power for about 5 minutes, or until steaming.
2. **Store the milk**: If you're not proceeding immediately, store the hot milk in a thermos to keep it warm until ready to use.
3. **Add vinegar**: Pour 4 teaspoons of white vinegar into a heat-resistant mug or cup.
4. **Combine milk and vinegar**: Add the hot milk to the mug. You should see the milk begin to form white clumps (curds).
5. **Stir**: Gently stir the mixture for a few seconds with a spoon to help the curds form.
6. **Prepare paper towels**: Stack four layers of paper towels on a flat surface that can safely get damp.
7. **Extract curds**: Once the milk mixture has cooled slightly, use a spoon to scoop out the curds, tilting the spoon against the side of the mug to remove excess liquid. Place the curds onto the paper towel stack.
8. **Absorb excess liquid**: Fold the edges of the paper towel over the curds and press down to absorb any remaining liquid. If necessary, use additional paper towels to soak up the excess.
9. **Form the milk plastic**: Knead the collected curds into a ball to form milk-based plastic.
10. **Decorate:** If you want to make the plastic into something, you can colour, shape or mould (within an hour of making the plastic dough) and leave it to dry for at least 48hrs