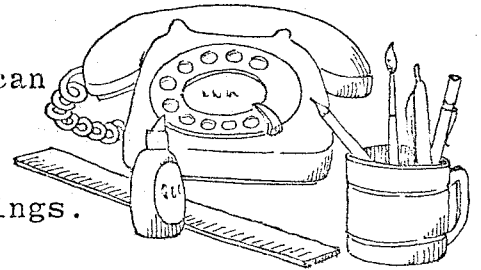


## 1 It's a Plastic World

Plastic is used to make many things.  
Imagine what life would be like without plastic.

- ➡ Write the heading: **MADE FROM PLASTIC**
- ➡ Now look around you. List all the things you can see that are made from plastic.
- ➡ Write another heading: **WHY USE PLASTIC?**
- ➡ Explain why plastic is used to make so many things.



## 2 Making Plastic



You can make a type of plastic out of milk!  
Here's how:::~::~:

**1** Pour about 50ml of fresh milk into a large beaker.

**2** Gently warm the milk to about 50°C.

**3** Use a dropper to add vinegar to the milk.  
Stir the milk after adding each dropperful of vinegar.  
Keep adding dropperfuls of vinegar until the milk separates into solid CURDS and liquid WHEY.

**4** Use a piece of cloth to separate the curds from the whey.

**5** Place the curds on filter paper and blot them dry.

**6** Make the curds into a button shape and place in a dish or in a beaker.

**7** Your teacher will give you a chemical called **FORMALIN**. Cover the shape with this and leave for 1 or 2 days.  
This will change the soft whey into a hard milk plastic.

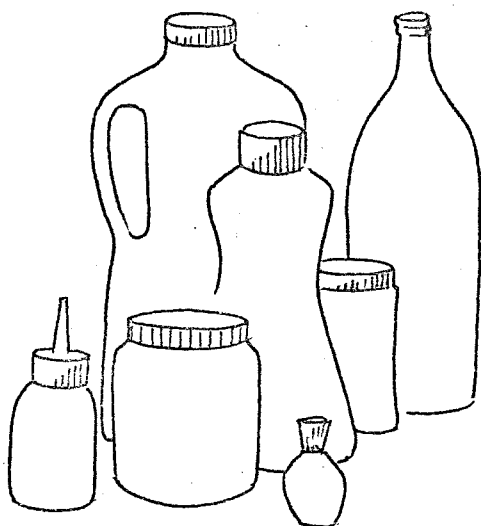
**WARNING:**  
Take care with formalin.  
It can hurt your noes and eyes.

**8** Remove your piece of milk plastic from the formalin and leave it for a few more days to go really hard.  
You can then sandpaper the plastic smooth and drill two holes in the button.

# PLASTICS CHECK-TEST

NAME \_\_\_\_\_

→ List 7 things made from plastic - each starting with one of the letters in the word PLASTIC.



P

L

A

S

T

I

C

YOUR  
RATING

CUT AND GLUE

# PLASTICS CHECK-TEST

NAME \_\_\_\_\_

→ Explain how you could make plastic from milk.

YOUR  
RATING

CUT AND GLUE



## AIM OF ACTIVITY SHEET

To study plastics.

A BASIC SHEET

## OBJECTIVES

After completing this activity sheet, students should be able to:

- name common items made from plastic.
- list some basic properties of plastics.
- follow a set of instructions to make casein plastic.

## MATERIALS REQUIRED

- A large beaker (500 ml).
- A measuring cylinder.
- A thermometer ( $-10^{\circ}\text{C}$  -  $110^{\circ}\text{C}$ ).
- A hot plate or bunsen and tripod.
- Filter paper.
- Cheese cloth (or other loose weave material).
- Dish; eg petri dish, evaporating dish or beaker.
- Fresh milk.
- Vinegar (dilute hydrochloric acid may be used instead).
- Formalin (a 40% solution of formaldehyde in water).

## RESOURCES

- Petchell M J Science for the Eighties. Book 2 (Chapter 9). Coronet Books. 1980.
- ASEP. Polymers.

## EXTENSION WORK SUGGESTIONS

- Use simple moulds to make various shapes with casein plastic.
- Make casein glue by warming curds with a little dilute ammonia solution. (Refer to Science for the Eighties, Bk.2).
- Involve students in project work on plastics; For example:
  - Types of plastic.
  - The discovery of plastics.
  - How plastics are made.
  - Moulding plastic.
  - Embedding in plastic.
  - Fibreglass.
  - What we used before plastics.

## ADDITIONAL NOTES

- Care should be taken with the formalin solution. It can irritate the eyes and nose.
- The temperature of  $50^{\circ}\text{C}$  suggested when warming the milk is not critical, but students should not overheat or boil the milk. The use of a hot plate instead of a bunsen may help prevent this.