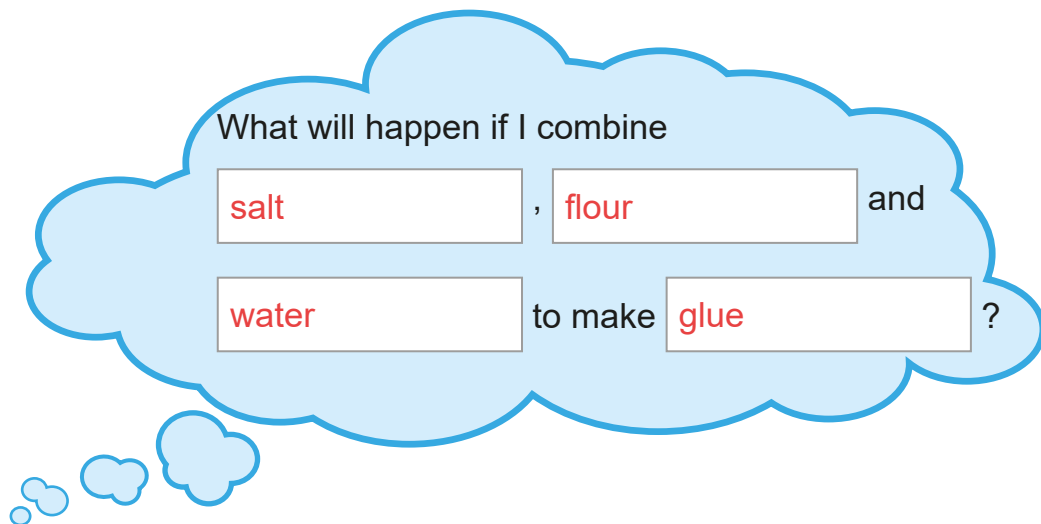


Glue investigation

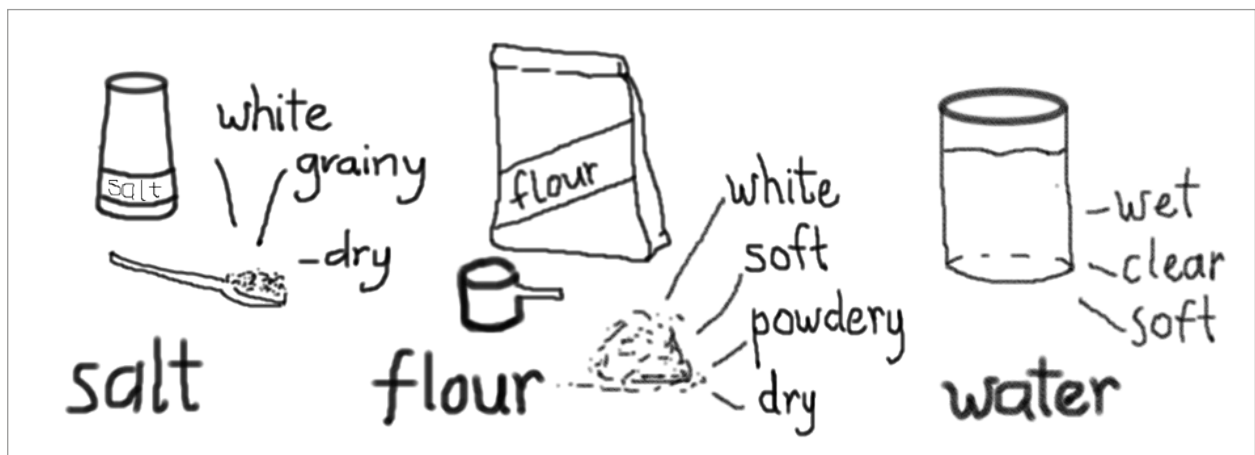
Answers will vary, examples are given.

My question



Materials

Draw and label the materials. Add words to describe their properties.



Go ahead and mix the glue.

For example:

| My prediction | | |
|---------------------------------------|---------|--------|
| Is the mixture strong enough to hold: | Yes (✓) | No (✓) |
| A plastic bottle top | | ✓ |
| Fabric | ✓ | |
| Aluminium foil | | ✓ |

What will happen if different glues are used to stick re-usable materials?

Which glue will be the strongest?

- ☐ The mixture
- ☐ The glue stick
- ☒ PVA

I predict that the best glue for sticking the re-usable materials will be **PVA** because **it is a thick glue and I have used it to glue objects together in the past.**

You now need to test the glues.

Results

Record the results of the test in the table below by writing *stuck* or *did not stick*.

| For example: | Mixture | Glue stick | PVA |
|--------------------|---------------|---------------|-------|
| Plastic bottle top | did not stick | did not stick | stuck |
| Fabric | stuck | stuck | stuck |
| Aluminium foil | did not stick | stuck | stuck |

Evaluation

How could the glue mixture be used?

For example: to stick fabric

How could the glue stick be used?

For example: to stick to light objects such as fabric, foil or paper

How could the PVA glue be used?

For example: to stick to a wide range of materials

Which glue is the best for gluing the re-usable materials?

PVA glue

Apply science knowledge

Discuss these questions:

How do people use glue in their everyday lives?

For example: to stick things together for displays, in artwork, to fix broken objects

What would happen if there were no glues?

For example: we couldn't stick many things together, or fix some broken objects

Why are there different types of glue?

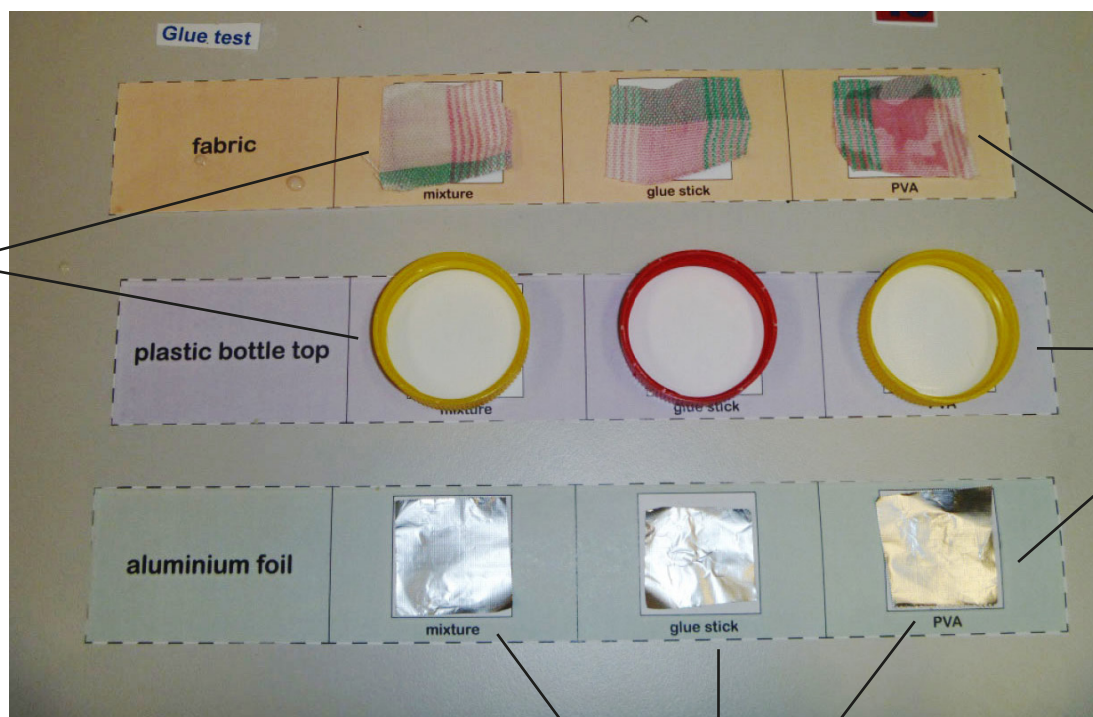
For example: to stick different things together; in some cases strong glue is required and in others weaker glue will do

What types of glues can you think of?

For example: mixture, stick glue, PVA glue, superglue

Glue test

Cut along the dotted lines to make three testing strips. Work with one testing strip at a time. Smear different glues onto each pasting box. Put objects on the glue and press down lightly. Wait for glue to dry. Test the sticking power by turning the testing strip upside down.



The homemade glue is quite weak and doesn't hold the bottle top or fabric securely.

The PVA glue is the strongest glue and holds all materials firmly.

All glues held the foil firmly in place.

Combined materials

Answers will vary, examples are given.

Tick the materials that have been combined to make each object.

Write an answer to each question.

Plastic sleeve



fabric ☐



aluminium ☐



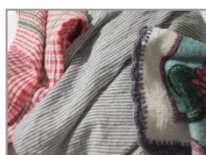
plastic ☒



paper ☒

Why have these materials been combined? For example: You can write on the paper, and the plastic keeps it dry and clean.

Padded envelope



fabric ☐



aluminium ☐



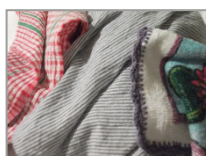
plastic ☒



paper ☒

Why have these materials been combined? For example: You can write the address on the paper, and the bubble wrap stops the object from breaking.

Carry bag



fabric ☒



aluminium ☐



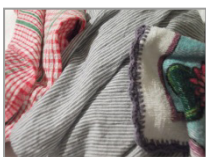
plastic ☒



paper ☐

Why have these materials been combined? For example: The fabric is soft and flexible, and strong for holding things; the plastic is water-resistant and keeps things clean.

Chocolate wrapper



fabric ☐



aluminium ☒



plastic ☐



paper ☒

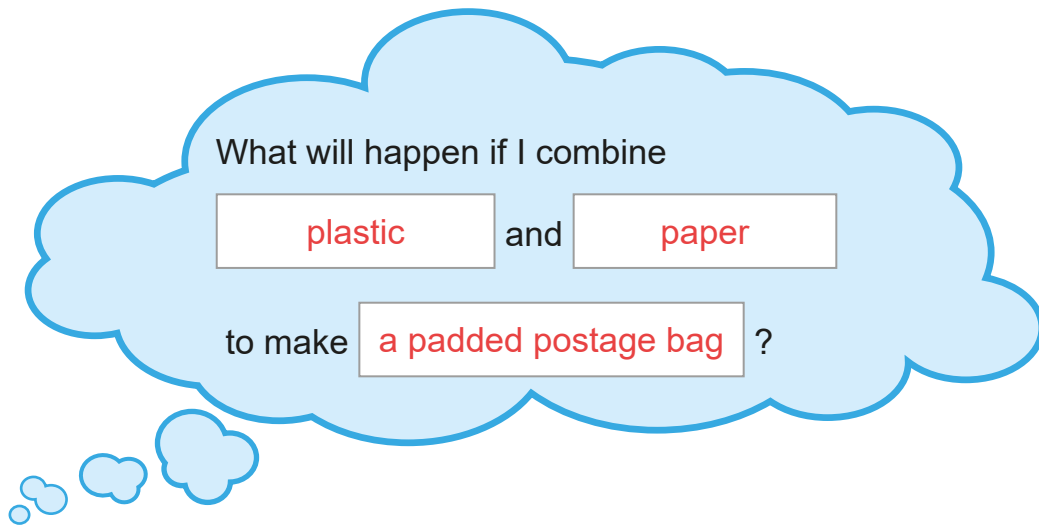
Why have these materials been combined? For example: The aluminium keeps the chocolate fresh, and they can write on the paper to tell us what the chocolate is.

Combined 'materials', 'properties' and 'uses' chart

| For example: | Materials | Properties | Uses |
|-------------------|-----------|--|---|
| Plastic sleeve | Plastic | Transparent, water resistant | Stops the paper getting wet and dirty, can see the paper through it |
| | Paper | Light, printed on | Can write on it |
| Padded envelope | Plastic | Soft and thick, light, water resistant | Protects the mail from being bent or broken |
| | Paper | Light, printed on | Can write the address on it |
| Carry bag | Fabric | Light, flexible, washable | Isn't heavy to carry, can stretch to hold different shaped objects, can be washed |
| | Plastic | Light, water resistant | Isn't heavy to carry, it can be wiped clean, it stops things leaking |
| Chocolate wrapper | Paper | Light, printed on | The name can be written on it so you know what it is |
| | Aluminium | Light, shiny | Folds easily, keeps the chocolate fresh |

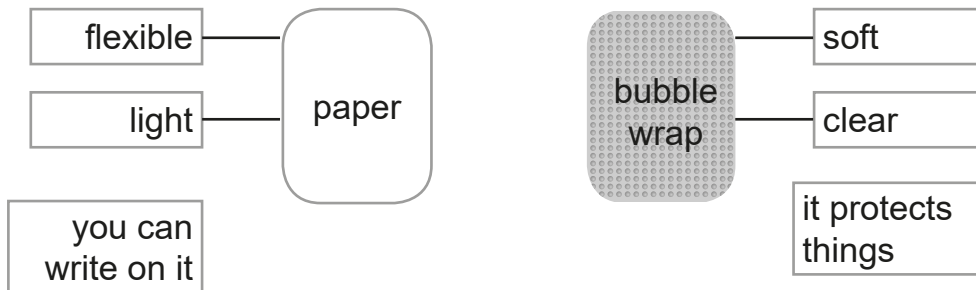
Investigations can answer questions

My question



Materials

Draw and label the materials. Add words to describe their properties.



My prediction

Finish the sentence below.

I predict the padded postage bag will be delivered to the right person and stop the object from breaking because you can write the address on the paper and the plastic bubble wrap keeps the object safe.

Results

Draw and label the object. Describe what was done to the materials to create this object.

Plastic is on
the inside



Paper is on
the outside

The bubble wrap was
glued to the paper. Then
it was folded to make the
envelope.

Evaluation

Discuss these questions:

Why is this object suited to its purpose?

For example: You can write on it, it keeps objects safe.

What could be done differently to improve the object?

For example: It could be made bigger.

Could anything else be used for the same purpose?

For example: You could use a box.

For what other purpose could the object be used?

For example: You could keep things in it.

How else have you seen the materials used?

For example: My grandma sometimes uses bubble wrap to wrap up her toothbrush when she comes to visit.