



Science

Properties and Changes of Materials

Separating Mixtures



Aim

- I can use different processes to separate mixtures of materials.

Success Criteria

- I can identify different ways materials can be mixed together.
- I can use sieving, filtering, evaporating and other processes to separate mixtures of materials.
- I know when to use which processes to separate mixtures.

Supermarket Chaos!

A local supermarket has had a disaster!

Lots of their goods have got mixed up after a delivery truck was loaded up incorrectly.

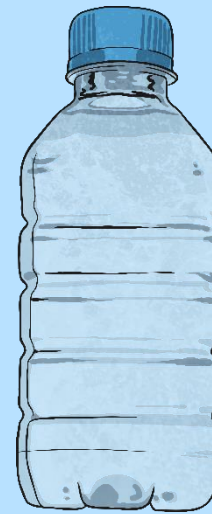
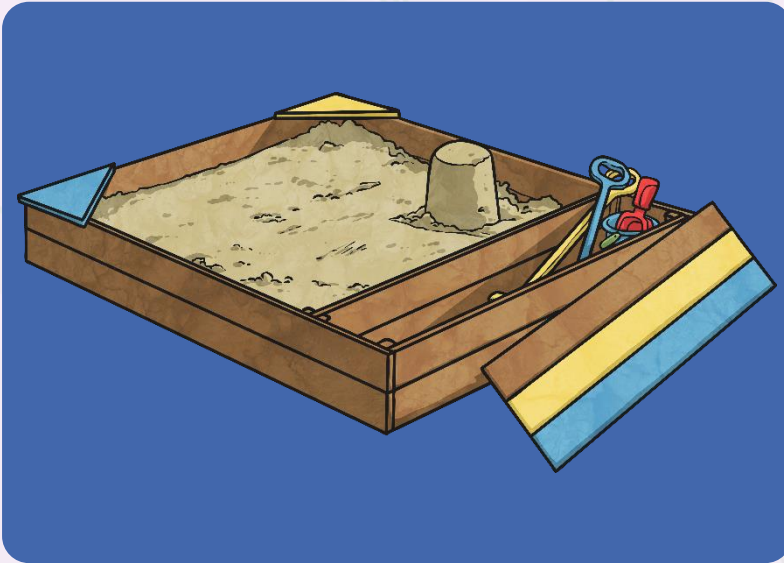
The manager of the supermarket has asked for your help in separating all the items so that they can be put out on the shelves.

Have a look at the jumbled up materials and think about how they have been mixed together.



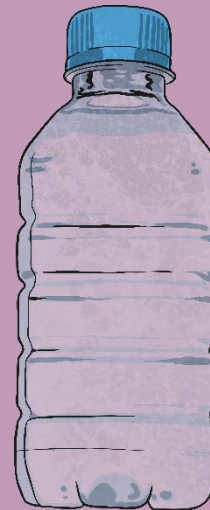
Mixed Materials – Sand and Water

Several water bottles have leaked into a bag of play sand.



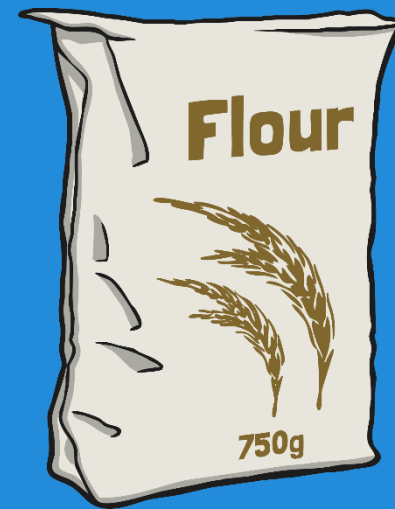
Mixed Materials – Salt and Water

A bag of salt has split open and the salt has mixed with some water from the water bottles.



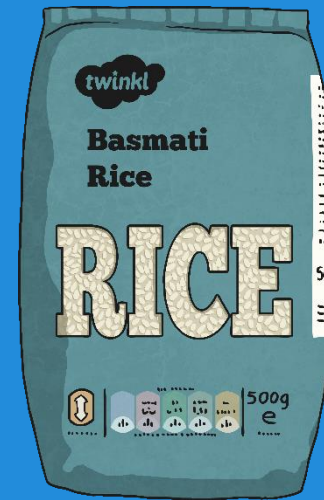
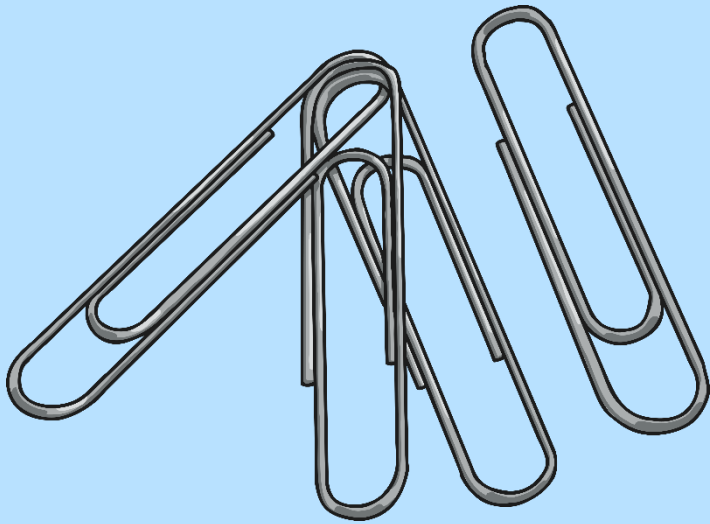
Mixed Materials – Raisins and Flour

Raisins have poured out of their boxes into the bags of flour.



Mixed Materials – Paper clips and Rice

Some boxes of paper clips have spilled into the bags of rice.





Mixed Materials

1. A suspension
- a mixture of a
liquid and solid
particles that
will not dissolve.

2. A mixture of
two solids.

3. A solution - a
solid dissolved
in a liquid.

4. A mixture of
two solids.

A. Sand and
water.



B. Raisins and
flour.



C. Paper clips
and rice.



D. Salt and
water.



Mixed Materials



How did you do?

1. A suspension -
a mixture of a
liquid and solid
particles that will
not dissolve.

A. Sand and
water.



2. A mixture of
two solids.

B. Raisins and
flour.



3. A solution - a
solid dissolved in
a liquid.

D. Salt and
water.



4. A mixture of
two solids.

C. Paper clips
and rice.



Mixed Materials



Since each of these mixtures of materials has been mixed differently, you will need to use different processes to separate them.

Talk to your partner about ways you could separate them.

1. A suspension - a mixture of a liquid and solid particles that will not dissolve.

A. Sand and water.



2. A mixture of two solids.

B. Raisins and flour.



3. A solution - a solid dissolved in a liquid.

D. Salt and water.



4. A mixture of two solids.

C. Paper clips and rice.



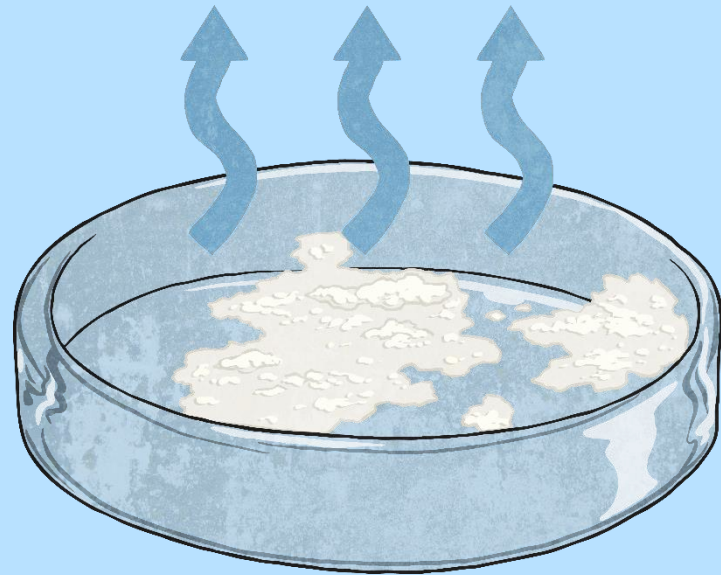
Separating Processes - Evaporation

How?

This process is best used to separate the salt and water solution.

As the salt has dissolved in the water, filtering would not separate the two materials. The salt particles would go through the filter paper along with the water.

When the salt water solution is evaporated, the water will turn into water vapour and leave the salt behind.



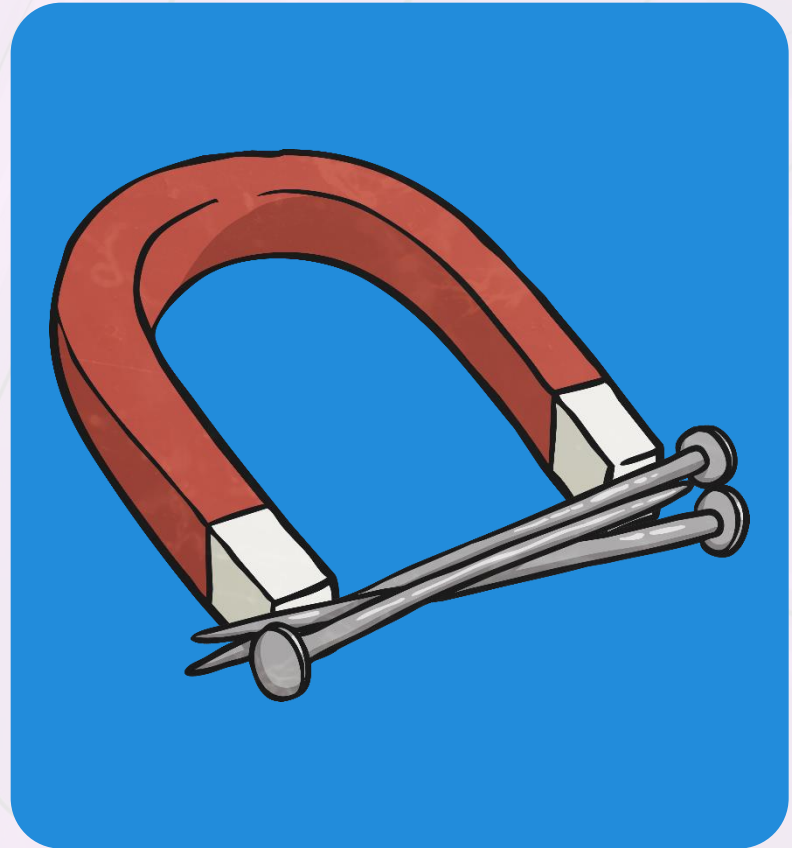
Separating Processes – Magnetic Attraction

How?

Use this process to separate the paper clips from the rice.

The paper clips are made of steel and will be attracted to the magnet.

The rice is not magnetic so will stay in the bowl.

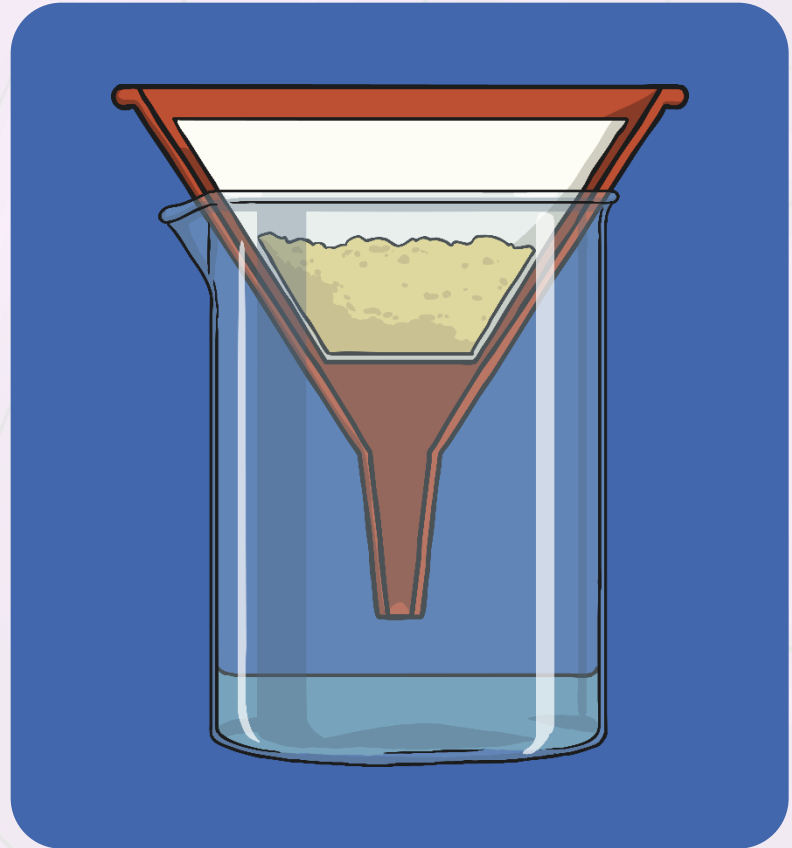


Separating Processes - Filtration

How?

This process should be used to separate the mixture of sand and water.

Sand is insoluble, so it has not dissolved in the water. The sand particles will not be able to get through the tiny holes in the filter paper, but the water particles will. The sand will be caught in the filter paper while the water will get through to the bowl.



Separating Processes - Sieving

How?

Use this process to separate the mixture of raisins and flour.

The grains of flour are much smaller than the raisins, so they will be able to go through the sieve into the bowl below.

The raisins are much bigger, and will get caught in the sieve.

