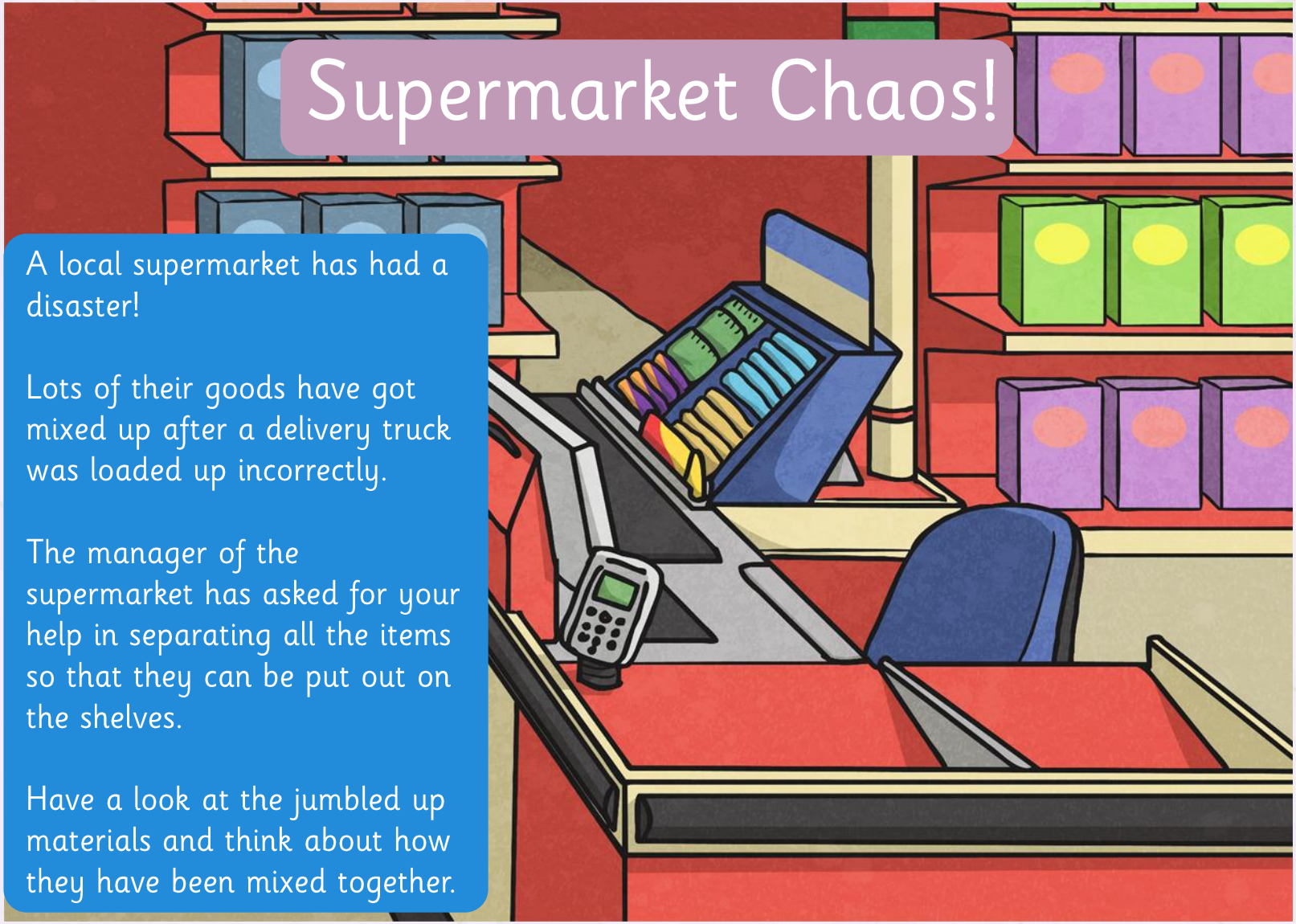

Separating
Mixtures
twinkl

Supermarket Chaos!



A local supermarket has had a disaster!

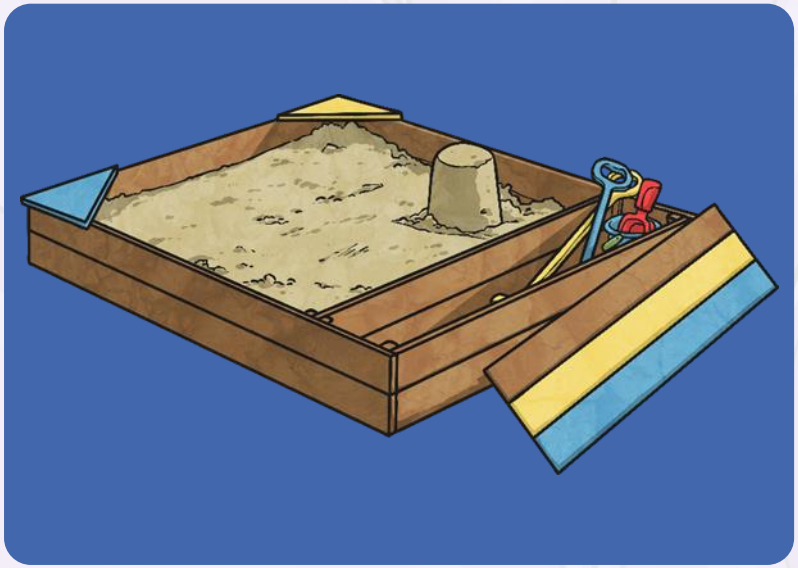
Lots of their goods have got mixed up after a delivery truck was loaded up incorrectly.

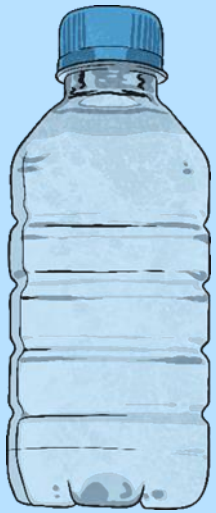
The manager of the supermarket has asked for your help in separating all the items so that they can be put out on the shelves.

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

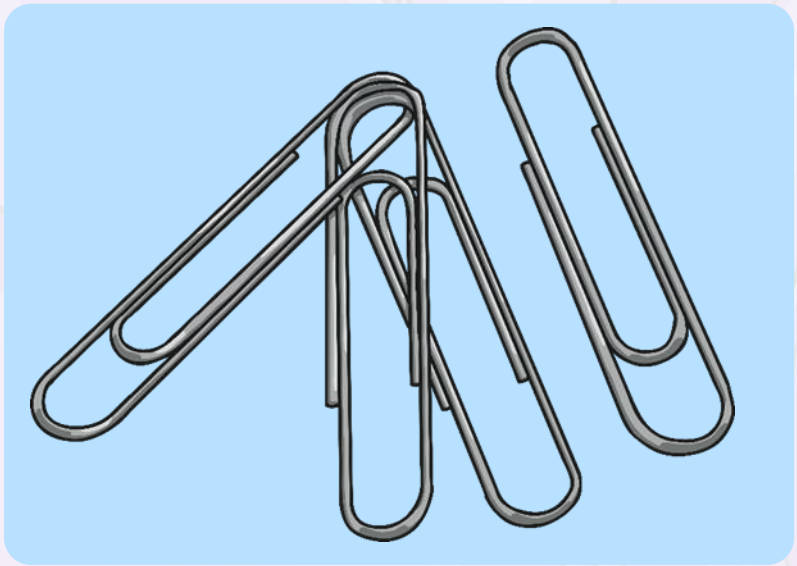
A bag of salt has split open and the salt has mixed with some water from the water bottles.

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.



Can you match the mixture to the definition?

Mixed Materials

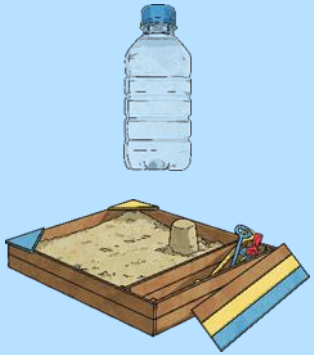
1. A suspension - a mixture of a liquid and solid particles that will not dissolve.

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.

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

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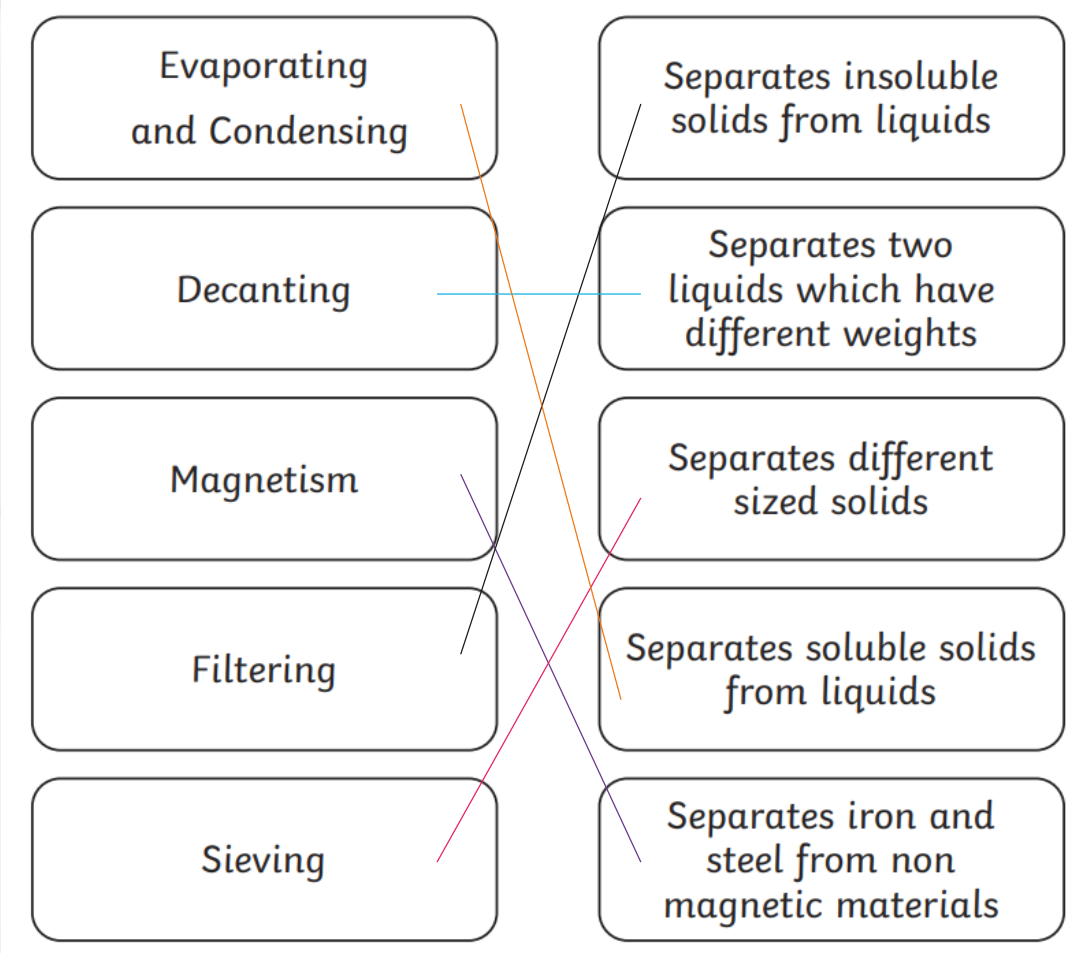
C. Paper clips and rice.

Can you match the process to its correct description?

Evaporating and Condensing	Separates insoluble solids from liquids
Decanting	Separates two liquids which have different weights
Magnetism	Separates different sized solids
Filtering	Separates soluble solids from liquids
Sieving	Separates iron and steel from non magnetic materials

How did you do?



Mixed Materials

Since each of these mixtures of materials has been mixed differently, you will need to use different processes to separate them.
Have a think about ways you could separate them.
You could talk it through with a sibling or an adult at home.

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.

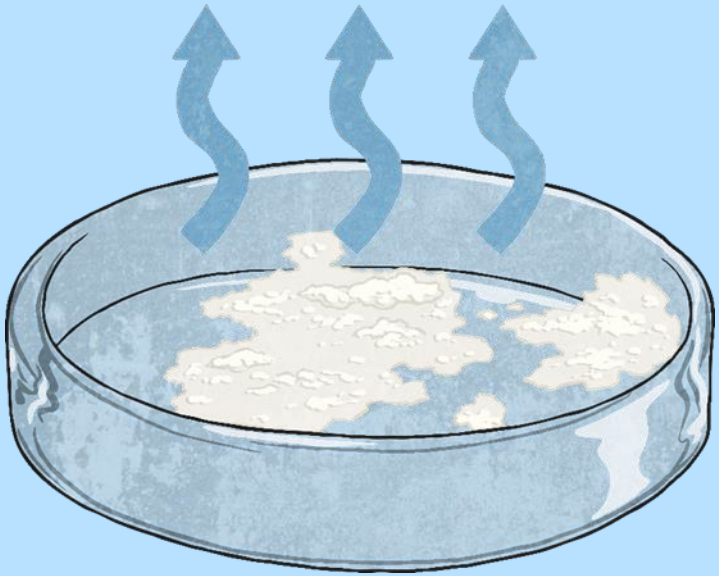
4. A mixture of two solids.

C. Paper clips and rice.

Separating Processes - Evaporation

How?

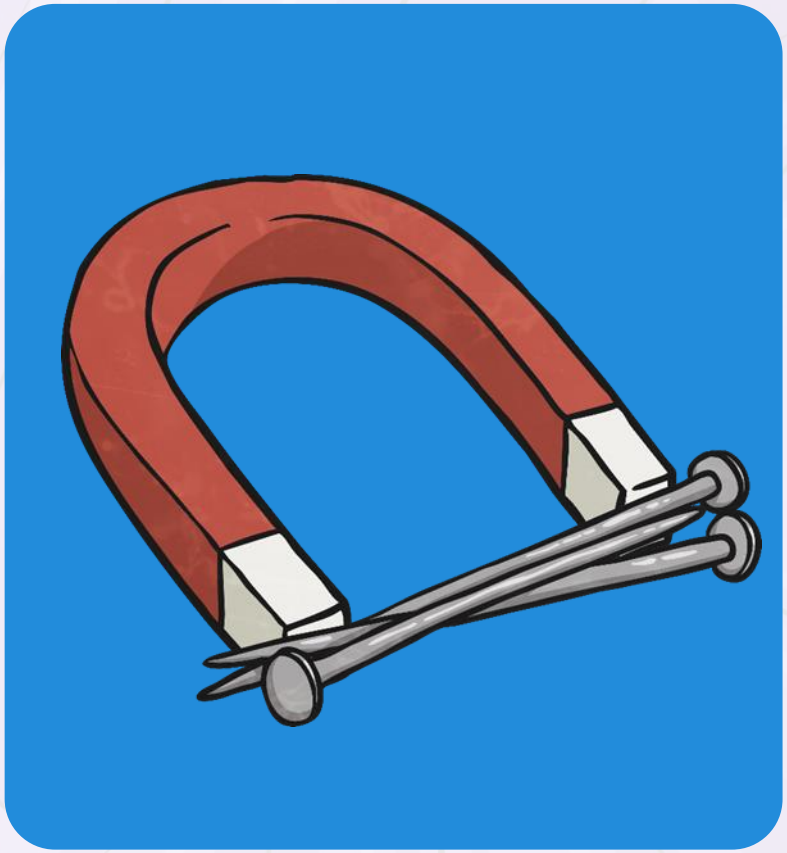
This process is best used to separate the salt and water solution.
As the salt has dissolved in the water, filtering would not separate the two materials. The salt particles would go through the filter paper along with the water.
When the salt water solution is evaporated, the water will turn into water vapour and leave the salt behind.



Separating Processes – Magnetic Attraction

How?

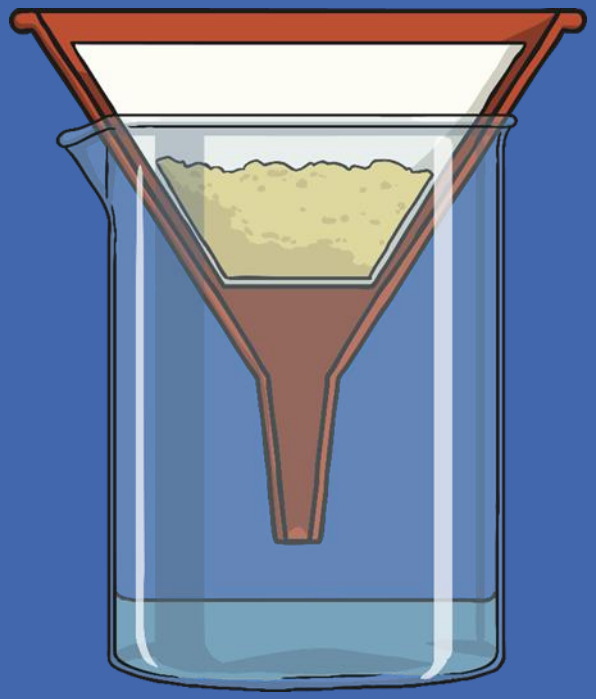
Use this process to separate the paper clips from the rice.
The paper clips are made of steel and will be attracted to the magnet.
The rice is not magnetic so will stay in the bowl.



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.

Complete this activity in your homework book.

Write in the process used to separate each mixture.

Mixture	Process
salt + water	
sugar + water	
rice + pasta shapes	
sand + water	
flour + rice	
paperclips + sawdust	
oil + water	

A Message from the Manager

Thank you for separating the mixed up materials!
Unfortunately, we found one more mixture in the delivery truck. Some of the sand and some of the salt have both mixed with a spilt bottle of water. How can we separate both the sand and the salt from the water?
Note down your ideas in your homework book so we can discuss it in class.