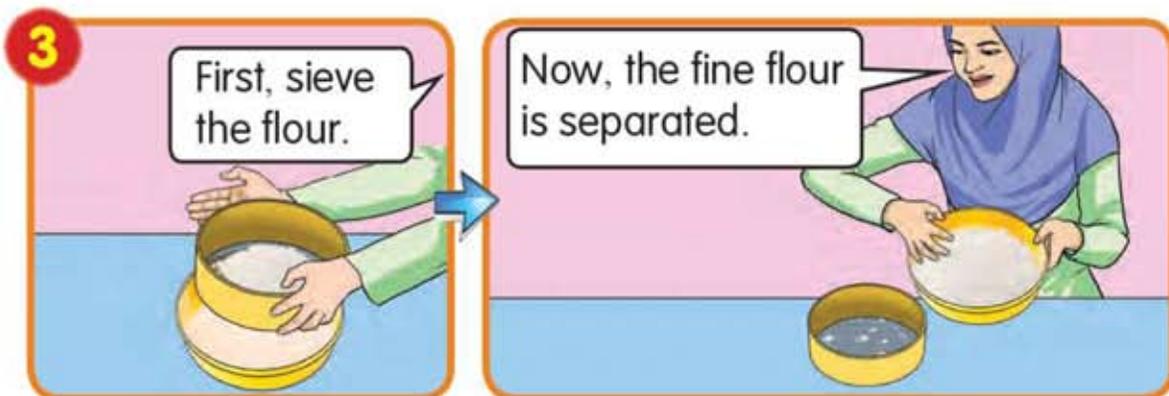
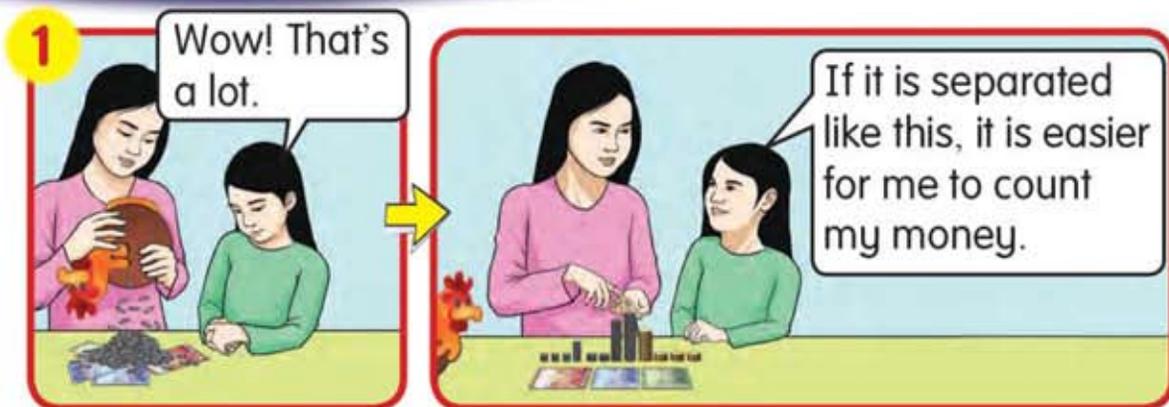


Unit 8

MIXTURE



Why do the materials in the mixtures need to be separated?



Methods to Separate a Mixture



Look at this mixture.
It is a mixture of *muruku* and nuts.



I like *muruku* but I do not like nuts.

I like nuts!



How would Kugan and Kanang separate the mixture of *muruku* and nuts?

We can separate various materials in a mixture using different methods.

Teacher's Notes

- A mixture contains two or more materials that are mixed together.

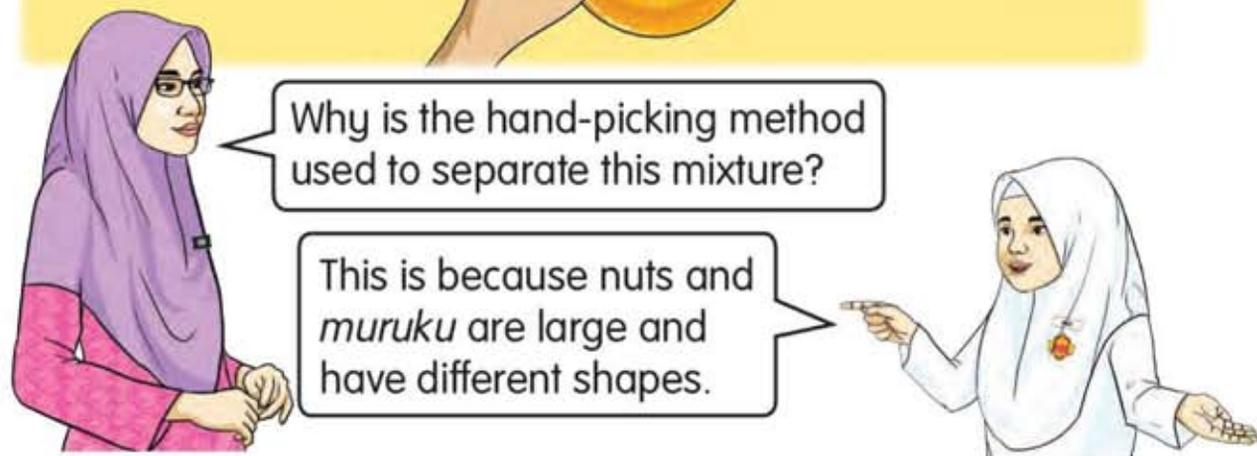
Activity Book

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8.1.1

Kugan and Kanang can separate the mixture of *muruku* and nuts by using the hand-picking method.



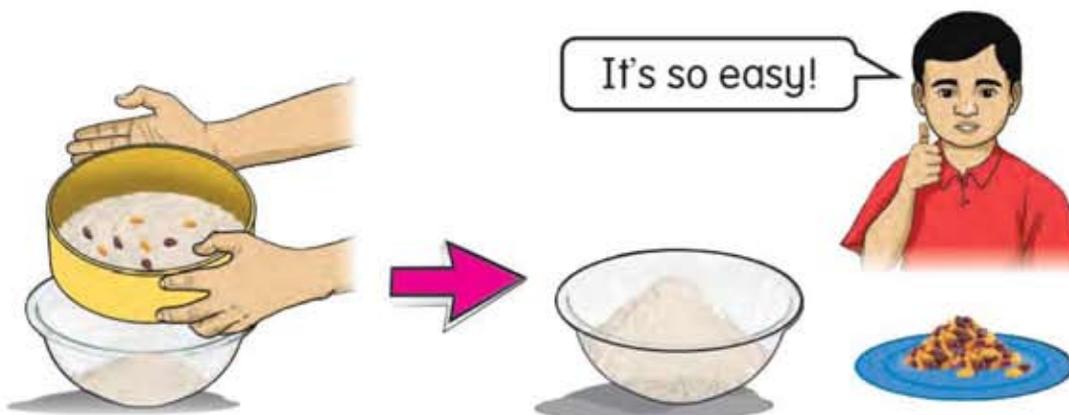
Do you know how to separate the other mixtures?



Suddenly, his brother adds some raisins into the flour.



How can Kugan separate a mixture of raisins and flour?

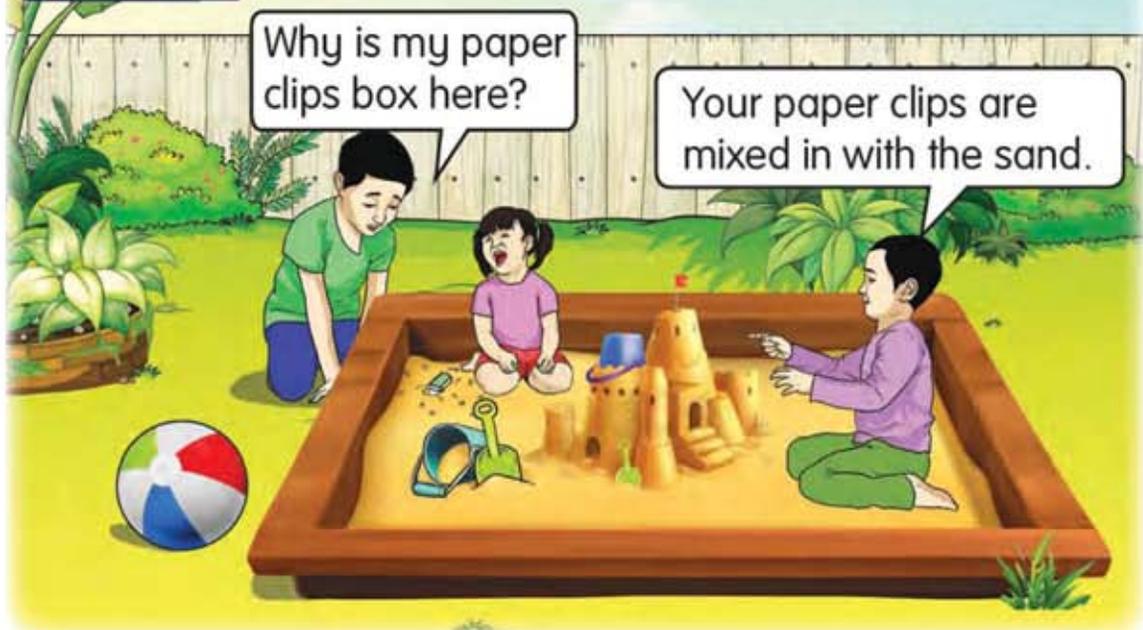


Kugan separates a mixture of flour and raisins using the sieving method. Why did Kugan choose that method?

The sieving method can separate fine-sized materials and large-sized materials.

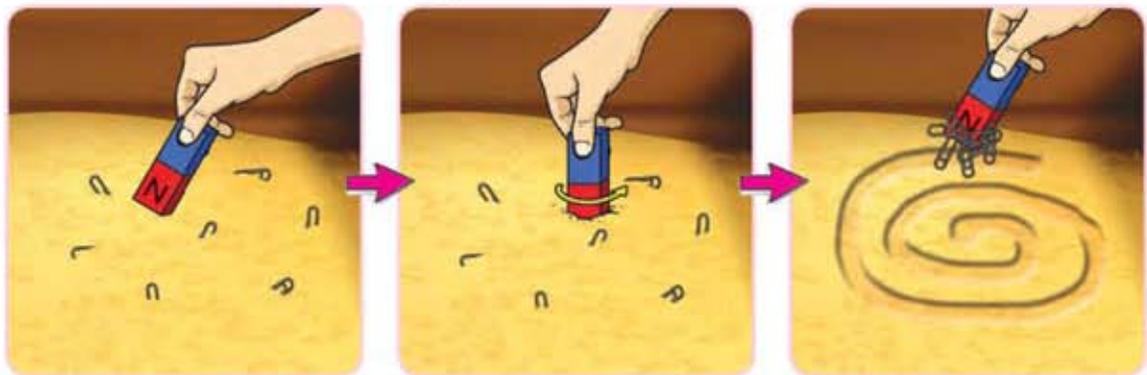


Situation 2



How can Kanang separate his paper clips from the sand?

Kanang can separate the mixture of paper clips and sand using a magnet.



Why did he use a magnet?



Situation 3

I can't wait to rear this goldfish.



Oh, this old aquarium is so dirty. There is a lot of sand and wood debris inside.

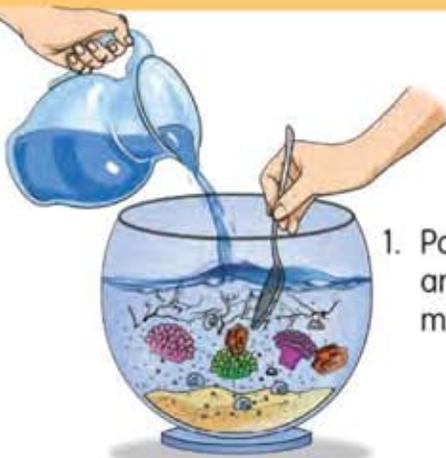


How can we separate a mixture of sand and decayed wood debris?

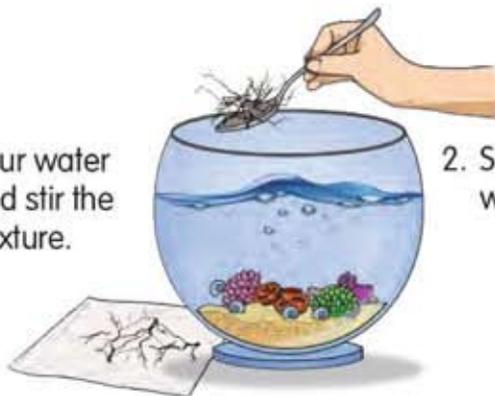
We can separate this mixture using the floatation method.



Yes. Wood debris can float in water.



1. Pour water and stir the mixture.



2. Separate the wood debris.



Situation 4

This investigation needs a coloured liquid from hibiscus petals.

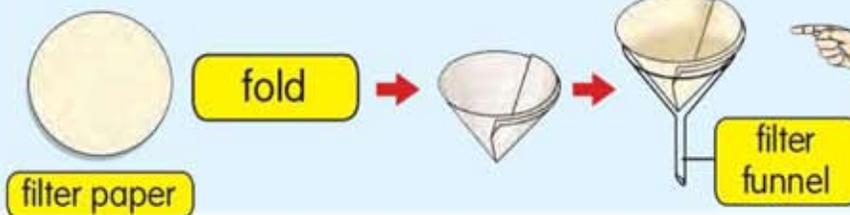


How do we produce this liquid?

Pound the hibiscus petals and dissolve them in water. Then, filter them.



After that, filter the mixture using a filter paper into a conical flask.



Pieces of hibiscus petals will remain on the filter paper. Coloured liquid will be collected in the conical flask.



Why do you separate this mixture using the filtration method?



Using the filtration method, solid materials can be separated from liquid materials.

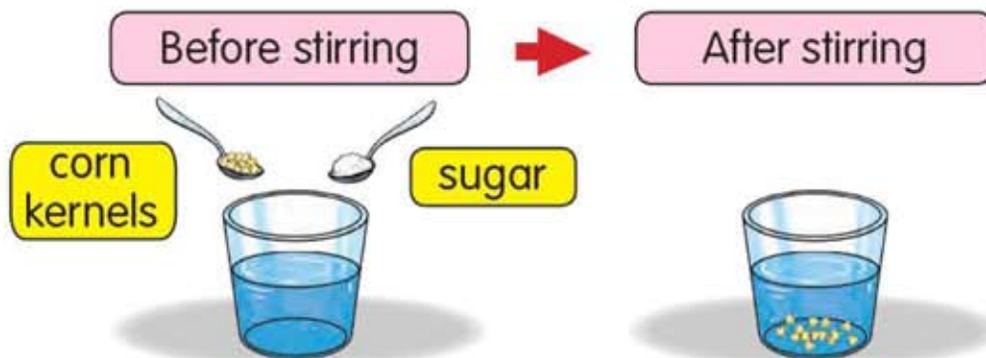


A mixture can be separated using the hand-picking method, the sieving method, magnetic attraction, floatation method, and the filtration method.



Soluble and Insoluble Materials

Nisa adds two materials into a glass of water and stirs.



Eh! Where is the sugar?
Why are the corn kernels still visible?

The sugar is still there, but it has dissolved in the water.
The corn kernels are still visible because they don't dissolve in the water.

Some materials **can dissolve in water** such as sugar. Some materials **cannot dissolve in water** such as corn kernels.



I Investigate >> Stirring a Mixture

Apparatus and Materials

- water
- 3 labelled beakers
- glass rod



1 teaspoon of salt



1 teaspoon of green beans



1 teaspoon of rice

Group Activity

Steps



1. Pour 200 ml of water into each beaker.



2. Add salt into beaker A, green beans into beaker B, and rice into beaker C.



3. Stir the water in each beaker and observe the changes.

B.1.3

Activity Book

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4. Record your observation in the table as shown below.

Beaker	Materials	Visible/Not visible	Dissolve/ Do not dissolve
A	Salt		
B	Green beans		
C	Rice		

Question

dissolves in water. and do not dissolve in water.



Materials That Dissolve More Quickly

Situation 1



Which water can dissolve sugar more quickly?



I Investigate

1

Investigating the Solubility of Sugar in Hot and Cold Water

Apparatus and Materials

- cold water
- hot water
- 2 beakers
- sugar
- spoon
- glass rods

Group Activity

Steps



1. Pour 200 ml of cold water into beaker A and 200 ml of hot water into beaker B.



2. Add one teaspoon of sugar into each beaker.



3. Stir the water in both beakers at the same time.

4. Observe the sugar in beaker A and beaker B. Which dissolves first?
5. Record your observation.

Question

Materials can dissolve more quickly in _____ water than _____ water.

Situation 2



Why is the tea still not sweet even after sugar has been added?



I Investigate

2

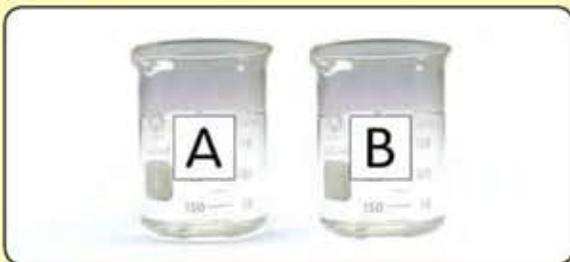
Investigating the Solubility of Sugar through Stirring

Apparatus and Materials

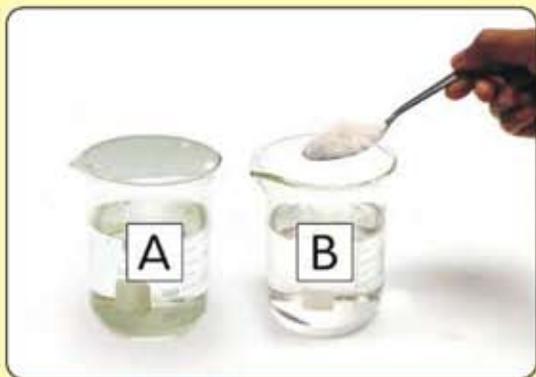
- water
- 2 beakers
- coarse sugar
- glass rod
- spoon

Group Activity

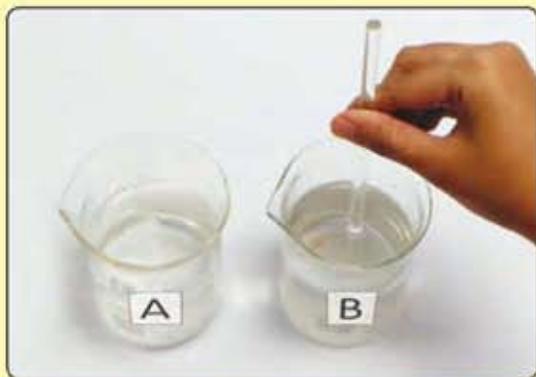
Steps



1. Pour 200 ml of water into each beaker.



- Put one teaspoon of sugar into each beaker.
- Record your observation.



- Stir the water in beaker B only.

Question

Materials can dissolve more quickly in water if _____ (stirred/not stirred).

Situation 3



Why is this coffee still not sweet even though I've stirred it?



I Investigate

>> 3

Investigating the Solubility of Coarse Sugar and Sugar Cubes

Apparatus and Materials

- water
- 2 beakers
- spoons
- glass rods



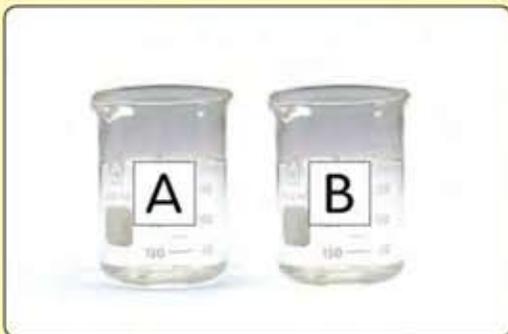
coarse sugar



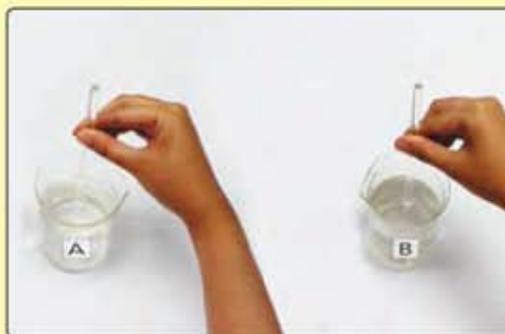
sugar cubes

Group Activity

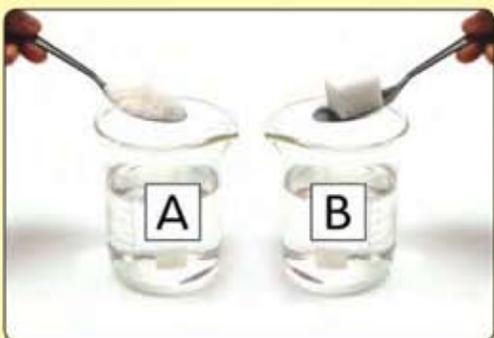
Steps



1. Pour 200 ml of water into each beaker.



3. Stir the water in both beakers at the same time.



2. Add one teaspoon of coarse sugar and one cube of sugar into each beaker.

4. Record your observation.

Question

 (Big/Small) sized materials dissolve more quickly than  (big/small) sized materials.

What can you conclude from the three investigations?

Materials can dissolve more quickly in hot water, when they are stirred, and when they are small in size.



Science Recreation

Decorative Paper

Tear up a piece of recycled paper.

Blend it finely with some water in a blender.

Add a few drops of food colouring. Filter the mixture. Flatten and press the paper residue on a tray and leave it to dry. Remove the sheet of paper that has been formed. Create an attractive greeting card with your decorative paper.



I Remember

Methods to separate a mixture

Hand-picking	to separate two big-sized materials
Sieving	to separate fine-sized materials and large-sized materials
Magnetic attraction	to separate materials that can be attracted by a magnet
Floatation	to separate materials that can float from materials that sink
Filtration	to separate solid materials from liquid materials

Materials can dissolve more quickly when:

- using hot water
- being stirred
- it is small-sized



I Answer

Answer all the questions below in your Science exercise book.

1. Name suitable methods to separate the mixtures below.



paper clips and staples



iron powder and beach sand



corks and sand



green beans and flour

2. Tick (✓) the materials that can dissolve in water.



sugar



sand



salt



stone

3. State 3 methods to dissolve materials more quickly.

