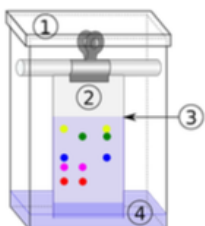


Separating Mixtures

Separating Mixtures

Many of the substances we use everyday were once part of a mixture. Humans have been separating mixtures for many years. In ancient history, industrious humans separated metal from ore to make tools and weapons. Read below to learn more about some of the common separation processes.

Separation Process	How It Works
Paper Chromatography 	This method is commonly used in the food industry. It is used to determine how many substances are in a mixture and what the substances are. The process works like this: 1) Smear the mixture on filter paper 2) Place the paper in a solvent. The various substances that make up the mixture will be attracted to the solvent at different rates, which allows us to see the different substances in the mixture 3) The filtered paper will show the separated substances attached to the paper.
Filtration 	Filtration is used to separate insoluble solids from a liquid. We use filtration in water treatment plants where the water from rivers is filtered to remove solid particles. To filter a liquid, we use filter paper to allow only the water to pour through the paper. The solid particles cannot pass through the paper, which means they are filtered out and separated from the liquid.
Evaporation 	Evaporation is often used to separate a homogenous solution. When salt has dissolved into a liquid, we can evaporate the liquid to separate the salt again. Evaporation occurs when we heat the liquid to its boiling point. The liquid becomes a gas and when all the liquid has evaporated, the solid particles remain. We can use simple distillation to collect the evaporated water (condensation) to enjoy clean water.
Magnetism 	Magnetism is ideal for separating a mixture of two solids with one part having magnetic properties. If we mixed sand and iron together, it would be difficult to pull all the little pieces of iron out manually. Instead, we could use a magnet to attract the iron pieces out of the sand, leaving only the sand remaining.

Name: _____

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Separating Mixtures

Separation Process?

Read the scenario and write which process you'd use

1. Separating stone from water	
2. Separating and determining which chemicals are in a liquid	
3. Separating salt from water	
4. Separating metal from rocks	
5. You spilt coffee grinds in your coffee and want to remove them	

Questioning

What questions do you have after reading the information?

1)	
2)	

Questions

Answer the questions below using evidence from the text

1) When have you ever separated substances in a mixture?

2) Why is it important for humans to separate mixtures? How would life be different if we couldn't separate mixtures?

Name: Answers

40

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Separating Mixtures

Separation Process?

Read the scenario and write which process you'd use

1. Separating stone from water	Filtration
2. Separating and determining which chemicals are in a liquid	Paper Chromatography
3. Separating salt from water	Evaporation
4. Separating metal from rocks	Magnetism
5. You spilt coffee grinds in your coffee and want to remove them	Filtration

Questioning

What questions do you have after reading the information?

1)	
2)	

Answers will vary

Questions

Answer the questions below using evidence from the text

1) When have you ever separated substances in a mixture?
<u>Answers will vary</u>
2) Why is it important for humans to separate mixtures? How would life be different if we couldn't separate mixtures?
<u>We need to separate mixtures so we can extract valuable substances for our everyday lives. Minerals like iron ore are extracted from mixtures so we can make steel.</u>