

## Solutions

### Learning objectives

- 1 Correctly use key words related to solutions.
- 2 Describe how mass is conserved when solutions are formed.
- 3 Draw/interpret particle diagrams for solutions.
- 4 Write independently about solutions.

### Introduction

Most chemical reactions, including the ones in our bodies, are carried out in solutions. We drink solutions, use them to preserve our food and clean our houses. Solutions are all around us.

### Instructions

1. Stick the structure strip in the margin of your exercise book/paper.
2. Reflect on what you already know about solutions, and where you have seen the key words before. Follow the prompts and use your knowledge to write a summary of solutions. If you'd like more support, what other sources could you use to find the information, e.g. a textbook, online?
3. Answer the extension question to apply your knowledge of solutions to a new context.

### Key words

Use these key words in your responses:

• solute • solvent • soluble • insoluble • solution • dissolve

Structure strip Solutions	Structure strip Solutions	Structure strip Solutions	Structure strip Solutions	Structure strip Solutions
<p>Define the following key words, giving an example where possible:</p> <ul style="list-style-type: none"> <li>• solute</li> <li>• solvent</li> <li>• solution</li> <li>• soluble</li> <li>• insoluble</li> </ul>	<p>Define the following key words, giving an example where possible:</p> <ul style="list-style-type: none"> <li>• solute</li> <li>• solvent</li> <li>• solution</li> <li>• soluble</li> <li>• insoluble</li> </ul>	<p>Define the following key words, giving an example where possible:</p> <ul style="list-style-type: none"> <li>• solute</li> <li>• solvent</li> <li>• solution</li> <li>• soluble</li> <li>• insoluble</li> </ul>	<p>Define the following key words, giving an example where possible:</p> <ul style="list-style-type: none"> <li>• solute</li> <li>• solvent</li> <li>• solution</li> <li>• soluble</li> <li>• insoluble</li> </ul>	<p>Define the following key words, giving an example where possible:</p> <ul style="list-style-type: none"> <li>• solute</li> <li>• solvent</li> <li>• solution</li> <li>• soluble</li> <li>• insoluble</li> </ul>
Describe the difference between what you observe when you add an insoluble solid to water compared to a soluble solid.	Describe the difference between what you observe when you add an insoluble solid to water compared to a soluble solid.	Describe the difference between what you observe when you add an insoluble solid to water compared to a soluble solid.	Describe the difference between what you observe when you add an insoluble solid to water compared to a soluble solid.	Describe the difference between what you observe when you add an insoluble solid to water compared to a soluble solid.
Describe how mass is conserved when a solution is formed from a soluble solid and a solvent.	Describe how mass is conserved when a solution is formed from a soluble solid and a solvent.	Describe how mass is conserved when a solution is formed from a soluble solid and a solvent.	Describe how mass is conserved when a solution is formed from a soluble solid and a solvent.	Describe how mass is conserved when a solution is formed from a soluble solid and a solvent.
Draw a labelled particle diagram showing a dilute solution. Briefly explain how the diagram shows it is dilute.	Draw a labelled particle diagram showing a dilute solution. Briefly explain how the diagram shows it is dilute.	Draw a labelled particle diagram showing a dilute solution. Briefly explain how the diagram shows it is dilute.	Draw a labelled particle diagram showing a dilute solution. Briefly explain how the diagram shows it is dilute.	Draw a labelled particle diagram showing a dilute solution. Briefly explain how the diagram shows it is dilute.
Draw a labelled particle diagram showing a concentrated solution. Briefly explain how the diagram shows it is concentrated.	Draw a labelled particle diagram showing a concentrated solution. Briefly explain how the diagram shows it is concentrated.	Draw a labelled particle diagram showing a concentrated solution. Briefly explain how the diagram shows it is concentrated.	Draw a labelled particle diagram showing a concentrated solution. Briefly explain how the diagram shows it is concentrated.	Draw a labelled particle diagram showing a concentrated solution. Briefly explain how the diagram shows it is concentrated.

**Extension question: Sarah's solutions**

Sarah is buying blackcurrant squash. Blackcurrant squash is diluted with water to make a solution suitable to drink.

Squash A is a single concentrate. It is recommended that you use 1 part squash to 4 parts water when diluting to make the drink.

Squash B is called a super concentrated squirty squash. It is recommended that you use 1 part squash to 75 parts water when diluting to make the drink.

Sarah thinks she should just use the same amount of squash and water with both kinds of squash. Write a quick note to Sarah to explain why this isn't a good idea!