



Name: \_\_\_\_\_

Class: \_\_\_\_\_

## Student worksheet

### 3.5 Metal cations and non-metal anions combine to form ionic compounds

Pages 78–79

## Ionic compounds

1 What is the difference between an atom and an ion?

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2 What name is given to a metal when it forms an ion, and what type of charge does it have?

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3 What name is given to a non-metal when it forms an ion, and what type of charge does it have?

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4 What is an ionic bond?

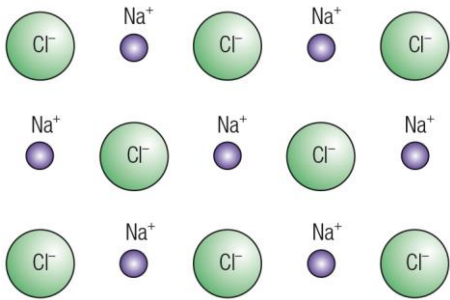
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5 An ionic bond is between which two types of elements?

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6 Explain what happens to an ionic compound when it is struck with a hammer. Include diagrams in your explanation.

Before being struck:	After being struck:
	



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7 Complete the following table to demonstrate the number of electrons gained or lost by atoms to form ions.

Group number	Number of valence electrons	Number of electrons gained or lost
1		
2		
13		
15		
16		
17		
18		

8 Draw the electron configuration of lithium and fluorine, and then redraw these configurations to demonstrate how an electron is donated between the atoms.

9 Other than being brittle, what is the other main property of ionic compounds? Explain this property.

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10 What is a polyatomic ion? Give an example.

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## Extend your understanding

11 Access a valency table (your teacher may have one or you can search for one on the internet). Use the valency table to determine the formulas of the follow ionic compounds.

a Sodium chloride

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b Sodium nitrate

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c Potassium nitrate

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d Calcium hydroxide

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e Aluminium oxide

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f Hydrogen phosphate

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g Sodium Hydrogen carbonate

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h Ammonium hydroxide

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i Sodium sulfate

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j Calcium sulfate

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