



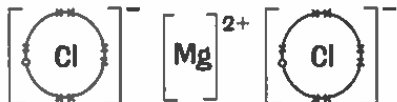
Name:

Ionic Bonding

Warm-Up

Choose from the formulas on the left to complete the table showing the dot and cross diagrams and formulas of various ionic compounds. You won't need to use all the formulas.

NaCl MgCl₂ MgCl
 Na₂O NaO NaCl₂

Dot and cross diagram	Ionic formula
	
	
	

1 Ionic bonding is one of the three types of chemical bonds found in compounds.

Grade
4-6

1.1 The dot and cross diagram below shows the formation of lithium fluoride from its elements. The diagram is incomplete. Complete the diagram by adding an arrow to show the transfer of electron(s), the charges of the ions and completing the outer shell electronic structure of the fluoride ion.



[3]

1.2 Name the force that holds the ions together in an ionic bond.

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[1]

1.3 State how you can tell from a dot and cross diagram that the particles in a compound are held together by ionic bonds.

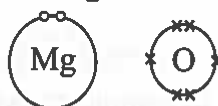
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[1]

[Total 7 marks]

2 **Figure 1** shows the outer electronic structure of magnesium and oxygen.

Grade
6-7

Figure 1



2.1 Draw a similar diagram to show the electronic structures and charges of the ions that form when magnesium reacts with oxygen. You only need to show the outer shells of electrons.

[4]

2.2 Explain how an ionic bond forms when magnesium atoms react with oxygen atoms.

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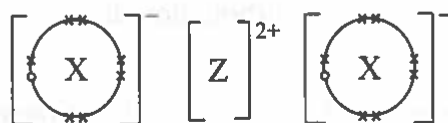
[4]

[Total 8 marks]

3 **Figure 2** is a representation of the structure of a compound formed from two unknown elements given the symbols X and Z.

Grade
7-9

Figure 2



3.1 Suggest which group in the periodic table each element is from and give a reason for your choice.

Element X: Group:

Reason:

Element Z: Group:

1.2 Reason:

[4]

3.2* Discuss the uses and limitations of dot and cross diagrams.

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[6]

[Total 10 marks]

