Ionic bonding: knowledge check

1. What type of bonding does this diagram represent? Circle the answer.

covalent bonding ionic bonding metallic bonding

A diagram representing bonding.

On the left is the electron configuration diagram of K and Cl atoms. The K atom is depicted with crosses and the Cl atom is depicted with dots. A curved arrow shows the transfer of an x from the outer shell of K to the outer shell of Cl. In the centre is an arrow pointing towards the right. On the right is the electron configuration of a K+ ion and a Cl- ion. The K+ ion is depicted with crosses. The Cl- ion is depicted with dots. The outer shell of the Cl- ion has 7 dots and one cross.

1. Use the words to complete the sentences.

attracted electrostatic forces ionic

negatively non-metal transferred

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bonding – this bond is formed when electrons are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from a metal to a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, forming positively charged and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ charged ions. Strong \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ attract the oppositely charged ions to each other.

Ionic bonding: test myself

1. What types of elements are involved in ionic bonding?

Circle the correct answer.

metal and non-metal metals only non-metals only

1. Are ionic bonds strong or weak? Use the correct word to complete the sentence.

strong weak

Ionic bonds are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. What type of forces hold the particles together in an ionic bond? Use the correct word to complete the sentence.

covalent forces electrostatic forces ionic forces

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of attraction hold the particles together in an ionic bond.

1. What do the curly arrows represent in the diagram?

A diagram representing bonding.

On the left is the electron configuration diagram of Mg and O atoms. The Mg atom is depicted with crosses and the O atom is depicted with dots. Two curved arrows show the transfer of the two crosses in the outer shell of the Mg atom to the outer shell of O atom. In the centre is an arrow pointing towards the right. On the right is the electron configuration of an Mg2+ ion and a O2- ion. The Mg2+ ion is depicted with crosses. The O2- ion is depicted with dots. The outer shell of the O2- ion has 6 dots and 2 crosses.

Use the correct word to complete the sentence.

atoms electrons ions shared transferred

The curly arrows represent \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ being \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ from one atom to another.

Ionic bonding: feeling confident?

1. Complete the bonding diagram of the reaction between sodium and fluorine.

An incomplete diagram representing bonding.

On the left is the electron configuration diagram of Na and F atoms. The Na atom is depicted with crosses and the F atom is depicted with dots. In the centre is an arrow pointing towards the right. On the right are two sets of square brackets. Inside the first square bracket are two concentric circles with Na in the centre. Inside the second square bracket are two concentric circles with F in the centre. 

Ionic bonding: what do I understand?

Think about your answers and confidence level for each mini-topic. Decide whether you understand it well, are unsure or need more help. Tick the appropriate column.

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| --- | --- | --- | --- |
| **Mini-topic** | **I understand  this well** | **I think I understand this** | **I need more  help** |
| I can interpret diagrams representing ionic bonds. |  |  |  |
| I know that there are ions in ionic bonds. |  |  |  |
| I know about electrostatic forces in ionic bonds. |  |  |  |
| I know the types of elements involved in ionic bonds. |  |  |  |
| **Feeling confident? topics** | **I understand  this well** | **I think I understand this** | **I need more  help** |
| I can complete a diagram to represent the formation of an ionic bond. |  |  |  |