Covalent 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 are two circles containing the letter H with a single x and a larger circle containing the letter O with 6 black dots. In the centre is an arrow pointing towards the right. On the right is a larger circle containing the letter O with two smaller circles containing the letter H overlapping the larger circle. Within the overlap for each of the smaller circles is a black dot and a cross. On the larger circle there are four more black dots, arrange in two pairs.

1. Use the words to complete the sentences.

covalent electron electrons

non-metal outer

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bonding – this bonding occurs between \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ atoms. In a single covalent bond, a pair of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is shared electrons between two atoms.   
These shared electrons are found in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ shells of the atoms. Each atom contributes one \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the shared pair of electrons.

Covalent bonding: test myself

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

Circle the correct answer.

metal and non-metal metals only non-metals only

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

strong weak

Covalent bonds are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Which of these is a covalent molecule? Use the correct word to complete the sentence.

carbon dioxide sodium chloride aluminium

The covalent molecule is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

How many electrons are there in a single covalent bond? Use the correct word to complete the sentence.

four one two

There are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ electrons in a single covalent bond.

Covalent bonding: feeling confident? Try this!

1. Complete the bonding diagram to represent the bonding in fluorine.

An incomplete diagram representing bonding. 

On the left are two diagrams representing fluorine atoms. The first is made up of two concentric circles with the letter F in the centre. The inside circle has two crosses, the outside circle has seven crosses. The second diagram is made up of two concentric circles with the letter F in the centre. The inside circle has two dots, the outside circle has seven dots. In the centre is an arrow pointing towards the right.

The right is left blank for a student answer.

Covalent 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 covalent bonds. |  |  |  |
| I know that electrons are shared in covalent bonds. |  |  |  |
| I know the types of elements involved in covalent 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 a covalent bond. |  |  |  |