

Atoms Elements

KS3 Chemistry · Follows the national curriculum

Name _____ Class _____ Date _____

1. Worked example

Is diamond an element? It is made only of carbon atoms.

Step 1 · Recall the definition

An element contains only one type of atom.

Step 2 · Apply it

Diamond contains only carbon atoms.

Answer: Yes — diamond is the element carbon

Check: How the atoms are arranged does not matter; only how many kinds there are.

2. Now try one with the steps

A particle diagram shows pairs of identical atoms joined together. Is it an element?

Step 1 · Count the kinds of atom

Step 2 · Notice they are joined

Step 3 · Decide

Answer:

3. Practice

Show your working. The marks tell you how much is expected.

1. What is an atom? [1]

2. What is an element? [1]

3. About how many elements are known: 18, 118 or 1180? [1]

4. What is the chemical symbol for oxygen? [1]

5. What is the chemical symbol for iron? [1]
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6. Which scientist proposed in the early 1800s that all matter is made of tiny atoms that cannot be created or destroyed? [1]
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7. According to Dalton, how are atoms of the same element alike? [1]
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8. Is water an element? Explain. [2]
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9. What is a molecule? [1]
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10. How many atoms are in one molecule of ozone, O₃? [1]
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11. Diamond and graphite look completely different. Why are they both the element carbon? [2]
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12. Give ONE of Dalton's ideas that is still used today and ONE that has been changed. [2]
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13. Why do scientists use models, like Dalton's model, to describe atoms? [2]
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14. A gold ring has a mass of 4 g. A gold atom has a mass of about 0.000000000000000000003 g. [2]
Why does this show atoms are extremely small?
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4. Before you hand it in

"An element is a single atom."

A lump of gold is the element gold, made of billions of identical gold atoms.

"Oxygen gas, O₂, is a compound because the atoms are joined."

A compound needs DIFFERENT elements joined. O₂ has only oxygen, so it is an element.

Writing symbols like "FE" or "cu".

First letter capital, second letter small: Fe, Cu, Na, Cl.

"Atoms of a substance get bigger when it melts."

The spacing and movement of the particles change, not the atoms.