



Name: _____

Class: _____

Student worksheet

7.2 Atoms are made of subatomic particles

Pages 136–137 and 218

The structure of atoms

1 Which 2 sub-atomic particles does the nucleus of an atom contain?

2 What is the charge on a proton?

3 What is the charge on a neutron?

4 What is the overall charge on the nucleus of all atoms?

5 What surrounds the nucleus, what charge do these have?

6 What masses do protons, neutrons and electrons contain?

7 What is the overall charge on an atom? Explain why this is.

8 What assumption can you make about the number of protons and electron in an atom?

9 What is the majority of an atom is made up of?

10 What was the difference between Thomson's and Rutherford's models of the atom? Explain how Rutherford was able to refute Thomson's model?



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Extend your understanding

- 11 On the periodic table, the atomic mass of an element is located beneath it. This indicates the number of protons and neutrons in an atom. Each element's atomic number is located above it on the periodic table. This indicates the number of protons that it contains. You can calculate the number of protons and neutrons in an element by using these numbers.

The example of carbon is given below.

6 C 12.01 Carbon	Atomic number Chemical symbol Atomic mass Name of element	Number of protons = 6 (because the atomic number is 6) Atomic mass = 12 (this is all protons and neutrons added together) Number of neutrons = $12 - 6 = 6$ (All protons and neutrons – the protons = neutrons)
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For each of the following elements, draw how they appear on the periodic table in the left column, then calculate how many protons and neutrons are in their nucleus in the right column.

NB: As there is no such thing as half of a proton or neutron, you will need to round off your mass numbers.

a Nitrogen

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b Oxygen

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c Calcium

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d Sodium

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e Sulfur

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f Chlorine

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