

Atoms and ions

Learning objectives

- 1 Describe what happens to each subatomic particle when an ion is formed.
- 2 Explain what affects how easily ions are formed.

Introduction

Atomic structure is one of the most important topics in chemistry. Lots of other topics depend on understanding the structure of the atom and the properties of the subatomic particles. Ions are formed when electrons are lost and gained. The periodic table can help us understand ion formation.

Instructions

1. Stick the structure strip in the margin of your exercise book/paper.
2. Follow the prompts to write a summary of atomic structure. You can use a textbook, revision guide or website to help you. Take care to write in full sentences, rephrasing the question within your answer and using appropriate keywords.
3. Answer the follow-up question below to apply your knowledge of atoms and ions to a new context.

Keywords

Use these key words in your response:

- atom • ion • nucleus • proton • electron • neutron • outer shell • inner shell

Follow-up question

Explain why sodium forms 1^+ ions but fluorine forms 1^- ions.

Structure strip Atoms and ions	Structure strip Atoms and ions	Structure strip Atoms and ions	Structure strip Atoms and ions	Structure strip Atoms and ions
Define the term ion.	Define the term ion.	Define the term ion.	Define the term ion.	Define the term ion.
Describe, in terms of subatomic particles and electronic structure, what changes and what stays the same when ions are formed.	Describe, in terms of subatomic particles and electronic structure, what changes and what stays the same when ions are formed.	Describe, in terms of subatomic particles and electronic structure, what changes and what stays the same when ions are formed.	Describe, in terms of subatomic particles and electronic structure, what changes and what stays the same when ions are formed.	Describe, in terms of subatomic particles and electronic structure, what changes and what stays the same when ions are formed.
Zinc has a mass number of 65 and an atomic number of 30. State the number of each subatomic particle in a Zn^{2+} ion.	Zinc has a mass number of 65 and an atomic number of 30. State the number of each subatomic particle in a Zn^{2+} ion.	Zinc has a mass number of 65 and an atomic number of 30. State the number of each subatomic particle in a Zn^{2+} ion.	Zinc has a mass number of 65 and an atomic number of 30. State the number of each subatomic particle in a Zn^{2+} ion.	Zinc has a mass number of 65 and an atomic number of 30. State the number of each subatomic particle in a Zn^{2+} ion.
Explain how the group number indicates the charge on the ions formed in groups 1 and 2.	Explain how the group number indicates the charge on the ions formed in groups 1 and 2.	Explain how the group number indicates the charge on the ions formed in groups 1 and 2.	Explain how the group number indicates the charge on the ions formed in groups 1 and 2.	Explain how the group number indicates the charge on the ions formed in groups 1 and 2.
Going down group 1 it gets easier to lose an electron. Explain this observation.	Going down group 1 it gets easier to lose an electron. Explain this observation.	Going down group 1 it gets easier to lose an electron. Explain this observation.	Going down group 1 it gets easier to lose an electron. Explain this observation.	Going down group 1 it gets easier to lose an electron. Explain this observation.
Explain how the group number indicates the charge on the ions formed in groups 6 and 7.	Explain how the group number indicates the charge on the ions formed in groups 6 and 7.	Explain how the group number indicates the charge on the ions formed in groups 6 and 7.	Explain how the group number indicates the charge on the ions formed in groups 6 and 7.	Explain how the group number indicates the charge on the ions formed in groups 6 and 7.
Going down group 7 it gets more difficult to gain an electron. Explain this observation.	Going down group 7 it gets more difficult to gain an electron. Explain this observation.	Going down group 7 it gets more difficult to gain an electron. Explain this observation.	Going down group 7 it gets more difficult to gain an electron. Explain this observation.	Going down group 7 it gets more difficult to gain an electron. Explain this observation.