

REVISION: ATOMS, ELEMENTS & COMPOUNDS

25 MARCH 2014



Lesson Description

In this lesson we revise:

- The Atom
- The Periodic Table
- Chemical Bonding



Improve your Skills

The Atom

Question 1

Consider the following atom and answer the questions that follow.



- How many protons does this atom have?
- How many neutrons does this atom have?
- Write the chemical name of this element.
- Draw an aufbau diagram showing the electron arrangement of this atom.
- Would this atom form a positive ion or a negative ion when this atom bonds. Provide a reason for your answer.

Question 2

Give the electron configurations and Aufbau diagrams for the following elements:

- aluminium
- oxygen ion

The Periodic Table

Question 1

Consider the following electron configurations and answer the questions that follow using letters A – E where appropriate.

- $1s^2 2s^2 2p^6 3s^2 3p^4$
- $1s^2 2s^2 2p^6 3s^1$
- $1s^2 2s^2 2p^6 3s^2 3p^5$
- $1s^2 2s^2$
- $1s^2 2s^2 2p^6$
- $1s^2 2s^2 2p^1$

- Identify a halogen.
- Which element is found in the second period and the third group?
- Identify an alkali earth metal.
- Which will form positive ions when they bond?
- Comparing elements B and F; which will have the lowest 1st ionisation energy?
- Write the chemical name for element A.
- Which will have the electron configuration simplified to $[\text{Ne}] 3s^1$

Chemical Bonding

Question 1

Consider the bonding of ammonia, NH_3 .

- Identify the type of bonding that will be found in ammonia.
- How many valence electrons does a nitrogen atom have?
- State the valency of nitrogen.
- Draw a Lewis diagram to illustrate the bonding of ammonia. Only valence electrons need to be shown.

Question 2

Consider the compound aluminium oxide.

- Identify the type of bonding that occurs in aluminium oxide.
- Draw Lewis diagrams indicating the bonding in aluminium oxide.
- Write the formula for aluminium oxide.