



# AQA Atomic Structure and the Periodic Table Lesson 1: Atoms, Elements and Isotopes

## Teaching Ideas

**Learning Objective:** To understand the structure of atoms, elements and isotopes.

**Targeting Assessment Objectives A01 and A02**

- Success Criteria:**
- To define the terms atoms, element and isotopes.
  - To describe the structure of atoms.
  - To use information about isotopes to calculate the relative atomic mass

**Context:** This is the first lesson in the Atomic Structure and the Periodic Table unit of work and looks at the differences between elements and isotopes, how to calculate relative atomic mass and the make-up of atoms.

**Resources**  
copies of the  
periodic table

## Starter

### What Am I?

The pupils are given clues, one at a time, and have to guess what is being described. As each clue is given and more information collected, they should arrive at the conclusion that it is an atom. Work on the atom will have been covered at key stage 3.

## Main Activities

### Atoms: What Do You Know?

The PowerPoint slides recall knowledge about the atom that will have been covered in key stage 3. The activity culminates in the completion of the [Atoms Activity Sheet](#) where pupils are asked to define the term atom, label a diagram and state the charges of the subatomic particles.

### Atoms and Elements

The slides inform pupils about elements, stating how each element has a name, a chemical symbol, an atomic and mass number. To reinforce this knowledge and to familiarise pupils with the periodic table, they take part in the [Atoms and Elements Activity](#). Each person will be given a card with a question on it. Each card also has a question number. Pupils read their question and record the answer on the [Atoms and Elements Answer Sheet](#) next to the appropriate number. They then move around the room swapping question cards with other pupils. Each time they swap the card, they read the question and record the answer. There are 30 questions in total and you may want to give a 10-minute time limit. Pupils will require a copy of the periodic table. This activity is followed by pupils answering the [Exam-Style Questions](#). The questions and answers are available on the PowerPoint and on a separate activity sheet.

### The First 20 Elements

The AQA exam board recommends that pupils should be able to recall the name and symbol for the first 20 elements. This quick activity involves giving pupils one minute to study the periodic table, followed by completing a table to show how many they can remember. This is a differentiated task and three different [First 20 Elements Activity Sheets](#) are available. Higher-ability pupils complete a blank table, middle-ability pupils are provided with the first letter of the element and lower-ability pupils are given the chemical symbols.



## Isotopes

The PowerPoint defines isotopes and shows pupils how to calculate an isotope's relative atomic mass – the formula is provided. This is followed by a quick assessment and the answers are provided.

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## Plenary

### Just a Minute

Pupils have one minute to talk to a partner about the topic of atoms, elements and isotopes.

The partner can challenge them if they repeat themselves, pause or make an incorrect statement.

The partner must then go on to complete the minute.

The winner is the last person talking.

If time is available, this activity can be repeated using different partners.

