

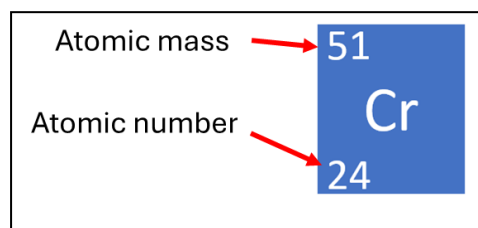
# Isotopes

1. Consider the element shown on the right.

Name the element \_\_\_\_\_

Number of protons \_\_\_\_\_

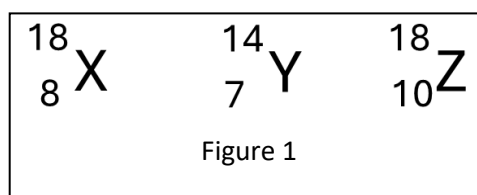
Number of neutrons \_\_\_\_\_



2. Consider the three atoms shown below.

a. Which of these atoms are isotopes of  $^{14}\text{O}$ ?

Explain your choice.



b. Which of the elements will have similar chemical properties as  $^{18}\text{W}$ ? Explain why.

c. Which of the three elements shown in figure 1 are isotopes of the element L with an atomic mass of 18 and atomic number 7? Explain your answer.

3. **Complete the sentence:**

Isotopes of an element have the same \_\_\_\_\_ number but different \_\_\_\_\_ numbers.

4. **What is an isotope?**

- A. A type of atom with more protons
- B. A type of atom with more electrons
- C. A type of atom with the same number of protons but different number of neutrons
- D. A molecule made of two elements

# The Good Side of Isotopes – How Radioactive and Stable Isotopes Help Society

## Task:

Research and present a short report (written ) explaining how **isotopes** are used in **positive ways** in modern society. Focus on **how isotopes benefit people, health, technology, or the environment**.

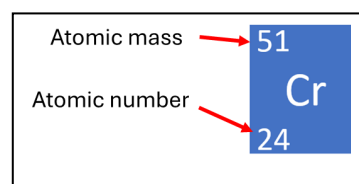
## What you need to do:

1. **Choose, no more than 2 or 3, examples** of how isotopes are used in real life.

- At least **one** must be a **radioactive isotope**.
- The others can be **stable isotopes** or other radioactive ones.

2. **Explain for each example:**

- Name the isotope and give its chemical symbol as shown on the right.
- What it is used for?
- Why this use is helpful or important to society?
- Safety precautions if radioactive.



3. Present your findings as a:

- **written report** (1 page in your exercise book)
- Include **pictures or diagrams** (hand-drawn)

## Examples you can research include but not limited to:

- **Carbon-14** – used to date ancient objects like fossils
- **Iodine-131** – used to treat thyroid problems in medicine
- **Cobalt-60** – used to sterilise hospital equipment
- **Technetium-99m** – used in medical imaging (scans)
- **Stable isotopes** – used to trace water movement or detect pollution