


Radioactivity

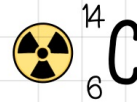
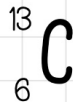
Review


 Isotopes are atoms of the same **element** with **different** numbers of **neutrons**

Isotopes


 Some **isotopes** are **unstable**. To become stable they lose energy by **radiation**. This is called radioactive decay.

 Here are some examples of isotopes of carbon.




 Isotopes are often named after the mass number. In the case of carbon, only **carbon-14** is **radioactive** (unstable).

Activity


 When a nucleus has emitted (given off) radiation it is said to have decayed. The **activity** is the **rate** at which a radioactive source **decays**. A radioisotope which emits large amounts of radiation has a high activity.

the bequerel





 **Activity** is measured in units called **bequerels** (Bq)

Radioactive decay is random

 The **breakdown** of unstable isotopes is a **random** process which is unaffected by physical conditions such as temperature. You cannot predict which atom will decay. However, like a coin toss you can predict the probability of how many atoms will decay in a defined period of time.

Ionising radiation

 Nuclear radiation smashes into other atoms and can knock **electrons** from them. This turns atoms into positive ions. This is called **ionisation**. If this happens inside the body, molecules such as DNA can be damaged and cause cells to mutate and form cancers.

 Ionising radiation can be **detected** using photographic film or a special detector called a **Geiger - Muller tube**.