



# Isotope analysis of asteroids that hit the Earth

Slide by Neil Goalby. Available from [rsc.li/3U3p7Uu](https://rsc.li/3U3p7Uu)

Asteroids are more abundant in precious metals than the Earth's crust. This means that a spike in the quantities of these elements in the Earth's crust of a particular age can signal an asteroid impact. The metal ruthenium is particularly informative because its isotopic make up varies across different asteroids, providing a unique fingerprint.

Scientists have analysed samples associated with the asteroid collision that led to the extinction of the dinosaurs. The analysis suggests that the asteroid originated from the far outer solar system.



© Mark Garlick/SPL/Getty Images

*Researchers are identifying asteroids by their isotope signature*

## Questions

1. Name a precious metal other than ruthenium.
2. Define 'isotope'?
3. Describe how the composition of different isotopes in a sample acts as a 'fingerprint'.