LESSON PLAN

16 METEORITE INVESTIGATORS

14-18

OVERVIEW

In this lesson, students will investigate some of the meteorites and associated rocks in the loan box.

They will test them for magnetism, do a visual analysis and measure their mass to calculate the densities of their items.

This activity is particularly geared towards getting students to estimate the volume of the rocks in order to obtain a value for density as close to the real values as possible.

They will then use the meteorite identification cards to help them identify which object is which.

CURRICULUM LINKS

Making measurements and examining objects.

Calculating density.

Estimating the volume of an object.

WHAT YOU NEED

- **A16 PowerPoint**
- **16.1 and 16.2 worksheets** (one per student)
- **16.3 Space rock information cards** (one per group)
- **16.4 Space rock station sheet**
- **16.5 Volumes of shapes sheet** (one per station)
- **4 USB microscopes connected to laptops with VLC media player installed**
- **8 hand lenses** (one at each station)
- **5 magnaprobes** (on their assigned station sheets)
- **Cloth or bubble wrap underneath the rock samples for protection**
- **Spare paper for calculating volumes of objects**
- **The following samples from the loanbox placed on the appropriate Station information sheet:**
  - Campo de cielo iron meteorite *(Station 1)*
  - Lybian glass impactite *(Station 2)*
  - Sahara chondrite (whole chondrite) *(Station 3)*
  - Udei station and etched iron meteorites *(Station 4)*
  - Sliced chondrite *(Station 5)*
  - Tektite *(Station 6)*
  - Pallasite *(Station 7)*
  - Moldavite (*Station 8)*

Prior to the lesson, place the 8 station cards around the room with their associated rock in the box, a hand lens in the hand lens box and, where stated, a magnaprobe in the magnaprobe box.

15 MINS

STARTER

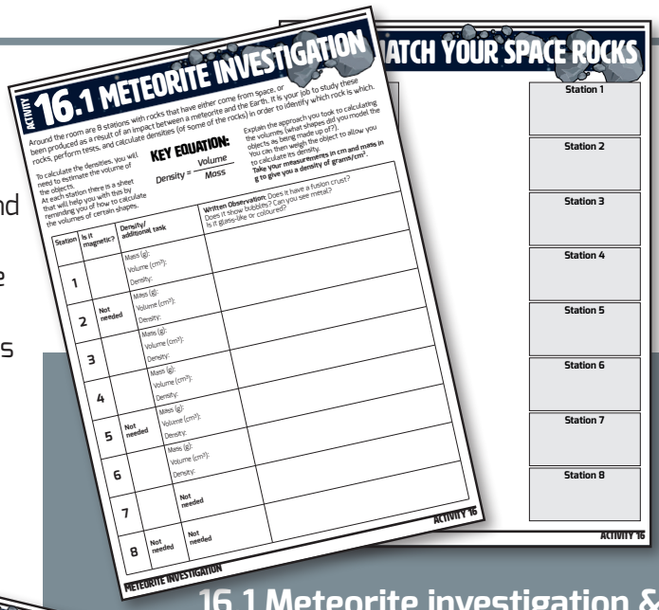
Go through the introduction slides on the powerpoint with the class. Build up the students understanding of the different types of meteorites and associated rocks.
Set the scene for the investigation and emphasise how important it is to be very careful when handling these samples.
Show the students the USB microscopes and explain how to vary the focus. These can be used to help in the study of any of the objects – they simply have to go over to a free microscope station.

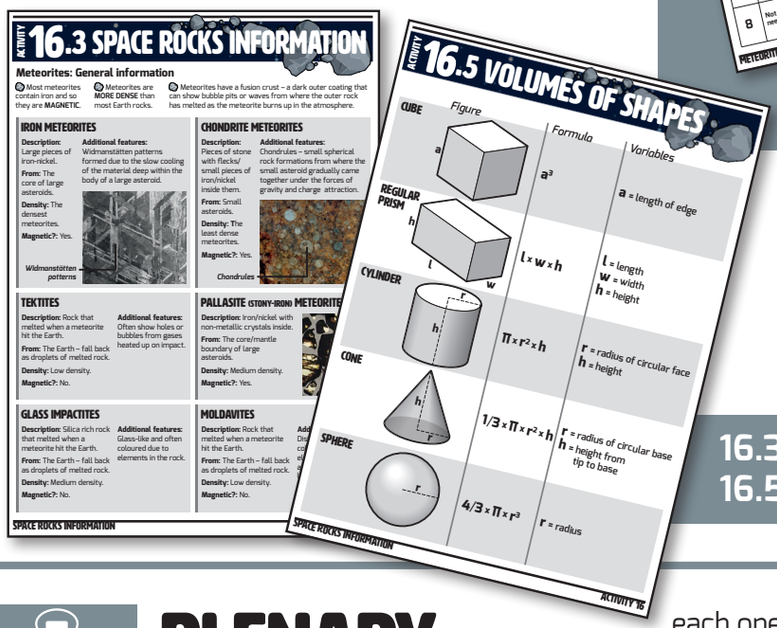
35 MINS

MAIN ACTIVITY

In eight groups, the students go around the room, spending 3-4 minutes with each sample and completing the table on the worksheet.

Make sure that the USB microscopes are placed with the stations where the table requires a drawing of the surface. Students then match up the specific meteorite to its name.





16.1 Meteorite investigation &
16.2 Match your space rocks

Please reiterate the importance of carefully handling the meteorites, and of replacing everything in the correct place on the sheet before moving on to the next station.

16.3 Space rocks information
16.5 Volumes of shapes

10 MINS

PLENARY

Go through the answers with the students on the powerpoint slide and discuss. Get the students whose density calculations were closest for each one to explain how they estimated the volume of the object.

Finish off with showing them the Martian meteorite and ask students how it is possible for a piece of Mars to get to the Earth. What can we say about the energy of such a collision?