

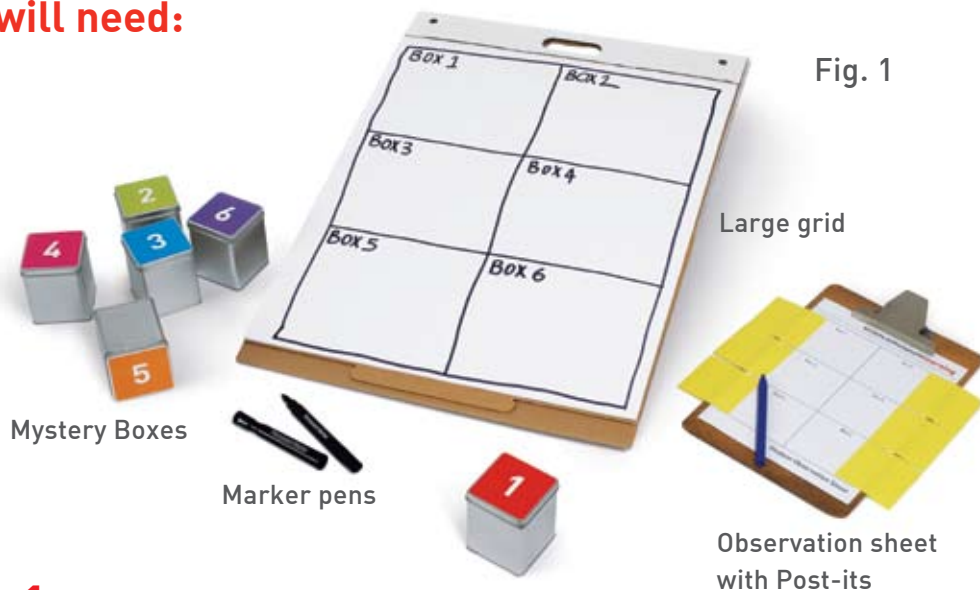
At a glance

In this activity students have to work out what objects are inside a set of sealed boxes without opening them.

Timing: Whole lesson, approx. 1 hour

Group size: 3–4 students (max. 6 groups)

You will need:



Step 1

Investigate the boxes: 25–30 mins

Give each group a Mystery Box, a 'how to' sheet and an observation sheet with Post-it notes attached (see Fig. 1).

Groups have 2–3 minutes with each box to:

- Work out what they think is inside the box and write down their observations on the sheets provided.
- Come up with their best idea (based on their observations) about what is in the box, which they record on the Post-it note (see Fig. 2).

Repeat until all groups have investigated all six boxes.



Fig. 2 Students write their best idea on the Post-it note provided.

Step 2

Skills and approaches used in this activity: 5–10 mins

- Give all the students 2 minutes to write down which of the skills and approaches they used to work out what was in each box, then get them to feed back as a whole class.
- The list represents how scientists work:
 - Scientists propose and test ideas.
 - Discussion is a vital part of science.
 - Science is both social and creative.

Step 3

Peer Review Conference: 15 mins

Hold a mock science conference with the whole class to compare each of the groups' best ideas and work to build a whole-class consensus about the contents of each box.

- Get all groups to stick the best idea Post-its on the grid (see Fig. 3).
- See if you can build consensus or agreement about what is in each box.
- If there are conflicting ideas, get each group to present their observations to build support for their best idea from the rest of the class.
- Groups can change their minds (or not) in light of new evidence.

Fig. 3 A completed conference grid.



Step 4

Conclusion: 5 mins

- Reveal that the boxes will remain shut and no-one will find out what is inside.
- The boxes are an analogy for science because scientists are unable to 'open the box' to find definitive answers but instead form theories based on evidence from their research.
- All scientific theories are open to future revision or possible rejection as technology and understanding improves.
- **Never** open the boxes!