Lesson plan

People throw away thousands of tonnes of waste and rubbish each year, because they no longer need or want the objects.

We are currently producing more waste than ever before. It is important that we consider carefully the materials we choose to make products with and what we do with them after they have been used.

This lesson covers properties of materials and the value of materials that can be recycled.

Lesson time 60 minutes

You can deliver the lesson in small table groups or as a whole class.

Resources you will need

✅ **The lower key stage two lesson one presentation**

✅ **For activity one**
  ➕ A set of material word cards (included at the end of this document)

✅ **For activity two**
  ➕ A steel can and an aluminium can for each group

✅ **For activity three**
  ➕ Two labelled boxes – one labelled 'magnetic' and the other labelled 'non-magnetic' (included at the end of this document)
  ➕ A magnet

✅ **For activity four**
  ➕ A set of property word cards (included at the end of this document)
  ➕ A range of objects around the classroom that have the properties on the cards from activity one

provided by   **suez**

Science, Technology, Engineering and Maths

Lesson one

SLIDE 2

Learning objective

Explain that we are going to be looking at different types of materials and their properties, considering the materials in the rubbish that we throw away and recycle. Ask what categories are.

SLIDE 3

Introduce the video (youtu.be/f0769pw2_pY)
Ask children to spot the materials in the video.

Discuss how the materials we recycle can be considered valuable items and why. Why is it better for the environment that we put those materials in the recycling not the general waste bin?

SLIDE 4

Activity one

This activity provides a quick recap of KS1 learning and an opportunity to identify current knowledge.

Place the word cards in a bag. Ask a volunteer to pick a card from the bag and give clues to the class by describing what it is, without saying the material word. The child who guesses the material correctly then takes a turn and the game continues until the bag is empty.

SLIDE 5

Activity two

Give each group a steel and aluminium can. Ask the class, if the cans were empty, whether they would put them in the bin or the recycling.

Ask them to identify what they have in common (e.g. hard, lightweight, shiny, rigid etc). Can they tell what type of metal they are made from? Which one is aluminium and which one is steel? Move the discussion onto properties of materials, and ways of describing, sorting and categorising materials.

SLIDE 6

Activity three

Reintroduce the word categories and what it means. Using the two labelled boxes, ask the class to separate all the cans into magnetic and non-magnetic. Once in the two boxes, use a magnet and a class volunteer to check they are in the correct category.

Ask the class how they think knowing that steel is magnetic would help with the sorting at a materials recycling facility.
Watch the video (youtu.be/t4PLxg06HBU) and see how steel and aluminium cans are separated using magnets.
Emphasise how the science and properties of the materials are used in the everyday sorting process.

SLIDE 7 ○ **Activity four**

Explain the scientific property words not yet known by the class.

Ask for a volunteer to put the properties cards next to objects in the classroom that they think the card best describes. They have 30 seconds to do this.

Choose different volunteers and give them 30 seconds to move the cards to different objects in the classroom.

Revisiting the concept of categories, now ask the class to sort the objects into recyclable and non-recyclable.

SLIDE 8 ○ **Summary**

Recap what they have learnt today.

Extended learning opportunities

Magnets and their invisible force
www.bbc.co.uk/bitesize/clips/zk9rkqt

How are magnets used in a scrapyard
www.bbc.co.uk/bitesize/clips/zcntsbk

Suggested reading:

✅ *The Iron Man* by Ted Hughes
How magnets attract or repel each other and attract some materials and not others

✅ **Properties of materials**
www.theschoolrun.com/homework-help/materials

provided by suez

Cardboard	Steel
Paper	Plastic
Fabric	Glass
Rubber	Wood
Aluminium	Stone

Magnetic

Non-magnetic

Soft	Hard
Opaque	**Transparent**
Flexible	**Lightweight**
Shiny	**Stretchy**
Magnetic	**Waterproof**