

Name _____

Class _____

Date _____

By the end of this worksheet I can...

- ☐ explain the difference between thermoplastics and thermosetting plastics
- ☐ describe the properties and uses of ABS, acrylic, polypropylene and polystyrene
- ☐ describe the properties and uses of urea formaldehyde and melamine formaldehyde

I DO

Worked example Read how a full-mark answer is built

A garden watering can is made from polypropylene with a brass spray rose.

1 Outline two reasons polypropylene is suitable for the body and two reasons brass is suitable for the rose. (4 marks)

Full-mark answer each ✓ is one mark

Polypropylene is waterproof so it holds water without damage ✓. It is tough, so it will not crack if the can is dropped ✓. Brass will not rust when it is wet all the time ✓. Brass can be cast and machined to make the small, accurate spray holes ✓.

Why marks are not awarded

"Polypropylene is cheap and strong. Brass is strong and looks nice."

0-1 mark: "cheap" scores 0, "strong" needs a reason, and a reason can only count once.

WE DO

Guided practice Use the starters and word bank to help you

2 Explain why polypropylene is suitable for a box with a living hinge. (2 marks)

Sentence starters

One reason is ... because ...

Another reason is ... so ...

Word bank

tough · lightweight · without · breaking ·
withstands · resists · knocks · fatigue

Tip: 2 marks = 2 separate, developed points.

YOU DO

On your own No notes. Check your answers afterwards.

3 Quick check: tick one box for each.

- a) Which is the best substitute for glass in a light cover?
☐ ABS ☐ MDF ☐ Acrylic ☐ Polystyrene foam
- b) Which can be reheated and reshaped?
☐ Melamine formaldehyde ☐ Acrylic ☐ Urea formaldehyde ☐ Bakelite
- c) Which plastic is used for electrical plugs?
☐ Polystyrene ☐ Polypropylene ☐ Acrylic ☐ Urea formaldehyde
- d) A flip-top shampoo lid with a living hinge is made from...
☐ Polypropylene ☐ Acrylic ☐ Melamine ☐ Polystyrene

4 Key terms: write the letter of the matching description next to each term.

1. Thermoplastic	_____	A Softens when heated; can be reshaped and recycled.
2. Thermosetting plastic	_____	B Tough, impact resistant, high gloss. Toys, casings, helmets.
3. ABS	_____	C Sets permanently once heated; heat resistant; cannot be reshaped.
4. Acrylic	_____	D Rigid, clear, polishes well. Glass substitute, signs.
5. Polypropylene	_____	E Fatigue resistant (living hinges), chemical resistant. Caps, crates.

5 Describe the difference between a thermoplastic and a thermosetting plastic. Give an example of each. (3 marks)

6 Give the properties and one use of Urea formaldehyde. (2 marks)

7 Give the properties and one use of Melamine formaldehyde. (2 marks)

Check and reflect

Mark your answers with the answer sheet. Go back to the checklist on the site and re-rate each “I can” statement above. Which one still needs work?
