

Name \_\_\_\_\_

Class \_\_\_\_\_

Date \_\_\_\_\_

**By the end of this worksheet I can...**

- ☐ describe the uses and identifying features of injection moulding, die casting, rotational moulding, vacuum forming and sand casting
- ☐ describe the features of a good vacuum-forming and sand-casting pattern
- ☐ describe the uses and identifying features of bending, blow moulding, compression moulding, drop forging, extrusion, piercing and blanking, and press forming
- ☐ describe the issues that influence the choice of process
- ☐ describe how to identify the process used to make a product

**I DO****Worked example** Read how a full-mark answer is built*A large plastic storage box with a hollow, double-skinned lid.***1 Name the process used to make the hollow lid and outline two reasons it is suitable.** (3 marks)**Full-mark answer** each ✓ is one mark

Rotational moulding ✓. It produces a hollow, seamless lid in one piece ✓ with an even wall thickness and a good surface finish ✓.

**Why marks are not awarded**

*"Injection moulding because it is good for mass production."*

0 marks: injection moulding cannot make a closed hollow form, and "mass production" repeats the question.

**WE DO****Guided practice** Use the starters and word bank to help you*A cast iron garden weight.***2 Describe two features that show the weight was sand cast.** (2 marks)**Sentence starters**

First, ...

Next, ... using a ...

**Word bank**fettling · texture · corners · runner · surface ·  
fillets · angles · rounded

Tip: 2 marks = 2 separate, developed points.

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## YOU DO

**On your own** No notes. Check your answers afterwards.

### 3 Quick check: tick one box for each.

- a) Plastic window frames with an identical profile along their length are made by...  
☐ Blow moulding   ☐ Drop forging   ☐ Compression moulding   ☐ Extrusion
- b) A spanner needs to be very strong. Process?  
☐ Sand casting   ☐ Drop forging   ☐ Laser cutting   ☐ Vacuum forming
- c) Small circular marks on the inside of a plastic casing are evidence of...  
☐ Flashing   ☐ Sand grains   ☐ Ejector pins   ☐ Layer lines
- d) A plastic kayak is hollow, seamless and has an even wall thickness. Process?  
☐ Injection moulding   ☐ Rotational moulding   ☐ Vacuum forming   ☐ Die casting

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

|                        |       |                                                                                                  |
|------------------------|-------|--------------------------------------------------------------------------------------------------|
| 1. Injection moulding  | _____ | <b>A</b> Large hollow seamless plastic forms: kayaks, bins.                                      |
| 2. Die casting         | _____ | <b>B</b> Thermoplastic sheet pulled over a pattern: thin walls, draft angles.                    |
| 3. Rotational moulding | _____ | <b>C</b> Allow trapped air out of hollows in a vacuum-forming pattern.                           |
| 4. Sand casting        | _____ | <b>D</b> Low-volume metal parts with rough sandy texture.                                        |
| 5. Vacuum forming      | _____ | <b>E</b> High-volume complex metal parts in aluminium/zinc. Same features as injection moulding. |
| 6. Vent holes          | _____ | <b>F</b> High-volume complex thermoplastic parts. Ejector pin marks, injection point, flash.     |

*A games controller casing.*

### 5 State two features that show the casing was injection moulded. (2 marks)

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*A chocolate box insert.*

**6 State two features that show the insert was vacuum formed.** (2 marks)

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*Zinc alloy toy cars.*

**7 Outline two reasons die casting is suitable for the toy cars.** (2 marks)

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## 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?

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