



Tools and processes.

Choosing the right tool and using it in the right order is what makes a well-made feeder. Get to know the tools you will use, then plan how to make each part.

name:

teacher/class:

date:

WE ARE LEARNING TO

- identify and choose hand tools and machine tools for a task
- sequence the processes needed to make a product
- use a flowchart to plan a process

I CAN

- ☐ name the tools used to make the feeder
- ☐ choose the right tool for each job
- ☐ put the steps for cutting a housing in order
- ☐ complete a flowchart for drilling a hole
- ☐ choose a suitable finish and explain why

01 Know your tools

1a Name each tool. Use the word bank.

(12 marks)

Bench hook

Bevel-edged chisel

Bradawl

Coping saw

Countersink bit

Forstner bit

G-cramp

Mallet

Marking gauge

Steel rule

Tenon saw

Try square

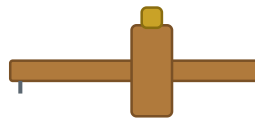
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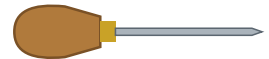
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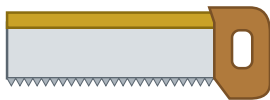
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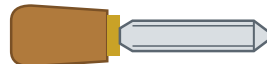
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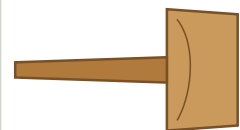
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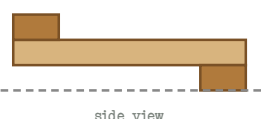
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11



12



02 The right tool for the job

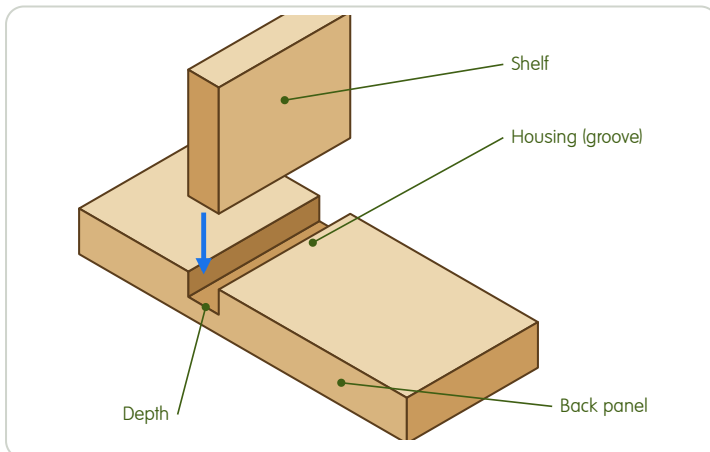
Each job below is a step in making your bird feeder. Write the **best tool** for each job. You can use the tools from Section 01, and some jobs also use the **pillar drill**.

2a Complete the table.

(11 marks)

Job	Best tool
1 Measure the length of the back panel.	
2 Mark a line square across the face of the timber.	
3 Mark the depth of the housing, parallel to the face, on both edges.	
4 Make a small dent at the centre of a hole so the drill doesn't wander.	
5 Hold the timber steady on the bench while you saw across it.	
6 Saw the two sides of the housing joint.	
7 Cut the curved (semicircular) end of a shelf.	
8 Remove the waste wood from inside the housing.	
9 Drill the Ø16 feeding hole with clean edges and a flat bottom.	
10 Shape the top of the Ø4 hole so a screw head sits flush.	
11 Hold the parts tightly together while the glue dries.	

03 Cutting a through housing



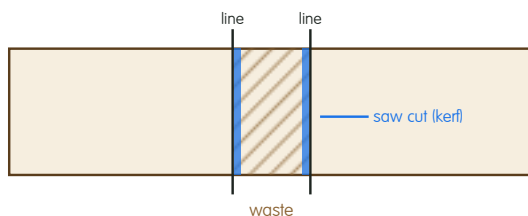
A **housing joint** is a groove cut across a board for another piece to sit in. On your feeder, the two **shelves** sit in housings in the **back panel**. A **through housing** goes all the way across the board, from edge to edge.

It is strong because the shelf is supported on three sides and has lots of surface area for **glue**.

3a These steps for cutting the housing are **mixed up**. Number them 1 to 6 in the correct order.

(2 marks)

Step	Order
Chisel out the waste, working in from each edge towards the middle.	
Mark both sides of the housing across the face with a try square . Use the shelf itself to get the width exactly right.	
Saw down on the waste side of each line with a tenon saw , stopping at the depth line.	
Pare the bottom flat and check the fit with the shelf. It should be a snug push fit.	
Use a marking gauge to mark the depth on both edges.	
Shade (hatch) the waste so you know which wood to remove.	



Plan view of the housing. The **blue** saw cuts touch the lines but sit in the **hatched waste**.

3b Why should you saw on the **waste side** of the line?

(1 mark)

3c Why should you chisel in from **both edges** towards the middle, instead of straight through from one side?

(1 mark)

3d The shelves are glued into the housings. Is glue a **permanent** or a **temporary** way to join parts? Name one **temporary** fixing used on the feeder.

(2 marks)

Top tip: cut your housings slightly **narrow** and pare to fit. You can always remove more wood, but you can never put it back!

04 Plan it with a flowchart

Designers and engineers use **flowcharts** to plan a process step by step. Each shape has a meaning (see the key). This flowchart shows how to drill the Ø16 feeding hole on the pillar drill.

4a Write the correct step in each empty box A–D. Choose from the list.

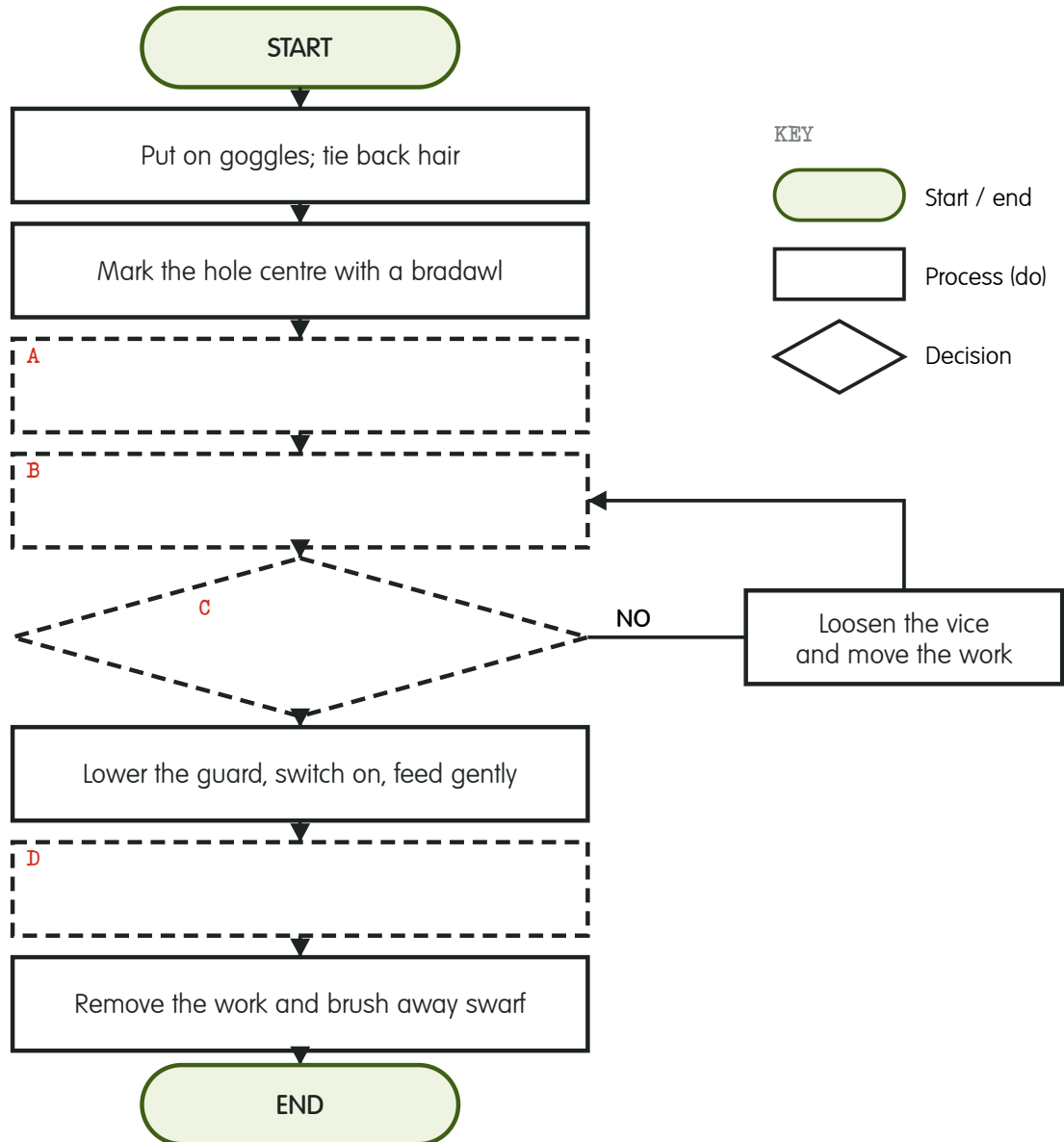
(4 marks)

Clamp the work in the machine vice

Is the centre mark lined up under the bit?

Fit the Ø16 Forstner bit and remove the chuck key

Switch off and wait for the chuck to stop



A

B

C

D

4b What does a **diamond**-shaped box mean in a flowchart?

(1 mark)

05 It's all in the finish

PREPARING THE SURFACE

Before a finish, the wood must be smooth. Sand with **glasspaper** wrapped round a **cork block**, starting with a **coarse** grade (low number, e.g. 80) and moving to **finer** grades (higher numbers, e.g. 120 then 240). Always sand **along the grain**.

FINISHES

Wax: soft shine, indoor use only.

Danish oil: soaks in and brings out the grain; mostly for indoor use.

Exterior varnish: tough, clear, waterproof coat.

Exterior wood stain / preserver: colours and protects wood outdoors.

5a Number these glasspaper grades in the order you would use them: **240, 80, 120**.

(1 mark)

240 80 120

5b Why should you always sand **along** the grain, not across it?

(1 mark)

5c Choose a finish for your bird feeder. Explain your choice.

(2 marks)

MY FINISH:

Bird safe: use a water-based finish, let it dry completely, and keep it off the surfaces where food sits.

06 Quality check

When your feeder is finished, check it against this list. Tick each one you can honestly say **yes** to.

- | | |
|--|--|
| ☐ The shelves are a snug fit in the housings, with no gaps. | ☐ The shelves are square (90°) to the back panel. |
| ☐ The Ø16 hole is in the right place (within ±1 mm). | ☐ All edges and faces are smooth, with no pencil marks. |
| ☐ There is no dried glue on the surfaces. | ☐ The finish is even, with no runs or drips. |

6a What is **one** thing you would improve if you made the feeder again, and **how** would you do it?

Total: ____ / 38

