The Process Planner · Teacher sheet

GCSE D&T · AQA 3.2.5 shaping and forming, 3.2.8 specialist techniques and processes · application lesson · 50 minutes · works solo

The idea

Each student is a process planner in a factory. Products arrive in their material area. For each, they write a route card: the steps in the right order, the tool or machine for each step, and safety and quality points.

How the route cards work

There are three route cards (Bronze, Silver, Gold) for each of the six AQA areas, plus multi-material Platinum route cards. Students **start with the three route cards in their own chosen area**, then do any others.

Print (per student)

- Process Library (page 2). Can be shared or laminated.
- Product Board (pages 3–4), double-sided.
- Route Cards (pages 5–6), double-sided.

Running it

1. **5 min:** PowerPoint to the worked example (a wooden bird box; not on the Product Board).
2. **30 min:** students work alone: their own area's three route cards first, then any others, Platinum last.
3. **10 min:** students mark their OWN report in green pen using the answer slides.
4. **5 min:** totals and ranks. **The Audit:** anyone claiming Senior Planner or Head of Manufacturing brings their report to you.

Fees

Bronze £100 · Silver £200 · Gold £300 · Platinum £500. **Full fee** = sensible steps in the right order + a tool or machine for each + one safety point + one quality check · **Half fee** = steps right but tools, order or checks weak · **£0** = wrong process (e.g. casting a T-shirt) · **+£50** = names the process family for each step (wasting, deforming, reforming, addition).

Ranks

£0–399 Apprentice · £400–899 Process Planner · £900–1,599 Senior Planner · £1,600+ **Head of Manufacturing**

Process Library

Processes are grouped into families. A route card lists the steps in order, the tool or machine, and one safety or quality point per step.

Papers and boards

Process family	Examples
Cutting	Scissors, craft knife and safety rule, rotary trimmer, die cutting, laser cutting
Shaping	Scoring and creasing, folding, perforating
Joining	PVA, glue stick, hot melt glue, double-sided tape
Finishing	Printing (offset litho, digital), varnish, laminating, embossing

Timber

Process family	Examples
Wasting	Sawing (tenon, coping, bandsaw), chiselling, planing, drilling, routing, turning
Deforming	Laminating thin layers round a former, steam bending
Joining	Butt, dowel, mortise and tenon, housing, finger joints; PVA; screws
Finishing	Sanding, oil, wax, varnish, paint

Metal

Process family	Examples
Wasting	Hacksaw, tin snips, filing, drilling, turning on a lathe, milling
Deforming	Bending (vice, jig, folder), press forming, forging
Reforming	Casting (sand casting, die casting)
Joining	Rivets, nuts and bolts, soldering, brazing, welding

Polymers

Process family	Examples
Wasting	Laser cutting, sawing, filing, drilling
Deforming	Line bending (strip heater), vacuum forming
Reforming	Injection moulding, blow moulding, extrusion, rotational moulding
Joining	Tensol cement, screws, snap fits

Textiles

Process family	Examples
Cutting	Shears, pinking shears, rotary cutter, laser cutting, CAM cutting
Shaping	Darts, pleats, gathers, heat setting (thermoplastic fibres)
Joining	Plain seam, French seam, overlocking; zips, buttons, Velcro
Finishing	Screen printing, dye sublimation, embroidery, dyeing

Electronic and mechanical systems

Process family	Examples
Circuit making	Breadboard (testing), stripboard, PCB (etching or CNC milling)
Joining	Soldering, crimping, connectors
Housing	3D printing, injection moulding, laser cutting, vacuum forming
Testing	Multimeter, continuity test, visual check of joints

Process families: **wasting** removes material · **deforming** bends or shapes it without removing any · **reforming** melts it and shapes it in a mould · **addition** joins or builds up material (joining, 3D printing).

Product Board

Do the three route cards in YOUR material area first. Write the client's name on your report.

Papers and boards

PopUp Cards	BRONZE £100
“30 pop-up cards with a crisp fold and a cut-out shape.”	

ChocBox	SILVER £200
“A batch of card boxes: printed, cut, creased, glued.”	

Displays Ltd	GOLD £300
“A point-of-sale stand in foam board with a curved front.”	

Timber

Box Club	BRONZE £100
“A small pine box with butt joints.”	

StoolMakers	SILVER £200
“A stool frame with strong, neat joints in hardwood.”	

Curve Chairs	GOLD £300
“A chair back with a smooth curve made from thin layers.”	

Metal

HookIt	BRONZE £100
“A steel coat hook: cut from flat bar and bent.”	

TrayCo	SILVER £200
“A small aluminium tray with folded sides.”	

CastWorks	GOLD £300
“A decorative pewter pendant, 50 made.”	

Product Board (continued)

Polymers

StandUp — BRONZE £100	TrayMakers — SILVER £200	CapCorp — GOLD £300
“An acrylic phone stand with one bend.”	“A batch of HIPS packaging trays.”	“A million bottle caps in PP.”

Textiles

BagIt — BRONZE £100	TeeDesign — SILVER £200	PleatCo — GOLD £300
“A cotton tote bag with handles.”	“50 printed T-shirts with a logo.”	“A skirt with permanent pleats in polyester.”

Electronic and mechanical systems

GlowKits — BRONZE £100	PCB Club — SILVER £200	GearUp — GOLD £300
“A one-off night-light circuit on stripboard.”	“A batch of 20 PCBs for an alarm.”	“A plastic gear housing for a small motor, 500 made.”

Multi-material Platinum

Lamp Studio — PLATINUM £500	Kit Car Toys — PLATINUM £500
“A desk lamp: plywood base, aluminium arm, acrylic shade. Write a route card for all three parts and the assembly.”	“A wooden toy car with metal axles and moulded plastic wheels: 1,000 made.”

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Route Cards

Name: _____ My area: _____ Mark in GREEN pen

Example: *1 Mark out with try square → 2 Cut with tenon saw → 3 Drill with pillar drill → 4 Glue and pin (PVA). Safety: clamp work. Check: corners square.*

Client	Steps in order, with the tool or machine for each	Safety point	Quality check	Fee £

Route Cards (page 2)

Name: _____ My area: _____ Mark in GREEN pen

Example: *1 Mark out with try square → 2 Cut with tenon saw → 3 Drill with pillar drill → 4 Glue and pin (PVA). Safety: clamp work. Check: corners square.*

Client	Steps in order, with the tool or machine for each	Safety point	Quality check	Fee £

TOTAL EARNED: £_____ Rank: Apprentice · Process Planner · Senior Planner · Head of Manufacturing (circle)