

A Level Art & Design: Three-Dimensional Design

Year 12 Bridging Task — Completed Example Portfolio

AQA Specification | Candidate: Finn Smith | Summer 2025

Note to students:

This is a teacher-produced model answer based on the designer Tom Raffield. Use it to understand the standard and depth expected — your own research choices, written voice, and 3D response must be entirely your own.

Student name	Finn Smith
Format	Digital PDF portfolio
Submission	First lesson in September
Designer focus	Tom Raffield — Compulsory task + Extension (Biomimicry)

Introduction

I chose Tom Raffield as my designer because I am genuinely interested in how materials behave and in the relationship between making and designing. At GCSE I worked mainly with MDF and laser-cut acrylic — precise, predictable materials — and I wanted to explore something more physical and unpredictable. Steam bending wood felt like the opposite of everything I had done before, and that felt like the right place to start.

I also live near a woodland, and I have always been drawn to the idea that design can come from a close relationship with a specific place. Tom Raffield's studio is embedded in six acres of Cornish woodland, and his designs clearly grow from that rootedness. That idea resonates with me.

Stage 1 — Research: Who is Tom Raffield?

Key Dates & Background

Born / raised	Grew up in Exmoor, England	Material obsession is based around his upbringing – He was surrounded by this specific landscape of ancient oak woodland that shapes his design sensibility to this day
Education	Studied 3D Sustainability & Design at Falmouth College of Arts, Cornwall	Eco-conscious approach is not a marketing add-on but a foundational principle. Cornwall is close to the woodland environment too.
Founded	Tom Raffield Ltd, 2008	Starting small, with a single product type, allowed him to develop his steam-bending technique to a very high standard before expanding.
Location	Workshop and studio in Falmouth / Helston, Cornwall,	His studio was located near nature within six acres of ancient managed woodland that was his supply for his workshop.

Key award	Lighting Design Association Award, 2011; Walpole Brands of Tomorrow Award for Emerging Talent, 2017	British icon and luxury craft designer.	
Key commission	Royal Parks kiosk designs; RHS Chelsea Flower Show installations; featured on Grand Designs (BBC)	His work can operate at architectural and institutional scale, not just domestic interiors.	
Process motto	"No chemicals. No additives. No production line. Just handcrafted design, valued heritage." — Tom Raffield studio	Longevity and quality is an important motto rejecting industrial, synthetic and mass producing in design.	

What is Steam Bending?

Raffield discovered steam bending during his degree and realised that he could push this material beyond its conventional limits.



The process	Timber is placed in a steam chamber where heat and moisture soften the lignin — the natural glue that bonds wood fibres. Once pliable, the wood is bent around a former and held until it cools and sets permanently in the new shape.
Why it matters	It is a low-energy, chemical-free process. It produces no toxic waste. The only inputs are water and heat. It is one of the most ecologically sound methods of shaping wood.
Traditional uses	Boat building (hull planks), barrel-making (stave bends), Windsor chair legs, musical instrument backs (lutes, guitars, violins)
Raffield's innovation	He developed a new steaming method to create complex 3D bends — the conventional steam chamber could only achieve 2D curves. His technique allows the twisted, spiralling, three-dimensional forms his work is known for.
Materials used	Sustainably sourced British hardwoods — primarily ash, oak, and walnut. Species chosen for their specific grain structure and how they respond to steam.

Visual Research — Six Key Works

IMAGE 1: No.1 Pendant (2008 — the founding design)

A single continuous strip of ash steam bent into an open, globe-like cage. The grain of the wood is visible throughout. Light spills through the gaps between the strips, casting oval shadows across the ceiling. This was the piece that launched the entire studio — its elegance comes entirely from the material and the bend, not from surface decoration.



IMAGE 2: Flock Chandelier

Dozens of individual steam-bent curlicues suspended from a solid oak plate, each one in constant slow motion. Referencing a murmuration of starlings — one of nature's most extraordinary mass movements. The whole piece is weightless to the eye despite the density of components. This is biomimicry translated directly into a chandelier.



IMAGE 3: Helix Lampshade

A single very fine sliver of ash wound into a helix. The grain runs continuously along the entire spiral. When lit, light travels through the wood itself — the shade glows amber-gold. There is extraordinary tension between the delicacy of the form and the robustness of the material.



IMAGE 4: Arbor Armchair

Over 60 metres of steam-bent timber woven continuously around a structural frame. Described as 'Danish design principles married to Cornish craft.' The weave creates a surface that flexes slightly under load — the chair uses the material's natural spring. A brilliant structural solution that is also visually extraordinary.



IMAGE 5: Amble Hanging Chair

A large cocoon of steam-bent oak strips, designed to be suspended from a ceiling or tree branch. The form encloses the occupant like a nest. Raffield has spoken about wanting to create objects that reconnect people with natural materials through touch and experience — you cannot sit in this chair without being aware of the wood around you.



IMAGE 6: Kern Chandelier

A hoop of bent solid oak holding bare filament bulbs around its circumference. Unlike the Flock's complexity, this is extreme simplicity. One bend, one material, one gesture. The bare bulbs glow like lanterns in a woodland at dusk. A reminder that Raffield's range spans from dense complexity to refined minimalism.



Recurring Themes I Identified

Theme	My observation
Nature as source material	Almost every piece references something from the Cornish landscape or natural world — bird murmuration, helix growth patterns, woodland canopy, coastal waves. Nature is not decoration; it is the starting point.
Process as design	The steam-bending process itself determines what forms are possible. Raffield does not impose a shape onto wood — he works with what steam bending can achieve. The process and the outcome are inseparable.
Material honesty	No veneers, no paint, no disguise. The grain of the ash or oak is always visible; joints are shown, not hidden. The material is the aesthetic.
Sustainability embedded	This is not greenwashing — the woodland is managed specifically to supply the studio; offcuts are used for smaller products; the process uses no chemicals. Sustainability is structural, not added on.
Light and shadow as co-designers	Raffield's pieces create shadow patterns as important as the objects themselves. The Flock Chandelier's shadows move with the light. The No.1 Pendant casts elliptical pools. The spaces between the wood are designed, not accidental.

In-Depth Focus: The No.1 Pendant (2008)

I chose to look at the No.1 Pendant in depth because it is the piece that started the entire studio, and I wanted to understand why.

Year	2008 — the first product Tom Raffield ever made commercially, and still one of the best-selling
Form	A single continuous strip of ash bent into an open globe-like cage. The strip crosses over itself multiple times, creating a lattice structure with no joins or fixings — just the tension of the bent wood holding itself together.
Material	Sustainably sourced ash — chosen for its fine, straight grain and the way it responds to steam. Ash is historically used in tool handles, sports equipment, and traditional British furniture.
Light quality	The gaps in the lattice cast oval shadow pools that shift as the light source angle changes. The wood itself warms slightly with the heat of the bulb, releasing a faint scent of ash — a multi-sensory object.
Making process	Only a small number of craftspeople in the studio are skilled enough to produce it. The strip must be bent, then navigated through its own crossings while still pliable — a precise window of time before the wood cools and sets.
Why it matters	It proves that a single material, a single process, and a single gesture can produce an object of extraordinary complexity and beauty. There is no design excess here — everything serves the form.



Stage 2 — Investigation

Gallery / Museum Visit

I visited Yorkshire Sculpture Park (YSP), West Bretton, during the summer. YSP is a 500-acre open-air gallery in a landscaped estate, with major works by Henry Moore, Barbara Hepworth, David Nash, and many others displayed across the grounds.

I chose YSP rather than a London museum because Tom Raffield's work is deeply connected to outdoor landscape, natural materials, and the relationship between designed objects and living environment. I wanted to sketch works in a similar context.

I focused on three works, sketching each from multiple viewpoints and annotating my drawings on site.

Sketch 1: David Nash — 'Black Dome' (charred oak)



A solid hemisphere of blackened timber. The surface is rough, tactile, deeply worked.

'Material pushed to its limit — burnt to become its opposite. Raffield steams to make wood flexible; Nash burns to make it permanent. Same material, totally opposite treatment.'

Sketch 2: Barbara Hepworth — 'Family of Man' (bronze)



Nine upright forms of varying height — some hollow, some pierced.

'The pierced voids are as important as the solid forms. The negative space defines the positive. Raffield's No.1 Pendant works the same way — the gaps are the design.'

Sketch 3: Andy Goldsworthy — 'Outclosure' (dry stone wall)



A winding dry-stone wall that curves back on itself to enclose a space.

'Site-specific and temporary in spirit — it will slowly change. Goldsworthy and Raffield share the belief that working with the inherent properties of a natural material produces better design than working against them.'

Two Contemporary Designers Connected to Tom Raffield

Designer	Key Work / Practice	Connection to Tom Raffield	Image of work
David Nash (Wales, b.1945)	Land artist and sculptor working almost exclusively in wood — growing, burning, carving. His 'Ash Dome' project (1977–ongoing) involves 22 ash trees he planted and trained over decades into a living sculpture.	Both designers have a profound commitment to a single material — ash — and both see the material's natural properties as something to work with, not overcome. Nash grows his sculptures; Raffield bends his. Both resist industrial processes.	
Piet Hein Eek (Netherlands, b.1967)	Furniture and interior designer famous for making pieces from scrap wood and waste materials. His 'Scrapwood Furniture' series uses off-cuts with visible knots, gaps, and imperfections.	Both designers are committed to material honesty and sustainability, and both resist the impulse to disguise the origin of their material. Where Raffield shows the grain and structure of bent wood, Eek shows the history of salvaged timber. Both argue that imperfection is beautiful.	

Critical Analysis: How Tom Raffield Bridges Craft and Contemporary Design (195 words)

Tom Raffield occupies an unusual and important position in British design: he is simultaneously a craftsman, a designer, a manufacturer, and an environmentalist. These roles are not in tension for him — they are the same thing.

His starting point is always the material. Steam bending is not applied to a form he has already decided upon; the process shapes what is possible, and Raffield designs within those constraints. This is the opposite of most contemporary product design, which defines a desired form and then selects a material to achieve it. Raffield's method produces objects that could not have been made any other way, which gives them a visual inevitability that is very difficult to manufacture artificially.

The result is work that sits comfortably between the categories of craft object and design product. His lights function superbly as lights. But they also function as sculptures — as objects that change a room, cast shadows, move gently in air currents, and reward close looking. In this he connects directly to the British Arts and Crafts Movement of William Morris, who argued that objects of daily use should also be objects of beauty. Raffield is making the same argument, with steam-bent ash, for a twenty-first century home.

Stage 3 — Personal Response

3D Model: Design Development

Title: 'Canopy Study No.1'

Materials: Cardboard design and metal wire [can potentially use 3mm balsa wood strips (steam-bent over a kettle spout — low-tech steam bending), 1mm steel wire, wooden clothes peg formers, PVA glue, natural string]

Scale: Approximately 20 × 20 × 16 cm

Inspiration: Tom Raffield's use of bent wood strips to create forms that reference natural growth patterns — specifically the way branches of a tree canopy arch away from a central trunk and overlap without touching.

PROCESS PHOTOGRAPHS

Photo 1: Initial sketches — exploring arching forms from a central point using cardboard

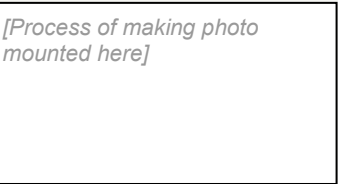


Photo 2: looking at techniques to bend card in different ways, twisting, scoring etc

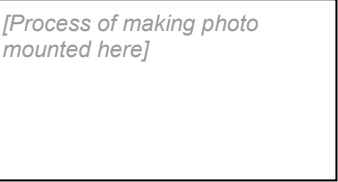


Photo 3: Assembly stage — Using wire (metal hanger) bent strips to central column

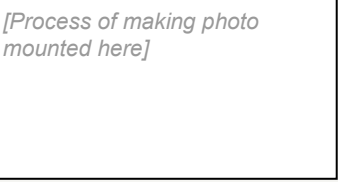
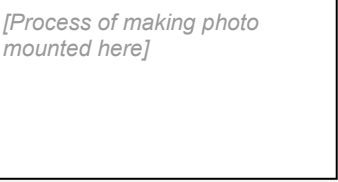


Photo 4: Finished model photographed to show how shadows are captured through the model



ANNOTATIONS

FORM DECISIONS:

I wanted to work from a single radiating point — like a tree canopy viewed from below. Eight cardboard strips arch upward and outward from a central wire column, each one bent to a slightly different angle so that from above the form reads as a circular canopy, but from the side it is clearly asymmetric.

MATERIAL DECISIONS:

Cardboard was chosen as a low-cost equivalent and its flexibility. The wire column is deliberately visible — I was influenced by Raffield's honesty about how things are made. The string lashings at the joints reference traditional wood joinery.

WHAT I CHANGED:

My first attempt used thicker strips of card which was difficult to shape. I switched to thinner strips which gave a much cleaner curve. I also added a second 'layer' of shorter strips at the base of the canopy, which creates a more interesting shadow pattern underneath.

SHADOW AS DESIGN ELEMENT:

I placed the finished model under a single lamp and photographed the shadows on white card. The overlapping arcs create a web of ellipses — which is exactly the effect I was aiming for, directly inspired by the way the No.1 Pendant casts light.

Personal Statement (110 words)

I chose Tom Raffield because I wanted to learn something genuinely new — and steam bending has changed how I think about what design can be. I came into this task believing that design meant deciding what something should look like and then making it. Raffield has convinced me that the most interesting design starts the other way round: begin with what the material can do, and let the form follow from that.

Making my canopy model taught me more about wood as a material than three years of cutting and drilling it at GCSE. When it bends, it does not feel like a process — it feels like the wood agreeing to something.

I want to carry that conversation with my material into everything I make at A Level. I do not want to design objects. I want to design in collaboration with the things I am making them from.