# Draw Everyday Objects by Breaking Them into Shapes

Original tasks 1, 2 / complete keys

Task 1

A table lamp is 30 cm tall. Its base is 6 cm tall, the stem is 12 cm tall, and the shade is 12 cm tall. Draw a shape breakdown and rebuild the lamp at a hypothetical drawing height of 15 cm. Describe the shapes you use.

Answer: Breakdown: base as a trapezoid or rectangle 3 cm tall (6/30 of 15 cm), stem as a narrow rectangle 6 cm tall (12/30 of 15 cm), shade as a trapezoid 6 cm tall (12/30 of 15 cm). Rebuild from base to stem to shade, then add details such as the bulb or switch. Check that the three parts sum to 15 cm.

Reason: The fractions convert the object's part heights to the drawing height: 6/30 = 1/5, so 15 cm × 1/5 = 3 cm; 12/30 = 2/5, so 15 cm × 2/5 = 6 cm. The parts sum to 3 + 6 + 6 = 15 cm.

Check: Measure each part on the drawing and confirm the sum equals 15 cm and each part matches its fraction.

Task 2

A stapler is 20 cm long. The base is 20 cm long, the top arm is 18 cm long, and the hinge is 2 cm from the back edge. Draw a shape breakdown and rebuild the stapler at a hypothetical drawing length of 10 cm. Describe the shapes and alignment.

Answer: Breakdown: base as a long rectangle 10 cm long, top arm as a slightly angled rectangle 9 cm long (18/20 of 10 cm), hinge as a small circle placed 1 cm from the back edge (2/20 of 10 cm). Rebuild from base to top arm to hinge, then add details such as the staple opening. Check that the hinge aligns with the back edge and the top arm is shorter than the base.

Reason: The fractions convert lengths: 18/20 = 9/10, so 10 cm × 9/10 = 9 cm; 2/20 = 1/10, so 10 cm × 1/10 = 1 cm. The top arm is shorter than the base by 1 cm, matching the object.

Check: Measure the base, top arm, and hinge position on the drawing and confirm they match the calculated lengths and alignment.

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Original tasks 3, 4 / complete keys

Task 3

A simple chair has a seat 45 cm wide and 45 cm deep, a backrest 50 cm tall, and four legs each 45 cm tall. Draw a shape breakdown and rebuild the chair at a hypothetical drawing height of 18 cm for the legs. Describe the shapes and how you check proportions.

Answer: Breakdown: seat as a rectangle, backrest as a rectangle attached to the back of the seat, legs as narrow rectangles. Using the leg height as the reference, the backrest is 50/45 of the leg height, so at 18 cm legs the backrest is about 20 cm tall (18 × 50/45 = 20). The seat width and depth are each 45/45 = 1, so at 18 cm legs the seat is about 18 cm wide and 18 cm deep. Rebuild from seat to backrest to legs, then add details. Check that the backrest is taller than the legs and the seat is square in plan.

Reason: The fractions compare each part to the leg height: backrest 50/45 ≈ 1.11, so 18 cm × 1.11 ≈ 20 cm; seat width and depth 45/45 = 1, so 18 cm × 1 = 18 cm. The arithmetic is simple and checkable.

Check: Measure the backrest and seat on the drawing and confirm they match the calculated values; check that the seat is square and the backrest is centered.

Task 4

Choose a household object with at least three distinct parts. Measure its total height and one part's height, then draw a shape breakdown and rebuild it at a hypothetical drawing height of 12 cm. Describe the object, the shapes, and your proportion check.

Answer: Example: a teapot 16 cm tall with a body 10 cm tall, a lid 3 cm tall, and a spout 3 cm tall. Breakdown: body as a rounded rectangle or circle, lid as a small trapezoid, spout as a narrow triangle or curved tube. At 12 cm drawing height, the body is 12 × 10/16 = 7.5 cm, the lid is 12 × 3/16 = 2.25 cm, and the spout is 2.25 cm. Rebuild from body to lid to spout, then add details. Check that the parts sum to 12 cm and each matches its fraction.

Reason: The fractions convert each part to the drawing height: 10/16 = 0.625, so 12 × 0.625 = 7.5 cm; 3/16 = 0.1875, so 12 × 0.1875 = 2.25 cm. The parts sum to 7.5 + 2.25 + 2.25 = 12 cm.

Check: Measure each part on the drawing and confirm the sum equals 12 cm and each part matches its fraction; check that the spout and lid are proportional to the body.

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Source rubric / reflection

- [ ] Shape breakdown includes the largest enclosing shape and at least two smaller shapes.
- [ ] Proportions are checked using a fraction or measurement and are consistent with the object.
- [ ] Rebuild sequence goes from large shapes to small details.
- [ ] Line weight convention is consistent and helps readability.
- [ ] Valid alternatives are accepted if shape logic and proportions are clear.
- [ ] Labels or notes, if used, are readable with consistent letter style.

Reflection: What did you check, what did you change, and what will you try next?