Beaver Body-Shape Drawing: Step-by-Step Worksheet Plan

Original tasks 1, 2, 3 / complete keys

Task 1

A student draws a torso 9 cm long, a head 3 cm across, and a tail 6 cm long. Using the lesson ratios, what should the head and tail lengths be, and how far off is the student?

Answer: Head should be 4.5 cm (half of 9 cm); student is 1.5 cm short. Tail should be 6 cm (two thirds of 9 cm); student is correct.

Reason: Torso is 3 U, so U = 3 cm. Head is 1.5 U = 4.5 cm. Tail is 2 U = 6 cm. Compare each to the student values.

Check: Recompute U from torso length, then multiply by the ratio for head and tail; subtract to find differences.

Task 2

Describe where to place the limbs relative to a torso oval 8 cm long and 6 cm tall, and give a check for balance.

Answer: Place front limbs under the chest and hind limbs under the rear, both within the 8 cm torso length. Each limb is about 2.67 cm long (one third of 8 cm). Check balance with a vertical line through the torso center: limbs should fall within the torso width, and head and tail should sit on opposite sides of that line.

Reason: Limbs are short and sturdy, about one third of torso length. Keeping them within the torso width prevents an unstable look. One third of 8 cm is 8 ÷ 3 ≈ 2.67 cm.

Check: Draw the center line and measure limb positions from it; confirm each limb is inside the torso width and that limb length is about one third of the 8 cm torso length (about 2.67 cm).

Task 3

A drawing has a head 5 cm across and a torso 8 cm long. Is the head ratio acceptable under the lesson guideline? Show the arithmetic.

Answer: Guideline head is half torso length: 4 cm. The drawing is 5 cm, which is 1 cm over, or 25 percent over the guideline. Not acceptable if strict 20 percent tolerance is used.

Reason: Half of 8 cm is 4 cm. Difference is 1 cm. 1 divided by 4 equals 0.25, or 25 percent.

Check: Divide the difference by the guideline value and compare to the 20 percent tolerance.

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Original tasks 4 / complete keys

Task 4

You have paper 20 cm wide. Using U = 3 cm, will the beaver fit if torso is 3 U, tail is 2 U, and head overlaps by 1 U? Show the total width calculation.

Answer: Torso 9 cm, tail 6 cm, head 4.5 cm with a 3 cm overlap onto the torso. Total width = 9 + 6 + (4.5 − 3) = 16.5 cm. Fits within 20 cm with 3.5 cm spare.

Reason: Torso is 3 U = 9 cm, so U = 3 cm. Tail is 2 U = 6 cm. Head is 1.5 U = 4.5 cm, but 1 U (3 cm) overlaps the torso, so only 1.5 cm of head adds new width. Add torso, tail, and the non-overlapping head part, then compare to paper width.

Check: Recompute each part from U, add torso + tail + (head − overlap), and subtract the total from 20 cm to confirm a positive remainder.

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Source rubric / reflection

- [ ] Sequence followed: torso first, then head, tail, limbs.
- [ ] Proportions within 20 percent of the stated unit values, or documented adjustments.
- [ ] Final outline continuous and construction lines erased.
- [ ] Silhouette reads as a beaver without labels.
- [ ] Labels, if used, follow baseline-to-midline x-height; letter style not graded.
- [ ] Valid alternatives accepted when body-shape logic is sound.

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