Draw Deer Antlers: Beam Taper, Tine Order, and Symmetry

Original tasks 1, 2 / complete keys

Task 1

A right antler has a beam length of 9 cm. The base width is 1.0 cm and the tip width is 0.3 cm. Three branch points are marked at 3 cm, 5 cm, and 7 cm from the base. The tine lengths are 2.5 cm, 2.0 cm, and 1.5 cm. Check the taper and whether the last tine is shorter than the remaining beam above its branch point.

Answer: The taper is 1.0 cm to 0.3 cm, which is gradual. The last branch point is at 7 cm, so the remaining beam above it is 2 cm. The last tine is 1.5 cm, which is shorter than 2 cm. The construction is consistent.

Reason: Subtract the last branch point from the beam length to find the remaining beam: 9 minus 7 equals 2 cm. Compare the last tine length of 1.5 cm to 2 cm. Since 1.5 is less than 2, the tine is shorter than the remaining beam.

Check: Re-measure the beam length and branch point distances on your drawing. Confirm the subtraction and compare the last tine length directly.

Task 2

A left antler has a base width of 1.4 cm and a tip width of 0.5 cm. A tine branches at a point where the beam width is 0.9 cm. The tine is drawn 1.1 cm wide at its base. Is the tine wider than the beam at the branch point, and what should change?

Answer: Yes, the tine is wider: 1.1 cm is greater than 0.9 cm. The tine should be narrowed at its base so it is no wider than the beam at that point.

Reason: Compare the tine base width of 1.1 cm to the beam width of 0.9 cm at the branch point. Since 1.1 is greater than 0.9, the tine is too wide. Narrow the tine base to 0.9 cm or less.

Check: Measure the beam width at the branch point and the tine base width with the same ruler. Confirm the tine width is less than or equal to the beam width.

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Original tasks 3, 4 / complete keys

Task 3

Two antlers are drawn with a vertical mirror guide. The left beam tip is 8 cm above the base line. The right beam tip is 9 cm above the base line. The left first tine tip is 3 cm from the guide, and the right first tine tip is 3.5 cm from the guide. Are the differences large enough to adjust before darkening the lines?

Answer: The beam tip difference is 1 cm and the first tine difference is 0.5 cm. These are noticeable but small. Adjust the right beam tip down by about 1 cm and the right first tine inward by about 0.5 cm to improve approximate symmetry.

Reason: Subtract the smaller measurement from the larger for each pair: 9 minus 8 equals 1 cm, and 3.5 minus 3 equals 0.5 cm. Since the lesson allows small natural differences, these are borderline; adjusting them improves balance without requiring exact mirroring.

Check: Re-measure both heights from the same base line and both tine distances from the guide. Compare the differences after adjustment.

Task 4

An antler has four branch points at 2 cm, 4 cm, 6 cm, and 8 cm along a 10 cm beam. The tine lengths are 3 cm, 2 cm, 2.5 cm, and 1 cm. Which tine breaks the guidance that later tines should generally be shorter, and what is a simple fix?

Answer: The third tine is 2.5 cm, which is longer than the second tine at 2 cm. A simple fix is to shorten the third tine to about 1.8 cm or lengthen the second tine slightly, keeping the overall decrease toward the tip.

Reason: Compare consecutive tine lengths: 3, 2, 2.5, 1. The sequence increases from 2 to 2.5 at the third tine, which breaks the general decrease. Adjusting the third tine to 1.8 cm gives 3, 2, 1.8, 1, a consistent decrease.

Check: List the tine lengths in order and check that each is generally shorter than the one before. Re-measure after adjusting.

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Source rubric / reflection

- [ ] Beam shows a clear gradual taper from base to tip.
- [ ] Four branch points are marked and tines are added in order from base to tip.
- [ ] Tine lengths generally decrease toward the tip and no tine is wider than the beam at its branch point.
- [ ] A mirror guide is used to check approximate symmetry, with small natural differences allowed.
- [ ] Line weight convention is consistent: firmer outer edges and lighter construction marks.

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