Dragon Wings Drawing Reference: Bone Arm, Membrane Spans, Folded and Spread Poses

Original tasks 1, 2, 3 / complete keys

Task 1

A spread wing has four labeled struts and three membrane spans. The folded drawing shows four struts but only two visible spans. What is the most likely error, and how would you check it?

Answer: One membrane span was probably omitted or hidden behind a strut. Check by counting gaps between adjacent labeled struts in the folded pose; there should be three. Trace each span from one strut to the next and redraw any missing span as a narrow fold.

Reason: The number of spans equals the number of gaps between struts. Four struts create three gaps, so a folded wing should still show three spans even if they are narrow.

Check: Count struts and spans in both poses; the span count should be one less than the strut count in each.

Task 2

In a spread wing, the second strut measures 5 cm. In the folded version it measures 7 cm. Using the hypothetical 1 cm tolerance on a 6 cm example, is this consistent? State a fix.

Answer: No. A 2 cm change on a 5 cm strut is larger than the 1 cm tolerance, so the folded strut was likely redrawn. Fix by copying the 5 cm strut and rotating it into the folded angle, then rechecking span count.

Reason: Folding changes angles, not bone length. A large length change signals a structural mismatch between poses.

Check: Measure the same labeled strut in both poses and compare the difference to the stated tolerance.

Task 3

You are drawing a folded wing with struts A, B, C, and D. Strut A is the leading edge. In what order should the struts stack, and where do membrane folds appear?

Answer: Stack A outermost, then B, C, and D behind it in order. Membrane folds appear as short curves between adjacent stacked struts: A to B, B to C, and C to D, narrowing toward the tip.

Reason: Preserving the labeled order keeps the folded pose consistent with the spread frame. Folds occupy the gaps between adjacent struts.

Check: Verify that the stacking order matches the labels and that three short folds connect the four struts.

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Original tasks 4 / complete keys

Task 4

A spread wing shows a leading strut of 6 cm and three spans with a sag depth of about 0.5 cm each. The folded drawing shows the same struts but one span sags 2 cm while the others sag 0.5 cm. What should you adjust?

Answer: Reduce the deep sag to about 0.5 cm so it matches neighboring spans. A single deep sag makes the membrane look torn rather than folded. Keep the fold narrow but consistent with the other spans.

Reason: Consistent sag across neighboring spans reads as an evenly stretched membrane. One outlier span breaks that consistency.

Check: Compare sag depth across adjacent spans by eye or with a small ruler; they should be similar within about 0.2 cm on this hypothetical example.

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Source rubric / reflection

- [ ] Bone arm shows shoulder, elbow, wrist, and labeled finger struts in a clear order.
- [ ] Membrane spans connect adjacent struts without crossing them.
- [ ] Span sag is shallow and consistent across neighboring panels.
- [ ] Folded pose preserves strut lengths within about 1 cm on a 6 cm example.
- [ ] Folded pose keeps the same number of membrane spans as the spread pose.
- [ ] Strut stacking order is preserved in the folded pose.
- [ ] Valid alternative strut counts are accepted if labeled and consistent across poses.

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