How to Draw Fish-Scale Texture on a Face

Original tasks 1, 2 / complete keys

Task 1

A face plate is 12 cm tall. You choose a scale width of 8 mm. Draw one row of five scales across the forehead. State the overlap between adjacent scales and the total row width if scales touch edge to edge before overlap.

Answer: Five scales at 8 mm width give a row width of 5 × 8 = 40 mm before overlap. With one-third overlap, each of the four joins overlaps by 8 ÷ 3 ≈ 2.67 mm, so the visible row width is 40 − (4 × 8 ÷ 3) ≈ 29.3 mm. Overlap between adjacent scales is about 2.7 mm.

Reason: Multiply scale count by width for the pre-overlap width. Subtract overlap at each of the four joins. One-third of 8 mm is about 2.67 mm.

Check: Measure the drawn row with a ruler; it should be close to 29 mm. Count five scales and confirm each join overlaps by about 3 mm.

Task 2

On a 2 cm by 2 cm test square, draw 6 scales using 10 mm-wide scales with one-third overlap. Is this within the lesson’s hypothetical target of 1.5–2 scales per square centimeter for 10–12.5 mm scales? Show the arithmetic.

Answer: The square area is 2 × 2 = 4 cm². Density is 6 ÷ 4 = 1.5 scales per cm². This is the lower end of the stated target for 10–12.5 mm scales, so it meets the counting check. If the pattern looks sparse, compare with 8 scales in the same area (2 per cm²) before changing the width.

Reason: The count density is 6 scales over 4 cm², or 1.5 per cm². The 10 mm scale width falls within the 10–12.5 mm size used to define the example target.

Check: Confirm the square is 2 cm by 2 cm and each scale is about 10 mm wide. Recount: 6 ÷ 4 = 1.5 scales per cm², which meets the lower endpoint of the stated target for this size range.

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Original tasks 3, 4 / complete keys

Task 3

You are drawing row two below row one. Row one has scales 10 mm wide starting at the left edge. Row two must be offset by half a scale width. Use a vertical overlap of one-third of the scale width. Describe where the first scale of row two starts and the overlap at each row.

Answer: Half of 10 mm is 5 mm, so the first scale of row two starts 5 mm from the left edge. It overlaps the row above by about one-third of 10 mm, or about 3 mm.

Reason: Offset is half the scale width. Overlap is one-third of scale width per the convention.

Check: Measure 5 mm from the left edge for the first scale start; measure the vertical overlap between rows and confirm it is about 3 mm.

Task 4

Near the jaw edge, you taper the last two scales of a row from 10 mm to 7 mm width. The row has eight scales total. What is the row width before overlap if the first six scales are 10 mm and the last two are 7 mm?

Answer: First six scales: 6 × 10 = 60 mm. Last two scales: 2 × 7 = 14 mm. Total before overlap: 60 + 14 = 74 mm.

Reason: Multiply count by width for each group and add the results.

Check: Measure the drawn row from first scale start to last scale end before overlap; it should be close to 74 mm.

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Source rubric / reflection

- [ ] Convention: every scale is a U-shape with open end toward the face edge and closed curve inward.
- [ ] Overlap: each scale covers about one-third of the scale above; no gaps larger than half a scale width.
- [ ] Placement: rows follow facial contours and stop at the eye outline.
- [ ] Density: texture reads clearly from arm's length; test square shows about 1.5–2 scales per square centimeter as a hypothetical target for 10–12.5 mm scales with one-third overlap.
- [ ] Consistency: valid alternatives in scale width or edge taper are allowed if the convention and overlap remain consistent.

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