How to Draw Glowing Dragon Scales with Highlight Gradients

Original tasks 1, 2, 3 / complete keys

Task 1

A scale is 2.5 cm wide. Using the hypothetical rule that the highlight must be smaller than one fifth of the scale width, what is the largest allowed highlight width in millimetres?

Answer: 5 mm.

Reason: One fifth of 2.5 cm is 0.5 cm. Since 1 cm equals 10 mm, 0.5 cm equals 5 mm. A highlight narrower than 5 mm satisfies the rule.

Check: Multiply the scale width by 0.2, then convert centimetres to millimetres by multiplying by 10. Confirm the result is less than the scale width.

Task 2

A plate has three rows of five scales. The bottom row is drawn first, and each upper row overlaps the row below by one third of the scale height. If each scale is 1.5 cm tall, how much vertical overlap occurs between two adjacent rows in millimetres?

Answer: 5 mm.

Reason: One third of 1.5 cm is 0.5 cm. Converting to millimetres gives 5 mm of overlap between adjacent rows.

Check: Divide the scale height by 3, then multiply by 10 to convert to millimetres. Verify the overlap is less than the full scale height.

Task 3

A student places the bright core on the lower right of every scale but marks the light arrow at the upper left. Describe the inconsistency and state one correction that keeps the chosen light direction.

Answer: The bright core is on the opposite side from the marked light direction. Move the bright core to the upper left of each scale and shift the darker rim band to the lower right.

Reason: The glow logic requires the brightest area to face the light source. If the arrow points upper left, the core must sit toward the upper left and the rim must darken away from it.

Check: Compare the arrow position with the core position on at least three scales. If they disagree, relocate the core and rim band rather than changing the arrow.

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Original tasks 4 / complete keys

Task 4

A scale uses three tones: light, middle, and dark. The rim band is drawn with the light tone and the core with the dark tone. Explain why the glow fails and give the corrected tone order from core to rim.

Answer: The glow fails because the darkest tone sits in the core and the lightest tone sits at the rim, reversing the gradient. The corrected order from core to rim is light, middle, dark.

Reason: A glow gradient fades from bright at the core to darker at the rim. Reversing the order makes the scale look recessed rather than luminous.

Check: List the tones in order from the core outward. Confirm the sequence goes from lightest to darkest and that the rim is darker than the middle band.

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Source rubric / reflection

- [ ] One light direction is marked and followed on every scale.
- [ ] Each scale shows a bright core, a middle band, and a darker rim band.
- [ ] The brightest tone is confined to the upper third near the light side.
- [ ] A small specular highlight sits inside the bright core and is smaller than one fifth of the scale width.
- [ ] A thin separation line appears only along the lower overlapping edge.
- [ ] The plate reads as a consistent glowing pattern from a short distance.
- [ ] Valid alternatives in scale shape or light direction are accepted if the gradient logic stays consistent.

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