Draw Realistic Overlapping Scales with a Skin Transition

Original tasks 1, 2, 3 / complete keys

Task 1

On a blank strip, draw one row of five scales. Use an x-height of 6 mm for every scale and an overlap depth of 2 mm. Describe where the shadow line goes for each scale.

Answer: Five scales in one row, each 6 mm from baseline to midline, with the free edge overlapping the scale behind by 2 mm. A thin shadow line sits just below each free edge and fades within about 2 mm.

Reason: A 2 mm overlap is one-third of the 6 mm x-height, which matches the convention. The shadow belongs below the free edge because that edge casts onto the scale beneath.

Check: Measure each scale's x-height and the overlap distance. Confirm every shadow line is below a free edge and fades within about 2 mm.

Task 2

A transition band has scales with x-heights of 3 mm, 4 mm, 5 mm, and 6 mm. The shadows fade within 1 mm, 1.5 mm, 2 mm, and 2.5 mm respectively. Is the transition gradual? Explain using the numbers.

Answer: Yes. The x-height increases by 1 mm per scale, and the shadow fade increases by 0.5 mm per scale. Both changes are steady, so the transition is gradual.

Reason: Gradual means the changes are small and consistent from one scale to the next. Adding 1 mm to x-height and 0.5 mm to shadow fade each step satisfies that.

Check: Subtract consecutive x-heights and shadow fades. If the differences are equal or nearly equal, the transition is gradual.

Task 3

You draw a full-row strip with three rows. Each scale is 9 mm x-height. You want an overlap depth of about one-third. What overlap depth should you aim for, and how would you check it on the middle row?

Answer: Aim for about 3 mm overlap depth. On the middle row, measure from a free edge to where the scale behind it disappears; if the distance is about 3 mm, the overlap is close to one-third of 9 mm.

Reason: One-third of 9 mm is 3 mm. Measuring the visible overlap distance directly checks whether the drawing matches the intended depth.

Check: Measure three separate overlaps in the middle row. If each is near 3 mm, the row is consistent.

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Original tasks 4 / complete keys

Task 4

A learner's transition band shows a hard line between bare skin and the first scale. The first scale is 7 mm x-height with a 3 mm shadow fade. Suggest two changes that would soften the transition, using numbers.

Answer: Reduce the first scale's x-height to about 4 mm and shorten its shadow fade to about 1.5 mm. Add one or two intermediate scales between 4 mm and 7 mm so the size change is gradual.

Reason: A smaller first scale and a lighter shadow make the scale sit more gently on the skin. Intermediate sizes prevent a sudden jump from skin to full-size scales.

Check: Compare the first scale's x-height and shadow fade with the next scale. If the differences are small and the shadow is light, the transition is softer.

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Source rubric / reflection

- [ ] Three zones are clearly present: bare skin, transition band, and full overlapping scale rows.
- [ ] Scale x-height is consistent within each row, with only intentional variation.
- [ ] Overlap depth is close to one-third of the scale height across the full-row strip.
- [ ] Free edges are darker than side curves, and shadows fall in one consistent direction.
- [ ] The transition band changes scale size and shadow strength gradually, with no hard boundary.
- [ ] Valid alternative scale shapes are accepted if overlap and shading follow the convention.

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