Draw Raised 3D Snake Scales with Edge Shading and Highlights

Original tasks 1, 2, 3 / complete keys

Task 1

A practice band is 48 mm wide. You draw plates 8 mm wide with a 2 mm overlap. How many plates fit across one row, and what is the visible height of a 9 mm tall plate?

Answer: Six plates fit across the row; the visible height is 7 mm.

Reason: 48 divided by 8 equals 6 plates. The overlap reduces the visible height: 9 minus 2 equals 7 mm.

Check: Multiply 6 by 8 to confirm 48 mm, and add the 2 mm overlap back to 7 mm to confirm 9 mm.

Task 2

You draw three rows of plates, each plate 10 mm tall with a 2.5 mm overlap. What is the total height of the three-row band if the rows sit directly above one another with no extra gap?

Answer: The band is 25 mm tall.

Reason: The first row contributes its full 10 mm. Each additional row adds only its visible height of 7.5 mm (10 minus 2.5). So the total is 10 + 7.5 + 7.5 = 25 mm.

Check: Reconstruct full plate heights: 25 mm plus the two hidden overlaps (2.5 mm each) equals 30 mm, which is three plates of 10 mm.

Task 3

A row is 54 mm wide. Plates are 9 mm wide and staggered by 4.5 mm. How many plates fit in the first row, and where does the second row begin relative to the first plate?

Answer: Six plates fit in the first row; the second row begins 4.5 mm to the right of the first plate's left edge.

Reason: 54 divided by 9 equals 6. Staggering by half a plate width means 9 divided by 2 equals 4.5 mm offset.

Check: Multiply 6 by 9 to confirm 54 mm, and double 4.5 mm to confirm the full plate width of 9 mm.

Draw Raised 3D Snake Scales with Edge Shading and Highlights

Original tasks 4 / complete keys

Task 4

You want a highlight about one-fifth of a 15 mm wide plate. What highlight width should you aim for, and how much mid-tone remains across the plate if the dark lower edge is not counted in the width?

Answer: Aim for a 3 mm highlight; the remaining width across the plate is 12 mm.

Reason: One-fifth of 15 mm is 3 mm. Subtracting the highlight from the plate width gives 12 mm for the rest of the plate surface.

Check: Multiply 3 mm by 5 to confirm 15 mm, and add 3 mm back to 12 mm to confirm the plate width.

Draw Raised 3D Snake Scales with Edge Shading and Highlights

Source rubric / reflection

- [ ] Each scale shows three distinguishable tones: dark lower edge, mid-tone body, small crown highlight.
- [ ] The highlight is small and offset, not centered or running along the whole upper edge.
- [ ] Rows overlap by a consistent amount, drawn from the bottom upward.
- [ ] Alternate rows are staggered so straight vertical seams are avoided.
- [ ] Valid alternatives are accepted: rounded, oval, or slightly pointed plates, and blended or crisp bevel lines, provided the three-tone raised effect remains clear.

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