Draw Ocean Fish Scale Rows with Shading: A Step-by-Step Guide

Original tasks 1, 2, 3 / complete keys

Task 1

On a 60 mm-wide strip, draw two rows. Row one uses 15 mm-wide, 10 mm-high scales. Row two uses 13 mm-wide, 8 mm-high scales, is offset by 6.5 mm, and begins 8 mm below row one's top guide. How many full scales fit in each row?

Answer: Row one: 60 divided by 15 = 4 full scales. Row two: 60 divided by 13 is about 4.6, so 4 full scales and one partial.

Reason: Divide the strip width by the scale width. For row two, 13 mm scales leave a remainder, so a partial scale is expected.

Check: Confirm 60/15=4 and 60/13≈4.62. Check that the second-row offset is half of 13 mm and that the 8 mm guide pitch creates overlap with the 10 mm first-row height.

Task 2

A scale row has 8 scales of 12 mm width. What is the total width covered by full scales? If the strip is 100 mm wide, how much width remains for a partial scale?

Answer: Total width = 8 times 12 mm = 96 mm. Remaining width = 100 minus 96 = 4 mm.

Reason: Multiply the number of scales by the scale width, then subtract from the strip width.

Check: Measure the drawn row: eight 12 mm arcs should span 96 mm, leaving a 4 mm gap at the end.

Task 3

Draw three rows with scale heights of 12 mm, 11 mm, and 10 mm. Put the first top guide at 0 mm, the second 10 mm below it, and the third 9 mm below the second. What is the distance from the first top guide to the bottom of the third row?

Answer: The guide positions are 0, 10, and 19 mm. The third row is 10 mm high, so its bottom is 29 mm from the first guide.

Reason: Add the row pitches to locate the third guide: 10+9=19 mm. Add the third scale height: 19+10=29 mm.

Check: Recalculate 10+9+10=29 mm and measure from the first guide to the bottom of row three.

Draw Ocean Fish Scale Rows with Shading: A Step-by-Step Guide

Original tasks 4 / complete keys

Task 4

A student shades every scale with a dark crescent on the lower left and a highlight on the upper right. Is this valid? Explain using the convention.

Answer: Yes. A dark crescent on the lower left with a highlight on the upper right is valid if the student states that the light comes from the upper right and applies it to every scale.

Reason: The rubric checks consistent shading, not one required light direction.

Check: Check that every scale has the same upper-right highlight and lower-left dark crescent.

Draw Ocean Fish Scale Rows with Shading: A Step-by-Step Guide

Source rubric / reflection

- [ ] At least three rows use stated scale heights and row pitches.
- [ ] Each row is offset by about half a scale width, and each new row's top edge is placed over the previous row's bottom edge, with the overlap line darkened.
- [ ] Scale width decreases toward the tail (size gradient).
- [ ] Highlights are consistent in direction across all scales.
- [ ] Overlap lines are darkened to show depth.
- [ ] Construction lines are faint or erased.
- [ ] Valid alternatives in scale width and light direction pass if the convention is stated and followed.

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