# Draw a Volcanic Island: Layered Steps for Crater, Lava and Shoreline

Original tasks 1, 2, 3, 4 / complete keys

Task 1

A frame is 10 units wide. The island center is at 5 units. The cone base spans 3 units. What is the left edge of the cone base in units from the left side of the frame?

Answer: 3.5 units.

Reason: The center is 5 units. Half the base is 1.5 units. Subtract 1.5 from 5 to get 3.5.

Check: Add half the base back: 3.5 plus 1.5 equals 5, the center.

Task 2

A cone base is 6 units wide. A crater oval is 2.5 units wide. Does the crater pass the one-third check? Show the arithmetic.

Answer: No. One third of 6 is 2, and 2.5 is greater than 2.

Reason: Divide the base by 3 to find the maximum allowed oval width, then compare.

Check: Multiply the oval width by 3: 2.5 times 3 equals 7.5, which exceeds the 6-unit base.

Task 3

Two lava branches start at the same point on the cone. Branch A is 4 units long and ends at a shoreline tick. Branch B is 3 units long and stops 1 unit short of its tick. How much longer must Branch B be to reach its tick?

Answer: 1 unit.

Reason: The prompt states Branch B stops 1 unit short, so the needed extension is 1 unit.

Check: Add the extension to Branch B: 3 plus 1 equals 4, matching Branch A's length to the shoreline.

Task 4

A scene has 7 foreground rocks. The crater oval is 1.5 units wide. A rock is 2 units wide. State two separate fixes using the lesson limits.

Answer: Reduce the rock count to between three and five, and shrink the rock so it is smaller than the 1.5-unit crater oval.

Reason: The lesson limits rocks to three to five and requires each rock to be smaller than the crater oval.

Check: Count the rocks after editing and compare the largest rock width to 1.5 units.

# Draw a Volcanic Island: Layered Steps for Crater, Lava and Shoreline

Source rubric / reflection

- [ ] Shoreline is a continuous curve crossing the frame and separating land from water.
- [ ] Cone is visibly wider than tall and sits on the shoreline.
- [ ] Crater oval is visible, tilted, and no wider than one third of the cone base.
- [ ] At least one lava branch reaches a marked shoreline point.
- [ ] Lava flow uses a consistent convention and is the darkest outlined element.
- [ ] Foreground rocks number three to five and are smaller than the crater oval.
- [ ] Valid alternative styles are accepted if the crater, flow direction and shoreline remain readable.

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