Draw Magma Flow with Glowing Cracks and Rock Layering

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

Task 1

A panel is 100 mm wide and 60 mm tall. U = 5 mm. You draw a main channel 8 mm wide and one branch 3 mm wide. Does the junction width fit, and what is 3U?

Answer: Junction width is 8 + 3 = 11 mm, which fits inside 100 mm. 3U = 15 mm.

Reason: Add the channel and branch widths to get the junction width, then multiply U by 3 for the spacing rule.

Check: Re-add 8 + 3 = 11 and confirm 11 is less than 100. Re-multiply 5 times 3 = 15.

Task 2

A panel is 90 mm tall. You want four rock layer edges spaced evenly. What is the approximate spacing, and does it meet the 3U rule when U = 4 mm?

Answer: Spacing is about 90 divided by 4, roughly 22.5 mm. 3U = 12 mm, so 22.5 mm meets the rule.

Reason: Divide panel height by the number of layer edges, then compare with 3U.

Check: Multiply 22.5 by 4 to get 90, and confirm 22.5 is greater than 12.

Task 3

You draw a glow outline offset 1U from a crack. If U = 6 mm, how far is the glow outline from the crack? If the crack is 4 mm wide, what total width does the crack plus one glow offset on each side cover?

Answer: The glow outline is 6 mm from the crack. Total width is 4 + 6 + 6 = 16 mm.

Reason: Use U for the offset on each side and add the crack width.

Check: Re-add 4 + 6 + 6 = 16 and confirm each offset equals U = 6 mm.

Task 4

A panel is 80 mm wide. You place a main channel 10 mm wide and two branches 4 mm wide each, spaced 2U apart with U = 3 mm. What is the junction width, and what is the minimum branch spacing?

Answer: Junction width is 10 + 4 + 4 = 18 mm. Minimum branch spacing is 2U = 6 mm.

Reason: Add all widths at the junction, then multiply U by 2 for spacing.

Check: Re-add 10 + 4 + 4 = 18, confirm 18 is less than 80, and re-multiply 3 times 2 = 6.

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Source rubric / reflection

- [ ] Crack network includes one main channel and two or three tapered branches.
- [ ] Glow zones are local to cracks and offset by about 1U.
- [ ] Rock layer edges are spaced at least 3U apart with 1 mm gaps at cracks.
- [ ] Shading direction distinguishes rock layers from glow zones.
- [ ] Convention is recorded on the page and used consistently; valid alternative letter styles are accepted.

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