

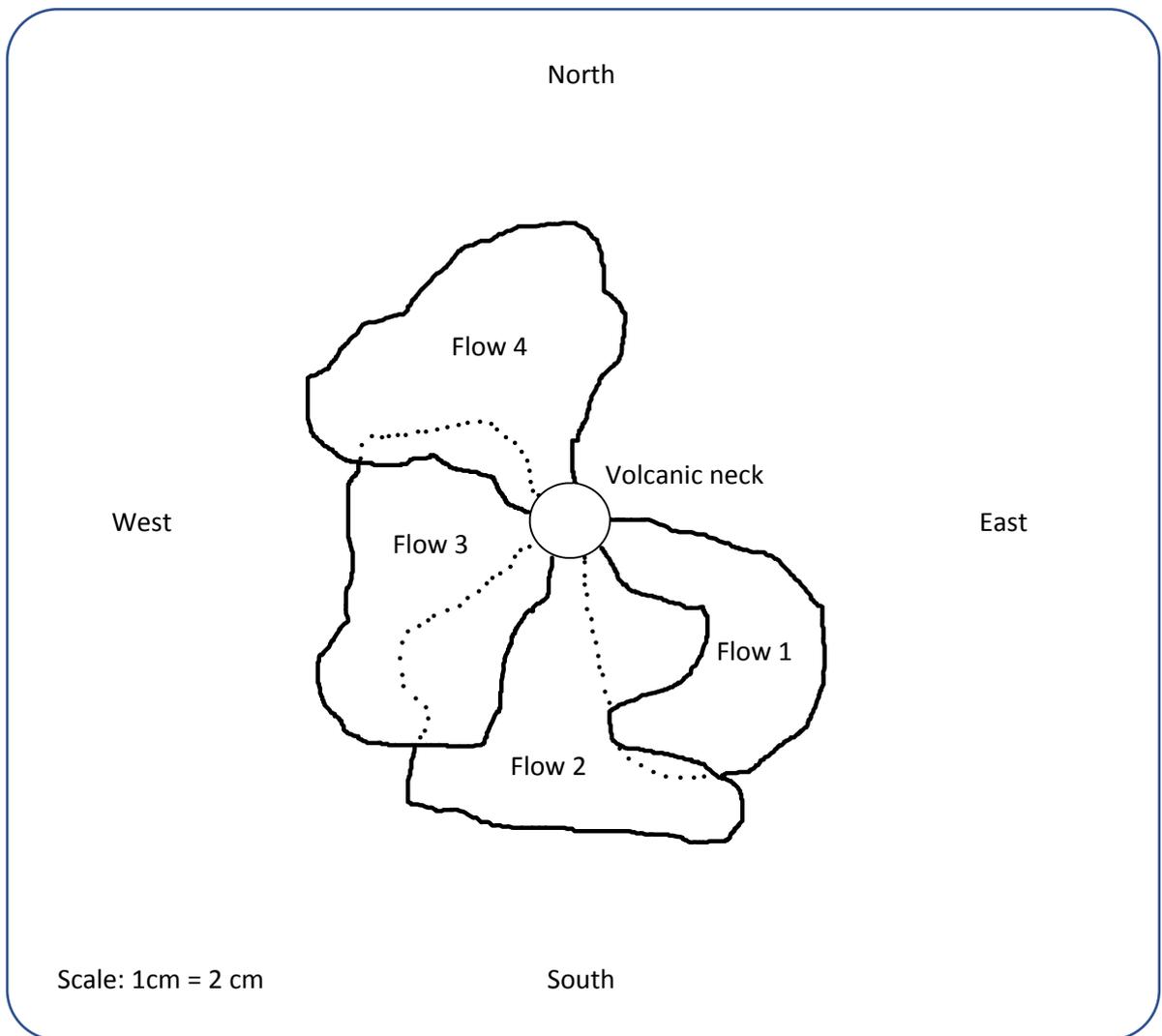
Lava Layering



1. Look down on your volcano (birds eye view) and describe what you see.

Illustrate/map out the different lava flows and add annotations, including observations of flows covering or overlapping other flows.

Indicate direction (which way is north?) and add a scale bar (to show how far the flows have travelled) to your sketch.



2. Did the flows always follow the same path/flow the same direction? (be specific)

No - some lava flows traveled in similar directions, but none took exactly the same path [e.g.] Two lava flows (flow 2 & 3) came out to the West of the volcano and spread out down the side, one came out of the East (flow 1) and only made it half way down the side of the volcano.



Lava Layering



3. What do you think influences the direction and path of lava flows?

Steepness and shape of the sides of the volcano
Angle of volcanic neck
Path of previous eruptions
Wind direction
Obstacles in the way (takes easiest path)

4. If you had not watched the eruptions, how would you know that there are many different layers of lava?

Different characteristics (colours in this case, textures/composition and subtle colour differences in reality)
Overlapping - can see edges of one flow being cut over by another flow
Shape and direction of flows, several paths = several flows

5. Underline the reasons listed above that could be used to identify real lava layers on Earth.
6. What are other ways to distinguish between older and younger layered lava flows on Earth?

Coring - may show top surface of lava flow/s underneath (chilled crust from being in contact with air)
Dating techniques to show ages of the flows are different
Chemical analysis - different crystal chemistry might show different sources of lava

7. Which of the reasons above (from questions 4 and 6) do you think could be used to identify lava layers on Mars?

Shape/direction and overlapping of flows (mapped from photographs) - similarly identification of different characteristics if photography is detailed enough
Basic chemical analysis/coring could be used if rover mission visits

