Practicing Cartography Map Drawing: Legend, Scale Bar, and Compass Rose

Original tasks 1, 2, 3 / complete keys

Task 1

A scale bar is divided into four equal segments, each 1 cm long, labeled 0 to 8 km. A river is drawn 3 cm long on the map. What ground distance does the river represent?

Answer: 6 km.

Reason: Each 1 cm segment represents 2 km because 8 km divided by 4 segments equals 2 km per segment. The river is 3 cm, which is 3 segments, so 3 times 2 km equals 6 km.

Check: Verify that 8 divided by 4 equals 2, then multiply 3 by 2 to get 6. Confirm the unit is kilometers.

Task 2

A map legend lists a filled triangle for mountain, a small circle for settlement, and a wavy line for river. The map shows a filled triangle and a wavy line but no circle. Which symbol is missing from the map, and what should the legend contain?

Answer: The settlement symbol (small circle) is missing from the map. The legend should contain all three symbols: filled triangle for mountain, small circle for settlement, and wavy line for river.

Reason: The legend defines the symbol set. Every symbol in the legend should be available for use, and every symbol on the map must appear in the legend. The circle is defined but not placed, which is acceptable, but the legend must still list it.

Check: Compare the legend entries to the symbols visible on the map. Confirm that each legend entry has a matching symbol shape and label.

Task 3

A compass rose is drawn with north at the top but only the letter N is labeled. What should be added to make the compass rose complete for a four-point rose?

Answer: Add E, S, and W to the compass rose, with east to the right, south at the bottom, and west to the left.

Reason: A four-point compass rose shows the four cardinal directions. Labeling only north leaves the reader unable to identify the other directions.

Check: Check that all four cardinal directions are labeled and that north is at the top, east is to the right, south is at the bottom, and west is to the left.

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Original tasks 4 / complete keys

Task 4

A map frame is 12 cm wide and 9 cm tall. The legend box is 3 cm wide and 2 cm tall, placed in the top-left corner. The compass rose is 2 cm wide and 2 cm tall, placed in the top-right corner. How much width remains for map content along the top edge between the legend and the compass rose?

Answer: 7 cm.

Reason: The total width is 12 cm. The legend takes 3 cm and the compass rose takes 2 cm, so 3 plus 2 equals 5 cm used. Subtracting 5 cm from 12 cm leaves 7 cm for map content along the top edge.

Check: Add the widths of the legend and compass rose, then subtract from the total frame width. Confirm the result is positive and fits within the frame.

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Source rubric / reflection

- [ ] Map frame is drawn and contains a title.
- [ ] Legend box lists every symbol used on the map with a short label.
- [ ] Scale bar has equal segments, a stated total distance, and a stated unit.
- [ ] Compass rose shows north at the top and labels the cardinal directions.
- [ ] Boundary lines are dashed and explained in the legend.
- [ ] Features are labeled legibly and consistently, with labels placed near symbols without covering them.
- [ ] Layout keeps legend, scale bar, and compass rose separate from map content.

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