NINJA LEVEL



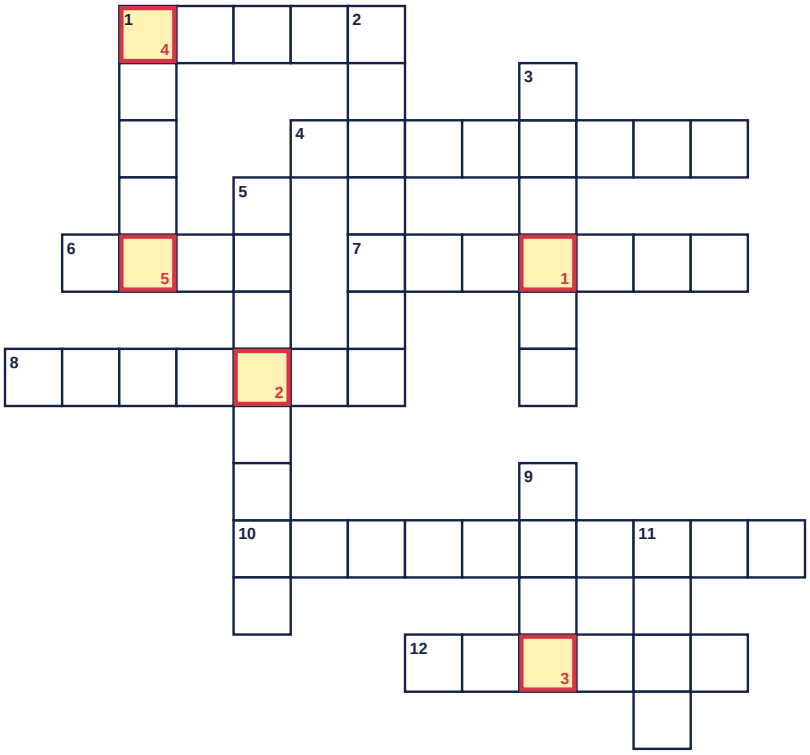
A FLAT MAP CAN SHOW HOW STEEP A HILL IS

DARTIE'S DISCOVERY

In 1774, Nevil Maskelyne led a team up Schiehallion, a mountain in Scotland, to help work out how heavy the Earth is. Charles Hutton had to sort their measurements, so he joined points of equal height with faint lines: early contour lines. Packed close together, they mean a steep climb.



Dartie found an old map with the destination rubbed away. Solve the crossword. Copy the letters in the numbered gold squares, then circle where to search.



DARTIE'S FIELD NOTE

The search continues at the...

1	2	3	4	5

Circle the place you found:

- ◯ **SLOPE**
- ◯ **RIDGE**
- ◯ **CLIFF**

All three fit a hill. Only the gold letters decide.

Start Time	End Time	Total Time
:	:	:

ACROSS

1. A deep, narrow valley with rocky walls.

4. A person who measures land to make maps.

6. A wide hill with a flat top and steep sides.

7. The kind of ground you travel over, like rocky or muddy.

8. A huge, slow-moving river of ice.

10. The shape of the land's surface: its highs and lows.

12. A low dip in the land between two peaks.

DOWN

1. A round model of our planet.

2. An imaginary line around the middle of our planet.

3. A unit used to measure angles.

5. To find and follow your way to a place.

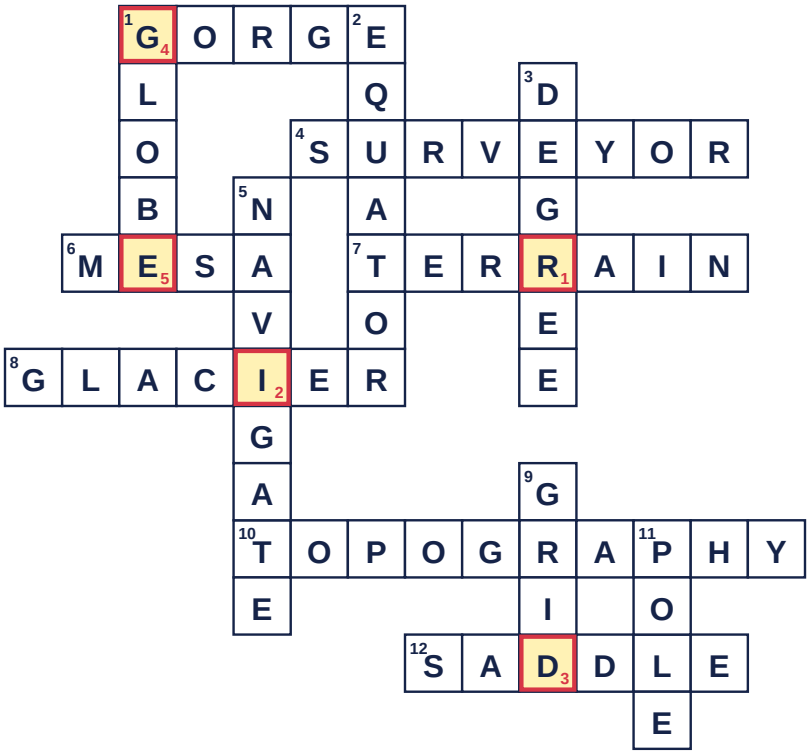
9. Squares on a map that help you find places.

11. The point farthest north or south on our planet.

ANSWER KEY

CHECK THE MAP

Every gold square sits where two words cross, so two answers check each gold letter.



THE FINAL CLUE

Gold squares 1 to 5 spell:

R I D G E

Circle RIDGE. A ridge is a long, narrow strip of high land. Dartie keeps searching along its top.

SLOPE and CLIFF also fit a hill. The first gold letter, R, already rules both of them out.

ACROSS ANSWERS

1. GORGE
4. SURVEYOR
6. MESA
7. TERRAIN
8. GLACIER
10. TOPOGRAPHY
12. SADDLE

DOWN ANSWERS

1. GLOBE
2. EQUATOR
3. DEGREE
5. NAVIGATE
9. GRID
11. POLE

DARTIE'S PAUSE POINT

Think of a hill you know. Where would its contour lines crowd together? Which map word was new to you?

Sources: Royal Society, "A song of Schiehallion" (2022); Rann & Johnson, "Chasing the line: Hutton's contribution to the invention of contours", Journal of Maps (2019); U.S. Geological Survey, "What is a topographic map?"