

5 SAMPLE | The Hike

Alec is planning a hike around five villages. He will start and finish at Braxton.

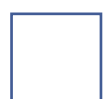
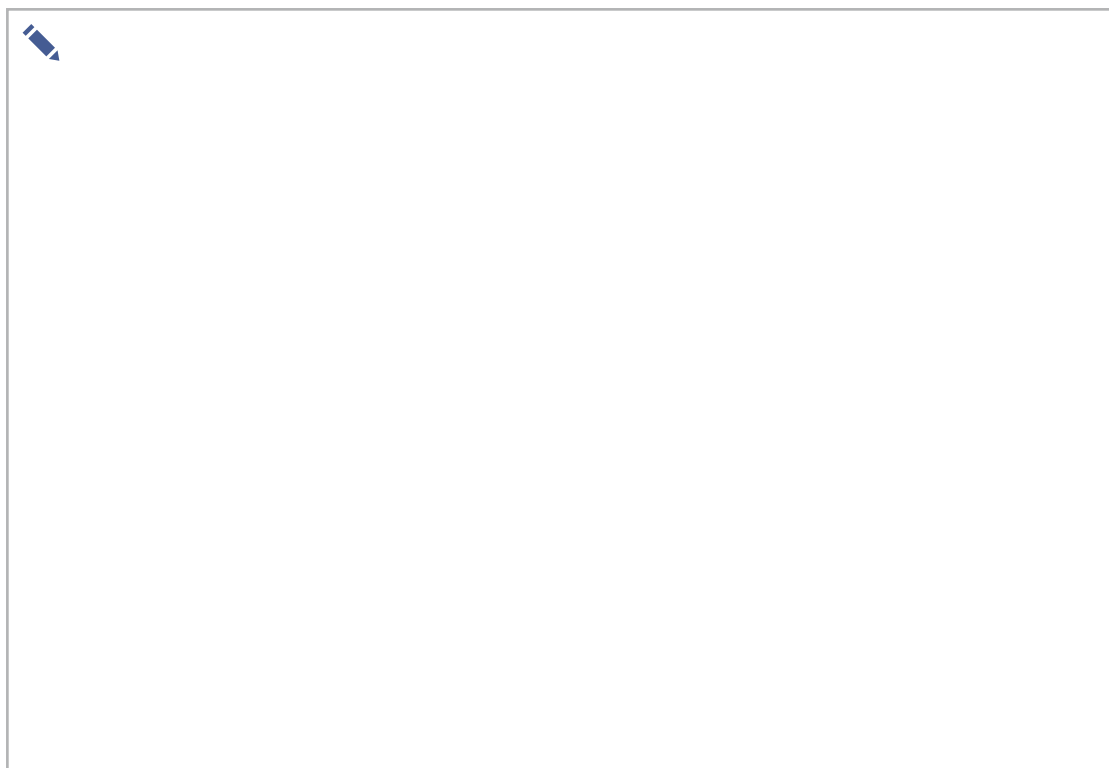
Here is a chart showing the walking distances between the five villages in miles.

Braxton				
-	Castledown			
9	6	Elbury		
10	8	5	Leakton	
8	19	15	-	Faxton

For example, the distance from Castledown to Faxton is 19 miles.

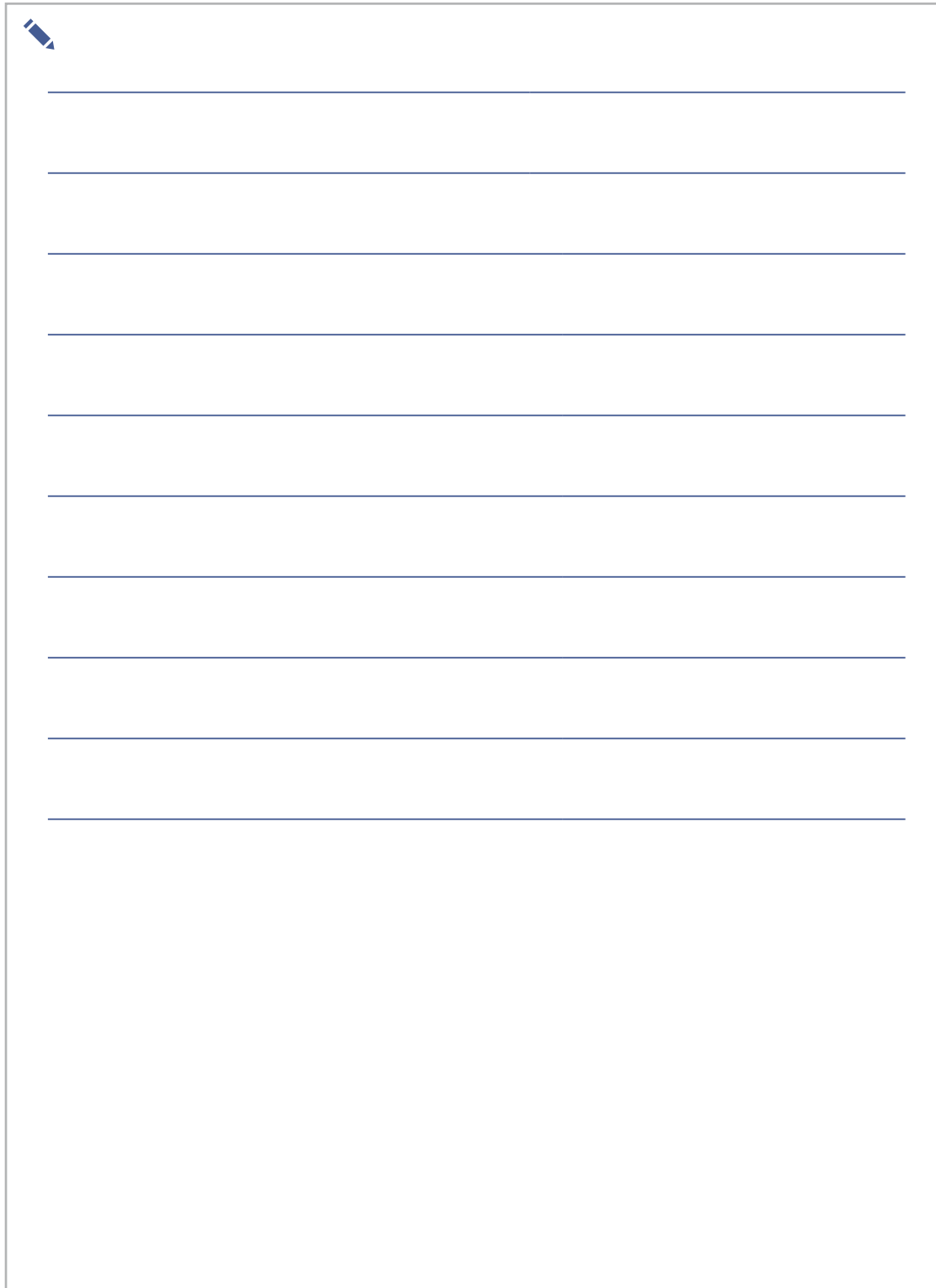
A dash (-) means that there is no direct path between two villages.

1. Sketch a diagram showing the villages, paths and distances.



2. What is the shortest route which starts and ends at Braxton and visits all five villages?

Show how you know that your route is the shortest one possible.



A large rectangular box for writing the answer, containing a pencil icon in the top-left corner and ten horizontal lines for text.





6 SAMPLE | Pop-up Card



1. The drawings below show four attempts to design a pop-up card, but only one of them works correctly.


Which card will not pop up at all?  _____


Which card will crease in the wrong place when the card is closed?  _____


Which card will have balloons sticking out beyond the base of the card when it is closed?  _____

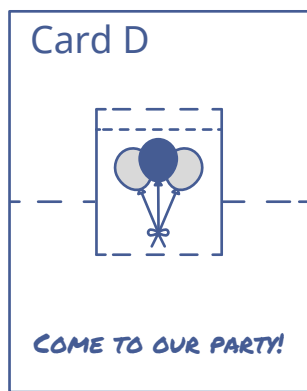
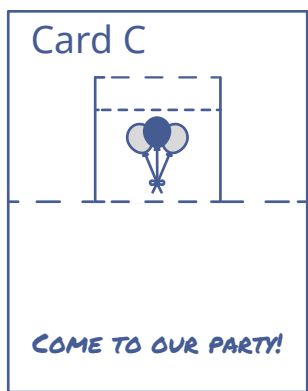
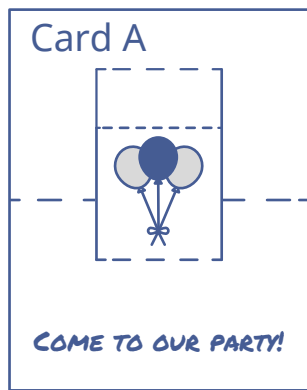
Which card works correctly?  _____

Key:

Valley fold 

Hill fold 

Cut line 



2. On the outline of the card below, show where you would put the cut and fold lines to make the card shown here.



Some fold and cutting lines have been started for you, but you may need to extend these.

Design the card so that it has none of the faults shown in part 1.

