

Choose a Route

Compare two routes to the flag, count the steps and choose the shortest.

Name _____ Date _____ Class _____

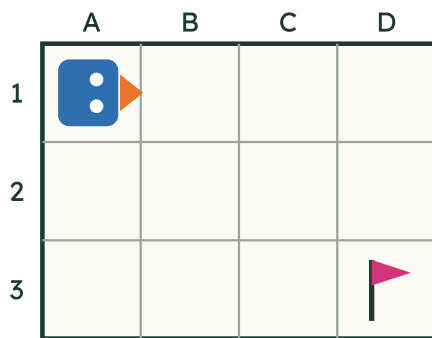
Learning objective: I can compare two programs and choose the best one.

✓ I can follow two routes ✓ I can count the cards ✓ I can choose the shortest

Arrow cards: ↑ = move forward one square ↶ = turn left ↷ = turn right. The robot moves the way its orange nose points.

1 Which route is shorter? Follow both programs. Count the cards. Circle the shorter route.

Map 1



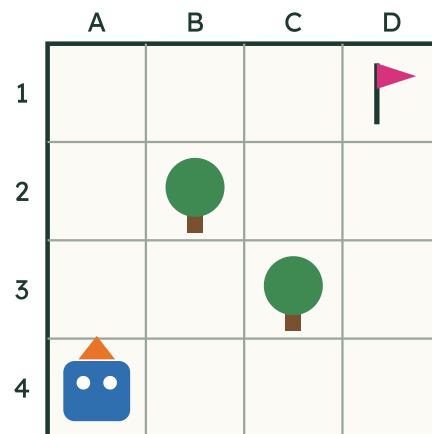
A: ↑ ↑ ↑ ↷ ↑ ↑

B: ↶ ↑ ↑ ↶ ↑ ↑ ↑

A has ____ cards. B has ____ cards.

Shorter: A / B

Map 2



A: ↑ ↑ ↑ ↷ ↑ ↑ ↑

B: ↶ ↑ ↑ ↑ ↶ ↑ ↑ ↑

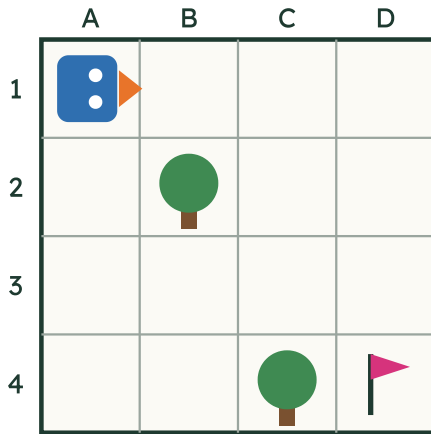
A has ____ cards. B has ____ cards.

Shorter: A / B

Choose a Route

- 2 Draw your own route** Draw a path from the robot to the flag, then write your program.

My map



My program:

- 3 Route facts**

	TRUE	FALSE
1 There can be more than one way to reach the flag.	☐	☐
2 A shorter program is often easier to check.	☐	☐

Answer Key

Choose a Route

Question	Answers
1 Which route is shorter?	1. Route A ↑ ↑ ↑ ↺ ↑ ↑ has 6 cards; route B ↺ ↑ ↑ ↻ ↑ ↑ ↑ has 7 cards. Both reach the flag; route A is shorter. (The shortest possible program has 6 cards.) 2. Route A ↑ ↑ ↑ ↺ ↑ ↑ ↑ has 7 cards; route B ↺ ↑ ↑ ↑ ↻ ↑ ↑ ↑ has 8 cards. Both reach the flag; route A is shorter. (The shortest possible program has 7 cards.)
2 Draw your own route	Any program that reaches the flag without moving onto a tree, e.g. ↑ ↑ ↑ ↺ ↑ ↑ ↑
3 Route facts	1 True; 2 True

Teaching note: the card counts and the shortest program were worked out by computer search.