

Read the code. Draw the path.

Start at the robot. Follow each arrow one square. Stop at the battery.

CODE



1



2



3

ARROWS

- ▲ up
- ▶ right
- ◀ left
- ▼ down

Before you draw, circle one:



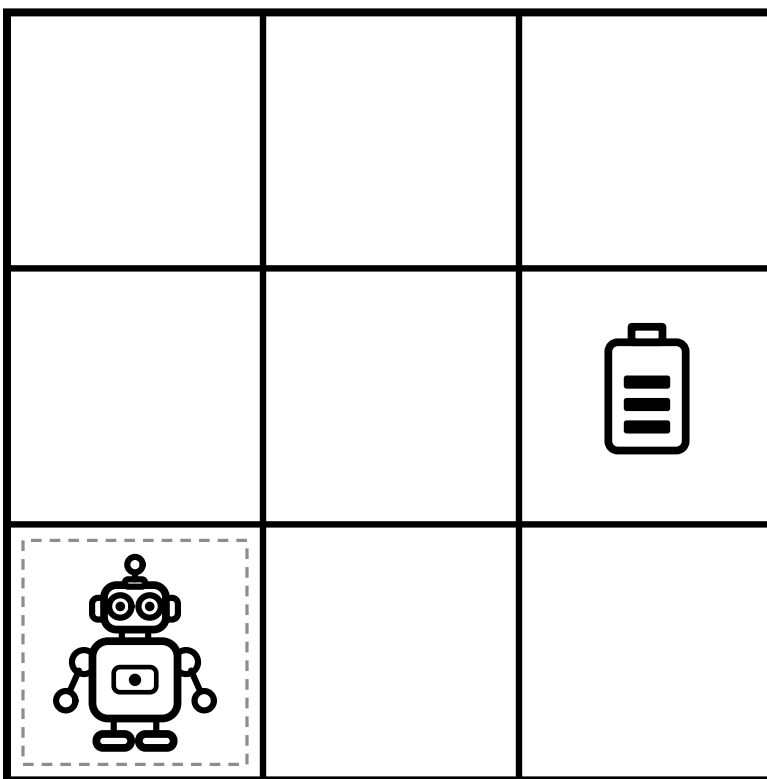
lands on the battery



lands somewhere else

GRID

Draw a line through the squares the robot visits.



I landed on the battery.

FOR GROWN-UPS

Right, right, up. One square per arrow, and the robot does not turn: up means the square above.

Ask: "Where is the robot after the second arrow?" Point only at the code, never at the grid.

Off the page: tape a 3 by 3 grid on the floor and read this code to them one arrow at a time.

Read the code. Draw the path.

Start at the robot. Follow each arrow one square. Stop at the battery.

CODE



1



2



3



4



5

ARROWS

- ▲ up
- ▶ right
- ◀ left
- ▼ down

Before you draw, circle one:



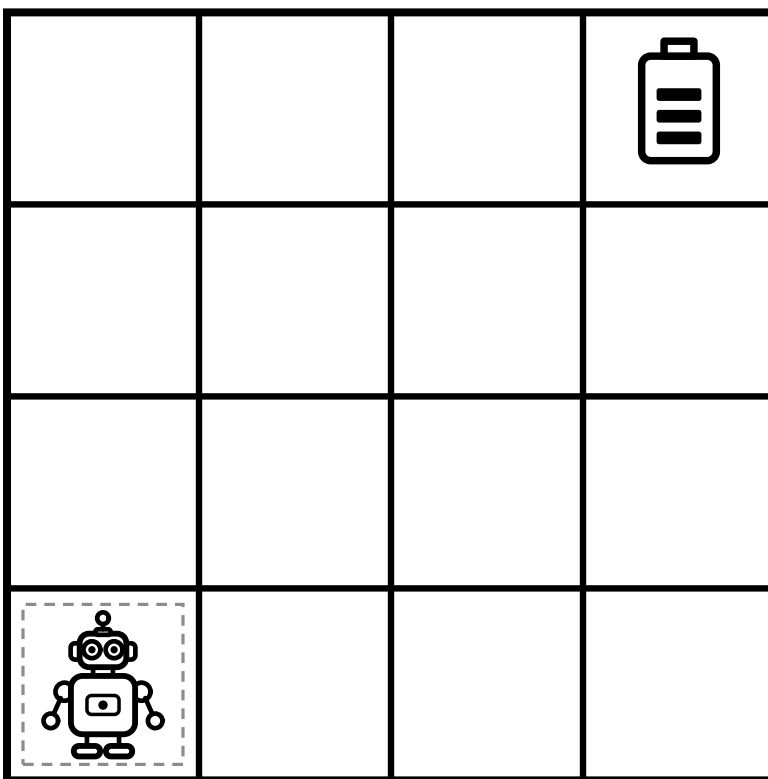
lands on the battery



lands somewhere else

GRID

Draw a line through the squares the robot visits.



I drew the path I followed.

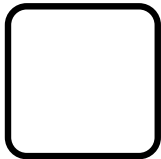
FOR GROWN-UPS

This code misses. The robot ends one square left of the battery, and finding that out is the whole page. If they say it lands, ask them to walk it once more with a finger. Do not say where it stops. Off the page: give a wrong direction on a walk and let them catch it.

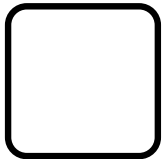
Write the code.

Look at the path. Draw one arrow in each box.

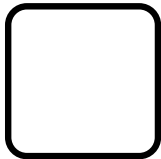
CODE



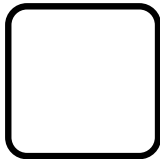
1



2



3



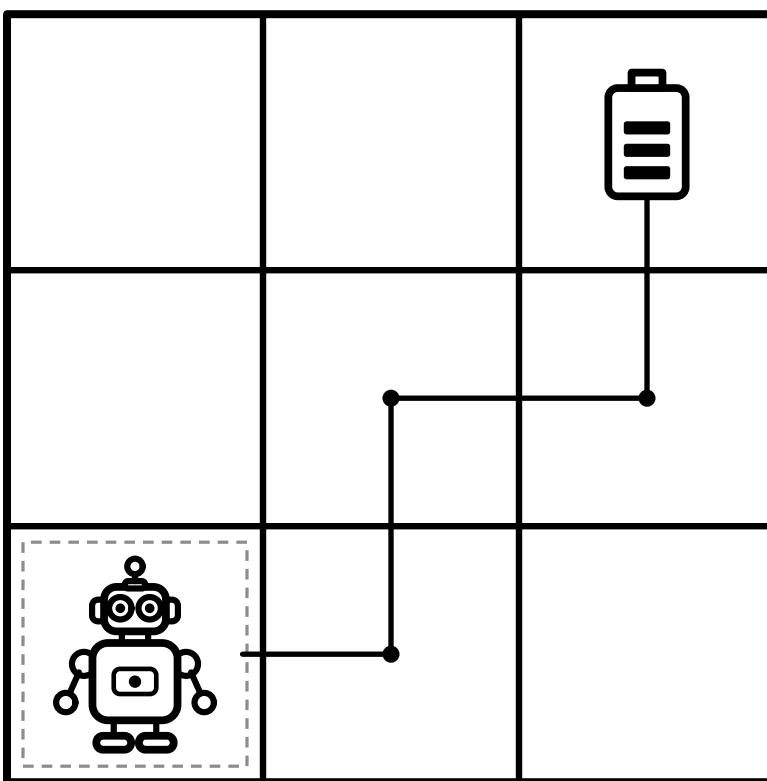
4

ARROWS

- ▲ up
- ▶ right
- ◀ left
- ▼ down

GRID

The path is drawn. Write the arrows.



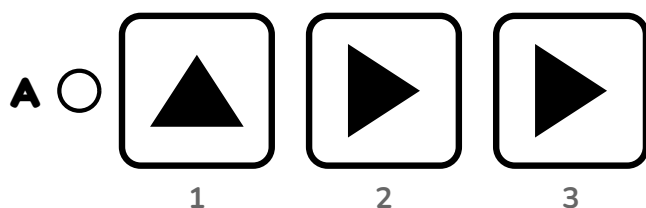
☐ I wrote the code.

FOR GROWN-UPS

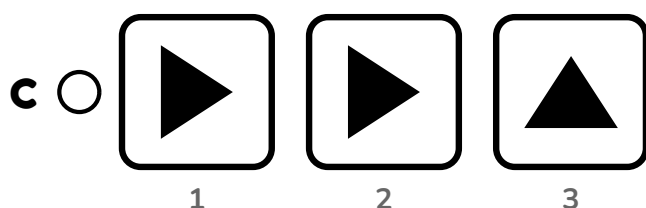
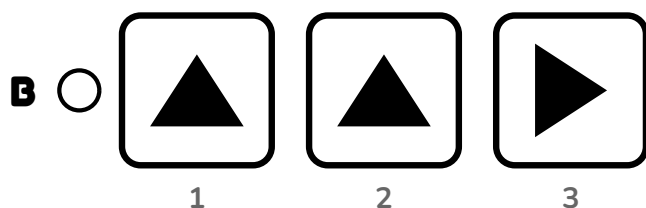
The path is drawn. The child writes one arrow for each step of it, in order, and four boxes means four steps. Ask: "Which way does the path go first?" Then wait for the second step without asking again. Off the page: walk a route and have them draw the arrows for it afterward.

Circle the code that works.

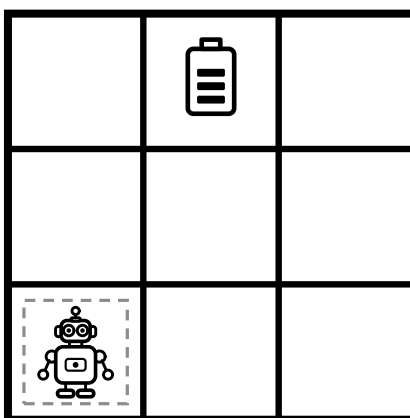
Read each code. Circle the one that lands on the battery.


ARROWS

- ▲ up
- right
- ◄ left
- ▼ down


GRID

Draw a line through the squares the robot visits.



○ I circled the code that works.

FOR GROWN-UPS

Only B lands. A and C use the same three arrows in a different order.

Ask: "Try A with your finger. Where does it stop?" Each wrong code is a path to trace, not a guess.

Off the page: say two orders of the same three moves and ask which one reaches the door.

Find the bug. Fix it.

Cross out the broken step. Draw the fix in the empty boxes.

CODE



1



2



3



4

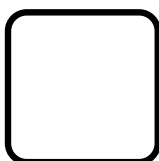


5

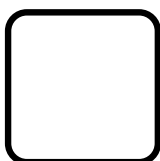
ARROWS

- ▲ up
- ▶ right
- ◀ left
- ▼ down

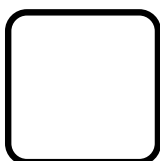
FIX



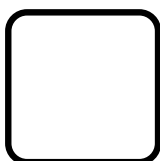
1



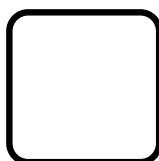
2



3



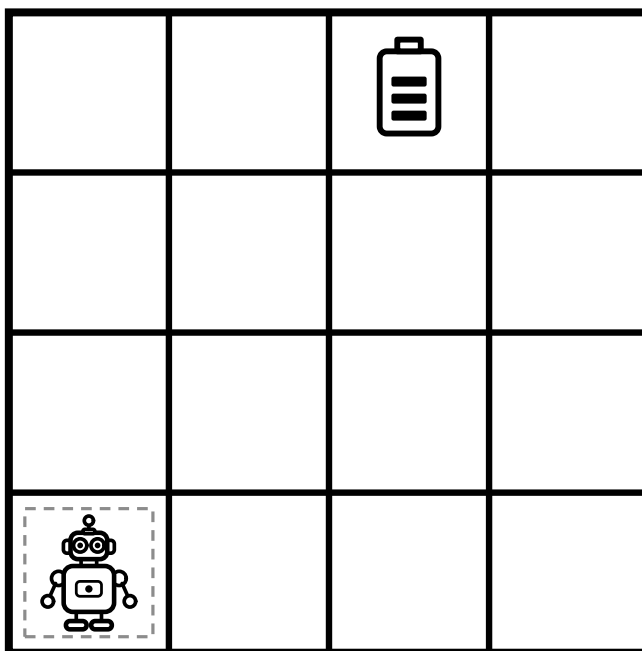
4



5

GRID

Draw a line through the squares the robot visits.



I found the bug and wrote the fix.

FOR GROWN-UPS

Step four says left where the path goes right, so the robot walks back over its own path. Have them run the broken code with a finger first. The finger leaves the path at step four. Off the page: give a five-step route with one wrong turn in it and let them find which.

Make this code shorter.

This long code has two repeating parts. Write two loops.

LONG



1



2



3



4



5

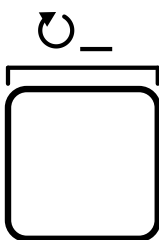


6

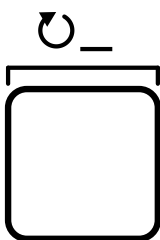
ARROWS

- ▲ up
- ▶ right
- ◀ left
- ▼ down

SHORT



1



2

☐ I wrote two loops.

FOR GROWN-UPS

Three rights, then three ups: two loops of three. Both codes move the robot the same way.

Ask: "How many rights? How many ups?" The counts are the numbers that go on the loops.

Off the page: clap three times, stamp three times, and ask how to say that in fewer words.