



Activity Kit

Robot Mouse Coding Activity Kit

Materials

- 1 robot mouse (with batteries)
- 1 magnetic cheese wedge
- 40 maze walls (purple)
- 30 coding cards
- 3 tunnels (orange)
- 16 maze grid pieces (green)



Binder (Instructions and 20 activity cards)

Book

Hello Ruby: Adventures in Coding by Linda Liukas

Recommended for grades K-3



What to know about this kit...

Today's children are surrounded by technology like never before. Video games. Smart phones. Tablets. These are all forms of communication that impact our lives every single day. And what they have in common is that they all involve coding!

So what is coding?

Coding literally means the transformation of data into a form understandable by a computer--basically, telling a computer what you want it to do. Coding also factors into some everyday tasks that people perform without a second thought: for instance, programming a microwave to heat yesterday's leftovers, or entering numbers into a calculator in a specific order. Coding today may not always look like the routine programming of the past. It can be active, visual, engaging, and most importantly, fun! Educators agree that an early introduction to basic programming concepts can help children build problem solving and critical thinking skills. This kit provides that very introduction, giving early learners a fun, real-world application of these essential 21st-century skills.

What can using a programmable robot teach?

- Problem solving
- Self-correcting errors
- Critical thinking
- Analytical thinking
- If/then logic
- Working collaboratively with others
- Discussion and communication skills
- Calculating distance
- Spatial Concepts



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Appropriate accommodations for individuals with disabilities will be provided upon request. Please notify the branch offering the program at least 5 business days prior to the event. TTY users call Maryland Relay (711). This document is available in alternative format upon request.



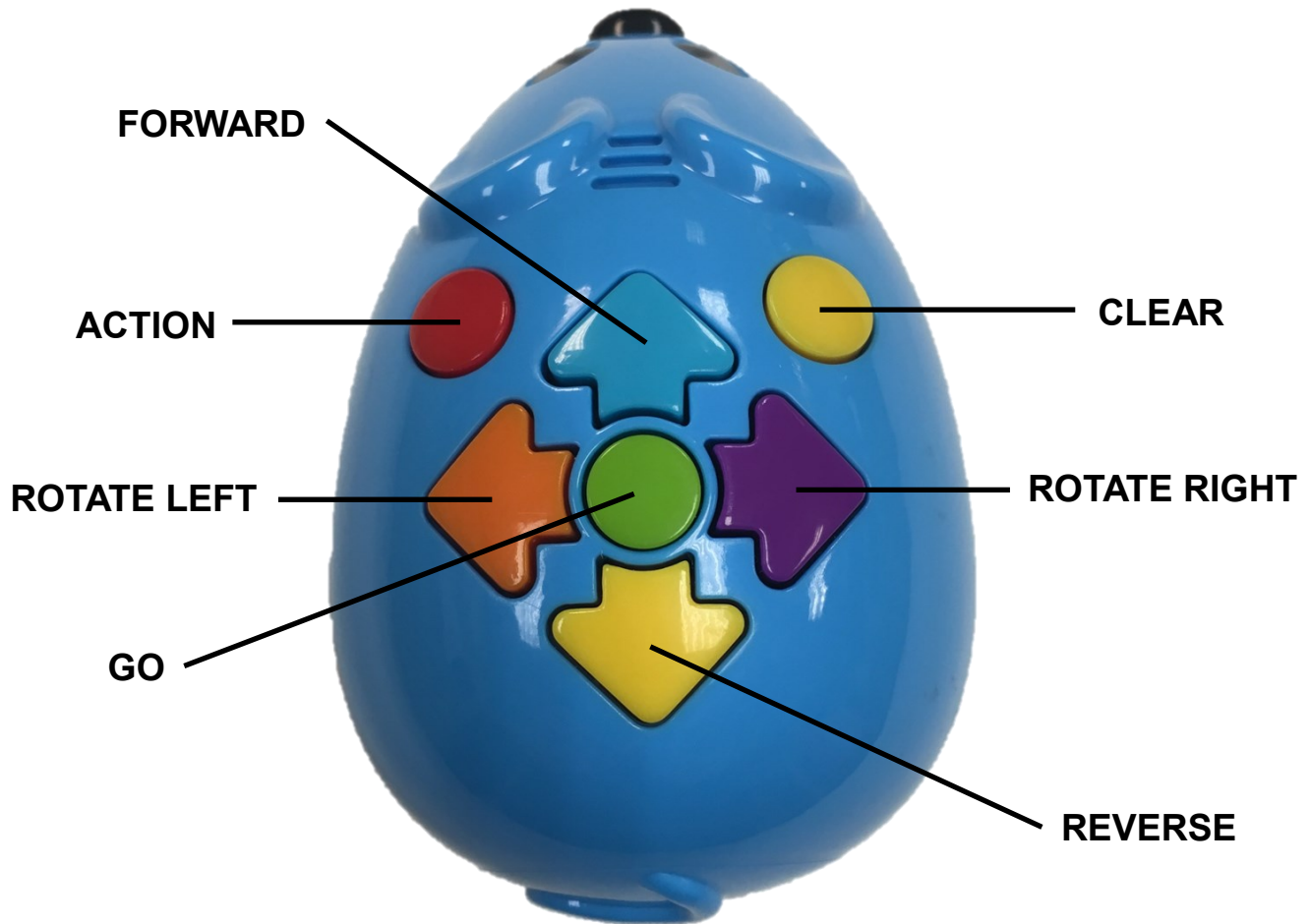
Basic Operation

Power Slide to turn the power ON. Colby is ready to program!

Speed Choose between Normal and Hyper. Normal is best for regular use on the maze board, while Hyper is best for play on other surfaces.



POWER/SPEED



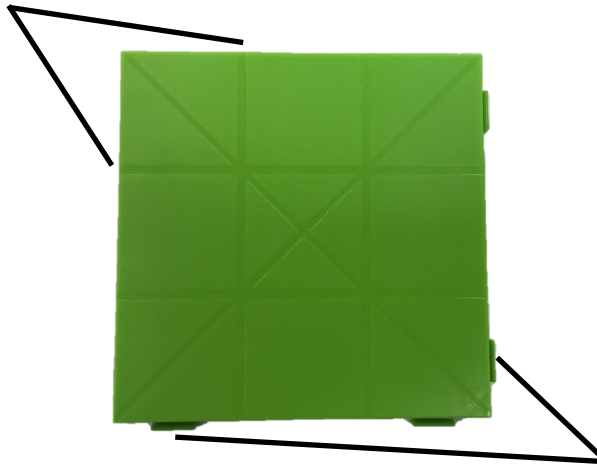
Forward	For each FORWARD step, Colby moves forward a set amount (5")
Reverse	For each REVERSE step, Colby moves backward a set amount (5")
Rotate Right	For each ROTATE RIGHT step, Colby will rotate to the right 90°.
Rotate Left	For each ROTATE LEFT step, Colby will rotate to the left 90°.
Action	For each ACTION step, Colby will perform one of three RANDOM actions: move forward and back; loud "SQUEAAKK"; CHIRP-CHIRP-CHIRP (and light-up eyes.)
Go	Press to execute or perform your programmed sequence, up to 40 steps.
Clear	To clear all programmed steps, press and hold until you hear a confirmation tone.

Important note: If the mouse begins to move off the programmed course, or if it fails to turn a full 90°, this could be a sign of low battery power. Replace the old batteries as soon as possible to restore complete functionality. (Takes 3 AAA Batteries)

Assembling the Grid

Connect all 16 grid pieces together to form one large square maze board--or make any configuration you can imagine! Each grid piece has two notched edges, and two edges with tabs that make them easy to connect and then take apart again.

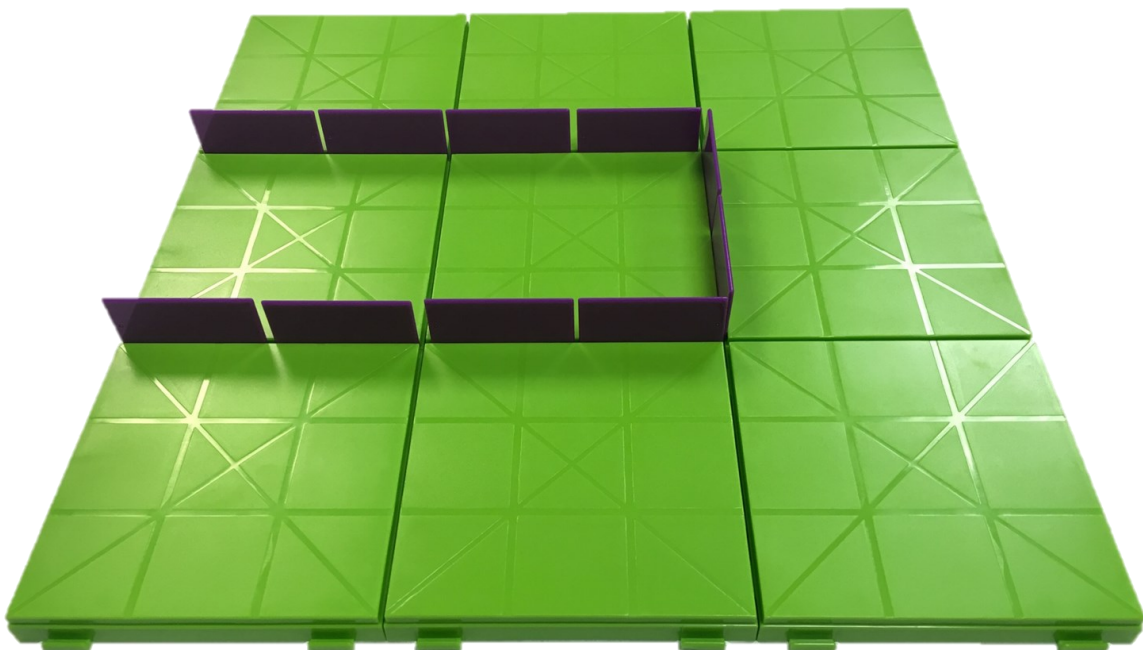
NOTCHED EDGES



TABBED EDGES

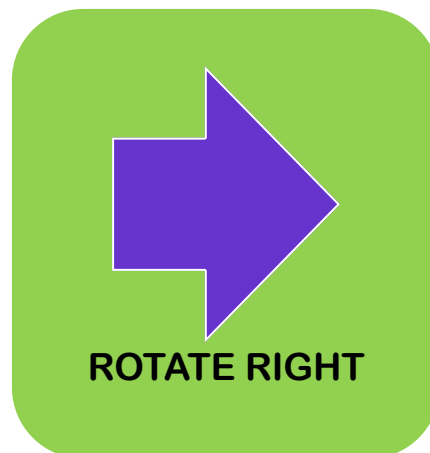
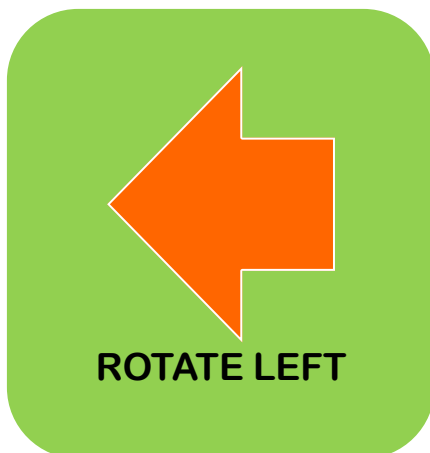
Using the Maze Walls

Create a maze by inserting the walls into the lines on the board. Follow the patterns on the activity cards to re-create each maze. Then, program Colby to maneuver through the maze and to the cheese! Because the maze is customizable, children can build their own maze, try their hand at programming Colby from start to finish, or invite a friend to try the maze they created. For those aspiring engineers who want to build their own maze using items from home, Colby can also maneuver on most surfaces, independent of the maze.



Coding cards

Colorful coding cards help children keep track of each step in a sequence. Each card features a direction or “step” to program into Colby. Cards are color-coordinated to match the buttons on the mouse (see Basic Operation for details about each command). For ease of use, we recommend lining up each card, in sequence, to mirror each step in a program. For example, if a programmed sequence includes the steps FORWARD, FORWARD, TURN RIGHT, FORWARD, ACTION, place those cards in order to help follow and remember the sequence.



Activity Cards

This set also includes 20 Activity Cards (in the binder) featuring 20 mazes. These cards can be used as an educational tool to help young programmers “ramp up” their skills. Start out with Card 1 to teach the very basics, and follow in number sequence as logic and critical thinking skills improve.

For all the mazes on the activity cards, the goal is to program your robot mouse to reach the cheese. Each of these mazes should be completed in the fewest steps possible. For mazes with tunnels, be sure to have Colby pass under each tunnel before reaching the cheese.



STEM



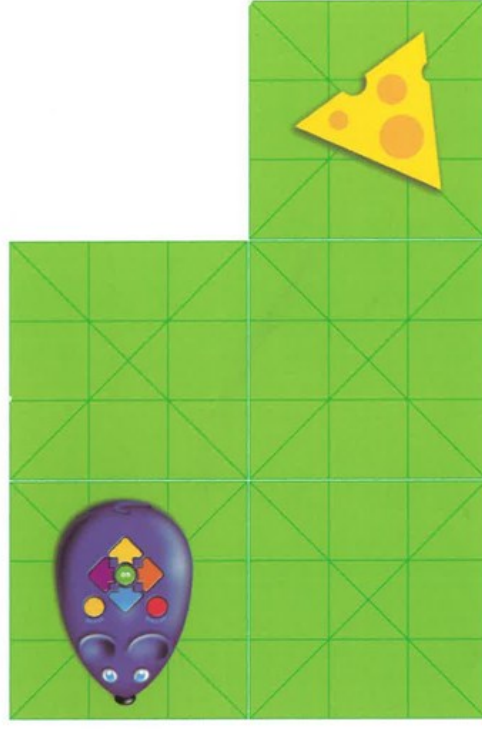
Card 1

STEM

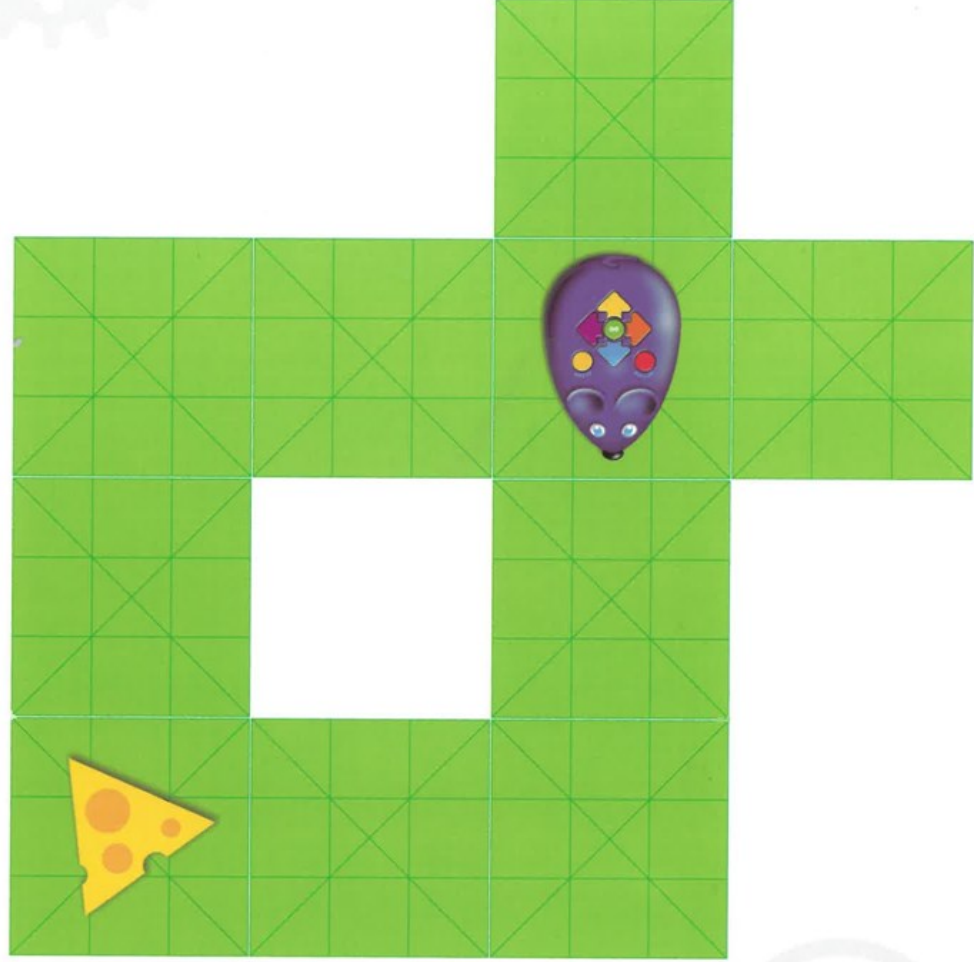


Card 2

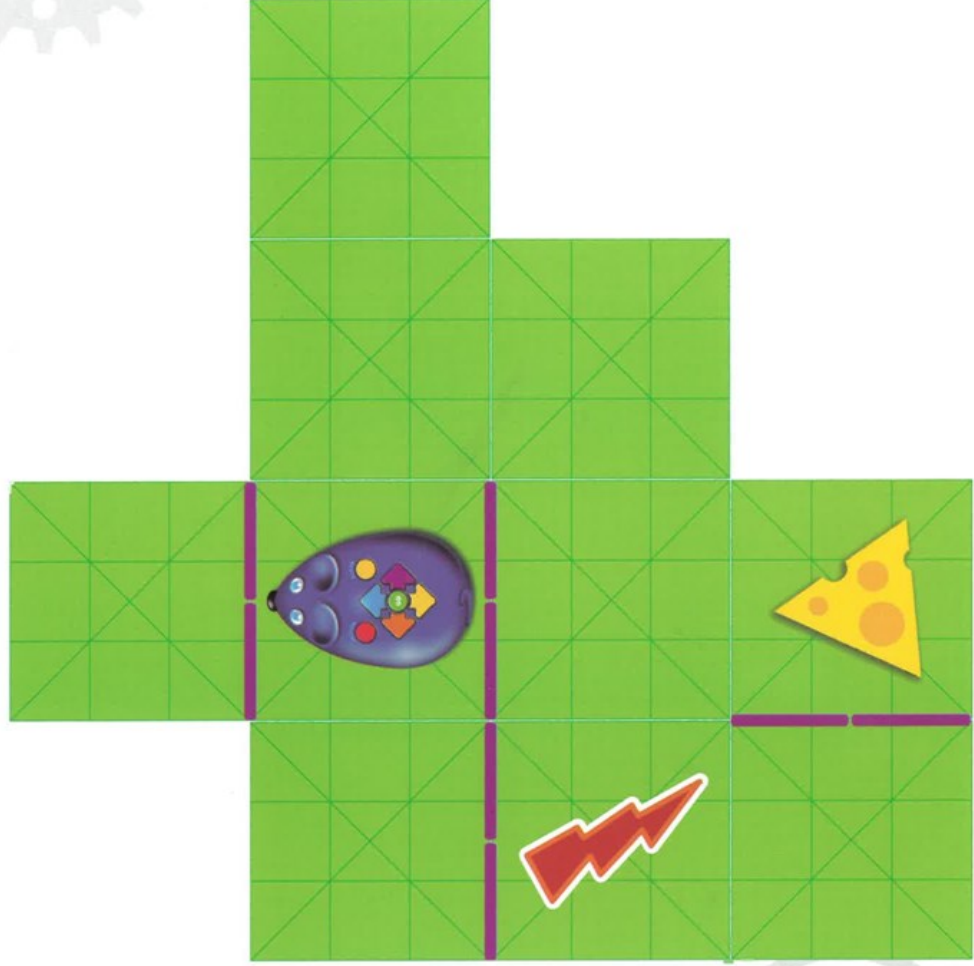
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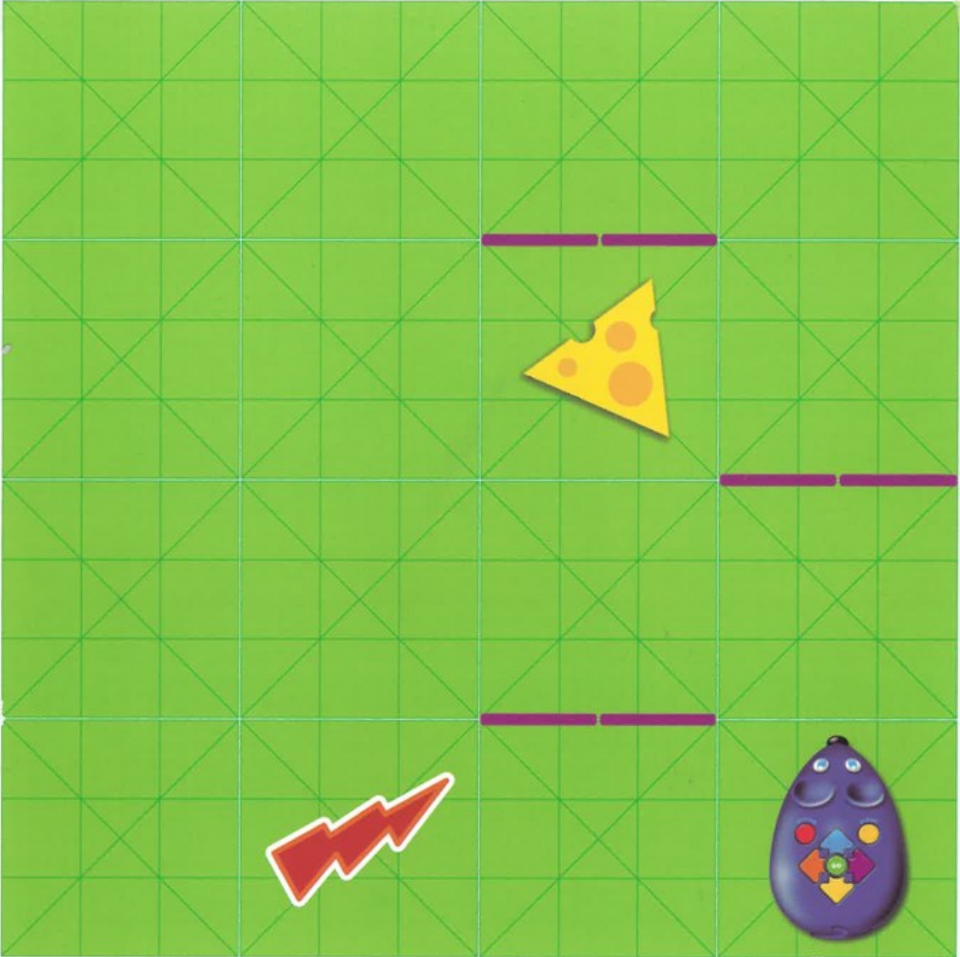
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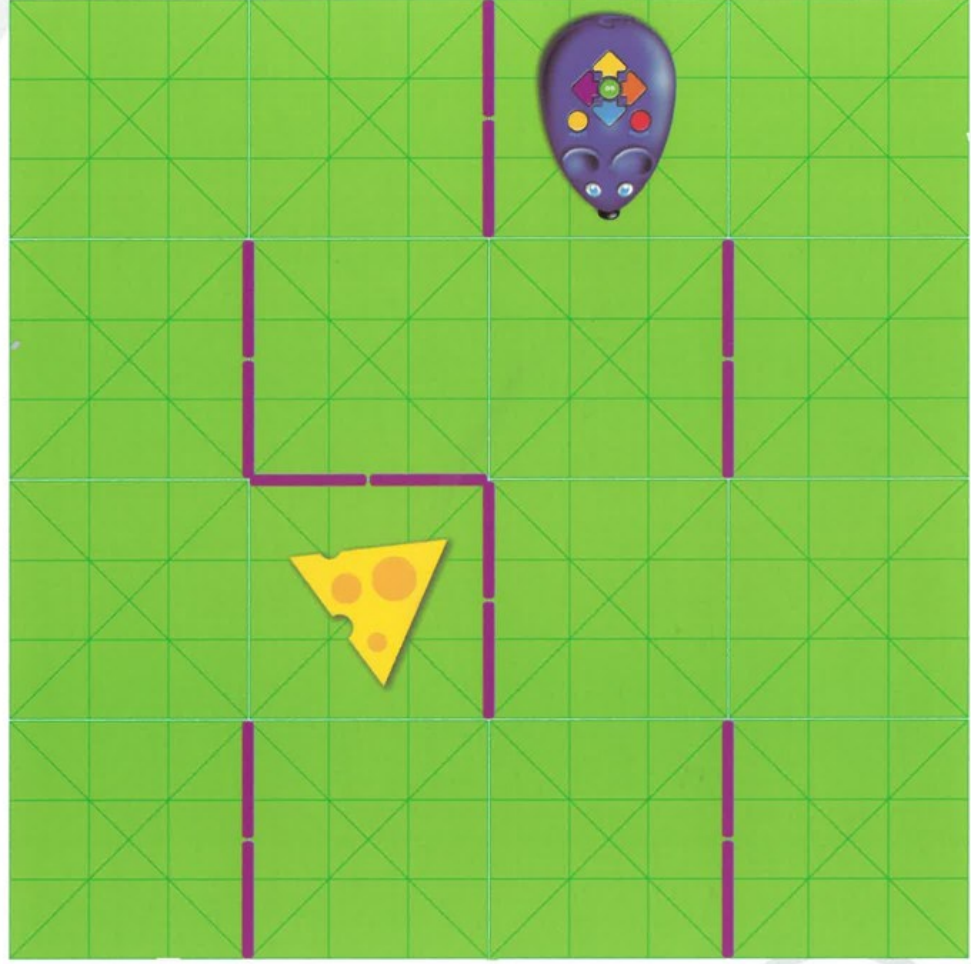
STEM



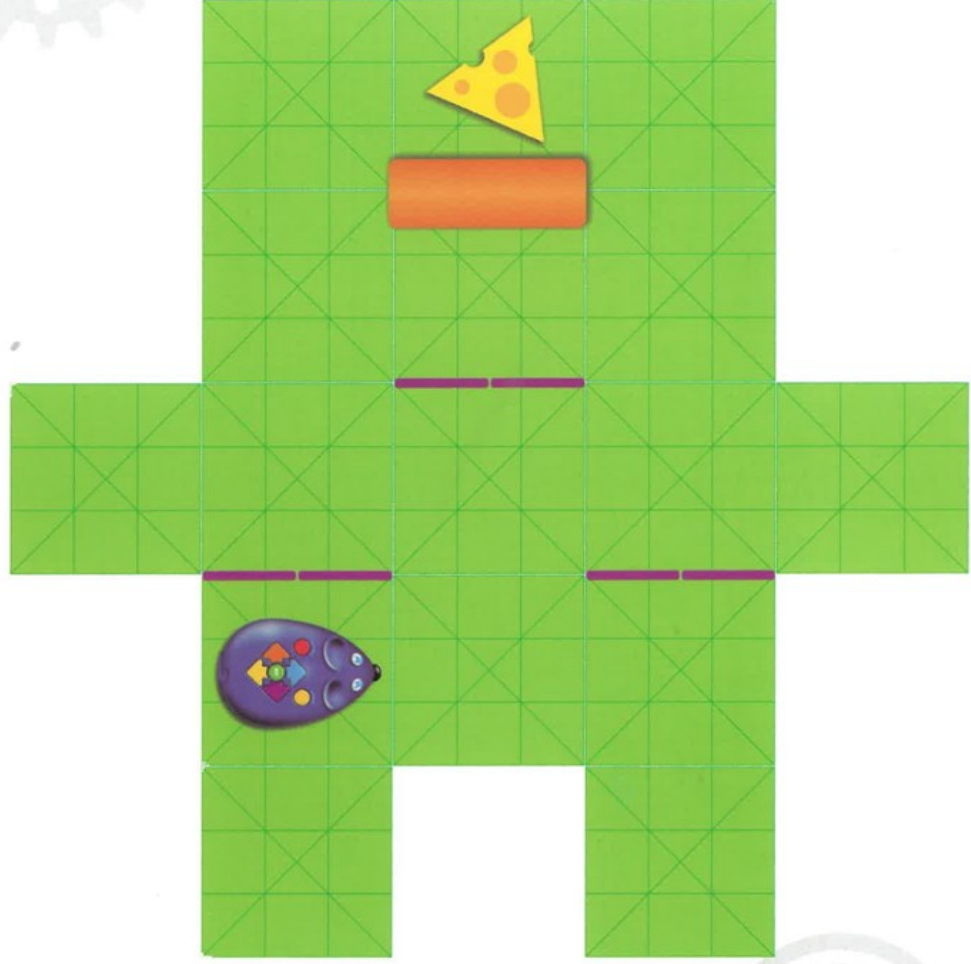
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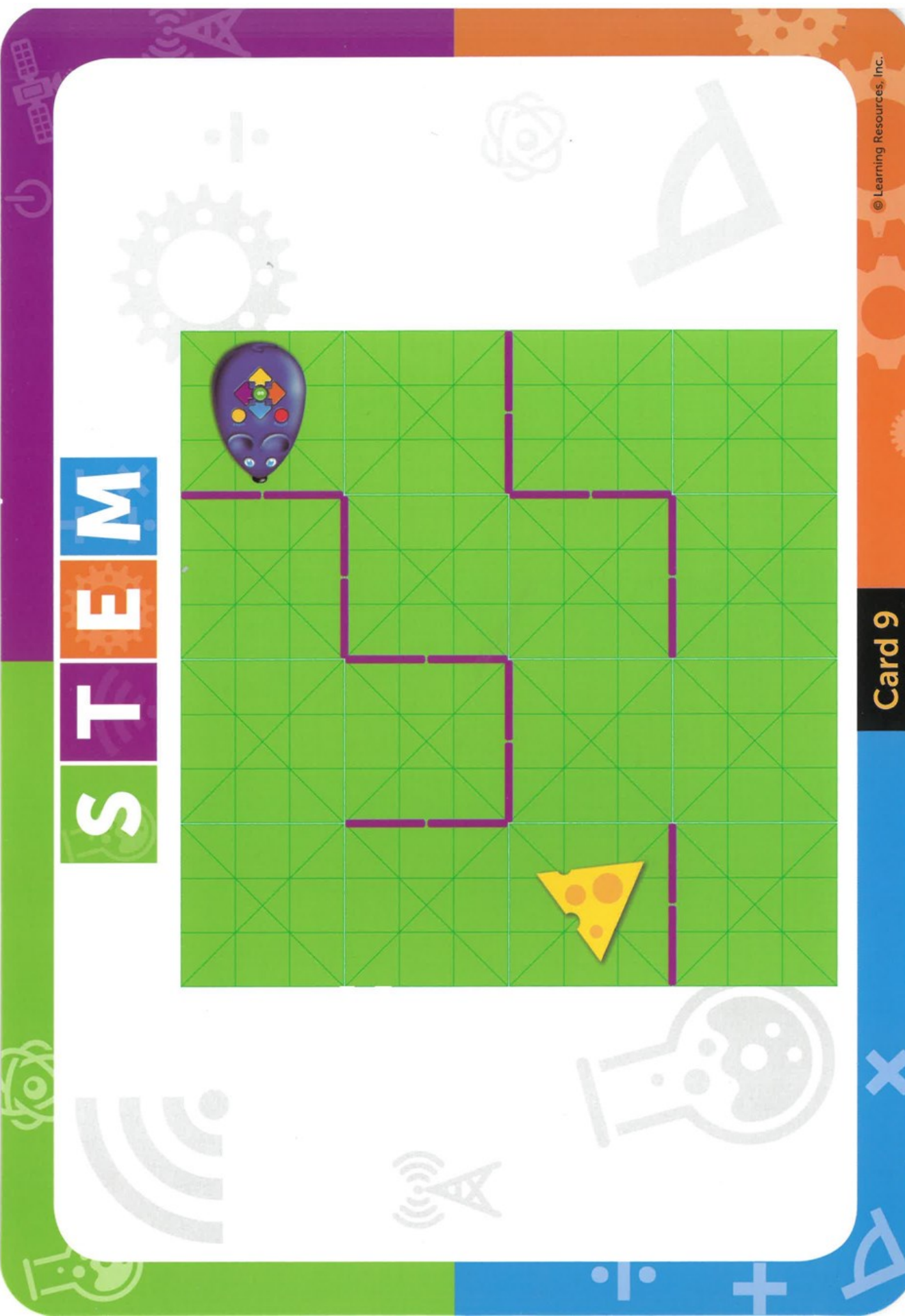
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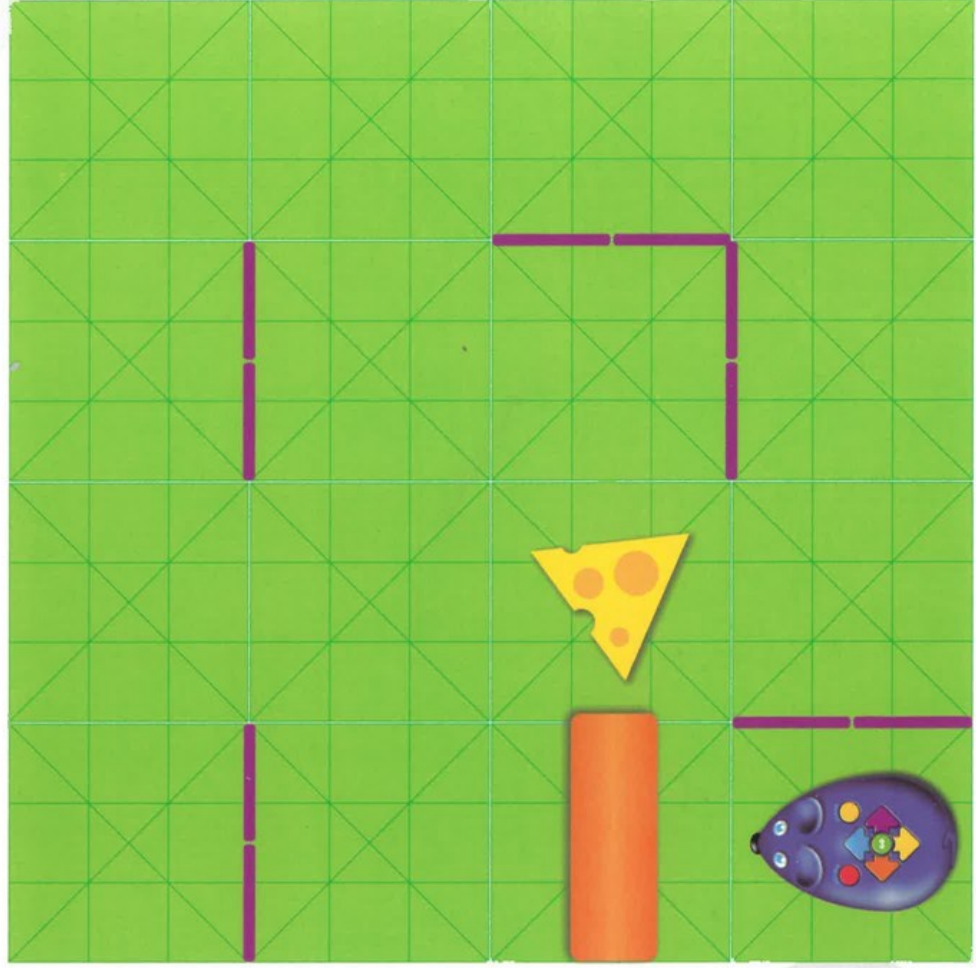
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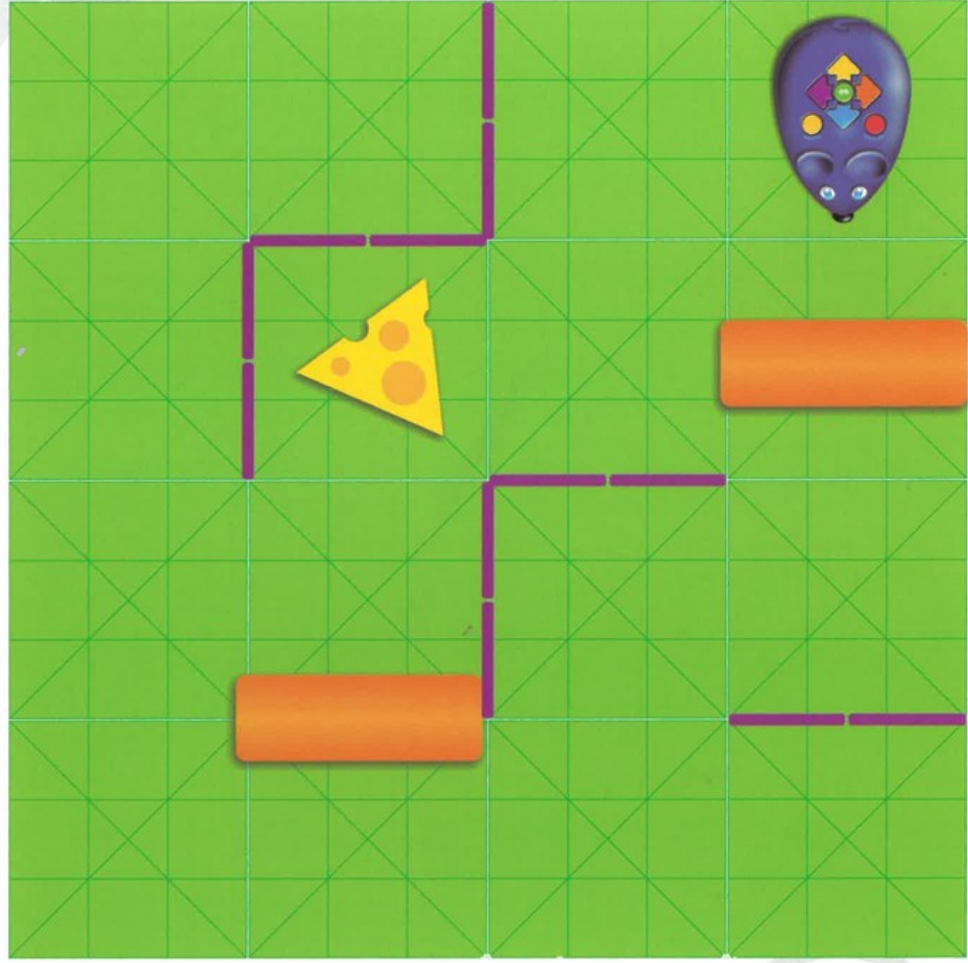
The image shows a 10x10 green grid used for a path-finding activity. A purple robot is positioned at the top left corner (row 1, column 1). A yellow cheese slice is located at the bottom right (row 10, column 9). A purple path is drawn on the grid, starting from the robot and ending at the cheese slice. The path is composed of several connected line segments, forming a route that moves right, then down, then right, then down, then right, then down, then right, then down, then right, and finally down to the cheese slice.



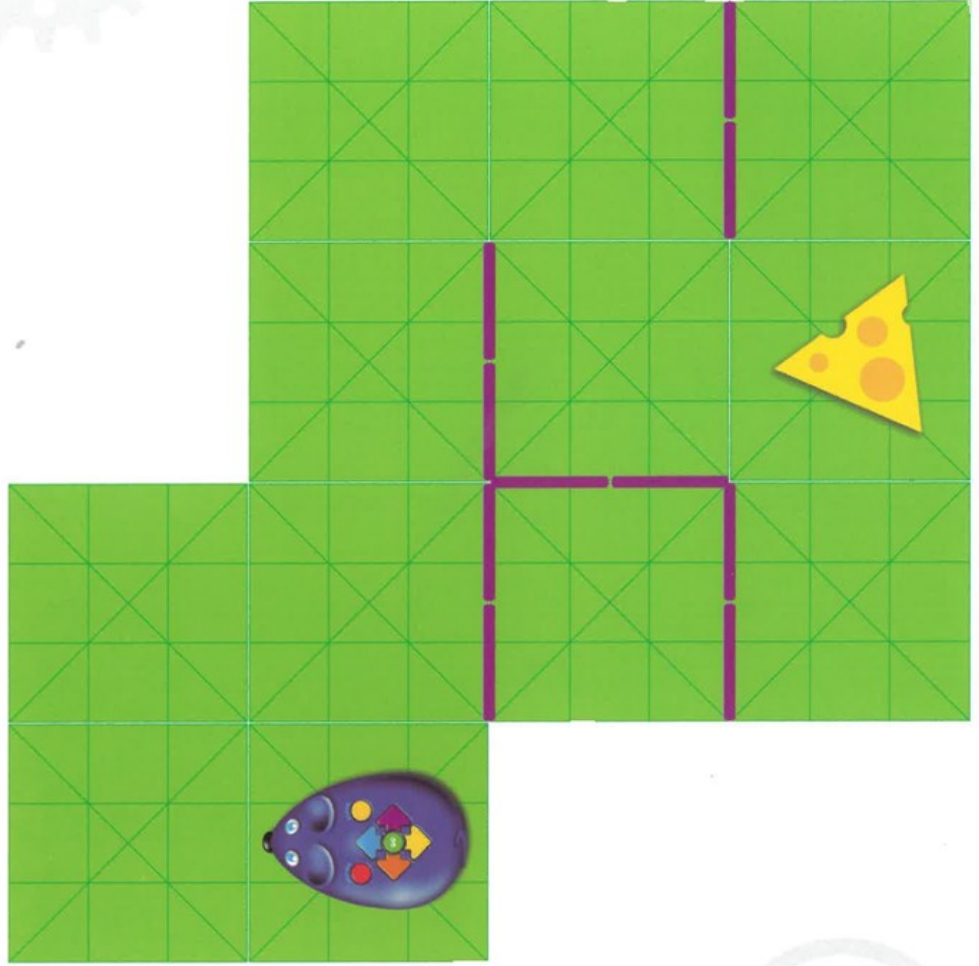
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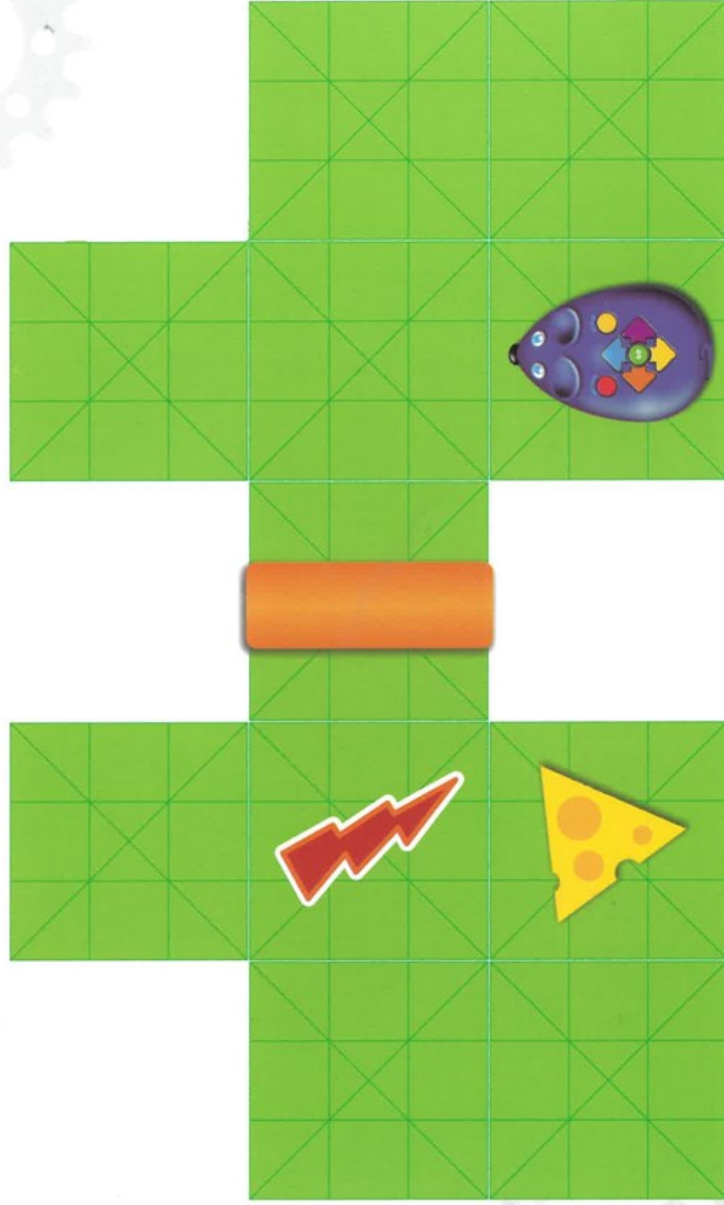
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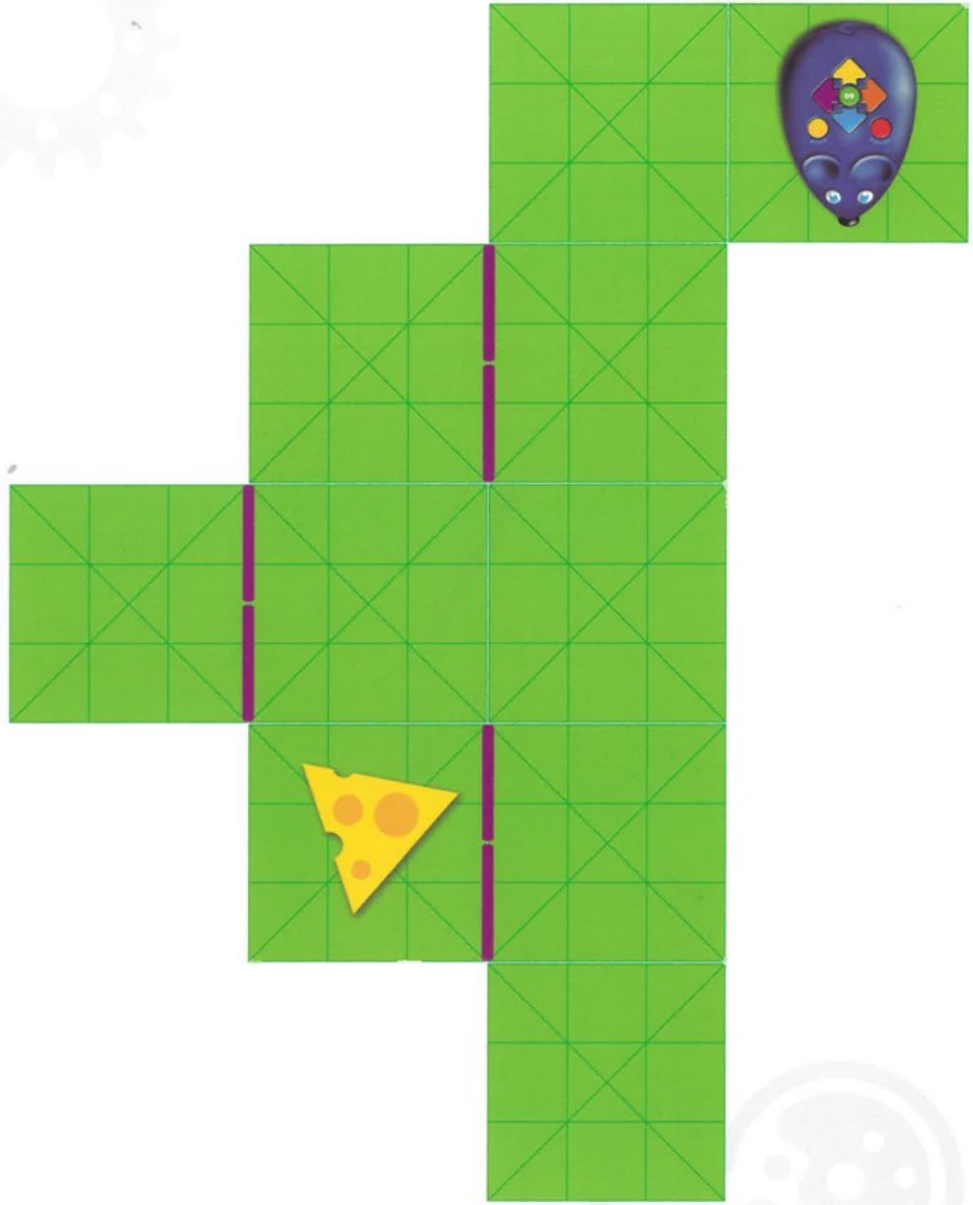
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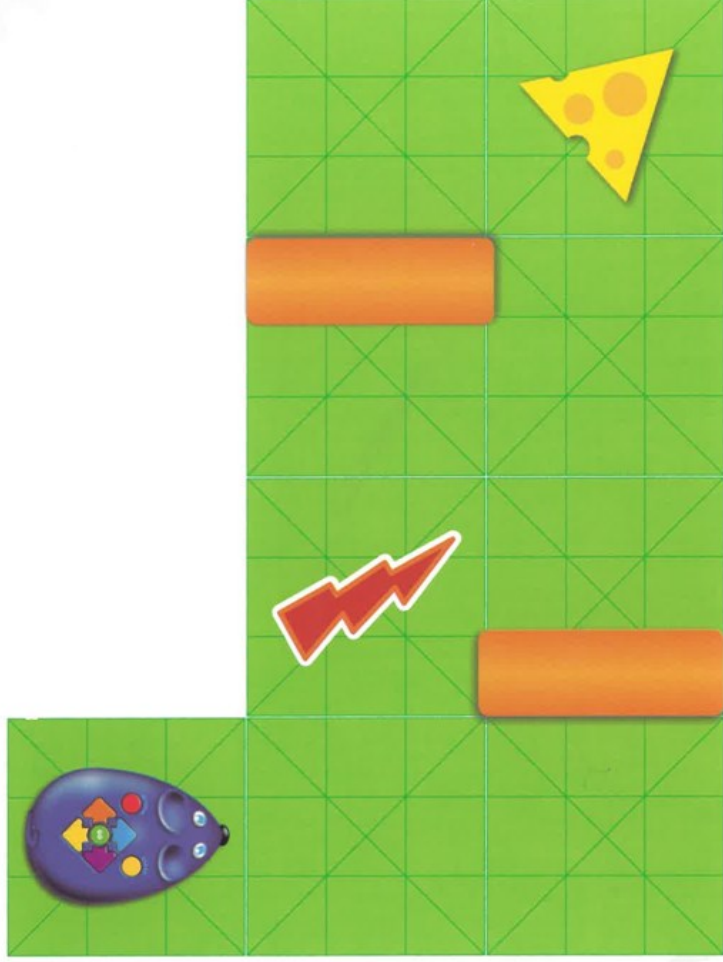
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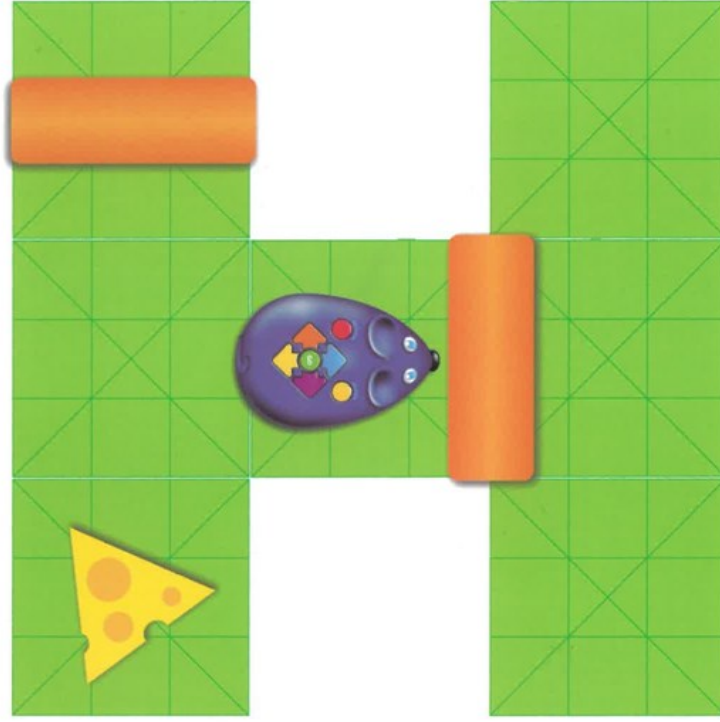
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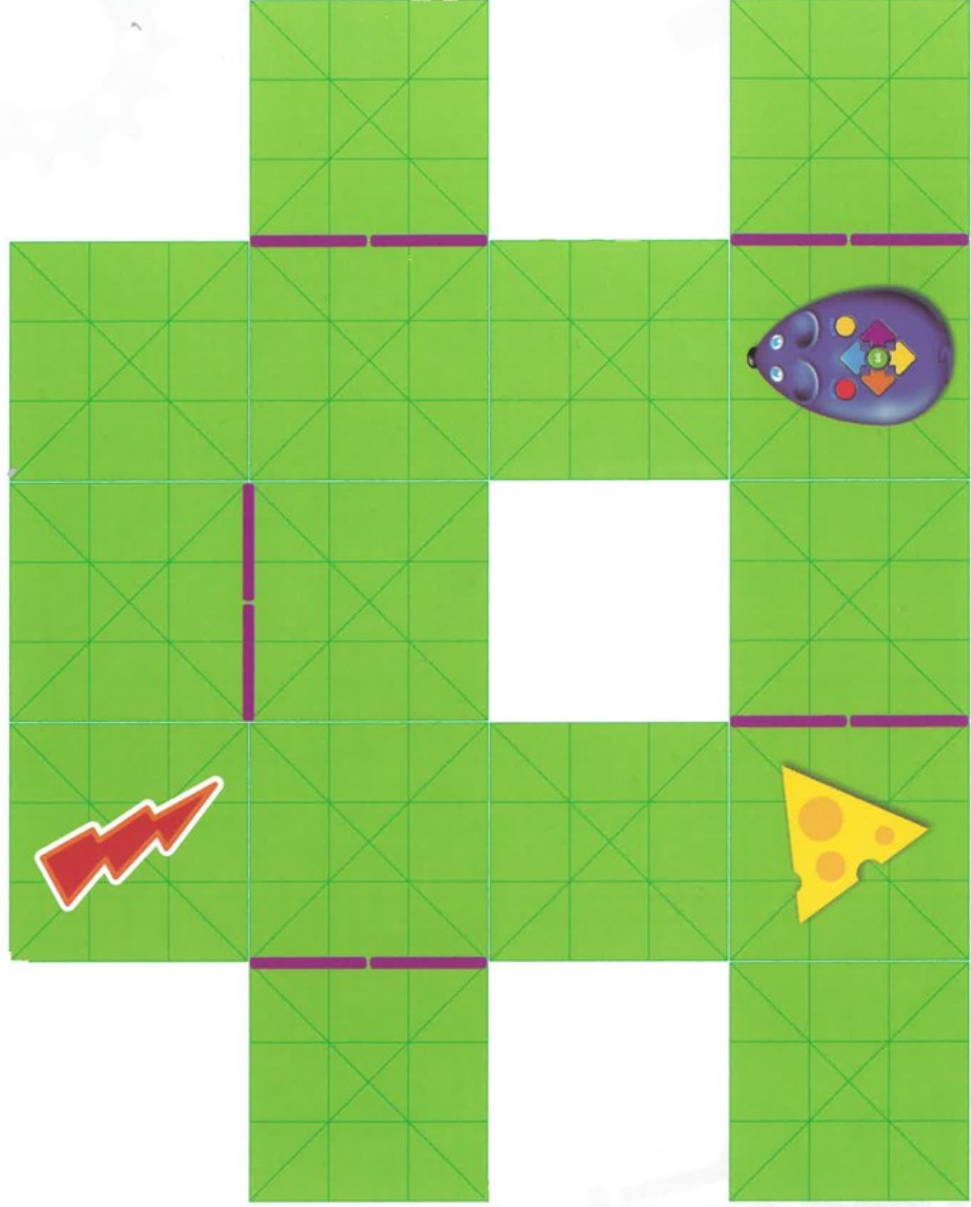
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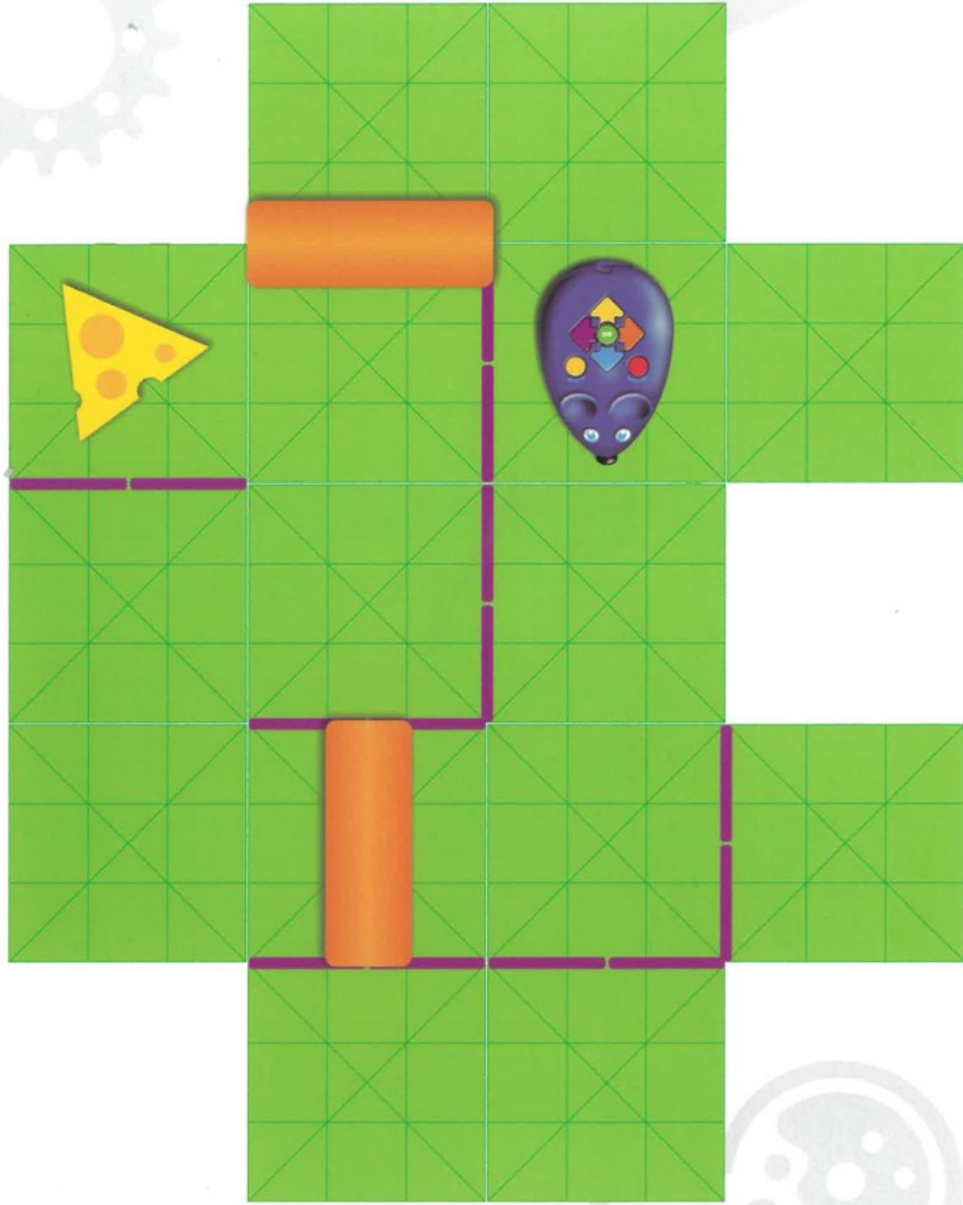
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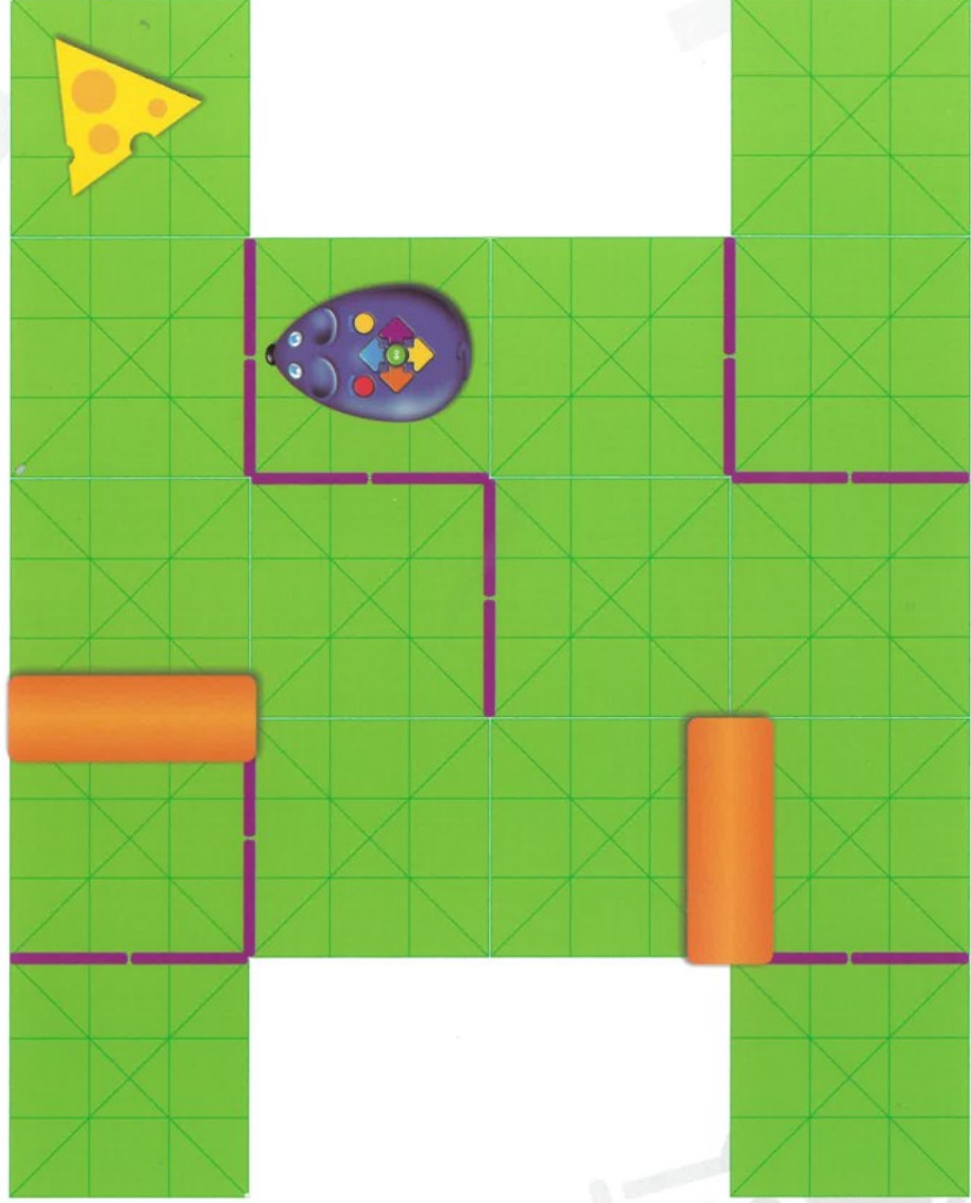
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