



WOMEN'S
HISTORY
MONTH

Ada Lovelace Coding Game



Known as the world's first computer programmer, Ada Lovelace wrote the first algorithms for a proposed early computing machine in the 1840s. Programming is when you give a computer instructions to carry out a specific task. For example, if you needed a robot on Mars to collect dirt samples, you would program your robot with a special code to do so! Lovelace came up with the idea of creating codes for a device and looping a series of instructions, both of which are fundamentals used in the programming process today. At that time, women were denied many opportunities for education and work, so Lovelace's achievements are even more incredible. To celebrate the successes of women in STEM, try to program a robot in this coding game!

1



Gather materials:

- Square Magnets / Colored Construction Paper
- Small Toy People (could be Legos, Barbies, etc.)
- Small Toy Objects
- Post-Its
- Index Cards
- Marker

2



Create a grid. If you have square magnets, connect them side by side in a 5 x 5 grid.

NOTE:

If you don't have square magnets, you can create a grid by using squares of colored construction paper that you can glue down to a large piece of cardboard.



3



Decide which toy person will be your "robot". This is the toy that will travel along your grid.

4



Use a marker to label two index cards or large post-its with "Start" and "Finish."

5



Choose a square on your grid in the bottom row where your robot will start and place your "Start" sign next to it.

6



Do the same for your "Finish" sign but put your square in the top row of your grid instead.

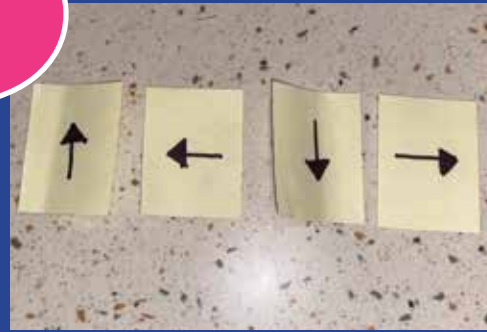


7



Add obstacles to your grid by placing different objects on various squares throughout the grid. Make sure that there is still a clear path between your "Start" and "Finish" signs.

8



Make several directional arrows (>, ^, <, etc.) on post-its.

9



The grown up should create a sequence of arrows that allows the robot to travel safely from start to finish. Set your post-its in a line under your grid in the correct sequence. Allow the child to move the robot following the code given. For example, an up arrow would mean to move the robot one space up on the grid, and a right arrow, one space to the right.

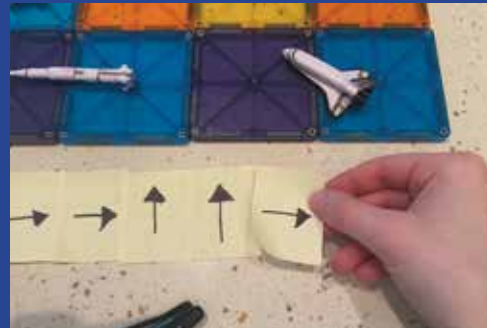


10



You can change the sequence to fit a different route for your robot, and have the child try again!

11



To make the game more challenging, see if the child can create the code for the robot! How many $>$ arrows? How many $<$?

Watch out for obstacles!