

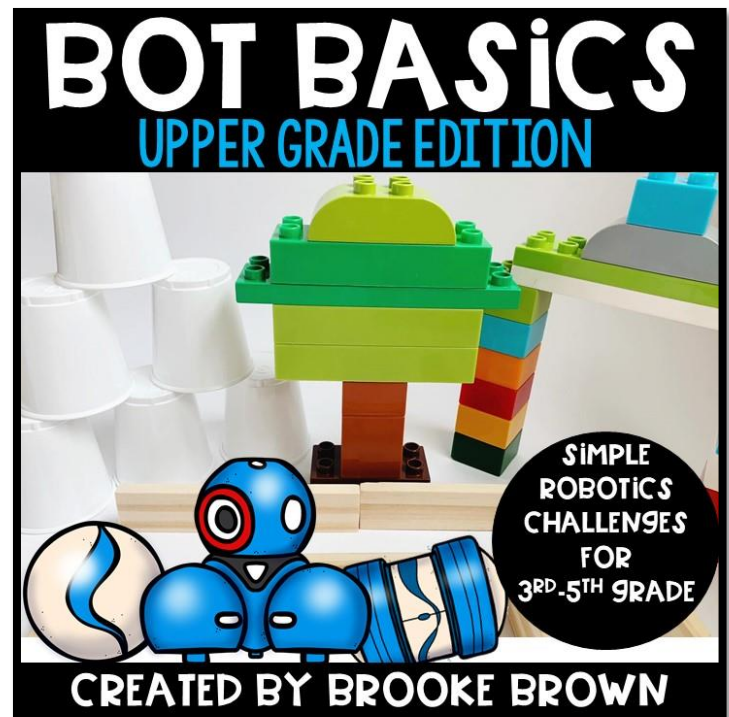
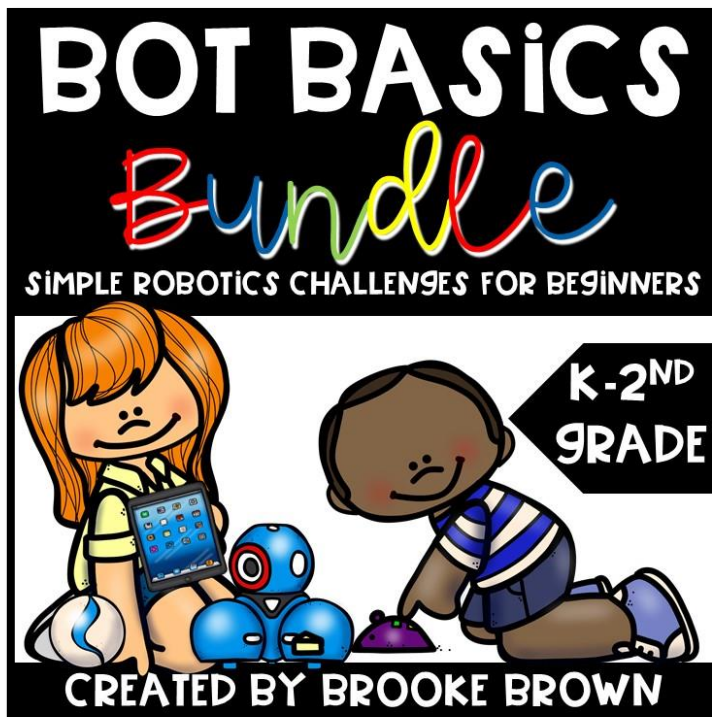
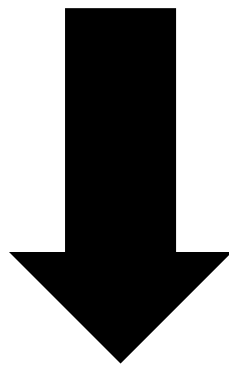
# FREE *Holiday* BOT BASICS

SIMPLE ROBOTICS CHALLENGES FOR BEGINNERS



CREATED BY BROOKE BROWN

# LOVE THESE ROBOTICS CHALLENGES? YOU'LL LOVE MY FULL BOT BASICS PACKS!



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**\*Requires 2 or more robots**

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**\*Requires construction paper or aluminum foil, tape, and paper scraps.**

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**\*Requires 3 mini cups**

**Pages 11-12: REINDEER GAMES**

**\*Requires paper reindeer, base ten rods or linking cubes**

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**\*Requires string or yarn, construction paper or aluminum foil, tape and linking cubes**

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**\*Requires building bricks, linking cubes, or mini cups**

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**\*Requires 2 or more robots**

**Page 16-18: GINGERBREAD MAZE**

**\*Requires paper gingerbread pieces and maze materials such as wooden planks, base ten rods, popsicle sticks, or construction paper**

**Page 19: Credits**



# WHAT YOU NEED

The following Bot Basics challenges will work with almost any moving, programmable robot and the tasks will vary slightly depending on the size and abilities of your robots.

## Suggested Robots

- Sphero Spark
- Sphero Bolt
- Sphero Ollie
- Sphero Mini
- Ozobot Bit (OzoBlockly)
- Ozobot Evo (OzoBlockly or Evo app)
- Dash
- Bee-Bot
- Code and Go Mouse
- Botley

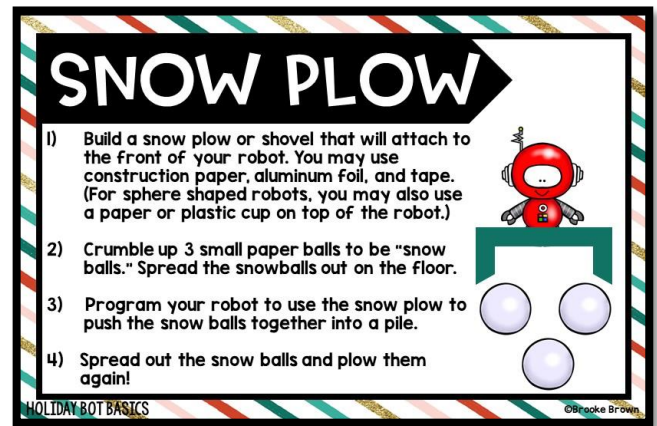


# HOW TO USE

Holiday Bot Basics can be used as robotics stations and can also be used as a whole class if you have multiple robots for students to share. Print the provided instruction cards and pieces and laminate for durability.

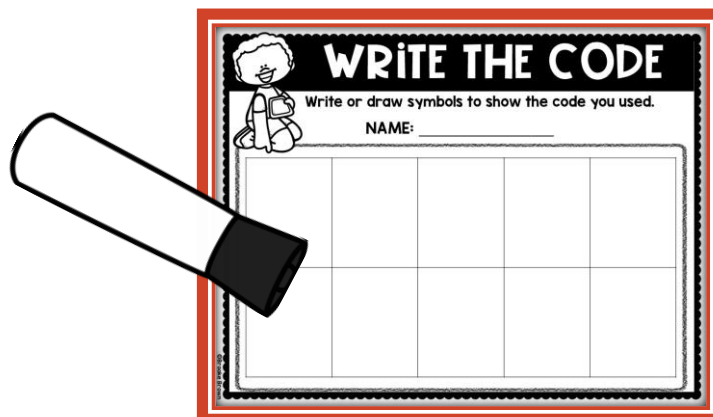
Direction cards can be folded in half as tents to display at each station. These cards can be stored in gallon-sized Ziplock baggies with extra pieces when not in use.

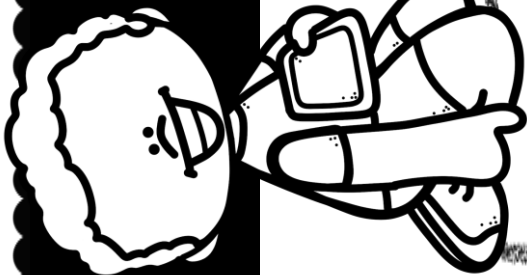
Students follow the challenge instructions to program their robots. Some challenges may include basic school supplies or building materials or may require students to build a path or maze.



## OPTIONAL WRITTEN CODES:

Make copies of the most appropriate templates for your robots on pages 7-8 for students to write the codes OR place inside dry erase pockets or page protectors for students to use with write and wipe markers.





# WRITE THE CODE

Write or draw symbols to show the code you used.

NAME: \_\_\_\_\_




# WRITE THE CODE

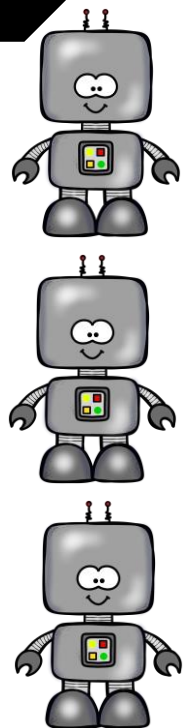
Write or draw symbols to show the code you used.

**NAME:** \_\_\_\_\_


# HOLIDAY PARADE

**(THIS CHALLENGE REQUIRES 2 OR MORE ROBOTS.)**

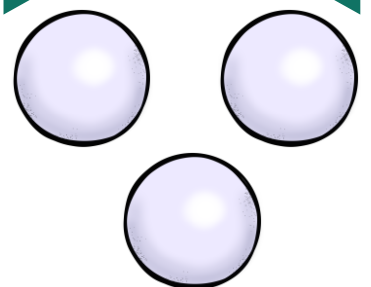
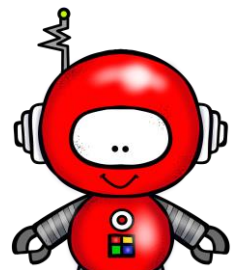
- 1) Place your robots in a line in front of each other, with about one foot (12 inches) between them.**
- 2) Program your robots with the exact same commands to move forward, turn, change light colors, or make sounds. Use at least 10 commands.**
- 3) Start your robots at exactly the same time so that they move together.**
- 4) Change the parade routine and program your robots again!**





# SNOW PLOW

- 1) Build a snow plow or shovel that will attach to the front of your robot. You may use construction paper, aluminum foil, and tape. (For sphere shaped robots, you may also use a paper or plastic cup on top of the robot.)
- 2) Crumble up 3 small paper balls to be "snow balls." Spread the snowballs out on the floor.
- 3) Program your robot to use the snow plow to push the snow balls together into a pile.
- 4) Spread out the snow balls and plow them again!



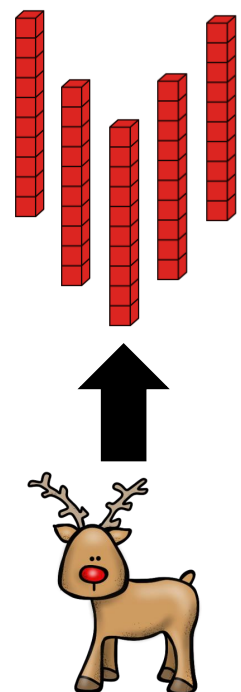
# SNOWMAN STACK

- 1) Build a “snowman tower” using 3 mini cups.
- 2) Program your robot to crash into the cups and knock down as many as you can.
- 3) Add more cups to your tower design and program your robot again.



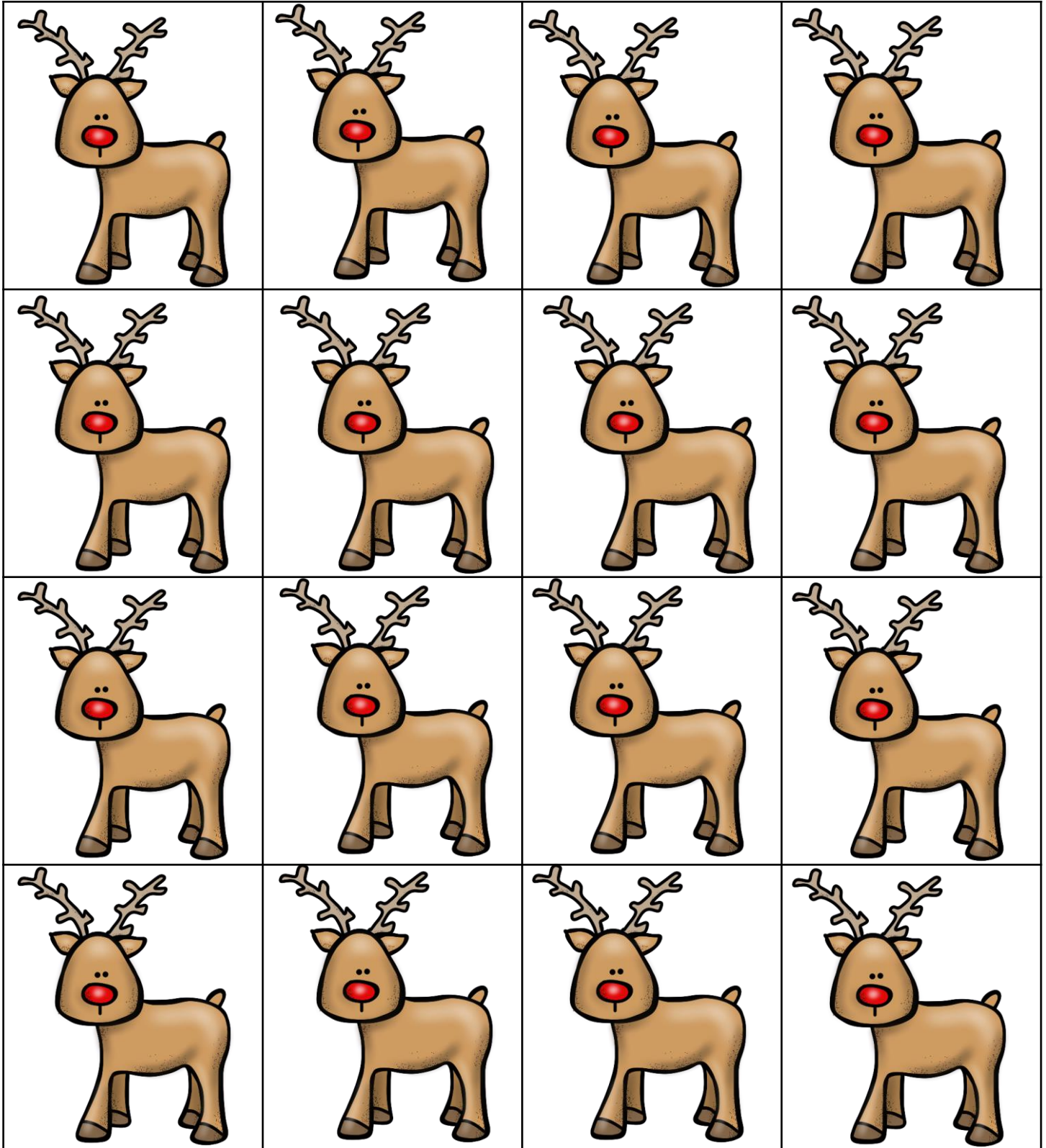
# REINDEER GAMES

- 1) Tape a paper reindeer to the front of your robot (For sphere shaped robots, you may tape it to the front of a paper or plastic cup and place the cup over the robot.)
- 2) Set up a group of 5-10 of "bowling pins" using base ten rods or linking cubes.
- 3) Program your robot to crash into the blocks and knock over as many as possible.
- 4) Change your block design and program your robot again.



# REINDEER GAMES

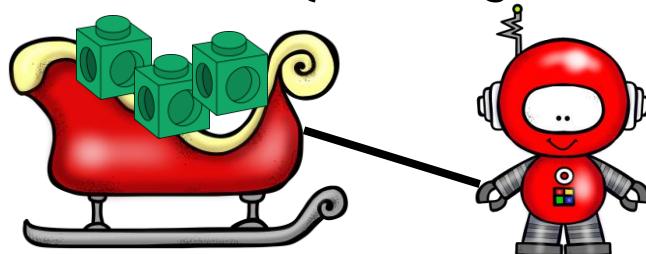
Tape a paper reindeer to the front of each robot.  
(For sphere shaped robots, you may tape it to the front of a paper or plastic cup and place the cup over the robot.)





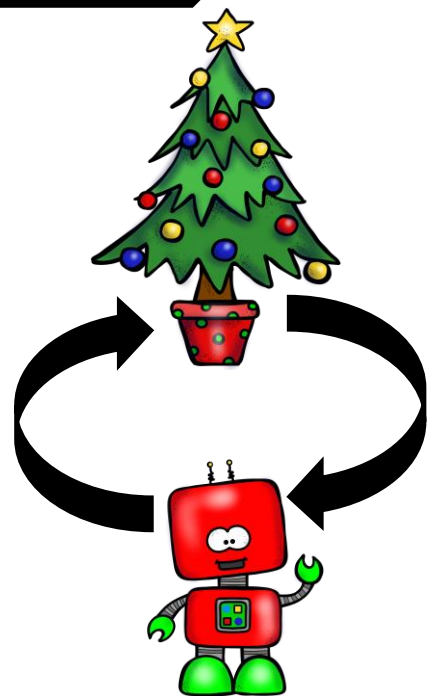
# TOY SLEIGH

- 1) Build a sleigh that will attach to the back of your robot. You may use yarn or string, construction paper, aluminum foil, and tape. (For sphere shaped robots, you may also use a paper or plastic cup on top of the robot.)
- 2) Place as many "toys" or linking cubes in the sleigh as possible.
- 3) Program your robot to carry the toy sleigh to a friend in your class.
- 4) Program your robot to carry the sleigh to another friend!



# ROCKING AROUND THE CHRISTMAS TREE

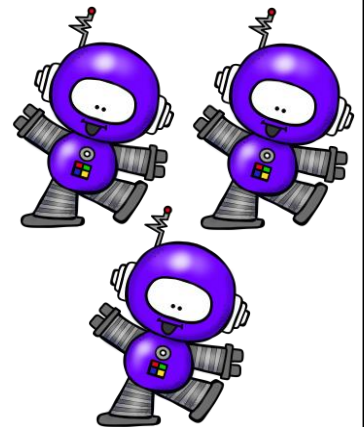
- 1) Build a Christmas tree out of building bricks, linking cubes, or mini cups.
- 2) Program your robot to go all the way around the tree 3 times.
- 3) Change your robot's distance from the tree and program it again.



# DANCE PARTY

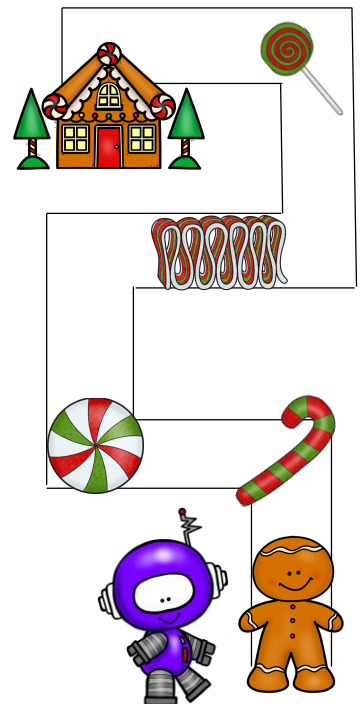
**(THIS CHALLENGE REQUIRES 2 OR MORE ROBOTS.)**

- 1) Place your robots side by side.**
- 2) Program your robots with the exact same commands to move, turn, dance, change light colors, make sounds, or perform other actions. Use at least 10 commands.**
- 3) Start your robots at exactly the same time so that they "dance" together.**
- 4) Change your dance routine and program your robots again!**



# GINGERBREAD MAZE

- 1) Create a path or maze with straight edges. You may use wooden planks, popsicle sticks, base ten rods, or construction paper to make your maze.
- 2) Put the GINGERBREAD MAN at the beginning of your maze and the HOUSE at the end. Put the CANDY along the path.
- 3) Program your robot to move from the GINGERBREAD MAN to the HOUSE and collect all the CANDY along the way. Try to use only ONE sequence of code.



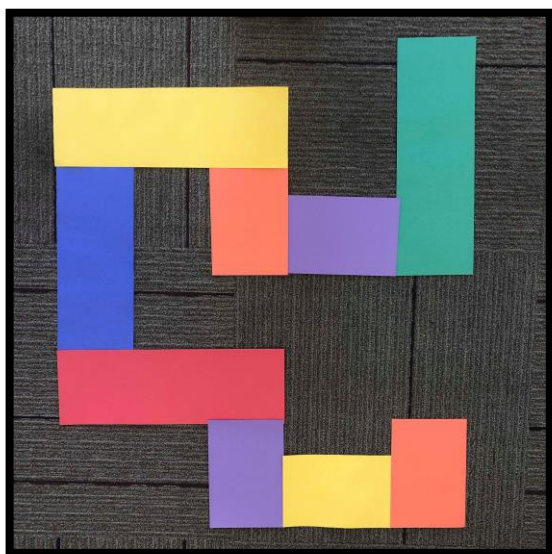


# GINGERBREAD MAZE EXAMPLES

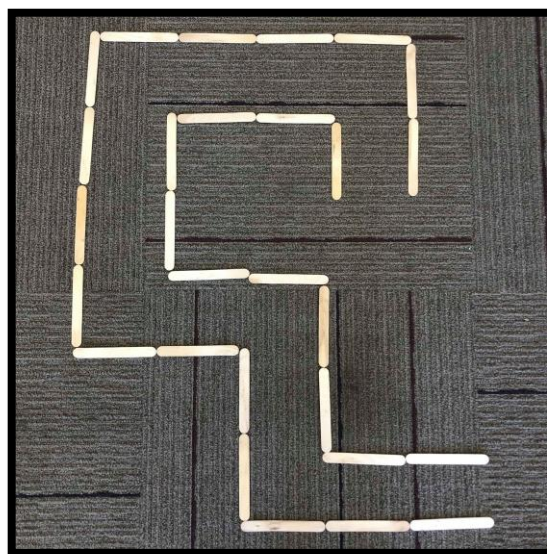
The Gingerbread Maze can be created out of straight edge materials such as popsicle sticks, wooden planks, base ten rods, or laminated construction paper strips. (SEE EXAMPLES BELOW)

6" X 18" AND 6" X 9"

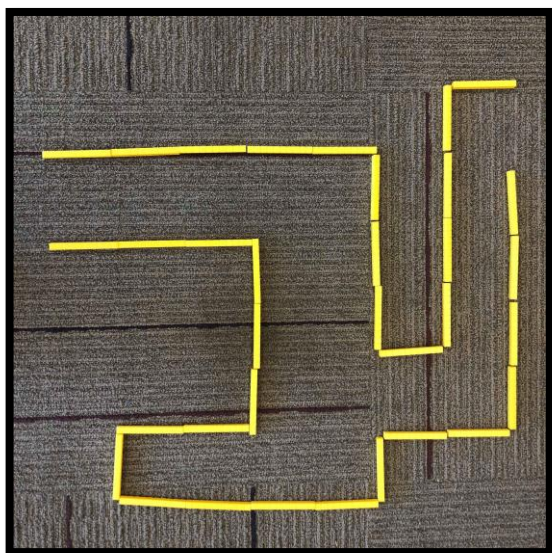
LAMINATED  
CONSTRUCTION PAPER



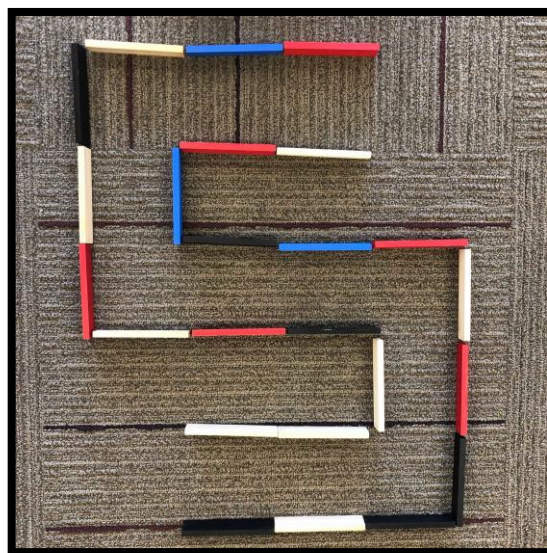
POPSICLE STICKS



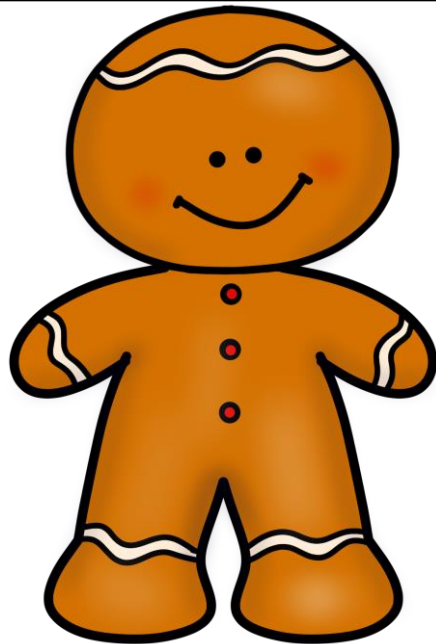
BASE TEN RODS



WOODEN PLANKS







START

GINGERBREAD MAZE

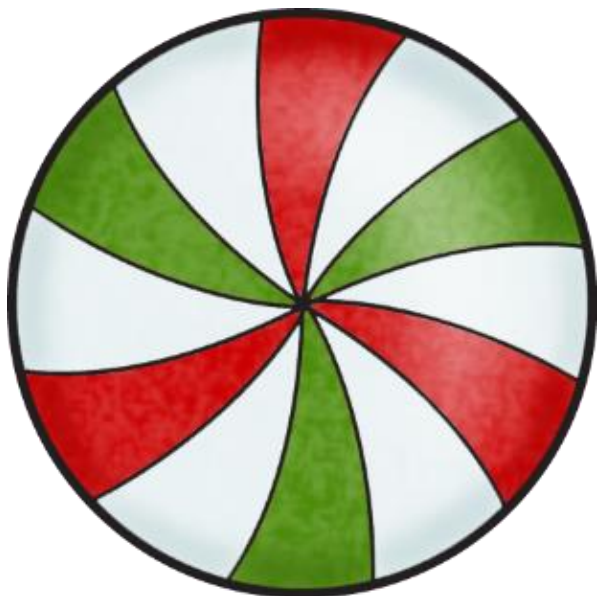
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END

GINGERBREAD MAZE

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GINGERBREAD MAZE

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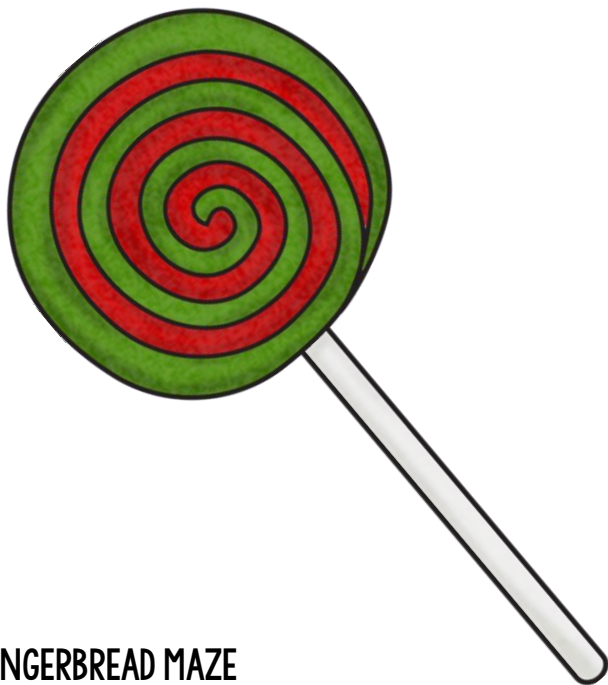
GINGERBREAD MAZE

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