Summer of Wonder

Activities Packet #4

Up for a Challenge?

Time for a road trip! Dash needs to get to the station to charge up before the big road trip!
Use the following Challenge Card to learn about variables with Dash.

Road Trip

6.1 Variables

Road Trip!

Dash needs to get to the gas station to fill up before a big road trip!

6.1 Variables

1. To get to the gas station, Dash first needs to **drive 65 cm**. To drive a specific distance, **set** a **variable** to 65.

   Set ⬤ = 65

2. Then have Dash **drive** that distance.

   Do Drive ⬤ cm

3. Almost there! Now program Dash to make a **45-degree left turn**.

   Turn Left

4. Finally, Dash needs to **drive 35 cm**. What blocks should you use?

   Set ⬤ = ⬛   Do Drive ⬤ cm

5. Add some **animations** for when Dash arrives at the gas station!

MATERIALS:
- Dash robot
- Blockly app
- Dash Challenge Card

STEPS:

1. Use the "Road Trip" Challenge Card to create a sequence of commands for Dash.

2. Open Blockly on your compatible device (www.makewonder.com/compatibility) and create a new program.

3. Follow the instructions on the Challenge Card by dragging the block commands onto your screen. Connect them in order below the START block.

4. Be creative and add your own animations or sounds/voice recordings along the way.

**5.** Press the green PLAY button to test your program.

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Now Let's Get Creative!

Use your coding skills and Sketch Kit to create a gallery of images showing places Dash has visited on their summer road trip!
Pretend that Dash has spent the summer traveling to different cities around the USA. Use Sketch Kit to program Dash to draw images from different cities or landmarks that the robot has visited. Have they visited the Golden Gate Bridge? Spent time admiring the New York skyline? How many places has your robot visited on their summer vacation?

STEPS:

1. Brainstorm different places for Dash to travel to on summer vacation.

2. Use the planning form on p. 3 to designate vacation destinations for your robot, and sketch out landmarks that your robot may visit at each destination.

3. Once you have planned your robot's vacation adventure, choose your favorite 2 or 3 destinations to sketch using the Sketch Kit attachment for Dash.

4. Using Blockly or Wonder for Dash, program your robot to draw something it may have seen at 2 or 3 different stops on its vacation.
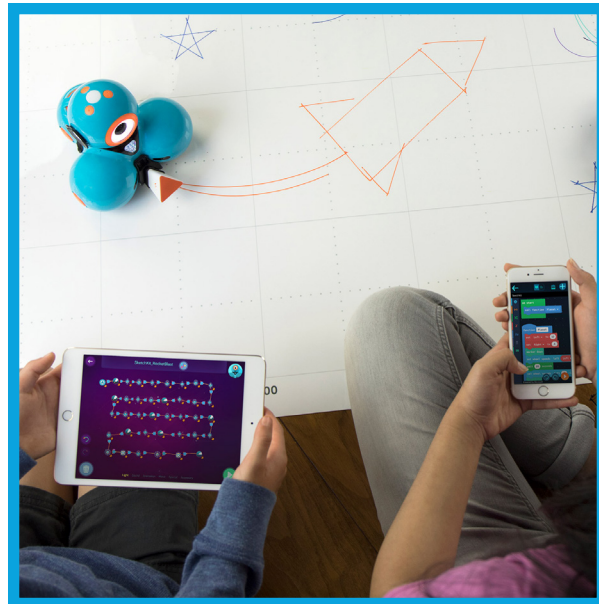
MATERIALS:

- Dash robot

- Blockly or Wonder app

- Sketch Kit

- Sketch Kit whiteboard mat or large butcher paper

- Device to take photos

LEVEL UP!

Record your robot sketching out their favorite landmarks, and put together a video scrapbook of the travels. You can use a simple video editing or slideshow app such as iMovie to put your videos (or photos) together.

Make sure you share your vacation videos and sketches with us on social media **@WonderWorkshop** with the hashtag **#SummerofWonder**.
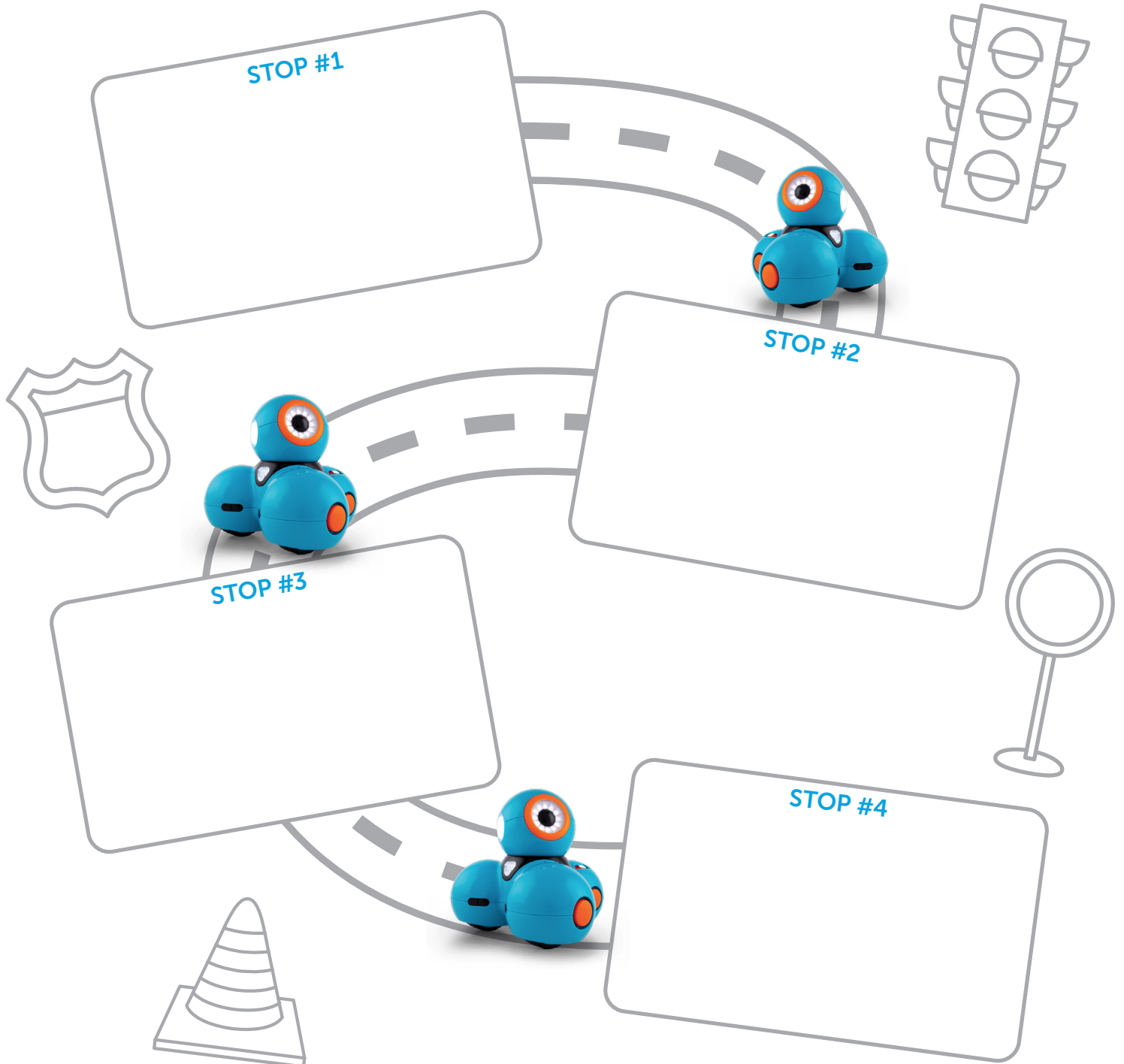
Vocabulary
Variable: A placeholder for a piece of information that can change.

Robot Vacation Planning Grid

HELP DASH PLAN A SUMMER ROAD TRIP!

Sketch some landmarks that Dash might want to see on their tour around the USA. Will Dash stop at the Golden Gate Bridge? The Statue of Liberty? Help Dash plan a summer adventure!
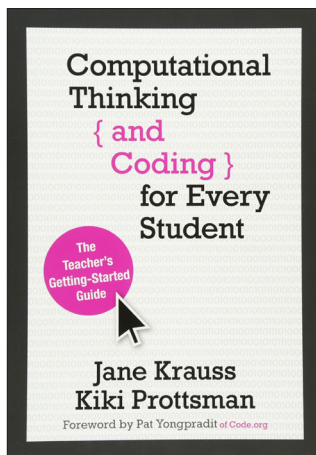
STOP #1

STOP #2

STOP #3

STOP #4

CAPTURE THE FLAG BOARD GAME!

(Print and cut out the pieces on pages 5-8 to play this game.)

SET UP:

1. 2 to 4 players. Choose a color and take the matching Dash & flag pair.

2. Place your Dash and flag in your home base. The flag doesn't move in the game, but Dash can move in any direction based on the Blockly cards.

3. Players draw 5 Blockly cards each from the deck. When it's your turn, choose 3 cards from your hand to create a program.

4. After running the program, discard the 3 cards and draw 3 new cards for your next turn. The next player takes a turn.

5. The first player to use his or her Dash to capture an opponent's flag is the winner.

6. Another way to play: Put the 4 flags in the middle of the board. The first Dash to reach a flag of the same color wins!

7. Use the Obstacle cards to make up your own version of the game. For example, each player gets 3 Obstacle cards to place on the board at just the right moment during the game.

SUMMER READING:

Computational Thinking { and Coding } for Every Student

The Teacher's Getting-Started Guide

Jane Krauss
Kiki Prottsman

Foreword by Pat Yongpradit of Code.org

Take a look at our blog's Summer STEAM Reading List. How many books have you read this summer that have to do with coding or robotics?

http://bit.ly/STEAMreading

### COLOR IN OUR ROBOT'S EYE TO SHOW HOW MANY BOOKS YOU'VE READ SO FAR:
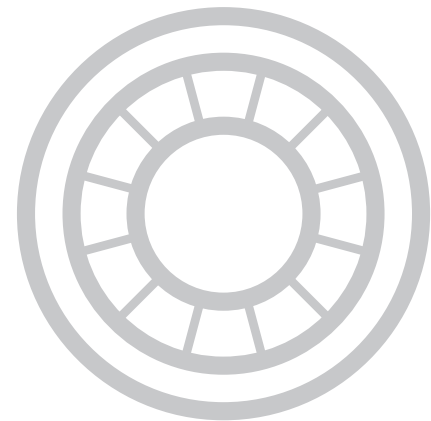
FUN FACT:

The word **robot** was first used in a 1920 play called Rossum's Universal Robots (R.U.R), by Czech writer, Karel Čapek. It was derived from the Slavic word rabota, which means servitude or forced labor.   4

Capture the Flag Game Pieces

Forward 1	Forward 2	Forward 3	Forward 1	Forward 2	Forward 3
Forward 1	Forward 2	Forward 3	Forward 1	Forward 2	Forward 3
Backward 1	Backward 2	Backward 3	Backward 1	Backward 2	Backward 3
Backward 1	Backward 2	Backward 3	Backward 1	Backward 2	Backward 3
Turn Right 90	Turn Right 180	Turn Right 270	Turn Right 90	Turn Right 180	Turn Right 270
Turn Right 90	Turn Right 180	Turn Right 270	Turn Right 90	Turn Right 180	Turn Right 270
Turn Left 90	Turn Left 180	Turn Left 270	Turn Left 90	Turn Left 180	Turn Left 270
Turn Left 90	Turn Left 180	Turn Left 270	Turn Left 90	Turn Left 180	Turn Left 270
Forward 1	Forward 2	Forward 3	Forward 1	Forward 2	Forward 3
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Capture the Flag Game Pieces
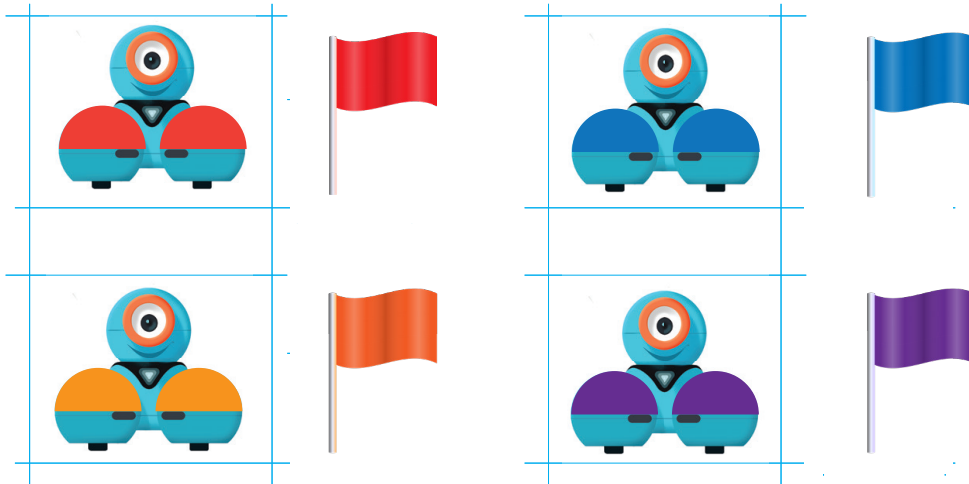
| Get dizzy & face the opposite direction.	Get dizzy & face the opposite direction.	Get dizzy & face the opposite direction.	Get dizzy & face the opposite direction.
Oh no! Force another player's Dash 1 space in any direction.	Oh no! Force another player's Dash 1 space in any direction.	Oh no! Force another player's Dash 1 space in any direction.	Oh no! Force another player's Dash 1 space in any direction.
Discard up to 3 cards and replace them from the deck.	Discard up to 3 cards and replace them from the deck.	Discard up to 3 cards and replace them from the deck.	Discard up to 3 cards and replace them from the deck.
Trade 1 card with another player.	Trade 1 card with another player.	Trade 1 card with another player.	Trade 1 card with another player.
Freeze another player's Dash for 1 turn.	Freeze another player's Dash for 1 turn.	Freeze another player's Dash for 1 turn.	Freeze another player's Dash for 1 turn.
Force another player's Dash to face the opposite direction.	Force another player's Dash to face the opposite direction.	Force another player's Dash to face the opposite direction.	Force another player's Dash to face the opposite direction.

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Capture the Flag Game Pieces

Obstacle!	Obstacle!	Obstacle!	Obstacle!
Obstacle!	Obstacle!	Obstacle!	Obstacle!
Obstacle!	Obstacle!	Obstacle!	Obstacle!

| Get dizzy & face the opposite direction.	Get dizzy & face the opposite direction.	Get dizzy & face the opposite direction.	Get dizzy & face the opposite direction.
Oh no! Force another player's Dash 1 space in any direction. 1	Oh no! Force another player's Dash 1 space in any direction. 1	Oh no! Force another player's Dash 1 space in any direction. 1	Oh no! Force another player's Dash 1 space in any direction. 1
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Force another player's Dash to face the opposite direction.	Force another player's Dash to face the opposite direction.	Force another player's Dash to face the opposite direction.	Force another player's Dash to face the opposite direction.
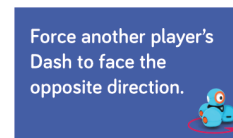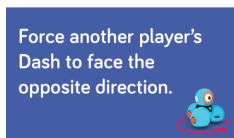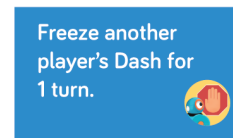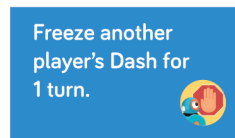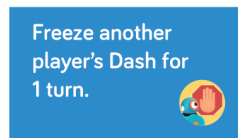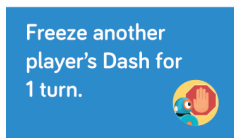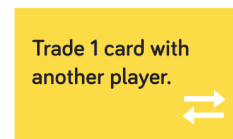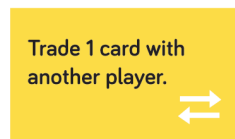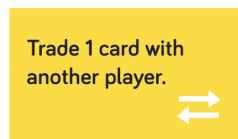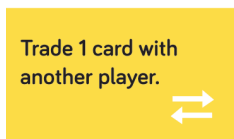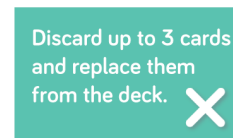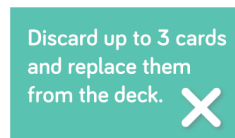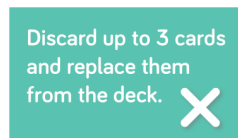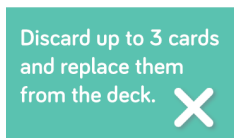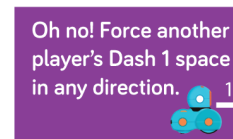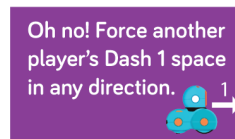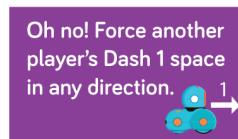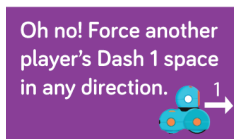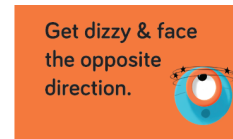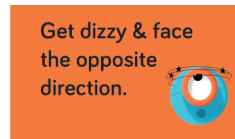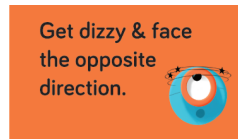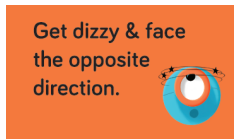
Capture the Flag Game Board
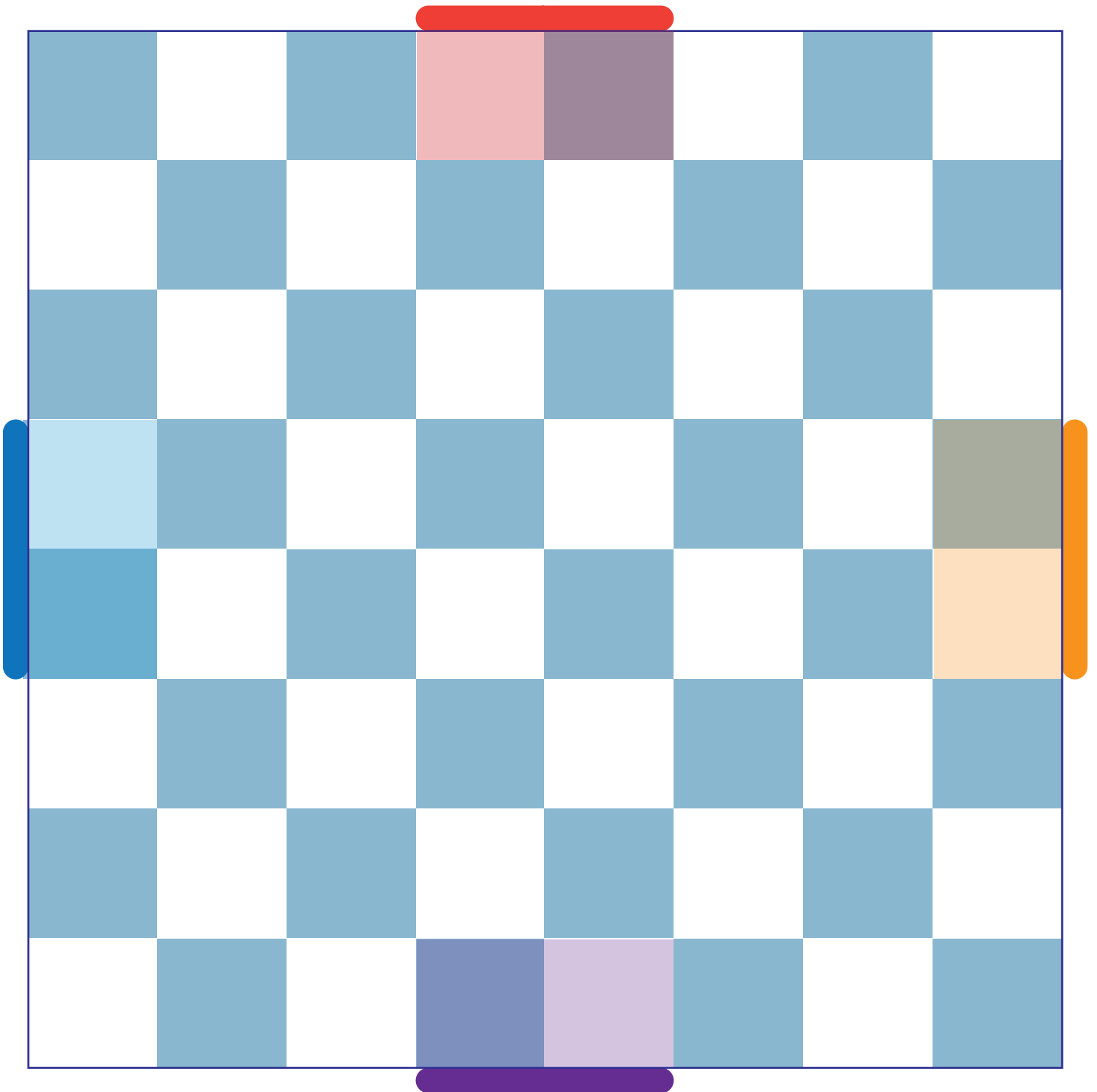
Capture the Flag Game Strategy

1. Think about your strategy: Are you going to focus on protecting your flag or going after an opponent's flag? The strategy is different depending on the number of players.

2. Remember that turning left 270 degrees is the same as turning right 90 degrees.

3. If you don't have good movement cards, use the turn to protect your flag.

4. You can create a large-scale version of the game using real robots! Use tape to create a large checkerboard on your floor, and use Blockly to program the moves.
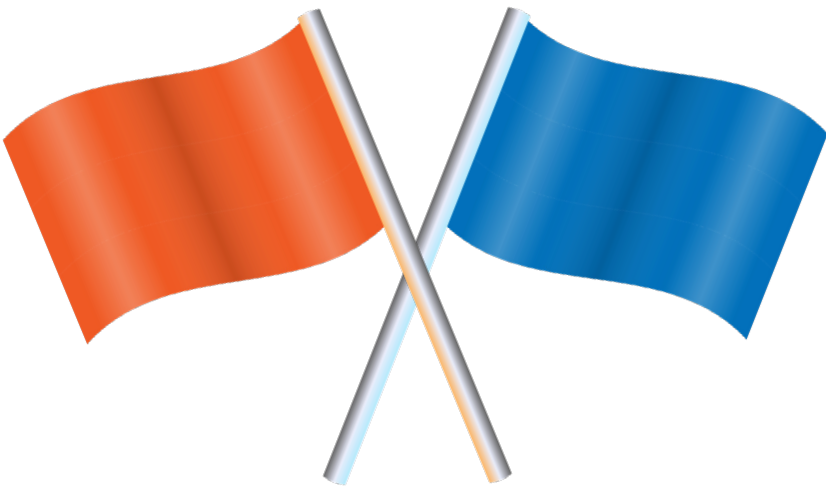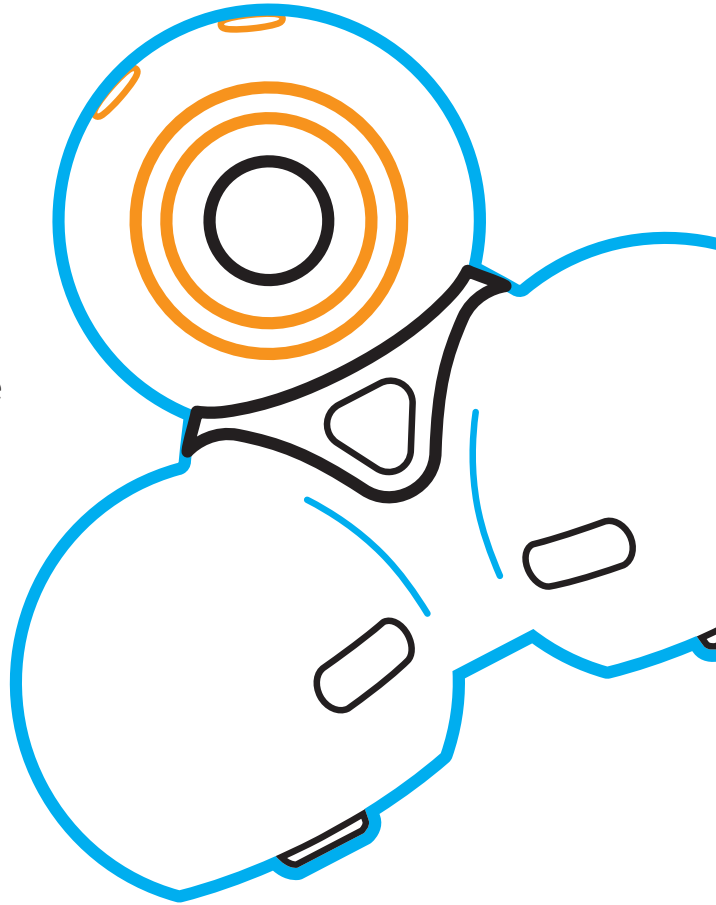
Share your own strategy tips on social **@WonderWorkshop** with the hashtag **#SummerofWonder**.