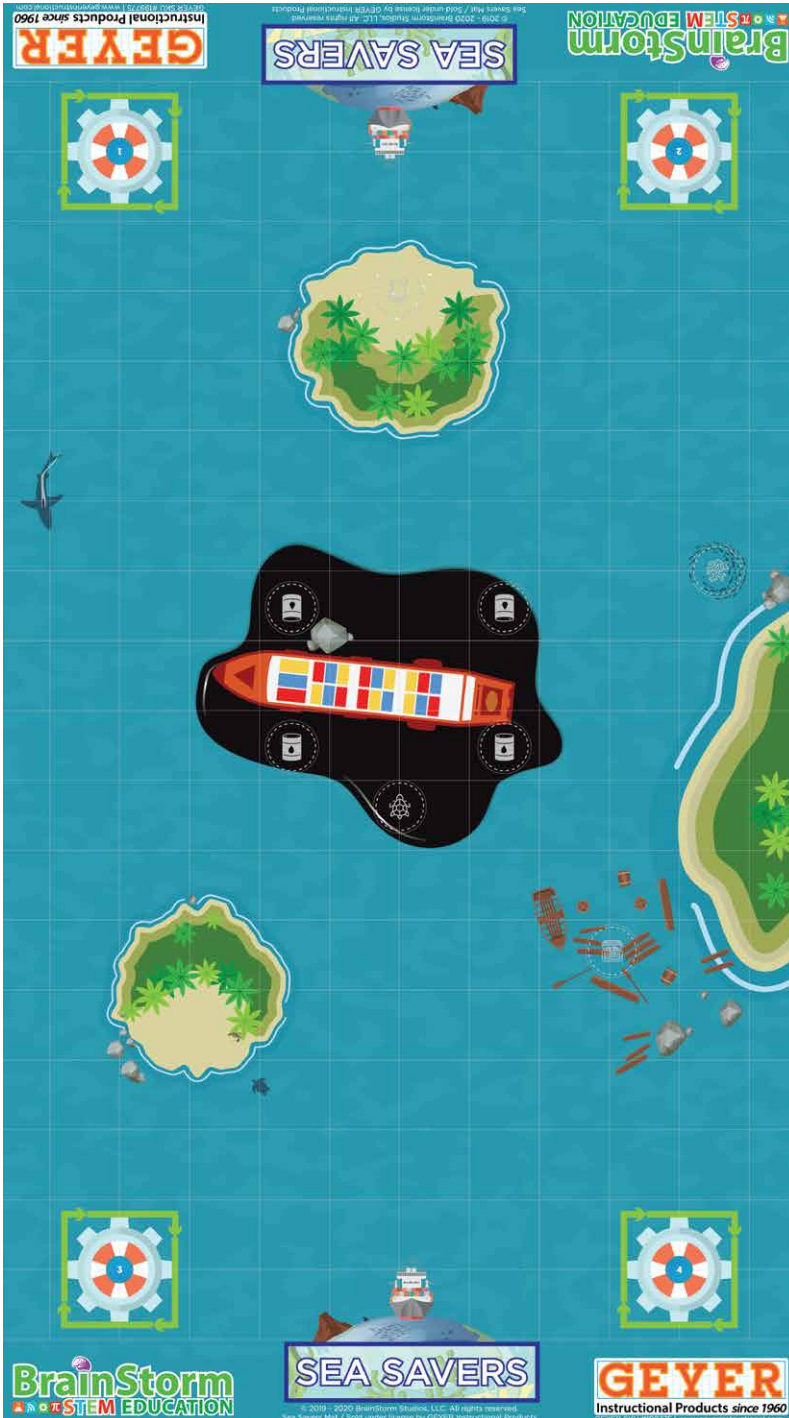**ROBOTIC ACTIVITY MAT**

SEA SAVERS

Summary: Oh no! An oil tanker is leaking its chemicals into the ocean. Help save the sea by cleaning up the many messes that harm our aquatic friends. You might even find buried treasure!

Features:
- Fits up to 8 students
- 8 Fun game pieces
- 4 Educational activities!

Objective: Save the ocean by programming your robot to complete various tasks to clean up messes and rescue the local wild-life.

Skills taught: Students will learn programming, problem solving, basic navigation, and critical thinking

Game Pieces (8 total):

x4

BrainStorm
STEM EDUCATION

Curriculum & Robot Mat Developed By
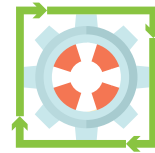
Activity 1 : Oil spill clean-up

Stop the oil spill from getting any worse

The tanker is sinking, help save the surround ocean by gathering up the remaining oil barrels before its too late.

How To Use:

1. Robots will start in each of the starting squares located near the corners of the mat.

2. Analyze the mat and visualize the direction(s) needed for the robot to navigate through the ocean and to the nearest oil icon.
(Tip: program your code two sequential commands at a time).

3. Code the sequential navigation commands into the robots program.

4. Place the robot in the specific starting square and execute the program.

5. Repeat steps 2-4 until the robot has collected the oil barrel game piece from the wreckage and back to its starting position.

6. Repeat steps 1-5 for each corner and each station on the mat.

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Activity 2 : Beach trash clean-up

Between 4.8 and 12.7 million tonnes of plastic enter the ocean each year

A nearby beach is covered with trash and forcing animals to relocate their homes. Save the beach by retrieving the trash for recycling.

How To Use:

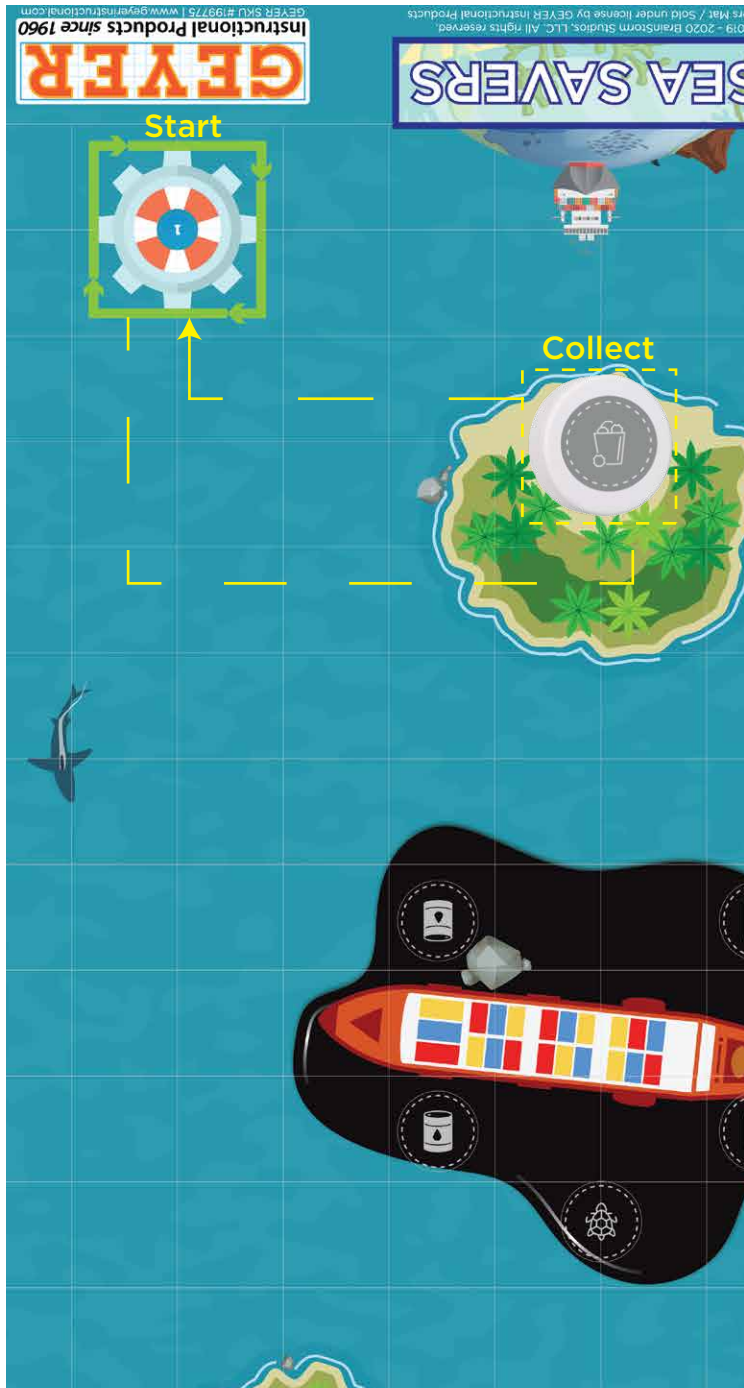**1. Robots will start in the starting squares marked with a #1.**
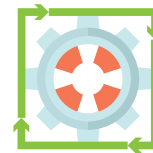
2. Analyze the mat and visualize the direction(s) needed for the robot to navigate through the Ocean to complete the objectives.
(Tip: program your code two sequential commands at a time).

3. Code the sequential navigation commands into the robots program.

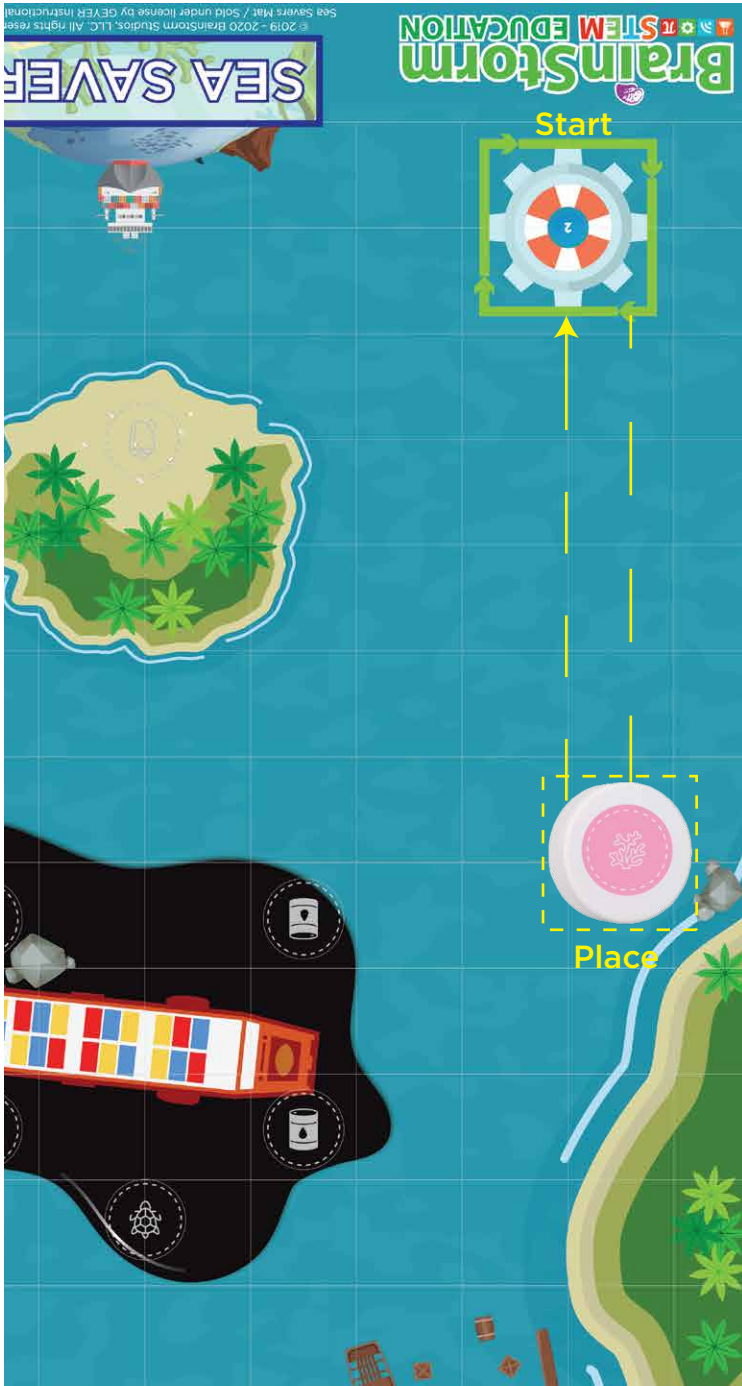**4. Place the robot in the specific starting square and execute the program.**

5. Repeat steps 2-4 until the robot has collected the trash game piece and delivered it to the loading zone on the correct half of the mat.

Start   Collect   Return
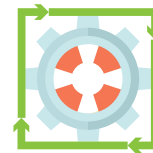
Activity 3 : Restore the coral reef

Coral reefs cover less than 1% of the ocean but are home to 25% of all species!

Pollutants from the nearby island sewage plants have depleted the natural reefs. Save the reef by bringing in colonies to grow the surrounding coral.

How To Use:

1. Robots will start in the starting squares marked with a #2.

2. Analyze the mat and visualize the direction(s) needed for the robot to navigate through the Ocean to complete the objectives.
(Tip: program your code two sequential commands at a time).

3. Code the sequential navigation commands into the robots program.

4. Place the robot in the specific starting square and execute the program.

5. Repeat steps 2-4 until the robot has placed the coral game piece and returned to their starting position.

Start   Collect   Return

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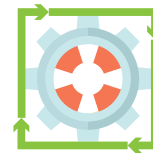
Activity 4 : Turtle rescue

Sea turtles can stay under water for up to five hours.

Save the sea turtles who got caught under the oil spill! Collect any sea turtles that have been harmed and bring the back to be cleaned and returned home.

Collect
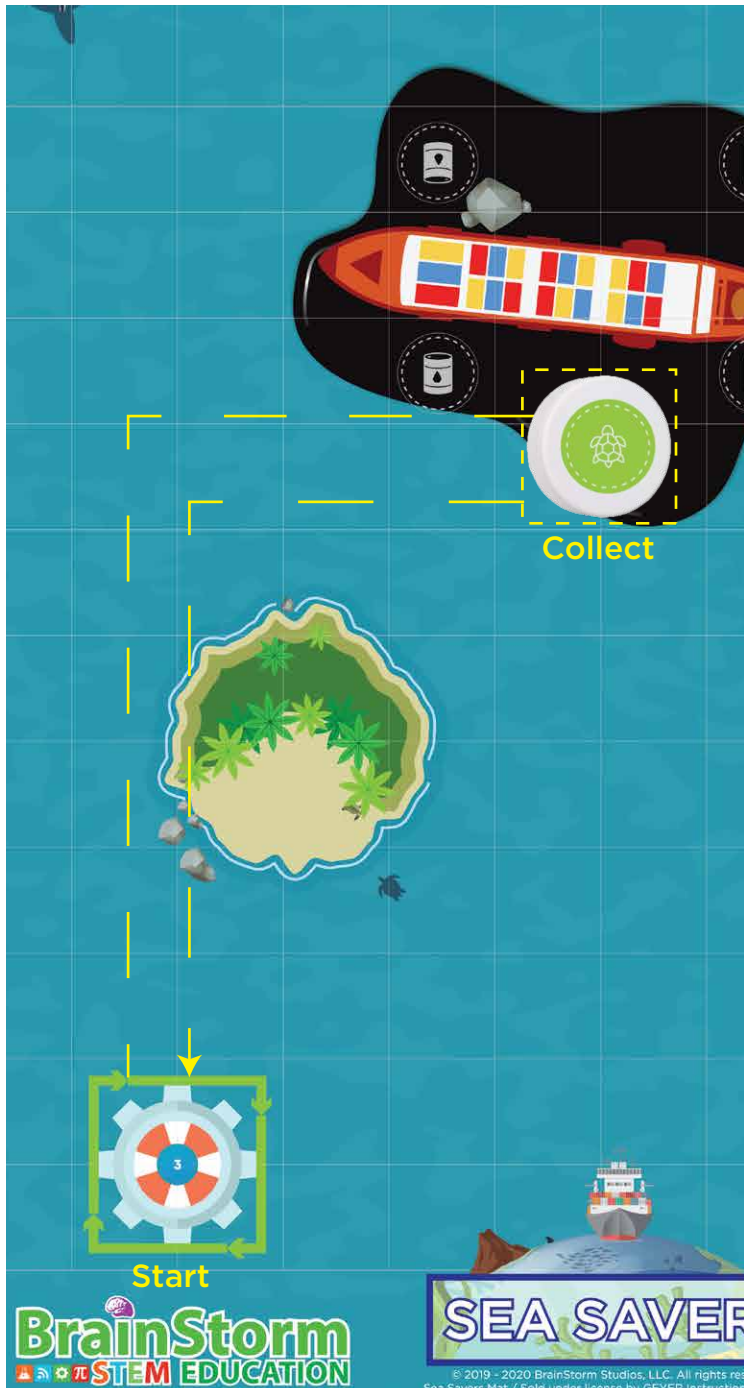
Start

How To Use:

1. Robots will start in the starting squares marked with a #3.
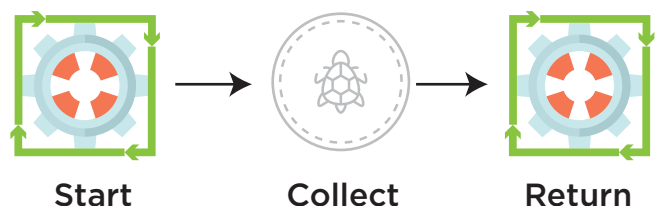
2. Analyze the mat and visualize the direction(s) needed for the robot to navigate through the Ocean to complete the objectives.
(Tip: program your code two sequential commands at a time).

3. Code the sequential navigation commands into the robots program.

4. Place the robot in the specific starting square and execute the program.

5. Repeat steps 2-4 until the robot has collected the turtle game piece and returned it back to their starting position
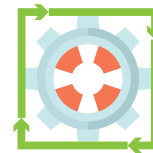
Start   Collect   Return

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Activity 5 : Treasure hunter

The largest treasure discovery was worth about $3.2 millions

The sea leveled has lowered and a nearby shipwreck is now visible. See if you can find any treasure off the coast and bring it back to help fund more conservation.

Collect

Start

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How To Use:

1. Robots will start in the starting squares marked with a #4.

2. Analyze the mat and visualize the direction(s) needed for the robot to navigate through the Ocean to complete the objectives.
(Tip: program your code 2 sequential commands at a time).

3. Code the sequential navigation commands into the robots program.

4. Place the robot in the specific starting square and execute the program.

5. Repeat steps 2-4 until the robot has collected the treasure game piece and returned it back to their starting position

Start   Collect   Return