

AGES  
12-14



# FINAL MISSION

INTRODUCTION:

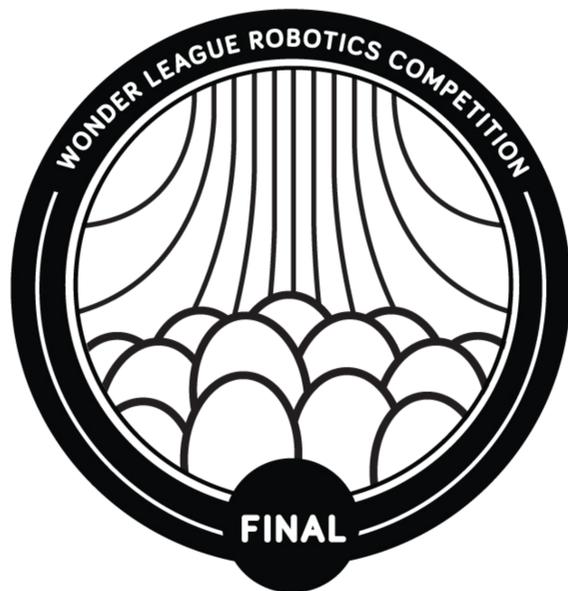
MESSAGE SENT 06:18

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The mysterious sea creature that you were able to rescue and bring back to the research ship is now safe to be released. And what a surprise—during examination, your team discovers that the sea creature is a mother and must have just laid eggs. Your team is desperate to return the sea creature back to its natural habitat and reunite the creature with its future babies.

Be sure to learn all you can about the mysterious sea creature so that you can share your findings at the Global Oceanography Foundation Summit, where you and your team will be giving a presentation among your colleagues.

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MATERIALS NEEDED:

- 5x8 30 cm gridded map
- Cue
- Cue app
- Programming device
- Sketch Kit
- DIY materials for obstacle creation (art supplies)
- DIY materials for tracking device and attachment construction
- Blank paper, size 8.5" x 11" (215.9mm x 279.4mm) works great
- 3 ping pong balls (to represent the sea creature eggs)
- 3 plastic bottle caps
- 8 18 oz. cups (less if you create your own obstacle objects)
- Tape

TEAM NAME:

DATE:

TEAM MEETING #:

MORE INFORMATION

<https://www.makewonder.com/education/robotics-competition>



GRID LAYOUT:

E								
D								
C								
B						 		
A							 	
	1	2	3	4	5	6	7	8

KEY



= THE RESEARCH SHIP & THE START LOCATION



= RELOCATION SPOT WITH NEST



= BABY SEA CREATURES



= FOOD SOURCE



= PREDATOR



= POLAR VORTEX

SET UP:

- 1 Place Cue in **A1**.
- 2 Place the sea creature eggs (3 ping pong balls) on top of the upside down bottle caps anywhere within **A8** and **B7**. One ball per cap.
- 3 For the relocation spot, place cup right side up in the center of **C3**, **D3** and **C4**.  
*Hint: We recommend that you tape them down onto the mat.*
- 4 For the polar vortexes, place an upside down cup in the center of **C7** and **B8**.
- 5 For the predator locations, place an upside down cup in the center of **C2**, **D4**, and **C5**.
- 6 To set up the 4 food sources, see your first challenge.

YOUR CHALLENGE (PART 1) - DRAWING FOOD SOURCES:

- 1 Use Cue and your Sketch Kit to illustrate your story and your map by drawing 2 of the following shapes from below. One of the shapes has to include a polygon that is reflected at least once along a line of symmetry. See example below.

We recommend that you draw your shapes on a 8.5 inches x 11 inches sheet of paper. This fits nicely within one of the mat cell sizes.

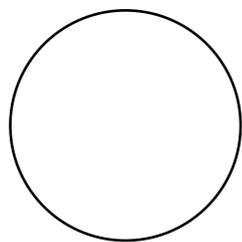
- 2 Once Cue has drawn out each shape, feel free to add your creative touch to the shapes however you wish by using Cue or your own hands.
- 3 Using tape, secure your drawings to your mat to help represent the food source in **D1, E1, A7** and **B7**.

YOUR CHALLENGE (PART 2) - TRACKING DEVICE:

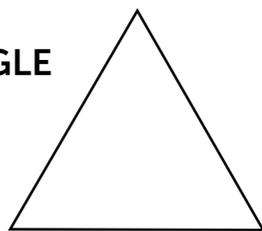
- 1 First, create a tracking device (can be anything from a label to a LEGO piece that is attached to Cue) so that you can follow the creature back to its babies and learn all that you can about its natural habitat and behaviors.
- 2 Program your sea creature (Cue) to navigate from the research ship in **A1** to both **A7** and **B7** where there have been reports of similar creatures. Be sure to avoid the various obstacles (polar vortexes and predators) that could hinder the sea creature along its journey, and be sure to stop in at least one of the various locations where the sea creature can find food for its long journey.

EXAMPLES FOR DRAWINGS:

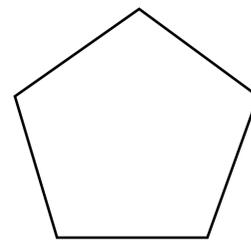
CIRCLE



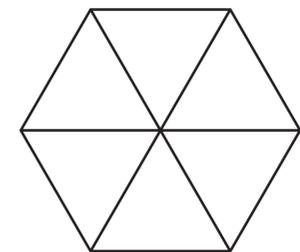
TRIANGLE



PENTAGON



REFLECTION



YOUR CHALLENGE (PART 3) ATTACHMENT BUILDING:

- 1 Now that you have reached the mysterious sea creature's babies, you quickly realize that the sea creature and its unborn babies are in danger. The habitat that they are nesting in has been jeopardized. It is in the path of the polar vortex, and the creatures won't be able to survive the cold currents.
  
- 2 Help the mother sea creature and its babies get to a safer spot by creating an attachment that can safely and carefully transport the 3 babies from their two nesting spots to the relocation area by dropping all three into one of the three new relocation nests (be careful not to let the babies go into dangerous waters by entering a predator or polar vortex cell).

CHALLENGE POINTS:

- 5 POINTS** Constructing an original tracking device
- 10 POINTS** Per shape that Cue can draw from the identified shapes **(10x2 = 20 points maximum)**
- 20 POINTS** Constructing an original attachment to help move the baby sea creatures to safety
- 30 POINTS** Successfully relocating the 3 baby sea creatures to one of the relocation nests

*(5 + 10 + 10 + 20 + 30 = 75 possible challenge points)*

BONUS POINTS:

*(20 + 15 + 5 + 5 + 5 = 55 possible bonus points)*

- 20 POINTS** Thematic set design (think decorating the map, the obstacles, and anything else to add to your story and presentation)
- 5 POINTS** Dressing up and naming Cue as the mysterious sea creature
- 5 POINTS** Having Cue use multiple colors in your drawings
- 15 POINTS** Creating an attachment that can get all 3 sea creature babies at the same time and deliver each one to its very own relocation nests in one run (1 egg per nest)
- 5 POINTS** Passing through at least one food source cell to help nourish the sea creature
- 5 POINTS** Adding sea creature sounds in the program as Cue moves along the route

TOTAL POINTS EARNED:

CHALLENGE POINTS

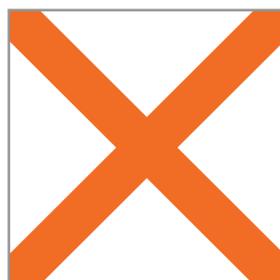
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BONUS POINTS

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MISSION SCORE

## TURN IN:



As your team's evidence for the Final Mission, please remember to record all your hard work, along with a screenshot of your Block & JavaScript program. Your coach can then turn in all of your team's evidence for the Final Mission.

## TEAM JOURNALS:

- Take time to complete team logs (aka, journals) during your WLRC voyage. Your coach can find sample templates in the Coaches' Guide.
- As a team, set your goals, record your progress, document your successes (and failures), and note your reflections.
- Create a final presentation to illustrate your story and inform others of all that you have learned about this creature.
- Record a short video of Cue successfully running through your program for relocating the baby sea creatures.
- Record a short video of Cue drawing the 2 different shapes. You can create 1 video for each drawing if you would like.

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MORE INFORMATION

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workshopIn Support With  
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