Name:_____

Plastic Bots

Problem	
Useful Questions	**Causes**

Name:_____

Plastic Bots Solutions

Strategy	Explain how this will solve the problem	Sketch
The Ocean Clean Up **https://www.theoceancleanup.com/milestones/north-sea-prototype/** **Floating Screens**		
Bucket (first solution in article)		
Trash Eaters		
Other: Find another solution Source: _____		

Name:_____

Plastic Bots

Design Brief:	The numbers are staggering: There are 5.25 trillion pieces of plastic debris in the ocean. Of that mass, 269,000 tons float on the surface, while some four billion plastic microfibers per square kilometer litter the deep sea.
Problem:	Plastic heavily pollutes the world's oceans
Solution:	Humans can create devices to collect the plastic debris
Task:	Design a shell that will fit onto the sphero that will collect plastic debris from a model ocean

Initial Design: Draw an initial design of a solution to the problem.

Top View	Side View
	

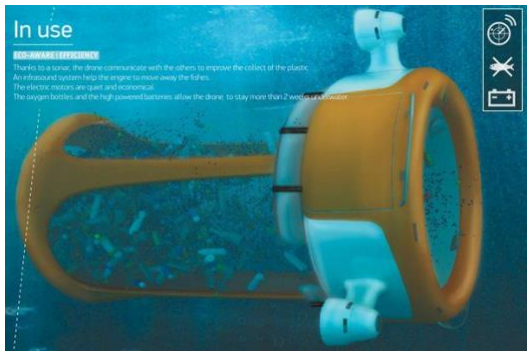
Name:_____

Save the Oceans Project

Design Brief:	The numbers are staggering: There are 5.25 trillion pieces of plastic debris in the ocean. Of that mass, 269,000 tons float on the surface, while some four billion plastic microfibers per square kilometer litter the deep sea.
Problem:	Plastic heavily pollutes the world's oceans
Solution:	Humans can create devices to collect the plastic debris
Task:	Design a shell that will fit onto the sphero that will collect plastic debris

Criteria/Constraints

1. The device must collect as much plastic as possible (pushing it to your goal)
2. Must be 9 cm in height **part of each side*
3. Must use the provided top
4. Must use approved materials
5. 75 gram mass limit (the shell not the mounting unit)



Name:_____

First Design

Design (top view)	Design (side view)

Useful Observations for improvement

-
-

How are you going to improve on this design? (2 changes)

-
-

Name:_____

Second Design

Design (top view)	Design (side view)

Useful Observations for improvement

-
-

How are you going to improve on this design? (2 changes)

- _____
- _____

Name:_____

Final Design

Design (top view)	Design (side view)

How are you going to improve on this design? (2 changes)

- _____
- _____

Name:_____

Plastic Bots Investigation

Target Question: Which Solution is most effective?

Directions: Use this table to organize your testing evidence. **Evidence**

Bot Name	**Useful Observations from Testing**	**Total Plastic Collected** *Mass*	RANKING	**Reasoning** *explain how you used the evidence to rank each solution

Generates and compare multiple solutions that solve a real world problem * *evidence focus is on patterns and cause and effect relationships*		
1	**2**	**3**
Is unable to evaluate the merit a solution with evidence	Is able to evaluate the merit of one solution with one type of evidence to support their claim **Accuracy** **Claim:** Is accurate or logically connected to one type of evidence (observation) **logically connected means the claim makes sense based on the students thinking but may not be accurate* **can be applied to content mastery evaluation*	Is able to evaluate the merit of more than one solution using multiple types of evidence to support their claim **Accuracy** **Claim:** Is accurate and fully supported by their evidence **can be applied to content mastery evaluation*