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Designing Solutions to the Marine Debris Problem

Student Worksheet

Part I: What's the Problem?

View the following videos:

- Trash on the Spin Cycle
- Where Does Marine Debris Come From?

In your own words: What is marine debris? Why is it a problem?

Members of my team are: [list names below]

My team's statement of the marine debris problem:

Brainstorming guidelines

- Brainstorming is about quantity of ideas, not quality of ideas.
- Whenever you come up with an idea, call it out to your teammates.
- Write each new idea on a single post-it note or index card. Try to make the ideas legible and readable for others.
- Even a seemingly silly or small idea can spark other ideas that lead to good solutions.

Part 2. Criteria for Success

List the criteria that the class came up with in the space below:

Part 3. Designing a Solution

Work with your team to fully develop the details of your solution. Your team will deliver a 5-minute presentation to share your solution with the rest of the class. Use the following questions to help you prepare your presentation:

1. What is the name and basic description of your solution? (This can be a product or process.)
2. Try to make detailed sketches to clearly indicate the parts of your design, where possible.
3. How does your solution address the criteria that you listed above?
4. Describe the end user (who will use or do this). Try to define the end user as much as possible (age, use case, context of use, etc.).
5. What are the constraints of your solution? Describe any restrictions or limitations that your solution will face. Consider social and environmental impacts, limits on size and weight, etc.

Use the data and information from the resources found in the Marine Debris Information Sheet to provide specific details that your team's solution will address.

Part 4: Peer-Review Feedback

In the space below, write any notes about the feedback, questions, or suggestions that your team received from the presentation of your solution:

Part 5: Redesign and Finalize

Based on the feedback that your team received from your presentation, list and describe changes that your team will make to your solution:

How will you know if your team's final design (of a way to address marine debris) will be successful? Describe below how your final plan will meet the criteria for success listed on page 2:

Answer the following questions individually:

Why is it a good idea to keep testing a design?

What do you think are the best features of your design? Why?

What was the hardest part of the problem to solve?