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Date: _____

Class: _____

Boyan Slat & The Ocean Cleanup

Green Tech Worksheet Series

In 2011, a 16-year-old Dutch student named Boyan Slat went scuba diving in Greece. Instead of marveling at colorful fish and coral, he was shocked to find more plastic bags in the water than sea life. This sparked a question that would change his life: "Why don't we just clean it up?" When he researched the problem, experts told him that cleaning the massive ocean garbage patches was impossible. They believed that using boats with nets would take thousands of years, cost billions of dollars, and cause massive carbon emissions from boat engines.

Slat realized the experts were looking at the problem the wrong way. Instead of chasing the plastic using active boats and nets, why not let the ocean clean itself? He designed a passive system: a massive, U-shaped floating barrier that drifts with the natural ocean currents. Because plastic floats, it gets swept into the center of the barrier. A solid "skirt" hangs a few meters below the surface to stop plastic from escaping underneath, but it contains no nets. This allows fish and other marine life to safely swim under the skirt without getting tangled.

At age 18, Slat founded the non-profit organization "The Ocean Cleanup." Despite his young age, his brilliant engineering concept and a viral TEDx talk helped him raise millions of dollars to build prototypes. Today, his systems are actively sweeping the Great Pacific Garbage Patch, capturing everything from massive abandoned fishing nets down to tiny microplastics. Ships visit the system periodically, scoop out the concentrated plastic like a garbage truck, and bring it back to land to be recycled.

But Slat didn't stop at the ocean. His team realized that 80% of ocean plastic actually comes from just 1,000 rivers around the world. To solve the problem at its source, The Ocean Cleanup invented "The Interceptor." This is a 100% solar-powered, automated barge placed in highly polluted rivers. It catches the trash before it ever has a chance to reach the sea. Slat's ultimate goal is to remove 90% of floating ocean plastic by 2040, proving that youthful innovation can solve some of the planet's biggest problems.

PART 1: MULTIPLE CHOICE

Circle the letter of the best answer.

1. Why did experts initially believe cleaning up the ocean garbage patches was "impossible"?

- A. Plastic naturally dissolves in saltwater, making it impossible to scoop up.
- B. Using traditional boats and nets would be too expensive, slow, and polluting.
- C. The plastic is buried deep under the sand at the bottom of the ocean.
- D. No one knew where the Great Pacific Garbage Patch was located.

2. How does Boyan Slat's ocean system capture plastic without harming marine life?

- A. It uses chemical sprays that dissolve plastic but don't hurt fish.
- B. It is equipped with underwater lasers that scare fish away.
- C. It uses a solid skirt instead of a net, allowing fish to swim safely underneath.
- D. It uses giant vacuums that only suck up specific types of plastic.

3. What is the primary purpose of "The Interceptor"?

- A. To catch plastic in highly polluted rivers before it reaches the ocean.
- B. To map out new garbage patches from space.
- C. To recycle the collected ocean plastic into new products.
- D. To generate solar power for coastal cities.

PART 2: SHORT ANSWER

Write your answers in complete sentences based on the reading passage.

4. What does it mean that The Ocean Cleanup uses a "passive" system rather than an "active" one?

5. Explain the two-pronged approach The Ocean Cleanup uses to achieve their goal of removing 90% of floating ocean plastic. Where do they focus their efforts?

PART 3: CRITICAL THINKING

6. Boyan Slat began designing The Ocean Cleanup as a high school project when he was only 16 years old. How does his story change the way we think about who is qualified to solve major global issues? Identify a problem in your own school or community—what is a creative, technology-based idea you could develop to help fix it?
