20 MINUTE GRADES OF GREEN TEAM ECO-ACTIVITES

GRADES of green
www.gradesofgreen.org

APPLICABLE TO:
- [ ] AIR
- [ ] ENERGY
- [ ] WATER
- [x] WASTE
- [ ] TOXINS

RECOMMENDED AGE:
- [ ] ELEMENTARY SCHOOL
- [x] MIDDLE SCHOOL
- [x] HIGH SCHOOL
- [ ] COLLEGE

COST:
- [x] FREE
- [ ] $1 - $15
- [ ] $16 - $50
- [ ] $50 and more

REINFORCES:
- [x] CRITICAL THINKING
- [ ] COMMUNICATION
- [ ] CREATIVITY
- [x] COLLABORATION

2-PART 40 MINUTE ACTIVITY: OCEAN POLLUTION & GYRES

OVERVIEW:

This mini-activity is a great way to engage your Grades of Green Team students in learning about ocean pollution. When people litter, that litter has a harmful impact on our planet. For example, plastics can turn into microplastics, which end up in our ocean gyres. Gyres are swirling vortexes created by the surface circulation of our oceans. Did you know that Gyres filled with pieces of trash can be thousands of miles in diameter? For example, the Great Pacific Garbage Patch, a “plastic soup” of marine debris in the North Pacific Ocean, is larger than Mexico! Plastics, especially single-use plastics such as bottles and wrappers, which contain toxic chemicals, end up in our oceans and cause damage to marine ecosystems. These plastics may travel down rivers or through storm drains, blow out of trashcans, be dumped off ships, or be left on the beach.

Part 1 of this activity is a litter audit that helps students to identify sources of single-use plastics on their school campus. In Part 2, students will build a model of how these plastics accumulate and are distributed in our waterways, and will be challenged to identify solutions to minimize plastic litter on campus.

MATERIAL CHECKLIST

- [ ] Litter Observation and Audit Report (PDF)
- [ ] Pencils
- [ ] Plastic tub(s) or large bowl(s), ideally see-through
- [ ] Water
- [ ] Bags or boxes- for collecting litter
- [ ] Gloves for collecting litter (optional)
- [ ] Spoon(s) or large sticks(s)-for stirring

ACTIVITY STEPS

PART I: LITTER AUDIT:

1. Before you begin, print out enough copies of Grades of Green’s Litter Observation and Audit Reports for each group of 2-5 students to have one.

2. Brainstorm with your Grades of Green Team to make a list of areas on campus where litter collects such as hallways, the schoolyard, the cafeteria, or even inside the classroom.
3. Divide your Grades of Green Team into groups of 2-5 students and assign each group an area on campus from your list identifying where litter accumulates.
4. Each group will bring their Litter Observation and Audit Report and a pencil to their area to record the type of litter they observe, the number of items of each type, and any additional observations about why the litter is there and how it could be prevented. Once they have counted and recorded the litter, the groups will collect the litter in a collection bag or box and bring it back to the classroom.

PART II: OCEAN GYRE MODEL AND LITTER BRAINSTORM

5. Once the Litter Audit Reports are completed and each group has collected the litter from their assigned areas, give each group a plastic tub or large bowl and a stirring spoon.
6. To create a model of an ocean garbage patch, have each group fill their plastic tub or large bowl with water - this body of water represents the ocean. Next, each group will pour their collected litter into the water. Note that only small litter scraps may fit in the container, so larger pieces of trash should not be added.
7. Assign one student in each group to stir the water with a spoon or large stick to create a swirling vortex - this vortex represents the ocean gyre. Choose another group member to take notes as students make observations about what happens to the litter as it is stirred. Encourage students to take turns stirring and experimenting with the gyres as they make observations.
8. OPTIONAL: All groups can add their litter into one large bowl/bucket to create one group demonstration.

   Suggested Observation Questions:

   - How is the litter distributed in the tub when a gyre is created? What kinds of litter sink to the bottom and what litter floats?
   - What effects could small pieces of trash have on the marine ecosystem? Large pieces of trash?
   - Describe what would happen to the different kinds of litter in the gyres over a long period of time. Would it fragment into smaller pieces or stay whole? Would it move or stay in one place?
     *Note: If your container is not transparent, you may want to siphon off the top layer of litter to see what sank to the bottom.

9. Based on each group's observations from the Litter Audit Reports, identify the top 3 types of plastic litter on campus. Brainstorm and take notes on the ways that these types of litter could be prevented or recycled, and the next steps that the Grades of Green Team will take during their next meetings to take action. For example, if your group observed many single-use plastic bottles, they could create a bottle-cap poster or bottle display to raise awareness about plastic pollution, or make school-wide announcements to promote re-suable bottles.

RECOMMENDED GRADES OF GREEN ACTIVITIES:

- Adopt a Spot
- Recycled Art
- Waste Audit

ADDITIONAL RESOURCES:

- Video: Ocean Heroes- What is a Gyre? – 5 Gyres Institute
- Video: One World One Ocean Plastics Breakdown
- Video: Ocean Heroes: The Plastics Problem—5 Gyres Institute