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## SCIENCE: PROTECTING THE ENVIRONMENT

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Part of the growing interest in Science, Technology, Engineering, and Math (STEM) education has been the push to make science and math more interesting and hands-on for students. Teachers are increasingly looking for ways to change the teaching of science and math from rules and formulas to problem solving and critical thinking. In this week's Teacher's Corner, we will take a fun and creative approach to science by encouraging students to think of problems in their own environment and to create solutions.

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### LEVEL

Intermediate to Advanced

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### LANGUAGE FOCUS

Reading, speaking (primary focus); writing (secondary focus)

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### GOALS

During this activity students will do the following:

- Practice reading skills related to the environment
- Develop speaking skills by recording an environmental project video

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### MATERIALS

- Teacher: whiteboard/chalkboard, markers/chalk, a timing device
- Students: pencils or pens, notebooks or writing paper, recording devices
  - **Note:** This activity involves students creating videos. This can be done on most mobile phones. If video recording is not possible, the project can be done with an audio recording. If mobile phones or other recording devices are not available, students can create environmental reports on paper.

## PREPARATION

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1. Read through all the materials carefully.
2. Print out copies of Appendix 1.
3. This activity occurs across several days and includes the following activities: a homework assignment, a classroom activity about the environment, and an environmental field report. For the environmental field report, students are tasked with visiting a local area where an environmental issue occurs. If this is not possible for the students, they can still create a video where they discuss a local issue without visiting the site.

## ACTIVITY PART ONE: TRACE EFFECTS HOMEWORK

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In this part of the activity, students will read [Chapter 4 of \*Trace Effects\*](#). In this chapter, the characters work to clean up an area near the Grand Canyon in the United States.

1. Begin this activity at the end of the class session the day before the class session in which Activity Part Two takes place.
2. Students should read [Chapter 4 of \*Trace Effects\*](#) for homework.
  - a. **Note:** If you are new to *Trace Effects* and the storyline of Chapter 4, see the [Trace Effects Teacher's Manual Chapter 4](#) for more information.
  - b. An alternative to assigning the reading of this chapter as homework would be to have students read it together in class. This may be more suitable for lower-level learners.

## ACTIVITY PART TWO: ENVIRONMENT IN THE CLASSROOM

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1. Begin the class by checking the students' understanding about the reading homework by asking these comprehension questions:
  - a. What state does Trace visit? (Answer: *Arizona in the United States*)
  - b. Who does he meet? (Answer: *George*)
  - c. What is George trying to do? (Answer: *Clean up the environment.*)
2. Next, have the students form pairs or small groups. Each group will need one sheet of paper and a pen or pencil.
3. In their groups, have the students list the three places that George and Trace visit and work to clean up.
4. Write these words on the board: "Reduce, Reuse, Recycle." Ask the students if they know the meaning of the terms. Ask the students:
  - a. Who do George and Trace ask to recycle? (Answer: *They ask the Walkers to recycle.*)
  - b. Who do George and Trace ask to reuse? (Answer: *They ask Sydney and Sierra to reuse.*)
  - c. Who do George and Trace ask to reduce? (Answer: *They ask Zach to reduce.*)
5. Next, give each pair or small group a copy of the Reduce, Reuse, and Recycle worksheet in Appendix 1.
6. Challenge the groups to brainstorm as many ideas as possible about how to reuse the three items George and Trace found: plastic bottles, plastic bags, and newspapers. Set a timer depending on the level of your students or the time remaining in class.

7. Once time is up, have the groups share their ideas with the class. The groups can vote on the best ideas, or the pair or small group with the most ideas can be made the winner.
8. For homework, assign Activity Part Three to the class.

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### ACTIVITY PART THREE: ENVIRONMENTAL REPORT

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For Activity Three, students will work in groups to create short videos to identify a local environmental issue and to present ways to help solve the problem.

1. As homework, each group of students will select a location in the local area that could benefit from environmental clean-up.
2. Student groups will coordinate to visit that area.
3. At the location, have the students record a short video to show the location and describe the environmental issues there.
4. After showing the location and describing the environmental issue, have the students record themselves explaining how the location could be cleaned up and improved.
  - a. What items in the area can be recycled?
  - b. Can any of the items in the area be reused? How?
  - c. What else can be done to improve and clean up this area?
5. In the next class, have students share their videos with the class.



**Optional activity:** If possible, after the class has watched all the videos, have them pick one of the locations and organize a clean-up day!

For more on bringing environmental issues into the classroom check out:

[Integrating Environmental Education into a Genre-Based EFL Writing Class](#)

[Going Green: Merging Environmental Education and Language Instruction](#)

## Appendix 1: Reduce, Reuse, and Recycle

**Directions:** For each of the items on the left brainstorm ways to reduce using them, ways to reuse them, or what could be made if they were recycled.

|                 | Reduce | Reuse | Recycle |
|-----------------|--------|-------|---------|
| Plastic Bottles |        |       |         |
| Plastic Bags    |        |       |         |
| Newspapers      |        |       |         |

**Directions:** For each of the items on the left, brainstorm ways to reduce using them, ways to reuse them, or what could be made if they were recycled.

|                 | Reduce | Reuse | Recycle |
|-----------------|--------|-------|---------|
| Plastic Bottles |        |       |         |
| Plastic Bags    |        |       |         |
| Newspapers      |        |       |         |



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