**Environmental Pollution Poster**

In this lesson, students will read an article to extend their understanding of environmental pollution and the role humans have played in harming our planet. Students will combine information from the article with their prior knowledge to create a persuasive poster that convinces people to be concerned about the harms of environmental pollution and that provides suggestions for reducing and/or combatting it. To make this lesson even more authentic for your students, hang their completed posters around your school and/or community!

**Standards:**

**Next Generation Science Standards:**

* **5th Grade**
  + **5-ESS3-1** – Obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources and environment.
* **Middle School**
  + **MS-LS1-1** – Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.
  + **MS-LS2-4** – Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.
  + **MS-ESS3-3** – Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
  + **MS-ESS3-4** – Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth’s systems.
  + **MS-ESS3-5** – Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.

**Common Core State Standards:**

* **5th Grade**
  + **CCSS.ELA-Literacy.RI.5.2** – Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.
  + **CCSS.ELA-Literacy.RI.5.3** – Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.
  + **CCSS.ELA-Literacy.W.5.2** – Write informative/explanatory texts to examine a topic and convey ideas and information clearly.
  + **CCSS.ELA-Literacy.W.5.4** – Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.
  + **CCSS.ELA-Literacy.W.5.10** – Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.
* **Middle School**
  + **CCSS.ELA-Literacy.RST.6-8.2** – Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions.
  + **CCSS.ELA-Literacy.WHST.6-8.2** – Write informative/explanatory texts, including the narration of historical events, scientific procedures/experiences, or technical processes.
  + **CCSS.ELA-Literacy.WHST.6-8.4** – Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
  + **CCSS.ELA-Literacy.WHST.6-8.10** – Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

**Objectives:**

* Students will be able to list common types of environmental pollution and describe ways in which humans have contributed to this problem.
* Students will be able to create a persuasive poster that convinces people to be concerned about the harms of environmental pollution and that provides suggestions for reducing and/or combatting it.

**Lesson Duration:** approximately 55-80 minutes. We suggest breaking this lesson into two shorter sessions with students completing the reading and note-taking portion during the first session and creating their persuasive posters during the second session.

**Materials:**

* The Building Blocks of Chemistry series, specifically Environmental Chemistry
* Environmental Pollution Article
* Optional: Environmental Pollution Detailed Article (written at a higher Lexile level and with greater detail)
* Note-Taking Guide
* Paper for students to use to create posters (large construction paper, chart paper, poster paper, etc.) (1 per student)
* Pencils
* Markers, crayons, and/or colored pencils
* Optional: additional art supplies such as scissors, glue, or scrap paper you may have that will enhance students’ posters

**Requisite Prior Knowledge:**

* Prior to engaging in this lesson, students should read the Building Blocks of Chemistry; Environmental Chemistry text. Students should understand that the actions people take every day affect our environment, often in negative or problematic ways.
* Students should also have background knowledge about how changes in Earth’s temperatures and general climate not only affect individual animals and plants, but also affect entire ecosystems. Pollution can cause negative ripple effects that even further cause harm to our environment and planet.

**Assessments:**

* Note-taking guides
* Persuasive posters

**Vocabulary:**

* Air pollution – the contamination of the air especially by industrial waste gases, fuel exhaust, or smoke
* Soil pollution – the destruction of Earth’s thin layer of healthy, productive soil; often damaged by an overuse of fertilizers and pesticides
* Water pollution – harmful substances that contaminate a stream, river, lake, ocean, or other body of water, degrading water quality and making it hazardous to humans or the environment

**Differentiation Considerations:**

* Consider pulling a small group of struggling students to support their reading and note-taking needs.
* Consider pulling a group of students who need greater challenge and extend their learning by using the detailed version of the article as it is written at a higher Lexile level and contains more detail than the included article.
* In addition, opportunities for differentiation have been built into this lesson plan. For example, the differentiation strategy of choice is used throughout this lesson plan as students are allowed a choice of working independently or with a peer.

**Lesson and Instruction:**

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| **Lesson Components and Time Guidelines** | **Teacher Actions** |
| **Introduction/Hook**  Approximately 8-10 minutes | Have students use scratch paper to complete a “brain dump.” During a brain dump, students are encouraged to write anything they think about or wonder related to a particular subject. The goal of this is to activate students’ prior knowledge.  Provide students 2 minutes to brain dump everything they know about environmentalism. Challenge students to write the entire time.  Have students share what they brain dumped with a neighbor before calling on a few volunteers to share out. Consider picking specific students’ responses to address any misconceptions.  Explain that today students will put on the hat of an environmentalist, so to speak. First, they will read and take notes on an article about environmental pollution. Next, they will tap into their creative thinking skills to create a persuasive poster that is not only visually appealing, but that also provides people with valuable information they can use to help protect our planet. |
| **Direct Instruction and Modeling**  Approximately 7-10 minutes | Use this time to model for students how to use the note-taking guide to gather information, important details, and aha! moments from the article. Consider reading the first three paragraphs (the introduction) in the whole group setting to support your model.  Depending on the needs of your students, also consider using this time to preview the poster expectations. If your students would benefit from this overview closer to the time they will be creating their posters, feel free to review the expectations right before transitioning to the independent work setting. |
| **Application Activity**  Approximately 20-25 minutes | During this time, students should transition to reading the Environmental Pollution article and taking notes. Provide students a choice of completing this portion of the lesson independently or with a self-selected peer, as choice is a strong motivator and differentiation strategy.  Consider pulling a small group of struggling students to support their reading and note-taking or pulling a group of students who need greater challenge and extend their learning by using the detailed version of the article. |
| **Independent Application**  Approximately 20-25 minutes | Once students have read the article and completed their note-taking guide, they should transition to the independent setting to complete their persuasive poster. Their poster should include the following:   * A description of a particular kind of pollution (air, water, soil, garbage, noise, or light) * Why that type of pollution is harmful * How humans have contributed to the problem * At least one way in which people can work to reduce or combat that type of pollution * At least two visuals/images to help bring the poster to life |
| **Closure**  Approximately 10 minutes | When students finish, have them transition to small groups of about 4 to share their creations. After each person shares, other members should provide positive comments as well as areas for growth in the future.  Review the objectives and share your intentions for your students’ posters. Consider brainstorming as a class where to hang the posters so they have the greatest impact on their peers and in their community. |

**Next Steps and Reflection:**

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| What went well? |  |
| What changes might be beneficial? |  |
| Reteaching needs |  |
| Extension needs |  |