



Electromagnetic Radiation Project

By: Amanda Martin
Elementary school music teacher; M.A.Ed. In Curriculum and Instruction

Science
Grades 9–12



Introduction

Electromagnetic radiation happens all around us each and every day! In this lesson, students will research examples of electromagnetic radiation. Students will complete a project where they will cite evidence for the claims and reasoning surrounding a specific electromagnetic radiation example and create a poster board to display their findings.

Learning Objectives

Students will evaluate the claims, evidence, and reasoning behind the idea that electromagnetic radiation can be described either by a wave model or a particle model, and that for some situations one model is more useful than the other. ([Next Generation Science Standard HS-PS4-3 Waves and their Applications in Technologies for Information Transfer](#))

Materials Needed

- [Electromagnetic Radiation notes sheet](#)
- Laptops/computer access
- Poster board
- Colored pencils, pens, markers, crayons
- Sticky notes

Procedure

1. Discuss electromagnetic radiation. Students should be given an Electromagnetic Radiation sheet (see below) to take notes. Then, extend the discussion to how electromagnetic radiation travels. Discuss the following questions:
 - What are waves?
 - What are particles?

Give students examples of each type (waves/particles) to help them develop a better understanding of how electromagnetic radiation travels.

2. Explain that students will be researching specific, everyday life examples of electromagnetic radiation. Students should be paired together (or work in groups of three) and allowed the use of a laptop or computer.

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Partners/groups should be assigned an example of electromagnetic radiation that can be found/used in our everyday lives. Students will use laptops to research the claims, evidence, and reasoning pertaining to their specific example. Students will be given a piece of poster board. Students should create a visually attractive display of their findings using colored pencils, markers, pens, and/or crayons. Student work should include the following items: claims concerning their example, reasoning and/or evidence proving or disproving those claims, use of color and variety. In addition to the poster board, students must record their sources on a Works Cited page and attach it to the back of their poster board.

• Examples of Electromagnetic Radiation:

- X-rays
- Smartphones/cellphones
- Wi-Fi
- Microwaves
- Bluetooth
- TVs
- Sun tanning and sun burns

You may decide to allow students time to research and complete their poster boards during class time, or you may ask students to complete the project as homework.

3. When students have finished their poster boards, they will now participate in an activity called Silent Feedback. In order to give feedback, groups should leave their poster boards on a desk or table for others to view. Students will visit the poster boards of their classmates and provide “silent” feedback for each by writing the feedback down on sticky notes. Feedback should either reinforce something that the group did well/correctly or refine something that the group could improve upon. Allow students roughly 10 minutes to complete this portion of the lesson, and when time is up, groups may return and review the feedback received from their peers.

Evaluation

See rubric on the next page.



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Electromagnetic Radiation Project			
	3 Above & Beyond	2 Acceptable	3 Unacceptable
Poster uses color and variety.			
Claims are present and in detail.			
Evidence and reasoning are thorough.			
Works Cited page is attached to the poster board.			