## **Core Skills Analysis**

## Physics

- The 14-year-old student has gained a deep understanding of the properties and behavior of electromagnetic waves, including their speed, energy, and propagation.
- Through the activity, the student learned how electromagnetic waves are categorized into different types such as radio waves, microwaves, infrared, visible light, ultraviolet, x-rays, and gamma rays.
- The student now understands the practical applications of electromagnetic waves in everyday life, including communication technologies, medical imaging, and security systems.
- By engaging in this activity, the student has developed a strong foundation in the fundamental principles of electromagnetism and wave behavior.

## Tips

Encourage the student to experiment with creating their own simple electromagnetic wave detectors using household items like aluminum foil, a radio, and a small light bulb. This hands-on approach can deepen their understanding and spark creativity in exploring electromagnetic phenomena.

## **Book Recommendations**

- <u>Electromagnetic Waves and Radiating Systems</u> by Edward C. Jordan, Keith G. Balmain: This classic book provides an in-depth understanding of electromagnetic wave theory and its practical applications, suitable for young learners interested in physics.
- <u>Understanding Physics Series: Electromagnetism, Optics and Quantum Mechanics</u> by Isaac Asimov: Isaac Asimov simplifies complex physics concepts related to electromagnetism in a way that is engaging and accessible to teenagers.
- Exploring the World of Physics: From Simple Machines to Nuclear Energy by John Hudson Tiner: This book covers a wide range of physics topics, including electromagnetism, in a narrative style that captivates young readers with real-world examples.