# **Core Skills Analysis**

## Science

- The student learned about magnetic forces by experimenting with how magnet tiles attract and repel each other, understanding the invisible force fields between magnets.
- Through stacking and connecting magnet tiles, the student explored concepts of geometry and physical structures, observing how forces interact to create stable or unstable shapes.
- The activity encouraged observation of cause and effect, such as noticing how the orientation of the tiles affects magnetic attraction, reinforcing the concept of poles in magnets.
- Manipulating the tiles helped develop spatial reasoning and introduced basic physical science principles related to magnetism and material properties.

# Tips

To deepen exploration, encourage the student to experiment with arranging the magnet tiles to form more complex geometric shapes and predict which structures will hold together based on magnetic attraction. Introduce concepts of magnetic poles by using labeled magnets or adding simple experiments to observe attraction and repulsion more explicitly. Additional hands-on activities could include creating simple magnetic mazes or using iron filings to visualize magnetic fields around the tiles. For further improvement, parents or teachers can ask open-ended questions about why certain tiles stick while others don't and encourage hypothesis formation and testing to advance scientific thinking skills.

## **Book Recommendations**

- <u>Magnets Push, Magnets Pull</u> by David A. Adler: An engaging introduction to the forces of magnetism, this book explains the push and pull of magnets through simple text and illustrations that relate directly to magnetic play activities.
- <u>The Magic School Bus: The Magnetic Field Trip</u> by Joanna Cole: This colorful and informative book follows Ms. Frizzle's class on a fun trip exploring magnetism and how magnetic forces work, perfect for young learners using magnet tiles.
- <u>Science Experiments with Magnets and Moving Things</u> by Robert Gardner: A practical guide with fun experiments exploring magnetism and motion, suitable for inspiring children to learn through play with magnetic toys like magnet tiles.

#### Learning Standards

- NGSS 2-PS1-1: Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties (magnetic properties).
- NGSS 3-PS2-2: Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion (predicting attraction/repulsion of magnets).
- CCSS.MATH.CONTENT.K.G.A.2: Correctly name shapes regardless of orientation or overall size (recognition of geometric shapes formed by tiles).