

## Core Skills Analysis

### Art

- The student learned about design and symmetry in creating the sundial, incorporating artistic elements while also focusing on functionality.
- Through the process of sketching and crafting the sundial, the student practiced precision and attention to detail, important skills in art.
- Exploring the use of different colors and materials for the sundial allowed the student to experiment and understand the impact of artistic choices.

### English

- The student worked on writing clear and concise instructions for the sundial project, enhancing their communication skills.
- Researching the history and significance of sundials introduced the student to informational reading and expanded their knowledge about time-keeping methods.
- Reflecting on their experience making the sundial, the student practiced writing descriptions and narratives to document their process and outcomes.

### History

- By learning about how sundials were used in ancient civilizations, the student gained insight into the importance of time measurement throughout history.
- Understanding the cultural significance of sundials in different historical periods provided the student with a broader perspective on time-keeping practices.
- Exploring the evolution of sundials over time helped the student connect technological advancements with societal needs and progress.

### Math

- Building the sundial involved concepts of angles, geometry, and measurement, offering a practical application of mathematical principles.
- Calibrating the sundial to accurately tell time required the student to apply division and multiplication skills, reinforcing mathematical operations.
- The student engaged in problem-solving by adjusting the sundial's position based on the angle of the sun, applying trigonometry concepts in a hands-on manner.

### Science

- The student learned about the Earth's rotation and its effect on the sun's position in the sky while aligning the sundial.
- Observing the shadow cast by the sundial provided a tangible demonstration of how sunlight interacts with objects, fostering an understanding of light and shadow.
- Exploring the concept of solar time versus standard time through the sundial project introduced the student to variations in time measurement methods.

### Social Studies

- Understanding how different cultures utilized sundials for time-keeping purposes enhanced the student's appreciation for diverse historical practices.
- Exploring the role of time-keeping devices in societal organization and daily life provided insights into the connection between technology and culture.
- Discussing the societal impact of accurate time measurement highlighted the significance of instruments like sundials in shaping human activities and schedules.

## Tips

For continued development following the sundial activity, encourage the student to explore other ancient time-keeping methods, such as water clocks or sandglasses, to further understand the evolution of time measurement. Additionally, encourage the student to design and create their own unique sundial variations, incorporating personal artistic touches or experimenting with different materials to enhance creativity and exploration in the project.

## Book Recommendations

- [The Sun Is Also a Star](#) by Nicola Yoon: A young adult novel exploring themes of destiny and time, perfect for a 12-year-old reader interested in the concept of time measurement.
- [The Boy Who Harnessed the Wind](#) by William Kamkwamba: An inspiring memoir of a young inventor overcoming challenges to create innovative solutions, sparking curiosity and creativity in young readers.
- [How We Got to Now: Six Innovations That Made the Modern World](#) by Steven Johnson: An engaging non-fiction book that traces the history of various inventions, including time-keeping devices, offering intriguing insights for young minds.