unit 25
Simple Machines, Complex Inquiry
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Click the lesson numbers below to navigate through the curriculum.

DESIGN CHALLENGE:
How can we design a compound machine to perform a simple task?

STORYLINE

In this unit, students learn about force, work and simple machines in order to apply this knowledge to an engineering design challenge where they create a complex machine. Students engage in the Science and Engineering Practices in order to develop knowledge of the core ideas related to work and simple machines. The unit prominently features the Crosscutting Concepts of Cause and Effect, Scale, Proportion, and Quantity and Systems and System Models.

The first lesson serves as review of forces in order to prepare students to apply this knowledge to understand work and how simple machines can be used to reduce the effort force required to do work. Then, students engage in scientific practices and begin to ask questions and plan their own investigations to construct their understanding of how inclined planes work. Next, students explore wheels and axles as well as pulleys through investigation and compare these simple machines.

Finally, students follow the engineering design cycle in order to choose which simple machine should be used in different scenarios and then combine these simple machines to make a compound machine to perform a simple