



**About *Amazing Machine!*
and the
Pennsylvania Academic Standards for Science and Technology,
By the End of Grade 4**

In *Amazing Machine!* students explore the inner workings of machines. Through interactive exhibits, students gain an understanding of how various components, which are actually simple machines such as pulleys, gears and screws, are combined into complex machines that perform complex tasks. They explore how energy and power are transformed into motion, and how various forms of control regulate that motion. They also trace the historical development of some technological designs. Concepts in the exhibit correlate to the following benchmarks that students need to acquire by the end of Grade 4, according to the Pennsylvania Academic Standards for Science and Technology:

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| 3.1.4 Unifying Themes | A. Know that natural and human-made objects are made up of parts.
B. Know models as useful simplifications of objects or processes.
E. Recognize change in natural and physical systems. |
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| 3.4.4 Physical Science, Chemistry and Physics | C. Observe and describe different types of force and motion.
D. Describe the composition and structure of the universe and the earth's place in it. |
| 3.7.4 Technological Devices | A. Explore the use of basic tools, simple materials and techniques to safely solve problems. |
| 3.8.4 Science, Technology and Human Endeavors | A. Know that people select, create and use science and technology and that they are limited by social and physical restraints.
C. Know the pros and cons of possible solutions to scientific and technological problems in society. |
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**About *Amazing Machine!*
and the
Pennsylvania Academic Standards for Science and Technology,
By the End of Grade 7**

In *Amazing Machine!* students explore the inner workings of machines. Through interactive exhibits, students gain an understanding of how various components, which are actually simple machines such as pulleys, gears and screws, are combined into complex machines that perform complex tasks. They explore how energy and power are transformed into motion, and how various forms of control regulate that motion. They also trace the historical development of some technological designs. Concepts in the exhibit correlate to the following benchmarks that students need to acquire by the end of Grade 7, according to the Pennsylvania Academic Standards for Science and Technology:

3.1.7 Unifying Themes

- A. Explain the parts of a simple system and their relationship to each other.
- B. Describe the use of models as an application of scientific or technological concepts.

3.4.7 Physical Science, Chemistry and Physics

- C. Identify and explain the principles of force and motion.

3.8.7 Science, Technology and Human Endeavors

- A. Explain how sciences and technologies are limited in their effects and influences on society.
 - C. Identify the pros and cons of applying technological and scientific solutions to address problems and the effect upon society.
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**About *Amazing Machine!*
and the
Pennsylvania Academic Standards for Science and Technology,
By the End of Grade 10**

In *Amazing Machine!* students explore the inner workings of machines. Through interactive exhibits, students gain an understanding of how various components, which are actually simple machines such as pulleys, gears and screws, are combined into complex machines that perform complex tasks. They explore how energy and power are transformed into motion, and how various forms of control regulate that motion. They also trace the historical development of some technological designs. Concepts in the exhibit correlate to the following benchmarks that students need to acquire by the end of Grade 10, according to the Pennsylvania Academic Standards for Science and Technology:

3.1.10 Unifying Themes

C. Apply patterns as repeated process or recurring elements in science and technology.

3.4.10 Physical Science, Chemistry and
Physics

C. Distinguish among the principles of force and motion.

3.8.10 Science, Technology and Human
Endeavors

A. Analyze the relationship between societal demands and scientific and technological enterprises.

**About *Amazing Machine!*
and the
Pennsylvania Academic Standards for Science and Technology,
By the End of Grade 12**

In *Amazing Machine!* students explore the inner workings of machines. Through interactive exhibits, students gain an understanding of how various components, which are actually simple machines such as pulleys, gears and screws, are combined into complex machines that perform complex tasks. They explore how energy and power are transformed into motion, and how various forms of control regulate that motion. They also trace the historical development of some technological designs. Concepts in the exhibit correlate to the following benchmarks that students need to acquire by the end of Grade 12, according to the Pennsylvania Academic Standards for Science and Technology:

3.1.12 Unifying Themes	A. Apply concepts of systems, subsystems, feedback and control to solve complex technological problems.
3.8.12 Science, Technology and Human Endeavors	A. Synthesize and evaluate the interactions and constraints of science and technology on society.
