Simple Machines Teacher & Parent Guide

The House and Tool Shed

Recommended Grade levels: 2 - 6

Tips for using the site with students:

1. Before using this activity in class (or at home with your kids) go through the activity once to make sure it works correctly on your computer(s).

2. If the activity does not load up after clicking the 'start' button, you may be asked to download a Flash Player from www.Macromedia.com. Please click yes as this allows you to view the Edheads Simple Machine Activity. You will then be asked to restart your computer. Once this Flash Player has been installed, you will never have to install it again.

3. Students in the target grade range will take about 8-10 minutes per 'room' working individually or in groups of 2-3. Students seemed to spend more time and have more fun working in small groups. If time is limited, teachers may want to consider assigning a certain number of rooms or specific areas for the students to experience. The House is identifying simple machines and the Tool Shed is identifying the simple machines that make up compound machines.

4. Students have the ability to print their scores after finishing all four rooms in the House and the Tool Shed. Teachers should make certain they know where the students' computers are set to print.

5. During testing, most students finished each room at roughly the same time. All students printing at the same time could potentially back up in a very long print queue or clog the school's network. Teachers may want to consider having students call out when they want to print, limiting the number of rooms students will print scores for or having students use multiple printers.

6. The purpose of the printable score sheet is to give teachers an idea of how students are performing within the site and what their knowledge level is. Many students prefer to go through a room 2-3 times in order to get their scores up. Teachers may choose to ask that students only print the scores from their first time through a room.

7. After students use the site, teachers may want to discuss with their classes why certain objects were the simple machines indicated. Leading questions such as "would the fan blades work as well as they do tilted, if

they were flat?" will get students thinking about WHY the blades of a fan can be considered inclined planes. Many students will ask questions about the same objects and this can generate excellent classroom discussion about the properties of the various simple machines.

Printable activities for use in class:

1. Pre and post test – visit simple machines teacher & parent info section to download

Ohio & National Science Standards

While the new Ohio Academic Content Standards for Science no longer specifically mention Simple Machines, there are many standards that can be met by teaching Simple Machines or using them to illustrate the various concepts outlined below. Many of the Columbus Public School Benchmarks above could be taught simultaneously with the State Standards. The standards below could be met or expanded upon by the Simple Machines activities on the Edheads site.

Physical Science Standards

Grade 1:

Explain or predict the motion of an object.

Explore the effects of some objects on other objects, even when the two objects might not touch.

Investigate a variety of ways of making things move and what causes them to change speed, direction and/or stop.

Grade 3:

Explain how objects are put into motion by pushes or pulls and the change in motion depends on the strength of the push or pull.

Science and Technology

Grade K:

Develop an understanding that the use of tools and machines can be helpful or harmful.

Know that each kind of tool has a special purpose.

Grade 1:

Know that when parts are put together they can do things that they could not do by themselves.

Investigate that tools are used to help make things and some things cannot be made without tools.

Grade 6:

Know that decisions about the use of products and systems can result in desirable or undesirable consequences.

Scientific Inquiry

Grade 1:

Work in a small group, then share findings with others.

Scientific Ways of Knowing

Grade K:

Recognize that people are more likely to accept your ideas if you can give good reasons for them.

National Science Standards

Grade 2, Physical Sciences:

Tools and machines are used to apply pushes and pulls (forces) to make things move.

Grade 3, Physical Sciences

Machines and living things convert stored energy to motion and heat.