

INVENT A NEW MACHINE



Time: three to four class periods

Instructional Goals:

- The student will use the PebbleGo Science database to research the functions of different simple machines.
- The student will identify a problem in his/her everyday life, such as an undesired chore, and work to invent a new machine to accomplish that chore.
- The student will apply knowledge of simple machines as they invent a new machine to accomplish an identified chore.
- The student will create a diagram or drawing to represent their idea for a new machine to accomplish an identified chore.

Materials/Resources:

- **PebbleGo** Science online database
- **Simple Machines Research Chart**
- **Invent a New Machine** handout
- Pictures/examples of invented machines, found through an Internet image search of "Rube Goldberg machine"

Procedures/Lesson Activities:

Focus

1. Ask students if they like to do chores, such as cleaning their room or taking out the trash. Which chores do they dislike most? Make a list of these dreaded chores.
2. Ask students if they would be interested in using a machine to make doing these awful chores easier for them.
3. Show example pictures of silly machines in the style of Rube Goldberg, found through an Internet image search for "Rube Goldberg machine." (Rube Goldberg was a cartoonist best known for drawing complicated machines to accomplish menial tasks. His early work as an engineer influenced many of his designs. Today there is an annual Rube Goldberg contest. For more information visit the Rube Goldberg website <http://www.rubegoldberg.com/home>.)

Teach/Model

4. Explain to students that machines are invented to make life easier for people. There are different types of machines, but some of the most useful ones are called simple machines. Tell students the definition of a simple machine.
 - a. Simple machine—a machine with few or no moving parts that makes work easier
 - b. Example simple machines include levers, planes, pulleys, screws, wedges, and wheels and axles
5. Tell students they will invent a new machine to help them accomplish one of their daily chores/tasks.



6. Explain that in order to create the best invention, students will need to research different types of simple machines. Their new machine will need to incorporate at least two simple machines.
7. Show students how to navigate to PebbleGo Science and locate the articles on simple machines.
8. Demonstrate the PebbleGo read aloud feature. Show students how to click on a bold word in order to hear its definition.
9. Highlight the Media section below the article. This section has videos demonstrating simple machines in action.

Guided Practice

10. Model completing the lever portion of the *Simple Machine Research Chart* for students. Explain that each student/group will need to complete the research chart before inventing their new machine. Reiterate that their new invention will need to incorporate at least two simple machines. (It may include other items as well.)

Independent Practice

11. Have students complete the *Simple Machine Research Chart*, making sure to cite their source at the bottom of the page.
12. After completing their research, students invent a new machine to accomplish a daily chore/task. Their new machine design should incorporate at least two simple machines. Students may use the *Invent a New Machine* handout for this step.

Closure

13. Students share their new machines with the class, highlighting which simple machines they incorporated into their designs and why they chose those simple machines.

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Extend/Enrich

- Have a classroom Rube Goldberg contest and vote for the best new machine.
- Create a class machine and construct it for testing purposes. How does the class machine work? Which simple machines were used? What happens if one of the simple machines was eliminated from the design?
- Students write a creative essay imagining their machine has been built and how it would work to accomplish their chore at home. What would their parents think of the machine? Do they envision it working without problems? Include an illustration of the machine in action to go along with the essay.

Invent a New Machine



Name _____

Invent a new machine to do an everyday activity for you. Use at least 2 simple machines in your design.

Everyday activity ideas:

- Feeding your pet
- Cleaning your room
- Setting the dinner table
- Getting dressed for school
- Turning in your homework
- Making a sandwich

Sketch of Your New Machine

Label the simple machines you used in your invention.

What everyday activity does this machine help with? _____

How does this machine work? _____

Which simple machines did you use? _____

Simple Machine Research Chart



Name _____

Simple Machine Name	Picture	What It Does
lever		
plane		
pulley		
screw		
wedge		
wheel and axle		

Bibliography: _____