

Lesson Plans: Simple Machines, Odd Machine

Brown Paper Bag Simple Machines

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Grade levels: 6-8

Time required: 60 minutes

Materials required:

Brown paper grocery bags (or lunch for smaller items)

Can opener

Armed corkscrew

Scissor

Tweezers

Picture of a bicycle

Clamp

Ruler and rock (or something to use as a fulcrum for a lever)

Time

Bell

White Board/Markers

Answer sheets-stating what the object was, and what simple machine they thought it was
Bag key

Teacher Preparation

Teacher should have introduced the simple machines previously, and explained what 6 simple machines are and their characteristics. I had my kids do reading the night before, and a worksheet was filled out the previous day. This lesson is the second in the series on Simple Machines.

Teacher would have to bring in items that day, number the bags, print out answer sheets, and assign homework to prepare students.

Learning Objectives and Educational Goals

- Students will be able to name and identify the 6 simple machines
- Students will be able to identify the type of simple machine from objects/drawing
- From an object, students will be able to identify the simple machines in a compound machine

I led into the next lesson with this, since the students didn't know what a compound machine was yet. The manual can opener was a great example and generated lively discussion.

Procedure

1. I introduced lesson by calling on students to come up and fill in grid with the 6 simple machines, and their characteristics. I left these on the board.
2. I next explained today we were going to apply our knowledge by identifying simple machines.

3. I then paired up students, and gave each pair a brown paper bag with an object inside and an answer sheet. They were not to open the bag until I ring the bell! Students were instructed the order of stations (brown bags) and which direction to rotate in.
4. Students decided who would be scribe.
5. Teacher then rings bell every sixty seconds (giving 10 second warning to pack up bag for the next person) giving students time to identify the simple machine. I left the grid on the board for reference.
6. Students rotate through each station until all objects are identified.
7. When students are back at their own original seats, class discusses which objects were which, and defended their position.

Ways to Extend the Activity and Other Curriculum Ties

We extended this by having the students go home and identify an example of each of the six simple machines in their house. I was absent the next two days, and as a contest I had the kids name as many simple machines as possible in our school in a 24-hour period. Winner got a bag of Jolly Ranchers.

When done in pairs, this is a much livelier class. They argue with each other about the answer, and that is when I can gauge if they “get it”. When they did this alone it wasn’t as much fun.

Students like seeing objects they have never seen before. Objects I have used that they didn’t know were a paint stirrer for my drill, a clamp pant hanger, and a hand-powered eggbeater.

To integrate, teachers can talk about industry, the industrial revolution, and how knowing about simple tools and their mechanical advantage (my next lesson) assists with industry. Screws make a difference in construction, how the threads of the screw being closer or farther apart make a difference. You can look at manufacturing as well, think about how the threads on a jar lid, and why you would have them closer or further apart.

We kept the activity alive by talking about the can opener, and all of the machines in it. This generated students asking, well what about a door knob? What about X? This led into the concept of compound machines, and what they were.

Examples of bagged items:

Bag 1 A manual can-opener:

Bag 2 A corkscrew with arms

Bag 4 A vise or clamp

Bag 4 A pair of scissors

Bag 5 A photograph of a bicycle

Bag 5 Doorknob

Bag 6 Mini Blinds

Bag 7 Tweezers

Bag 8 Screw

Bag 9 Corkscrew without arms

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Scavenger Hunt

Name:

Date:

In the next 24 hours your mission is to:

1. Find as many simple machines as possible in our school.
2. Record the machines below.

Follow the directions below. If you do not follow them, **exactly**, you will only receive 50% credit! This is due ON FRIDAY at the beginning of class. Nothing will be accepted after the beginning of class Friday!

Instructions:

Put your name, date, and core on **any** paper you hand in. You can add extra paper to this if needed.

All exercises will be done individually. You will work alone.

The materials you need will be:

1. Your text
2. The instruction sheet
3. Your answer sheet

Rules:

In our school there are examples of each of the six simple machines. Name as many as you can in the following rooms ONLY:

1. Room 1130 (our room)
2. Cafeteria
3. Bathrooms

*Screws can only be used in a **non-hardware** context. For example, you can list them if there is a screw type can opener in the cafeteria, but not as a screw in the door hinge

THAT'S IT! Why are you doing this? For every 10 unique simple machines you list, you will receive 1 extra point on your test, up to 5 extra points. Unique meaning, Lever can be used as an example more than once if there are more than one type of lever in the room. A lever in the door, and a lever as a door on the computer drive would count as 2 separate items. Things that don't count are: doors (only one per room), anything YOU bring in. Only things that are found in the room count!

GOOD LUCK!

