

**ED 101 Educational Technology Lab – Spring 2011
Boston University – School of Education**

LESSON PLAN

<i>Requirement</i>	<i>Your Answer</i>	<i>Points</i>
LESSON BASICS (28 pts.)		
Your Name	Ethan Mapel	
Your ED101 Lab Section	D1	
School	Harrington School	(1 pt.)
Grade(s) Observing	5 th Grade	(1 pt.)
Supervising Teacher	Mrs. Moussa	(1 pt.)
List any teaching help you may have during the lesson	The classroom teacher and the technology assistant in the computer lab will be available.	(2 pts.)
Setting (in class, in computer lab, other?)	The lesson will take place in the computer lab and in the hallway (briefly).	(1 pt.)
Technology needed to complete lesson	Individual computers for each student are preferred for this lesson. However, they are not necessary, as the class can view the lesson all together on a projector. Therefore, a projector and one computer are needed. Most of the website will be covered in class, so if computers are unavailable, have the students complete the online quiz and visit the EdHeads site at home, which are the only two parts they will be missing by not having their own computers.	(3 pts.)
Other materials needed	Homework handout.	(2 pts.)
Content Area(s)	This lesson focuses in the Science content area	(1 pt.)
Title of web site	EZ Simple Machines	(1 pt.)
Topic of Lesson	This lesson is designed to review and solidify the students' knowledge of simple machines and the usefulness of simple machines in daily life.	(1 pt.)
Goals of the Lesson	The primary goal of this lesson is for students to realize how simple machines make work easier. Students should realize that without simple machines, humans would have to work much harder. Students should also realize that simple machines are very specific types of machines, and complex machines (e.g. computers) are extremely different.	(4 pts.)

Three Objectives	<p>Students will become familiar with all six types (inclined plane, lever, pulley, screw, gear, and wheel & axle) of simple machines. Students will be able to:</p> <ul style="list-style-type: none"> - Correctly define each simple machine and describe how it makes work easier. - Give at least one example/use of each type of simple machine and also look at various examples and be able to tell which simple machine each example is. - Look at images of each of the simple machines and label various parts of the simple machine – (e.g. A picture of a lever and have them label the fulcrum, load, etc.) 	(10 pts.)
STANDARDS (20 pts.)		
Technology standard	<p>Standard 2. Demonstrate the responsible use of technology and an understanding of ethics and safety issues in using electronic media at home, in school, and in society.</p> <p>Ethics:</p> <p>G3-5: 2.3 - Explain Fair Use Guidelines for the use of copyrighted materials (e.g., text, images, music, video) in student projects.</p>	(10 pts.)
Curriculum Framework	<ul style="list-style-type: none"> ➤ Massachusetts Science and Engineering Standards ➤ Technology/Engineering, Grades 3–5 ➤ Materials and Tools <p>1.3 Identify and explain the difference between simple and complex machines, e.g., hand can opener that includes multiple gears, wheel, wedge, gear, and lever.</p>	(10 pts.)
LESSON PROCEDURE (30 pts.)		
Introduction of Lesson	<p>The lesson will begin with my statement, “Over the past few weeks, you have been learning about simple machines.” I will then ask if anyone can remind me of what a simple machine is and what it can be used for. After a brief class discussion about the definition of a “simple machine,” the students will discuss with the person or people sitting near them a few examples of simple machines that they use in daily life. After the</p>	(5 pts.)

	<p>groups discuss, they will be given an opportunity to share their thoughts with the class.</p> <p>The students will then be split into six groups and given one of the six simple machines to work with. They will be given the task to act out the simple machine that they were assigned. Be sure to advise the students to include everyone in their “human simple machine” and to also observe basic safety precautions. This part of the lesson could be performed in the hallway where there is more open space. After each group prepares, they will show their machine to the rest of the class. Allow five minutes for this task.</p>	
<p>Lesson Procedure, Web Site Use, and Technology Standard</p>	<p>After the introduction to the lesson, the students will return to their individual seats.</p> <p>Pull up the website on the projector. Use the information on the home page as a brief summary of what the students discussed in their introductory exercise with regards to the purpose of simple machines. The home page also explains the difference between simple and complex machines.</p> <p>After this brief review, visit the individual pages on the website (e.g. page for inclined planes, page for lever). For each of these pages, show the image of the simple machine to give the students a visual idea of what the machine looks like. Then go over the definition, function, and examples of each machine as listed on the individual subject pages. Some of the pages may have videos on them, and if they do, the students should watch them on the projector all together.</p> <p>After going through each of the six pages, ask the students if they have any questions. Also be sure to ask questions of the students as you are going through the simple machine pages. Sample questions include:</p> <ul style="list-style-type: none"> • If I were to take this wheel and axle and put a groove around the rim of the wheel and then thread a rope through that groove, what simple machine would it become? ANSWER: Pulley • If I were to place the fulcrum closer to the load being lifted, would that make my job easier or more difficult than if I place the fulcrum farther away from the load? ANSWER: Easier 	<p>(25 pts.)</p>

	<p>After answering any questions that the students may have, have the students turn back to their own computers, log on to the network, log on to the internet, and go the website. The students should then go to the Quiz/Activities page on the menu bar at the top of the website. Have the students click on the link at the top of the Quiz/Activities page. That link will take the students to an external site called EdHeads and will provide the students with an interactive animation to teach them more about simple machines in a fun manner. Give the students 5-10 minutes to experiment.</p> <p>After the students have played around with the EdHeads link, have them close out of that window and return to the Quiz/Activities page. Give the students 5-10 minutes to take the quiz.</p> <p>After the quiz, show the students your Works Cited page and explain to the students that you did lots of research to create this page. You did not come up with all of this information on your own – you had to learn it from somewhere. In borrowing other peoples’ ideas, explain that you must legally give that person credit. Give a short lesson about the ethics of Fair Use online, and the legality issues of citing all of your sources. Explain that if you did not cite your sources on this page, you could be in big trouble.</p>	
ASSESSMENT (22 pts.)		
How will students be assessed?	<p>The students will be assessed both through the Quiz and through an additional homework assessment. The homework assessment will instruct the students to visit the website at home and to complete the following tasks:</p> <ul style="list-style-type: none"> - For each of the following simple machines, EITHER draw a picture of the simple machine (with labels) or define the simple machine in a complete sentence. Also include a brief explanation of how this machine makes work easier...(the homework sheet will then list all six simple machines). - Give one real life example of each of the following simple machines...(list all six simple machines). - Look at the following images of simple machines and write (on pre-drawn lines) the names of certain parts of each machine (e.g. a 	(5 pts.)

	<p>picture of a gear would have the blank lines for the labels “teeth” and “rim” and “axle”...(the homework sheet will have an image of all six simple machines with blank lines pointing to various aspects)</p>	
<p>How will you know if students have met the objectives stated above?</p>	<p>The homework assignment is the primary way to determine if the students have met the objectives I set at the beginning of the lesson plan.</p> <p>Correctly define each simple machine and describe how it makes work easier.</p> <ul style="list-style-type: none"> - If students have met this objective, they will correctly define the simple machines or correctly draw a picture of the simple machine, proving that they understand what it is. They will also correctly identify how each simple machine makes work easier on their homework. They will grasp that each simple machine has a different way of making work easier for humans. <p>Give at least 1 example/use of each type of simple machine and also look at various examples and be able to tell which simple machine each example is.</p> <ul style="list-style-type: none"> - If students have met this objective, they will provide one correct example of each of the six simple machines on their homework assessment. <p>Look at images of each of the simple machines and label various parts of the simple machine – (e.g. A picture of a lever and have them label the fulcrum, load, etc.)</p> <ul style="list-style-type: none"> - If students have met this objective, they will correctly fill in all of the blank lines pointing to various specific parts of each simple machine on the homework. 	<p>(7 pts.)</p>
<p>Web-based Quiz</p>	<p>1.) The object or objects that you want to move is called a _____. Simple machines make moving this _____ easier.</p> <ul style="list-style-type: none"> - a.) load - b.) fulcrum - c.) pulley <p>2.) The following objects ALL have one simple</p>	<p>(10 pts)</p>

machine in common that helps them move – Car, bike, train. That simple machine is the _____.

- a.) inclined plane
- b.) screw
- **c.) wheel and axle**

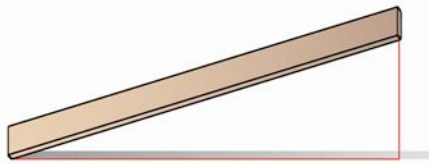
3.) A gear is just like a wheel and axle in many ways, but one of the key differences is that a gear has _____ around the outer rim.

- a.) fulcrums
- b.) spokes
- **c.) teeth**

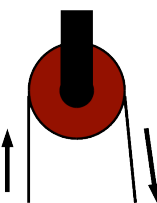
4.) If a person in a wheelchair wanted to get from the first floor of a building to a second floor of a building, but the elevator was broken, that person would use a(n) _____.



- a.)



- **b.)**



- c.)

5.) A screw is a cylinder with a(n) _____ wrapped around it.

- **a.) inclined plane**
- b.) rope
- c.) pulley string