**SIMPLE MACHINES LAB PROJECT**

***Imagination is more important than knowledge."* Albert Einstein**

**PROJECT OVERVIEW**

* **Student must create a machine consisting of the 6 simple machines listed.**
* **The device MUST accomplish the task that was originally intended and planned by the student, so the machine must move to show the simple machines working!**
* **Students will be given 2/3 days to build the projects IN CLASS and maximum 5 minutes to present their projects to the class**
* **The project will only be completed at school**

**LIST OF SIMPLE MACHINES**

* **Lever**
* **Wheel and axle**
* **Pulley**
* **Inclined plane**
* **Wedge**
* **Screw**

 **PROCEDURE**

* My group members are –\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Plan your project in class.
* Draw a design of what the project will look like.
* Gather a few things from around the house, in your toy box, junk drawer, or recycling. Balls, marbles, dominoes, string, toy cars, magnets, cardboard or tubes, etc. Don't worry, you can collect more later. **Avoid fire or dangerous chemicals or anything that goes against school policy- no glass, no knives! If you are not sure please check with me before your bring it in!!** If there is anything I can provide for you let me know. You are welcome to have it if I have it!
* Now play with the things! See what you have.

On Thursday October 19th in class: Get a piece of paper and start writing down any idea that pops into your head. This is called brainstorming. No matter how crazy the idea seems, just write it down for later. Even if you don't use it, it may help you think of more things. This is called brain storming!   **You do not need to spend money to do this**. Just look for useful, interesting things around your home to help you. Also remember to follow the rubric for requirements!

I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ understand the project and will follow the rubric!

Student Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**RUBRIC**

Remember to always aim to get the highest amount of points possible in every category.

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| --- | --- | --- |
|  | **Blue Print Criteria** | **Pts** |
| **Section 1** | 0 | 1 | 2 | 3 | **4** |  |
| “Blue Print” Drawing **TUESDAY** | No drawing. | Does not show entire project, or incomplete. | Complete, with portions that are difficult to understand. | Complete, easy to understand, well-labeled. | **Complete, easy to understand, well-labeled, organized, typed.** |  |
| # Steps | 0-1 | 2-3 Steps | 4-6 Steps | 7-9 Steps | **10 + Steps** |  |
| Steps well labeled on drawing with step number, and type of machine involved. | No labels | Steps labeled. | Steps labeled correctly. | Steps labeled correctly in sequence. | **Steps labeled correctly in sequence with correct type of machine.** |  |
|  |  |  |
|  | **Physical Structure Criteria****(3-D Working Model)** | **Pts** |
| **Section 2** | 0 | 2 | **4** |  |
| Apparatus is physically in the room and holds together. | No Apparatus.  | Apparatus is in the room, and does not fall apart. | **Apparatus is in the room, does not fall apart, and appears to be well-constructed.** |  |
| Apparatus is on a solid platform of some sort. | Apparatus is not on a solid platform and/or needs assistance standing from | Apparatus is on a solid platform. | **Apparatus is on a solid platform of good construction.** |  |
| Apparatus does not create a mess. | Project creates a mess when task is fully completed. | Project creates a minimal mess when fully completed. | **Project does not create a mess when fully completed.** |  |
|  |  |  |
|  |
|  | **Presentation and Task Completion Criteria****(All students are required to present to get the points.)** | **Pts** |
| **Section 3** | 0 | 1 | 2 | **3** |  |
| Apparatus works | Apparatus does not work. | Apparatus works on fourth, fifth, or sixth trial. | Apparatus works on third trial. | **Apparatus works on the first or second trial.** |  |
| Correct identification of the simple machines in the project. | Incorrect verbal identification of the simple machines in the project. | Correct verbal identification of 50% of the simple machines in the project. | Correct verbal identification of 75% of the simple machines in the project | **Correct verbal identification of 80%-100% of the simple machines in the project** |  |
| No simple machine is used more than 5 times. | More than 3 simple machines are used more than 5 times. | More than 2 simple machines are used more than 5 times. | 1 simple machine is used more than 5 times. | **No simple machine is used more than 5 times.** |  |
| All 6 simple machines have been used | Only 1 simple machine type used. | 2 different simple machine types are used. | 3 different simple machine types are used. | **4-6 different simple machine types are used.** |  |
| **Grade** |  |  |

Teamwork Rubric /20

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CATEGORY  | 4  | 3  | 2  | 1  |
| Contributions  | Routinely provides useful ideas when participating in the group and in classroom discussion. A leader who contributes a lot of effort.  | Usually provides useful ideas when participating in the group and in classroom discussion. A strong group member who tries hard!  | Sometimes provides useful ideas when participating in the group and in classroom discussion. A satisfactory group member who does what is required.  | Rarely provides useful ideas when participating in the group and in classroom discussion. May refuse to participate.  |
| Problem-solving  | Actively looks for and suggests solutions to problems.  | Refines solutions suggested by others.  | Does not suggest or refine solutions, but is willing to try out solutions suggested by others.  | Does not try to solve problems or help others solve problems. Lets others do the work.  |
| Attitude  | Is never publicly critical of the project or the work of others. Always has a positive attitude about the task(s).  | Is rarely publicly critical of the project or the work of others. Often has a positive attitude about the task(s).  | Is occasionally publicly critical of the project or the work of other members of the group. Usually has a positive attitude about the task(s).  | Is often publicly critical of the project or the work of other members of the group. Is often negative about the task(s).  |
| Focus on the task  | Consistently stays focused on the task and what needs to be done. Very self- directed.  | Focuses on the task and what needs to be done most of the time. Other group members can count on this person.  | Focuses on the task and what needs to be done some of the time. Other group members must sometimes nag, prod, and remind to keep this person on- task.  | Rarely focuses on the task and what needs to be done. Lets others do the work.  |
| Working with Others  | Almost always listens to, shares with, and supports the efforts of others. Tries to keep people working well together.  | Usually listens to, shares, with, and supports the efforts of others. Does not cause "waves" in the group.  | Often listens to, shares with, and supports the efforts of others, but sometimes is not a good team member.  | Rarely listens to, shares with, and supports the efforts of others. Often is not a good team player.  |

**Tentative Dates**

Thursday October 19th – Planning day

Tuesday October 24th – Please bring in all materials you found at HOME and did not buy;)

* + Start your blue print (see rubric above!)

Wednesday October 25th and Thursday October 26th – Building days

Friday October 27th – Present your simple machines to the class

Monday October 30th – Presentations continue and self-reflection