



600 Settlers Landing Road • Hampton, Virginia 23669-4033 • (757) 727-0900 • www.vasc.org

Master Machines

Post-Visit Activities

Grades 3-5



Developed 11/07

These activities are intended for use after your visit to the Virginia Air and Space Center. Your students should recall the information, demonstration, and activities from the Master Machines demonstration in order to do these activities. All of the activities can be tailored to your specific classroom needs, and the procedures listed are suggestions for teaching.

Activity 1: Identifying Simple Machines

Materials- For this activity you will need pencils, butcher paper, an in-class worksheet, a homework worksheet, magazines, drawing paper, and a book on simple machines.

Prep Work- You will need to analyze your classroom and any other areas you are going to allow your students to work in during this activity. Once you have analyzed these areas, you can tailor the worksheets to your specific needs. You will also need to create a worksheet for them to take home. Before beginning this activity, hang several long sheets of butcher paper up along the walls in the classroom. Review the six simple machines with your students.

Procedures:

1. Have your students work in groups or with a partner. Instruct each group to write down the names of the six simple machines on the in-class worksheet you created.
2. When groups are finished, have volunteers come up and write the six machines on the butcher paper. Have students make guesses as to how many simple machines they can find in the classroom. Write these numbers down on their worksheets.
3. Have students walk around the classroom or other areas of the school to find as many simple machines as they can. Explain that each group will need to be able to explain how and why each object is a simple or compound machine.

4. Give the students a time limit for their “machine hunt,” but explain that it is not a contest to see who can do it the quickest. It is an experiment to see who can discover how many machines are in their environment and surroundings.
5. Give each group a few minutes to document and collect their findings. Then have each group come together to discuss their findings. Have each group record their findings on the butcher paper as they share it with the rest of the class. Make sure the students feel free to dispute another group’s findings. This may cause some debate, but it will allow the students to reinforce their work. Is it a machine? If it is, why and what makes it a machine? Is it more than one machine? Does it do more than one job? Is it a compound machine? Why?
6. Have students compare the number of machines they found to the number they predicted. How close were their predictions?
7. Pass out the homework sheets. Have students repeat this “hunt” at home with the help of family. Have students bring in drawings and magazine pictures of simple machines.
8. Have students use the drawings and pictures to make a collage on the butcher paper of the simple machines, and have them share the collages as a class. Display them around the room.

Activity 2: Incorporating the Simple Machines

Materials - Lots of different types of recycled material. You will also need tape, glue, string, rope, yarn, markers, and any other building materials you or your students may need.

Note: You may want to send a flyer home with your students requesting they bring in recycled materials. For example: empty cereal boxes, empty milk jugs, toilet paper rolls, paper towel rolls, empty 2 liter bottles, newspaper, cans, etc.

Now that your class has identified the six simple machines, have them design and build a compound machine using all they have learned. Have your students work in small groups. Each group will be given a small area of the room to build and construct after you set the rules and guidelines for the activity. See which group can create a contraption that functions with more than two working simple machines. Explain the importance of recycling materials as your students work on this project. Once each group has completed their compound machine, have them explain its function and design to the other groups. Encourage the groups to make functional machines that might make work easier around the classroom.

Extension: It can be fun to span out an activity like this over the course of a few weeks. Allow a limited amount of time for the project each day. This will give your students an opportunity to work through difficult designs, and incorporate more recycled materials that they bring from home.

Activity 3: Playground Machines

There are no extra materials needed for this activity.

This is a quick and fun activity that you can do outside on the playground. Depending on the style and type of playground equipment you have available, there are many simple machines that can be identified. Have your class identify as many simple machines as they can on the playground. For example the slide is an inclined plane. Discuss each separate piece of equipment and discover all the machines that make recess so much fun.

Resources

Websites

<http://42explore.com/smplmac.htm>

<http://www.proteacher.com/110064.shtml> -this site has various lesson plans on the simple machines and wonderful ways to integrate them into your classrooms.

http://outreach.rice.edu/~dgabby/science/simp_mach/ -The web quest research project on this page is highly suggested and a lot of fun.

<http://teacher.scholastic.com/dirtrep/simple/index.htm>

<http://www.edheads.org/activities/simple%2Dmachines/glossary.htm>

<http://sln.fi.edu/qa97/spotlight3/spotlight3.html>

Books

Forces and Machines. Sinclair MacLeod. 1993.

Janice VanCleave's Physics for Every Kid. Janice VanCleave. 1991.

Machines (Make it Work). David Glover. 1999.

Machines (Make it Work! Science Series: The Hands-on Approach to Science). David Glover, and Jon Barnes. 1997.

Projects with Machines. John Williams. 1992.

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