



CHILDREN'S  
MUSEUM  
— OF VIRGINIA —  
PORTSMOUTH

# Pre and Post-Visit Activities

## Simple Machines

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# Important Information for Teachers

Thank you for choosing *Simple Machines* for your students! This program will cover the following aspects of your SOL's:

- 3.1 The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations in which
- a) observations are made and are repeated to ensure accuracy;
  - b) predictions are formulated using a variety of sources of information;
  - c) objects with similar characteristics or properties are classified into at least two sets and two subsets;
  - j) inferences are made and conclusions are drawn;
  - k) data are communicated;
  - m) current applications are used to reinforce science concepts.
- 3.2 The student will investigate and understand simple machines and their uses. Key concepts include
- a) purpose and function of simple machines;
  - b) types of simple machines;
  - c) compound machines; and
  - d) examples of simple and compound machines found in the school, home, and work environments.

## Museum Manners

**Please review with students and chaperones prior to your visit to the museum.**

1. Please plan to arrive 15 minutes before your scheduled time to allow final counts and payment prior to your visit.
2. Remember to use walking feet.
3. Remember to use inside voices.
4. Teachers and chaperones must stay and explore with their students at all times throughout the museum.
5. Remember to share the exhibits and place items back where you found them.
6. Food and drink are not permitted in the museum.

# Vocabulary

Please review these terms prior to your visit.

**AXLE**- a bar on which a wheel turns.

**COMPOUND**- combination of two or more.

**FORCE**- a push or pull.

**FULCRUM**- a prop, support, or point of rest on which a lever turns a moving body.

**INCLINED PLANE**- a slope.

**LEVER**- a stiff bar that pivots on a fulcrum and is used to move an object at a 2<sup>nd</sup> point.

**LOAD**- a mass or quantity that has a force exerted on it to make it move.

**MACHINE**- a device that helps make work easier by transferring or modifying a force.

**PULLEY**- a system using a grooved wheel with a rope wrapped around it to lift a load.

**SCREW**- an inclined plane (a thread) wrapped around a cylinder or cone (an axle.)

**SIMPLE**- consisting of only one machine.

**TOOL**- something that makes work easier.

**WEDGE**- something wide at one end and pointed at the other to help cut or split other objects.

**WHEEL**- circular frame or disk arranged to revolve on an axis (axle.)

**WORK**- using a force to move an object over a distance.

## Pre-Visit Activities

Try these activities prior to your visit to the museum.

### Identifying Simple Machines

**Objectives:** Students will be able to identify simple machines and how they use different types of energy and forces to help them move and work.

**Materials:** Diagram of a bicycle and colored pencils.

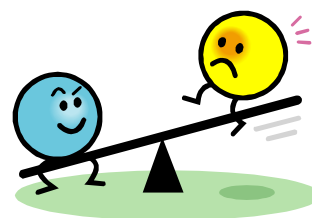
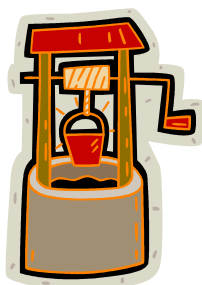
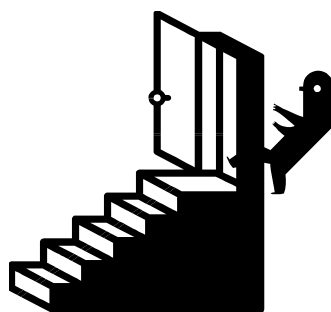
**Investigation:** Review six simple machines: lever, pulley, wheel and axle, screw, inclined plane, and wedge. Review the proper names of the bicycle parts. The students will identify the simple machines found on the bicycle and note the function each performs. Have students establish a color-coded system to color each simple machine a single color. Students will discuss their findings. Ask students to describe the entire bicycle system as being either a compound or complex machine.

### Simple Machines Scavenger Hunt

**Objective:** Students will discover household and classroom objects that are simple machines, and see simple machines are used every day.

**Materials:** Notebook, observation time.

**Investigations:** Students will explore over a period of a week and observe simple machines in their environment. They can draw or describe the object and determine what kinds of simple machines are used in it. Students should note simple vs. compound machines at work.



## Post Visit Activity

Try these activities after your visit to the museum.

### Da Vinci's Simple Machines

Objective: Students will be able to connect Leonardo Da Vinci's inventions to early simple machines and understand how simple machines are still used in modern inventions.

Materials: Computer, paper, time to research, websites such as <http://www.da-vinci-inventions.com/>

Investigation: Research Leonardo Da Vinci's plans and original drawings of machines, then design a machine to help make an everyday task you do easier.

### Review Vocabulary

Objective: Students will be able to review and understand the key terms used in the program and by the Virginia Standards of Learning.

Materials: Word Search on following page and pencils.

Investigation/Practice: Students will review the terms in the puzzle and write the definitions of the terms as they find them.



SIMPLE MACHINES

Name: \_\_\_\_\_

Date: \_\_\_\_\_

N P M H F Y X R U H K L G P F B T N A R  
D N C L N M E C V Q R V F N S V Y S A V  
S C R E W B R X K X O S L T E G T M P T  
O T W N Y M B V E I W I A P G M C C R G  
G E N C V M I A X S B M V U D F X D F Y  
G W Y E R A Q P X V A P D L E Q U P R F  
J J G Y K C C X V T E L A L W N U H P S  
T R W R S H L F A D L E K E O J L A N E  
U C J V K I F A G M X E A Y D V B T V N  
I N C L I N E D P L A N E L N I M V G J  
L H S G L E B Q W V F Y V E U X X G F K  
I V N U L L U W Q Q J S A E O D F D O S  
D J U S E R P B L B A B E H P Y G A R J  
J C F M X E K P Q H P G T W M M A N C Q  
U R N K L A C S L G Z P H H O S D A E W  
Z E T O O L F U L C R U M S C S X S K V  
A V V N I B T V O V C N S O C M R C S Y  
H E O B N B C P T L Q N F J L K T O N C  
T L N I R P Z I D T R X Y U R I G N N O  
E B E E L J W L F L H C T W M D C Y T V

AXLE

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