CHILDREN'S MUSEUM OF VIRGINIA PORTSMOUTH

Pre and Post-Visit Activities

Tides and Rotations

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Important Information for Teachers

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

3.8 The student will investigate and understand basic patterns and cycles occurring in nature. Key concepts include

a) patterns of natural events such as day and night, seasonal changes, simple phases of the moon, and tides

4.8 The student will investigate and understand the relationships among Earth, the moon, and the sun. Key concepts include

a) the motions of Earth, the moon, and the sun;
b) the causes for Earth's seasons;
c) the causes for the phases of the moon;
d) the relative size, position, age, and makeup of Earth, the moon, and the sun; and

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

Rotation: the act of rotating; a turning around as on an axis

Axis: the imaginary straight line that something (such as the Earth) rotates around

Revolution: to move in a circular or curving course or orbit around another object

High Tides: The point in which the tide on the Earth is at its highest due to the gravitational pull of the moon

Low Tides: The point in which the tide on the Earth is at its lowest due to the gravitational pull of the moon

Seasons: one of the quarters of the year defined by the climate and the way the earth is tilted toward or away from the sun.

Solstice- the Sun travels the longest path through the sky, and that day therefore has the most daylight. Occurs on June 20th or 21st and December 21st or 22nd.

Equinox- either of the two moments in the year when the Sun is exactly above the equator and day and night are of equal length. Occurs on March 20th and September 22nd or 23rd.

Pre-Visit Activities

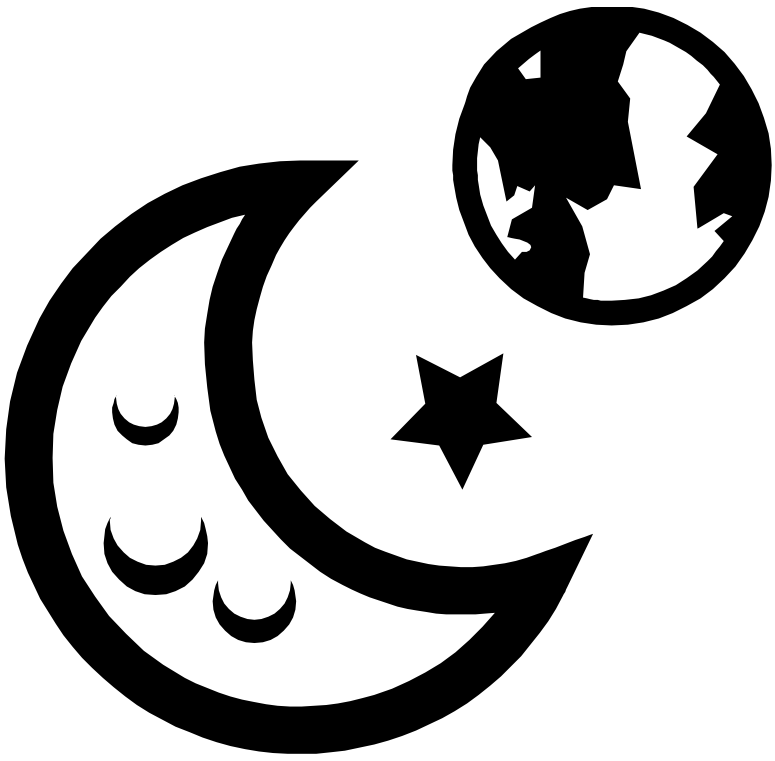
Try these activities before you visit the museum.

What makes shadows?

Objective: The students will be able to understand how the sun is a light source for the Earth and how the moon's reflection is seen on Earth. SOL 3.8a, 4.8c
Materials: desk lamp with no lampshade, Styrofoam balls, pencils.
Investigation: Place the lamp in the middle of the room, to act as the sun. Each student should receive a Styrofoam ball on a pencil. Have the students gather in a circle around the sun and imagine that they are the Earth and the ball is the moon. Start with holding the moon to your left side and observe where the light and shadow are. Students should turn themselves in 90 degrees to the left and notice where the light and shadow are. Repeat 2 more times and ask students what they notice and how this relates to what we see in the moon nightly.

Phases Flipbook

Objective: Students will be able to identify the phases of the moon. SOL 3.8a, 4.8c
Materials: Card Stock, black crayons, staplers, attached sheets (Page 6).
Investigation: Students will make a flipbook of the phases of the moon. They will cut out the pictures of the circles, and shade each "moon" in according to the next phase. They will then staple the pictures together in order, and be able to flip their way through each phase of the moon. See Figure 1.



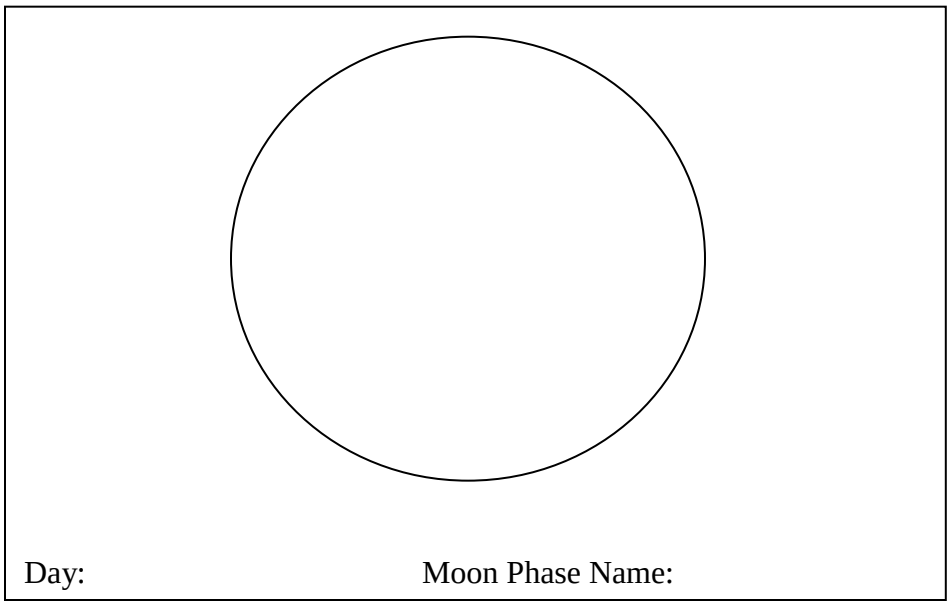
Post-Visit Activities
Try these activities after you visit the museum.

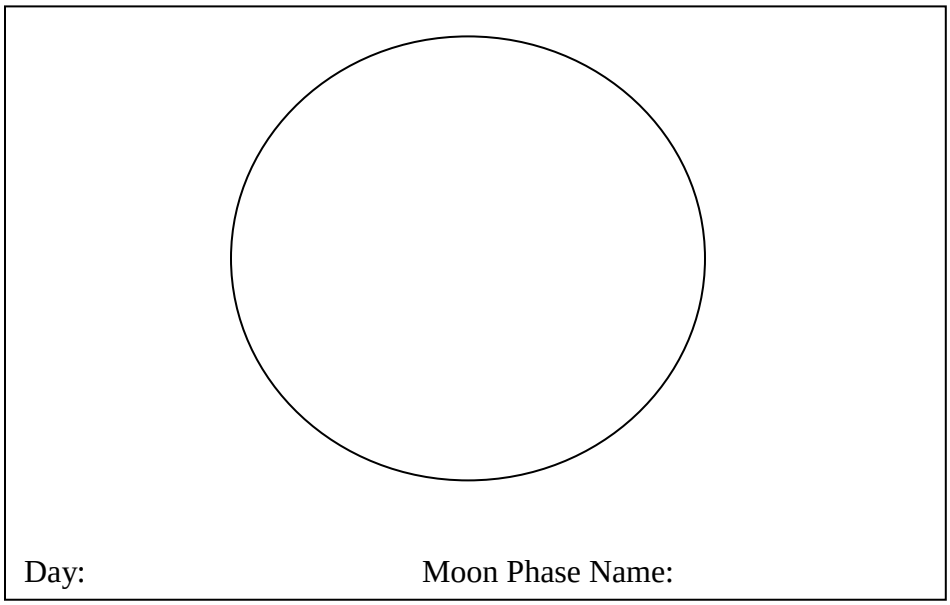
Tidal Changes
Objective: Students will be able to investigate how the tides change each day and how this affects Earth. The tides change daily as the moon revolves around the Earth. This creates a network of maritime travel and nautical life that depends on and is affected by the changes each day. SOL 3.8a, 4.8b
Materials: Data from a local news station, radio station or website like NOAA or http://www.saltwatertides.com/dynamic.dir/virginiasites.html.
Investigation: Review data on the website and note the times of the tidal changes each day. Explore some shipping routes and how this affects the maritime world.

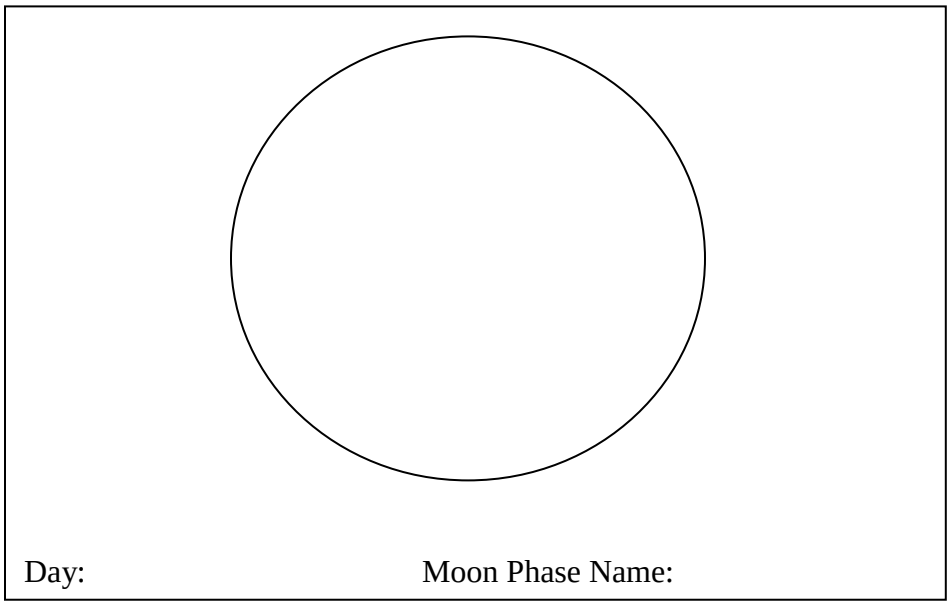
Observing the movement of the moon
Objective: Students will be able to understand the movements of the moon and earth over a month. SOL 3.8a, 4.8a, b, c, d
Materials: Outdoor evening (Spring/Summer) or daily (Fall/Winter) time, paper, pencils
Investigation: Go out at the same time each night and chart where the moon is in the sky. Observe the phases of the moon changing, as well as the position of the moon in the sky. Make observations on any differences. Could be used in conjunction with "Phases Flipbook."

Review Vocabulary
Objective: Student 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, pencil
Investigation/Practice: Students will review the terms in the puzzle and state the definitions of the terms as they find them.

Figure 1: Moon Phases Flip Book
Instructions: Copy this page so there are 29 cards for each student. Students will cut these out and paste them to index cards to create their Phases Flip Book.







CHILDREN'S MUSEUM OF VIRGINIA PORTSMOUTH

TIDES AND ROTATIONS

Name: _____

Date: _____

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

AXIS
DAY
EARTH
FIRST QUARTER
FULL
LAST QUARTER
LIFE CYCLE
MOON
NEW
NIGHT
PATTERN
PHASES
REVOLUTION
ROTATION
SEASONS
TIDE