

# Astronomy 3 - Our Moon: Phases, Eclipses, Seasons, & Tides

## I. Moon Phases

- A. "The Glory Days" and "In the Shadow of the Moon" Video reflection
- B. Moon Phases Vodcast - **PP**
- C. "Phases of the Moon" Gizmo - **PP**
- D. Moon Phase Identification drawings - **PP**
- E. Lollipop Phases of the Moon activity
- F. "Luna and Other Moons" Book Activity
- G. "Ordinary Supermen" 9-square note-taking - **PP**
- H. "Landing the Eagle" 9-square note-taking - **PP**

## II. Eclipses

- A. Eclipses Vodcast - **PP**
- B. Eclipses online - upcoming solar and lunar eclipses
- C. "Eclipse" Gizmo - **PP**
- D. Moon Phases and Eclipse Standard Check **Percent Score** -----

## III. Seasons

- A. Seasons Vodcast
- B. Seasons Blog Response
- C. "Summer and Winter" Gizmo - **PP**
- D. What Causes the Seasons? Lab - **PP**
- E. A Trip Around the Sun lab - **PP**
- F. Seasons Review - **PP**

## IV. Tides

- A. Tides Vodcast - **PP**
- B. "Ocean Tides" Gizmo - **PP**
- C. Tides Review
- D. Chapter 14-4 Questions - **PP**
- E. Tides and Seasons Standard Check **Percent Score** -----

## V. Review and Assessment

- A. "Earth, Moon, and Sun Effects" Ediscio Flash Cards/Quizlets
- B. Seasons and Tides Essay Questions/Blog Response
- C. "Moons Review Games"
- D. Eclipses, Moons, Seasons, and Tides Standard Check **Percent Score** -----

### ***I–A. “The Glory Days” and “In the Shadow of the Moon” Video reflection***

Write a reflection after the video clip about the following prompt:

What would it have been like to be an astronaut on Apollo 11?

\_\_\_\_\_

Would you have been nervous/scared/excited/etc.?

\_\_\_\_\_

### **I–B. Moon Phases Vodcast -- PP**

Please see your **Astronomy 3 PP** to complete this assignment!

### **I–C. “Phases of the Moon” Gizmo -- PP**

Go to [www.explorelearning.com](http://www.explorelearning.com) on a computer and log in to the account. Log-in using the username and password information provided below (please note that this will change eventually). Next, search for the “Phases of the Moon” Gizmo. Launch it. Follow the directions in your **Astronomy 3 PP** to complete this Gizmo. It’s fun.

**username: mustangsci      password: mustangsci**

### **I-D. Moon Phase Identification Drawings -- PP**

If you can figure this out, you will know the moon phases really well. Turn the paper (this learning opportunity is in the **Astronomy 3 PP**) so that you can get a good view of what a person would see from Earth. Be sure to check with your teacher when you’re done.

### ***I-E. Lollipop Phases of the Moon activity***

We’ll do this activity as a class.

Take one lick of your lollipop. (It is the moon.) Hold it with an outstretched arm. Your head is the Earth. The overhead light is the sun. What happens as the moon (lollipop) *revolves* around the Earth (your head)? Observe the moon phases changing as you turn around 360°.

### **I-F. Luna and other Moons Book Activity**

Open a red science textbook to Chapter 21, section 4. Use this section to help you find the answers to these questions and gain more knowledge about moons.

1. Why are there craters on the moon?

2. What is the most widely believed theory of how our moon, Luna, originated?

3. List at least 3 traits of other moons that are found on different planets.

I-G. "Ordinary Supermen" 9-square note-taking

<i>What I already know about the topic...</i>	<b>Title of Video:</b>	<i>What I want to know about the topic...</i>
	<p>When We Left Earth</p> <p>Part One</p> <p><i>Ordinary Supermen</i></p>	
<b>Main Idea:</b> <i>What are the reasons we would want to send a human to outer space? Why was this so important?</i>	<b>Main Idea:</b> <i>What are some of the challenges to becoming (and remaining) an astronaut? What qualities are the most important?</i>	<b>Main Idea:</b> <i>Describe the positives and negatives to being one of the first people in space.</i>
<b>Details:</b>	<b>Details:</b>	<b>Details:</b>
Do you have a favorite Mercury astronaut? (Alan Shepherd, Gus Grissom, John Glenn, or Scott Carpenter) Why?	Picture/Graphic of What I Learned:	New Things I Learned:

I-H. "Landing the Eagle" 9-square note-taking

<i>What I already know about NASA and the Apollo missions...</i>	<b>Title of Video:</b>	<i>What I want to know about NASA and the Apollo missions...</i>
	<p>When We Left Earth</p> <p>Part Three</p> <p><i>Landing the Eagle</i></p>	
<b>Main Idea:</b> <i>The crew of Apollo 1 was killed during a training simulation. How did NASA respond to the situation?</i>	<b>Main Idea:</b> <i>When Bill Anders of Apollo 9 first saw images of our planet from the moon he said, "We came to discover the moon, but we were discovering the Earth." What did he mean by this comment?</i>	<b>Main Idea:</b> <i>Why couldn't the astronauts of Apollo 11 initially land the Lunar Module as planned?</i>

<b>Details:</b>	<b>Details:</b>	<b>Details:</b>
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<b>What reasons are there for landing on the moon and exploring it more? Should we go back again in the future? Why or why not?</b>	<b>Picture/Graphic of What I Learned:</b>	<b>New Things I Learned:</b>

## II-A. [Eclipses Vodcast](#)

The notes for this vodcast require some illustration, which is at times is a better way to explain/remember what's happening in science than written words. Hence, you may use your paper packet for these notes.

## II-B. *Eclipses online - upcoming solar and lunar eclipses*

<http://www.mreclipse.com/Special/SEprimer.html>

When is the next solar eclipse? \_\_\_\_\_ Where will it occur? \_\_\_\_\_

<http://www.mreclipse.com/Special/LEprimer.html>

When is the next lunar eclipse? \_\_\_\_\_ Where will it occur? \_\_\_\_\_

## II-C. "Eclipse" [Gizmo](#) (not 3D or 2D versions)

See if you can figure out the cause of solar and lunar eclipses as you complete this in your paper packet.

## II-D. Moon Phases and Eclipse [Standard Check](#)

What was your score on this standard check? \_\_\_\_\_

Which questions did you answer incorrectly? \_\_\_\_\_

Will you be retaking this standard check? \_\_\_\_\_

How did/can you master the concepts in this standard check?

\_\_\_\_\_

## III-A. [Seasons Vodcast](#)

Science Holiday	Date	What happens?
Summer Solstice		
Winter Solstice		
Vernal Equinox		
Autumnal Equinox		

Explain (in your own words) why it is colder here than it is at the equator:

Why do we have a change of seasons?

### III-B. Seasons Blog Response (complete this on your science blog site)

#### 1. Describe what would be different if the following were changed:

-if Earth's axis was not tilted (straight up and down)?

-if Earth was a different distance from the Sun?

-if Earth rotated faster or slower?

#### 2. Would you like any of these changes?

### III-C. “Summer and Winter” [Gizmo](#)

Get together with a partner and collaboratively work through this gizmo on the paper packet. The angle of sunlight is a key to our seasons.

### III-D. What Causes the Seasons? Lab

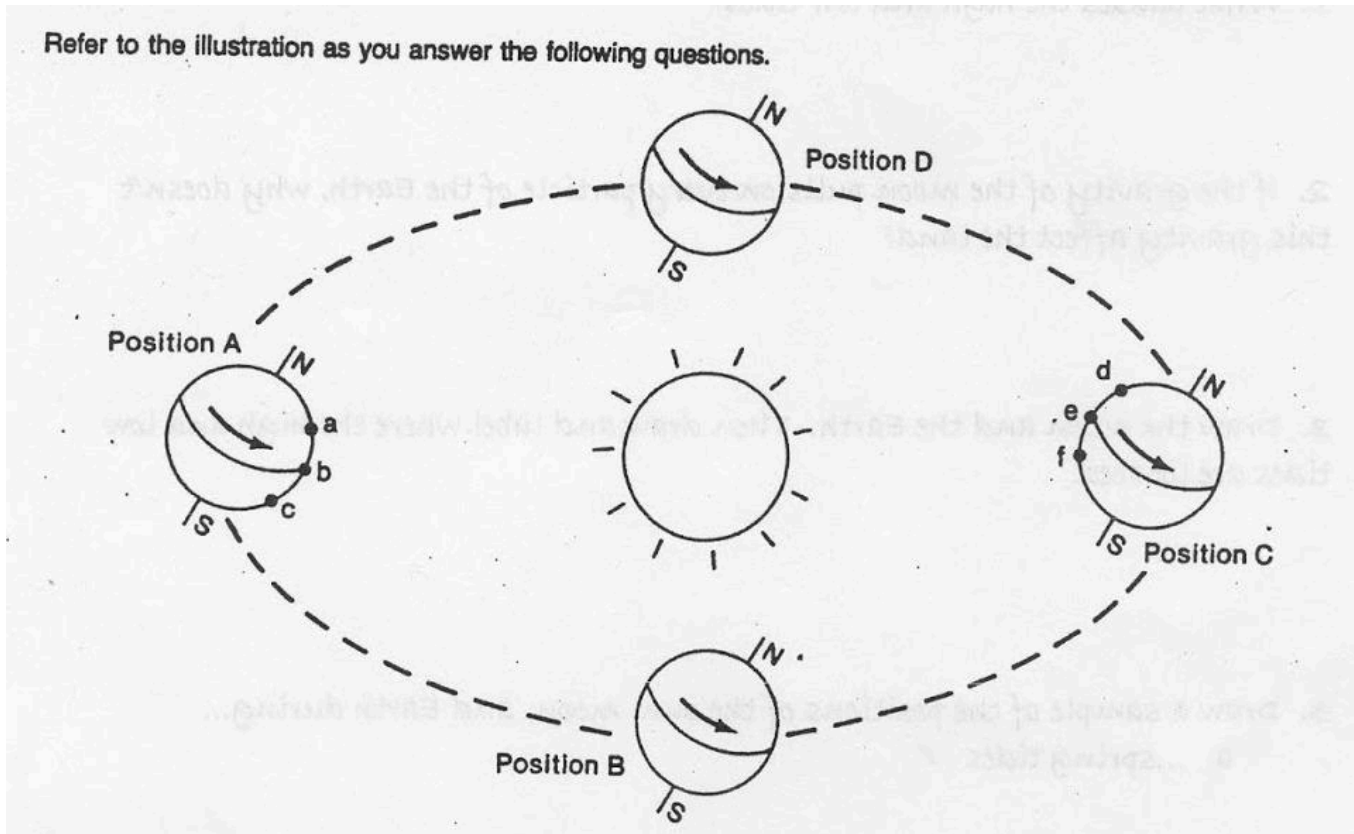
Find a partner. Find an instruction sheet. Read the instructions. Record the data (on your paper packet). Answer the questions. Learn science. Understand seasons. Easy as A, B, C!

### *III-E. A Trip Around the Sun lab*

The resources will be distributed to you on the day that the class does this lab. The write-up for it will be on the paper packet.

### III-F. Seasons Review

Refer to the illustration as you answer the following questions.



#### Position A

1. On about what date would the Earth be at this position? \_\_\_\_
2. What season is it in the Northern Hemisphere? \_\_\_\_
3. What season is it in the Southern Hemisphere? \_\_\_\_
4. Would city a, b, or c have the longest day? \_\_\_\_\_ Shortest day? \_\_\_\_\_

#### Position B

1. On about what date would the Earth be at this position? \_\_\_\_
2. What season is it in the Northern Hemisphere? \_\_\_\_
3. What season is it in the Southern Hemisphere? \_\_\_\_

#### Position C

1. On about what date would the Earth be at this position? \_\_\_\_
2. What season is it in the Northern Hemisphere? \_\_\_\_
3. What season is it in the Southern Hemisphere? \_\_\_\_
4. Would city d, e, or f have the longest day? \_\_\_\_\_ Shortest day? \_\_\_\_\_

#### Position D

1. On about what date would the Earth be at this position? \_\_\_\_
2. What season is it in the Northern Hemisphere? \_\_\_\_
3. What season is it in the Southern Hemisphere? \_\_\_\_



That's it. You're done with this activity, except for the part where you check your answers to make sure they're right. Check out the key and then bring it back.

#### IV-A. Tides [Vodcast](#)

The notes for this vodcast require some illustration, which is at times is a better way to explain/remember what's happening in science than written words. Hence, you will use your paper packet for these notes.

#### IV-B. "Ocean Tides" [Gizmo](#)

This is an optional Gizmo that you can view with a computer and your paper packet. Maybe skip it for now, but if you find that you "don't get" tides you could check it out later. Then you'll totally get it.

#### IV-C. Tides Review



Using these pictures and the following info, attempt to answer the numbered questions.

- Both pictures were taken from the same exact spot by Mr. Hoegh (The zoom for both snapshots was the same, too). The picture on the left was taken at about 2 o'clock in the afternoon. The picture on the right was taken 5 1/2 hours later, at 7:30 pm.
  - The high temperature on this day in Puerto Vallarta, Mexico was about 85 degrees F. I tell you this not because daytime temperature influences tides. I tell you this so that might be jealous, and that you might be reminded that this snowy, frigid winter will not last forever.
  - The moon phase on this particular day was a "New Moon".
1. What causes high tides and low tides?

2. Approximately how many high tides would there be on this day? How many low tides would there be?
3. On the day when the picture was taken, was there a Spring or Neap tide? If so, which one? *How do you know this?*

#### IV-D. Chapter 14-4 Questions

*This learning opportunity is on the paper packet.*

\*\*\*Grab an answer key and make sure your answers are correct.\*\*\*

#### IV-E. Tides and Seasons [Standard Check](#)

What was your score on this standard check? \_\_\_\_\_

Which questions did you answer incorrectly? \_\_\_\_\_

Will you be retaking this standard check? \_\_\_\_\_

How did/can you master the concepts in this standard check?

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#### V-A. “Earth, Moon, and Sun Effects” [Ediscio Flash Cards/Quizlets](#)

Statistics:

# of flashcards known: \_\_\_\_\_ # of flashcards unknown: \_\_\_\_\_

#### V-B. Seasons and Tides Essay Questions/Blog Response

Go to your team’s science blog. There might be a couple of questions to answer. Show the world how much you know about the causes of seasons and tides. The world needs to know. Of course, your comment doesn’t have to be published. Just say “PDP” at the end of the comment. But really, the world needs to know.

#### V-C. “Moons Review Games”

Go to S:\Students\8th Grade Science\4 Astronomy. You will find some games about the moon and its effects on Earth. Play them. *Learn* more about this stuff. Keep track of your high scores.

#### V-D. Eclipses, Moons, Seasons, and Tides [Standard Check](#)

What was your score on this standard check? \_\_\_\_\_

Which questions did you answer incorrectly? \_\_\_\_\_

Will you be retaking this standard check? \_\_\_\_\_

How did/can you master the concepts in this standard check?

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