



Grade Level

6th - 8th Grades

Lesson Length

30 Minutes

STEM Careers

- NASA Scientist
- Astronomer
- Astrophysicist

Life Skills

- Sharing
- Keeping Records
- Critical Thinking
- Teamwork

Learn More

- Visit Raising Nebraska raisingnebraska.unl.edu
- Visit Hastings Museum hastingsmuseum.org

Virtual Fun

- <https://www.youtube.com/watch?v=p7Q4VYHPZw8>

2017 Solar Eclipse Material Author(s):

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LAYERS OF THE SUN

Science

This grab and go lesson focuses on the layers of the sun.

LEARNING OBJECTIVES

By the end of the lesson, students should be able to:

- Name and label the layers of the Sun

EDUCATIONAL STANDARDS SUPPORTED

- NE 8.4.1.a Describe the components of the solar system (the Sun, planets, moons, asteroids, comets)
- NGSS MS-ESS1-1 Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.

MATERIALS LIST

- Computer with Speakers (optional)
- Lyric Sheets
- Oranges (cuties will work)
- Orange Lab Journal Sheet (2 options)
- Napkins

PREPARATION

- Print out lyrics and journal sheet
- Purchase oranges, enough for one per student
- Wrap the oranges in clear wrap

We want to hear from you!

Let us know what you thought of the lesson or send us a picture of youth participating in the lesson.

#NE4HSTEM

#ECLIPSE2017



INTRODUCTION

The sun is usually too bright for us to see the corona. However, during the solar eclipse, most of the sun's light will be blocked by the moon. This will make it so we can see the corona.

OPENING QUESTIONS

Can you name a star that shines during the day?

The sun! The sun is an average sized yellow star. It is because of its heat; we can live here on Earth.

ACTIVITY 1: LAYERS OF THE SUN

Each student will need an orange and journal sheet.

The inner layers are the Core, Radiative Zone and Convection Zone. The outer layers are the Photosphere, the Chromosphere and the Corona.

The orange's skin represents the Corona

Corona - The corona is the outermost layer of the Sun. The corona cannot be seen with the naked eye except during a total solar eclipse or with the use of a coronagraph.

Peel the skin off, the inside of the skin represents the Chromosphere.

Chromosphere - The chromosphere is a layer in the Sun above the solar surface (the photosphere). This is the layer solar flares happen.

The pulp (white strings) represent the magnetic fields in the photosphere.

Photosphere - The photosphere is the deepest layer of the Sun that we can observe directly. This layer releases light which reaches the Earth. Sunspots form on this layer.

The fruit itself represents the Radiative and Convective Zones.

The juice symbolizes the sun's energy starting to create photons (light).

The Radiative and Convective Zones-As the Sun's energy travels out from the core, it goes through the radiative zone first, then the convective zone. This is the zone where light is starting to be created.

The seeds represent the core.

Core- Just like the Earth, the Sun has a core. The Sun's core is where the fuel of the Sun (hydrogen) is being used for energy. All the heat and light that we feel here on Earth started in the Sun's core through the process of nuclear fusion.

Vocabulary

Sunspots: appear as dark spots on the photosphere. They are a cooler temperature than the area surrounding them, which is what gives them the darker appearance.

Solar Flares: outbursts of energy that happen when the Sun's magnetic fields get twisted, rip apart, and reconnect.

ACTIVITY 2: SUN SONG

1. Give each student a copy of the lyrics.
2. Play the song once or twice and have the students follow along on their sheets. *Link to the song is under “Virtual Fun”*
3. Play the song again and have the students sing along.
4. Groups could come up with actions to do during the song to help them remember the sun process / the song.

Groups could also make a poster for each verse about what is going on in the sun.



REFLECT

- If posters were made, groups can talk about what they drew and why they drew it for that verse.
- Also, the song could be played at a later date to see how much of the sun processes they remember from the song.



APPLY

If possible, have the students view the solar eclipse on August 21st. Stress again that this is the only time we see the corona layer of the sun.

References

Singer, Lou, and Hy Zaret. “They Might Be Giants Lyrics.” A-Z Lyrics. N.p., n.d. Web. 02 Mar. 2017. <<http://www.azlyrics.com/lyrics/theymightbegiants/whydoesthesunshinethesunisamassofincandescentgas.html>>.

“Layers of the Sun.” Ed. Holly Zell. NASA, 30 July 2015. Web. 10 Apr. 2017. <https://www.nasa.gov/mission_pages/iris/multimedia/layerzoo.html>.

Corbat, Josh. “The Sun: Not Just a Big Ball of Fire.” Science for Kids. Web. 10 Apr. 2017. <<http://study.com/academy/lesson/layers-of-the-sun-lesson-for-kids.html>>. <http://planetfacts.org/layers-of-the-sun/>

WHY DOES THE SUN SHINE?

By: Lou Singer and Hy Zaret

The sun is a mass of incandescent gas
A gigantic nuclear furnace
Where Hydrogen is built into Helium
At a temperature of millions of degrees

Yo ho! it's hot!

The sun is not a place where we could
live.

But here on Earth there'd be no life
Without the light it gives!

We need its light, we need its heat
We need its energy

Without the sun, without a doubt,
There'd be no you and me!

The sun is a mass of incandescent gas
A gigantic nuclear furnace
Where Hydrogen is built into Helium
At a temperature of millions of degrees

The sun is hot...

It is so hot that everything on it is a gas:
Iron, Copper, Aluminum, and many
others.

The sun is large...

If the sun were hollow, a million Earth's
could fit inside!

And yet, the sun is only a middle size
star.

The sun is far away...

About 93,000,000 miles away; that's
why it looks so small!

And even when it's out of sight
The sun shines night and day

The sun gives heat, the sun gives light,
The sunlight that we seek.
The sunlight comes from our own sun's
Atomic energy!

Scientists have found that the sun is a
huge atom smashing machine.
The heat and light of the sun come from
the nuclear reactions of
Hydrogen, Carbon, Nitrogen, and
Helium.

The sun is a mass of incandescent gas,
A gigantic nuclear furnace.
Where Hydrogen is built into Helium
At a temperature of millions of degrees!

ORANGE LAB

Layers of the Sun

NAME

DATE

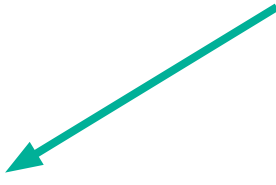
Write down or draw which part of the orange represents which part of the sun.

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| Orange Layer | Sun Layer |
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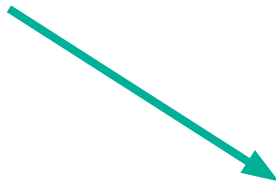


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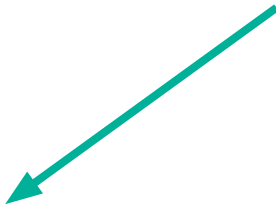
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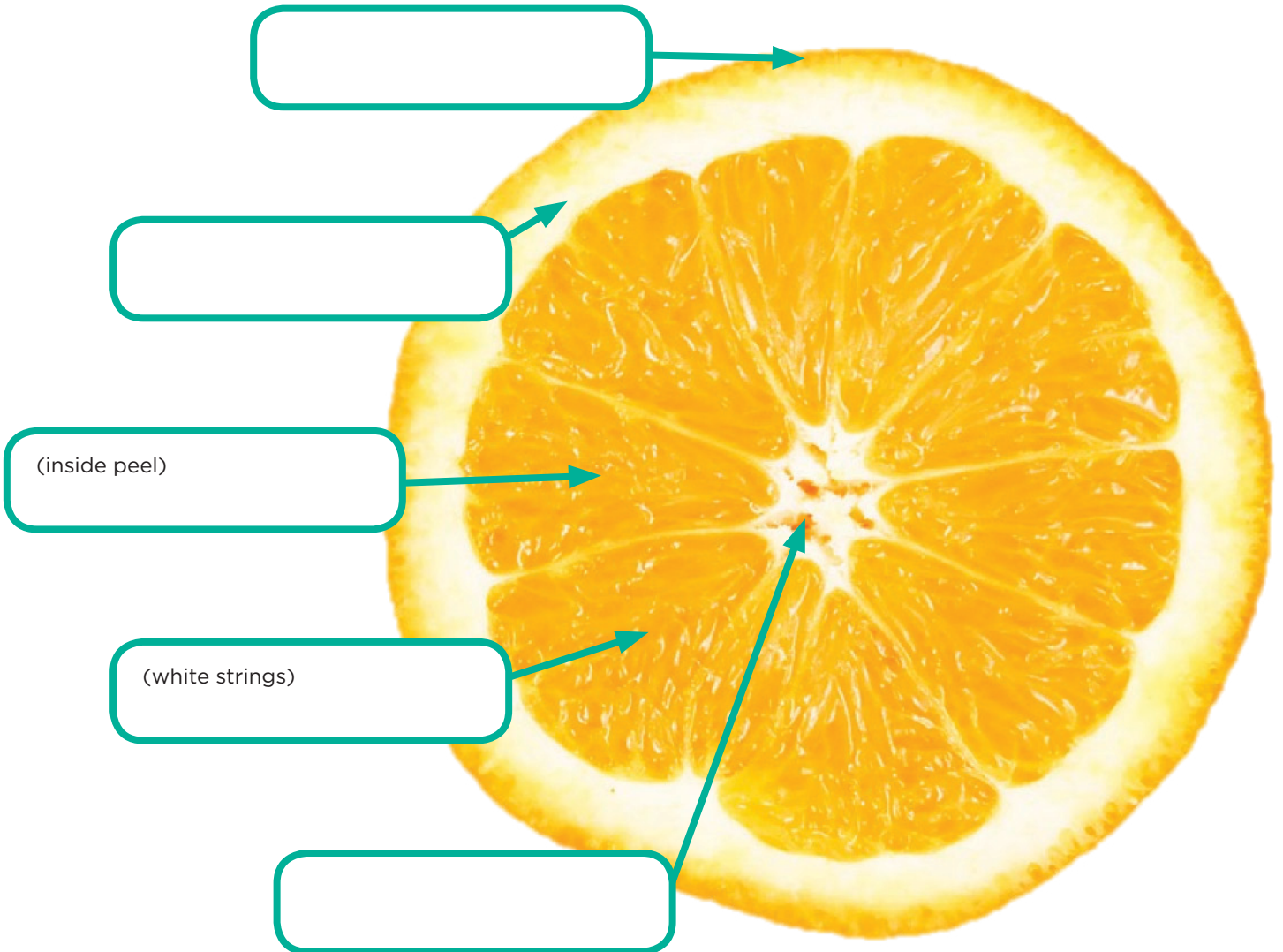


ORANGE LAB

Layers of the Sun

NAME

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