Star of the Solar System-The Sun

Lesson Concept The solar system is comprised of the Sun, our closest star, and eight planets. The sun is at the center and is the primary energy source for Earth.

Link This is the first lesson in the unit and it introduces the solar system, focusing on the sun. In the next lesson, the students will learn about the size of planets and their distances from the sun.

Time 60 minutes

Materials

Whole class

www.youtube.com/watch?v=me06I9GDM_k

R1 Sun Images

Groups of 4

R2 Guiding Question

Individual

Legal size piece of paper

Colored markers or pencils

H1 Lyrics to The Sun is a Mass…

Pencil

Science notebook

Advance preparation

1. Set up your computer to play the Youtube clip.
2. Duplicate and cut **R2 (guiding questions).** It is all right to have duplicate groups working on the same guiding question.
3. Duplicate **H1** for each student.

Procedure:

Engage ***(10 minutes) The sun is at the center of our solar system.***

1. In partners ask students to brainstorm what is in the sky. Chart their responses. Then ask them what is in space. Chart those responses.
2. Build on the responses (e.g. planet, moon, sun etc) and note that they have listed some of the things found in the solar system.
3. Distribute the paper and markers to each student. Ask them to draw and label what they think our solar system looks like.
4. As students are drawing, walk around to find some variations in the drawings. Ask those students to share what they have drawn. Then have the whole class comment on the similarities and differences in each of the drawings.

Teacher Note: do not correct their drawings (e.g., some may have the sun in the corner, or planets on tracks). Students will return to their drawing after ***Lesson 3*** *to change what they originally drew based on what they know at the end.*

5. Summarize what the students are sharing, noting that they will return to their drawing at the end of this section of the unit.

Teacher Note: Either collect their drawings and return to the students after Lesson 3; or ask students to "clip" (not glue) their drawings into their notebook to be used after Lesson 3

6. Explain that today the students are going to learn about the sun and its role in the solar system.

Explore ***(25 minutes) The sun, a medium star found at the center of the solar system, provides energy to the Earth.***

7. Review student drawings—where did they put the sun? Comment as appropriate about the sun being in the middle of the solar system.
8. In partners ask students to brainstorm what they know about the sun. Chart their responses in the K of a K–W-L chart.
9. Ask students what they want to learn and record in the "W" of the K-W-L chart.
10. Explain that they will view a clip about the sun several times. The first time, they should just pay attention to the music and the pictures. Play the Youtube www.youtube.com/watch?v=me06l9GDM_k clip. Debrief what students saw in the clip.
11. Display the pictures on R2 under the doc camera as a review of some of the visuals that the students saw in the video.
12. Distribute the lyrics to the song, and tell the students they should pay attention to the words of the song as the clip is replayed. Replay the clip.
13. Divide the students into groups, giving each group one guiding question (there will be multiple groups with the same question). Ask student to use the lyrics and other references to help them answer the question. They should be prepared to share their answers with the rest of the class.

Explain ***(25 minutes) The sun, a medium star, sits at the center of our solar system. Through fusion it creates the energy that fuels all life and weather processes on Earth***

14. Ask 3 different groups to share their guiding question and their answers. As groups present, ask other students to take notes in their science notebook.

Teacher Note: Students should use the vocabulary, like incandescent and fusion, in their presentation. The presentations should contain this information:

The Sun provides heat and light energy to the Earth, which enable plants and animals to grow. The sun's energy also drives the water cycle and weather. Students may not get the latter from the song, and may need to be prompted for this.

The Sun gets its Energy from fusion (atom smashing) of hydrogen into helium; carbon, and nitrogen also contribute to the release of energy. The smashing of atoms takes place at millions of degrees.

The Sun is a medium sized star. It is a ball of incandescent (glowing/bright) gas (technically it is matter in the plasma state) made of hydrogen and helium. It also has other elements in the gaseous state—like carbon and nitrogen.

15. Encourage students to ask questions after a group has presented.
16. Once the three groups have presented, ask each group to generate a new question. Have groups write their question on a sentence strip or post it. Post in the classroom for later use.
17. Return to the K-W-L chart. If there is something in the K chart that is a misconception or misstated and the students now know it differently, cross it off the K chart. Place a check next to the things they wanted to know and where able to find out in the song. Lastly, list in the L chart any other things the students learned.
18. Ask students to tape the lyrics into their notebooks.
19. Play the Youtube one more time with students singing along.

Extend/Evaluate ***(10 minutes) The sun, a medium star, sits at the center of our solar system. Through fusion it creates the energy that fuels all life and weather processes on Earth***

20. Have the students record three new facts they learned about the sun in their science notebook. Ask them to star (pun intended) the one they think is most important and explain why it is important.

The Sun Is A Mass…
Original Lyrics by Hy Zaret
Sung by They Might Be Giants

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 it's light
We need it's heat
We need it's 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 earths could fit inside
and yet, the sun is only a middle-sized star.

The sun is far away
About 93 million miles away, and 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 see
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

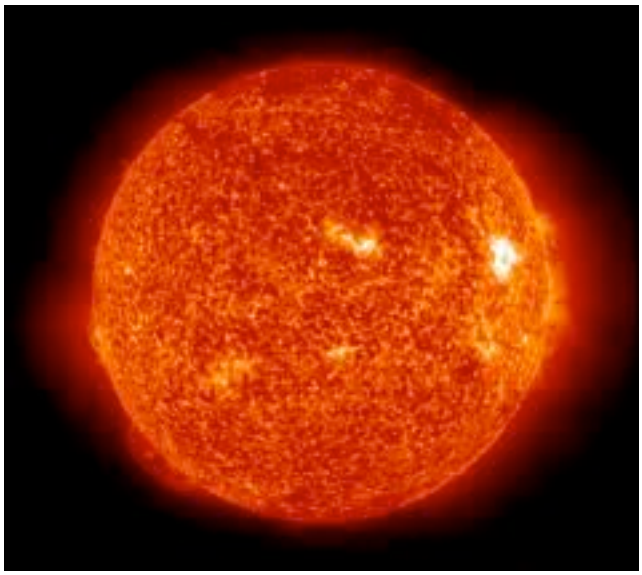
Guiding Questions

1. Why is the sun important to the Earth?

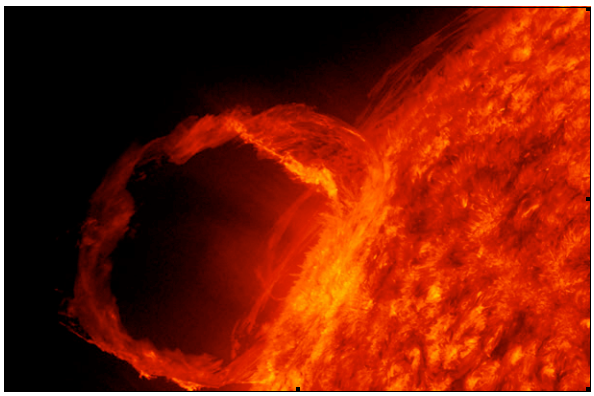
2. How does the Sun get its energy?

3. What is the sun? What is it made of?

Sun-Earth Relationship



A mass of incandescent gas



Solar flares