



# *Alternative Pre- and Post-Assessment*

*Middle School Grades*

## **Lesson Summary**

Pre/post assessment of student knowledge and understanding of the Sun

## **Prior Knowledge & Skills**

Not applicable

## **Science Benchmarks & Standards**

Not applicable

**Teaching Time:** One 45-minute period

## **Materials per Student**

- Copy of the assessment
- Pencil/pen

## **Advanced Planning**

**Preparation Time:** 20 minutes

1. Review lesson plans
2. Copy student sheets

Name

## Pre- and Post-Assessment for Grades 6—8

For the following three questions, pretend you go outside in late July to play with your friend, Chris. You forget to put on sunscreen, but Chris remembered. It's a beautiful sunny day, and it's not even that hot out. You play outside all day and you get a bad sunburn, but Chris doesn't.

1. Think about a sunscreen bottle. What does the bottle say that it “blocks?” What do you think causes sunburn?
2. Even though Chris doesn't get burnt, Chris' skin gets very hot, too. Where do you think the heat came from? Explain.
3. You've heard people talk about the word “radiation.” You're pretty sure that you saw that word on the sunscreen bottle, but you think that you've heard it some other places. What types of radiation have you heard of? Make a list.

Short answer/ Draw a picture

1. Describe what you think the surface of the Sun is like.
2. Draw a picture of what you think the Sun looks like up close. Label the picture as well as you can.



3. You have invented a Nobel Prize winning telescope that allows you to see inside of the Sun. Draw the Sun as you think you would see it through the telescope. Label the picture as well as you can.

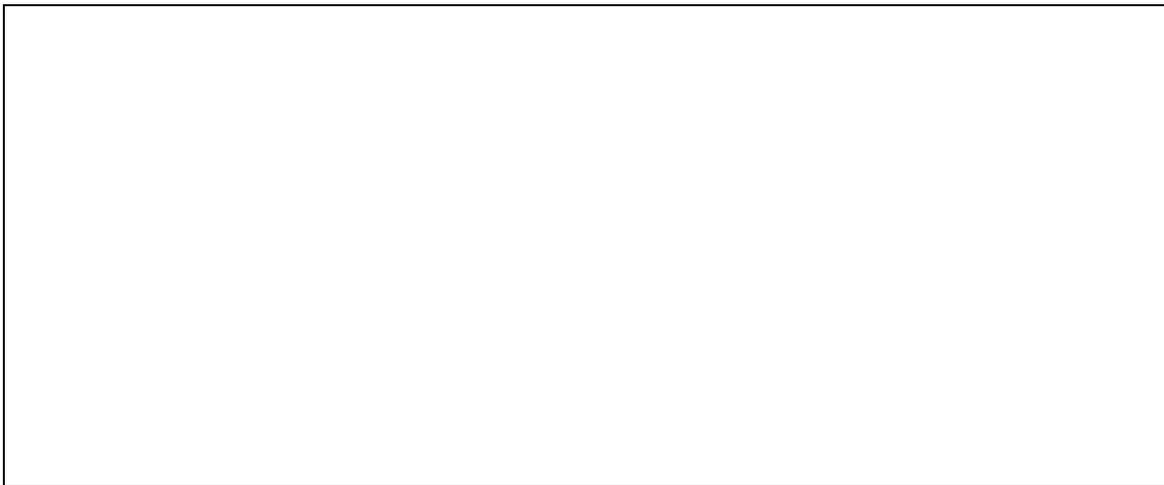


4. You meet some friendly aliens who don't understand some things about your language, but they know a lot about astronomy and your Solar System. Using their voice recognition translators, they ask you to define a "day" and a "year." They have some trouble understanding your answer, so you draw them some pictures:

Think of a way to draw a "day," and use the space below to show the idea to the aliens. (hint: Don't forget that a full day includes the nighttime)



Now, use the space below to show them your idea of the definition of "year."



Fill in the blanks using the list below. Not every word will be used, but any given word can only be used once.

|           |                |
|-----------|----------------|
| Star      | Moon           |
| Revolves  | Heat           |
| Hydrogen  | Earth          |
| Rotates   | Microwaves     |
| Planet    | Magnetic Field |
| Altitude  | Sun            |
| Sphere    | Moves          |
| Radiation | Circle         |
| Light     | Jupiter        |
| Water     | Latitude       |
| Helium    | Plants         |

1. The Sun is our closest \_\_\_\_\_.
2. The Sun is shaped like a \_\_\_\_\_.
3. The Earth \_\_\_\_\_ around the Sun.
4. The Earth \_\_\_\_\_ on its axis.
5. The \_\_\_\_\_ revolves around the Earth.
6. The \_\_\_\_\_ is the largest object in our Solar System.
7. The Sun provides \_\_\_\_\_ and \_\_\_\_\_ to the Earth.
8. The Sun is mostly made of \_\_\_\_\_.
9. The \_\_\_\_\_ of the Earth makes it possible to use a \_\_\_\_\_ compass.
10. X-rays, UV-rays, Gamma rays, and Radio waves are all types of \_\_\_\_\_.

Teacher's Answers

Name \_\_\_\_\_

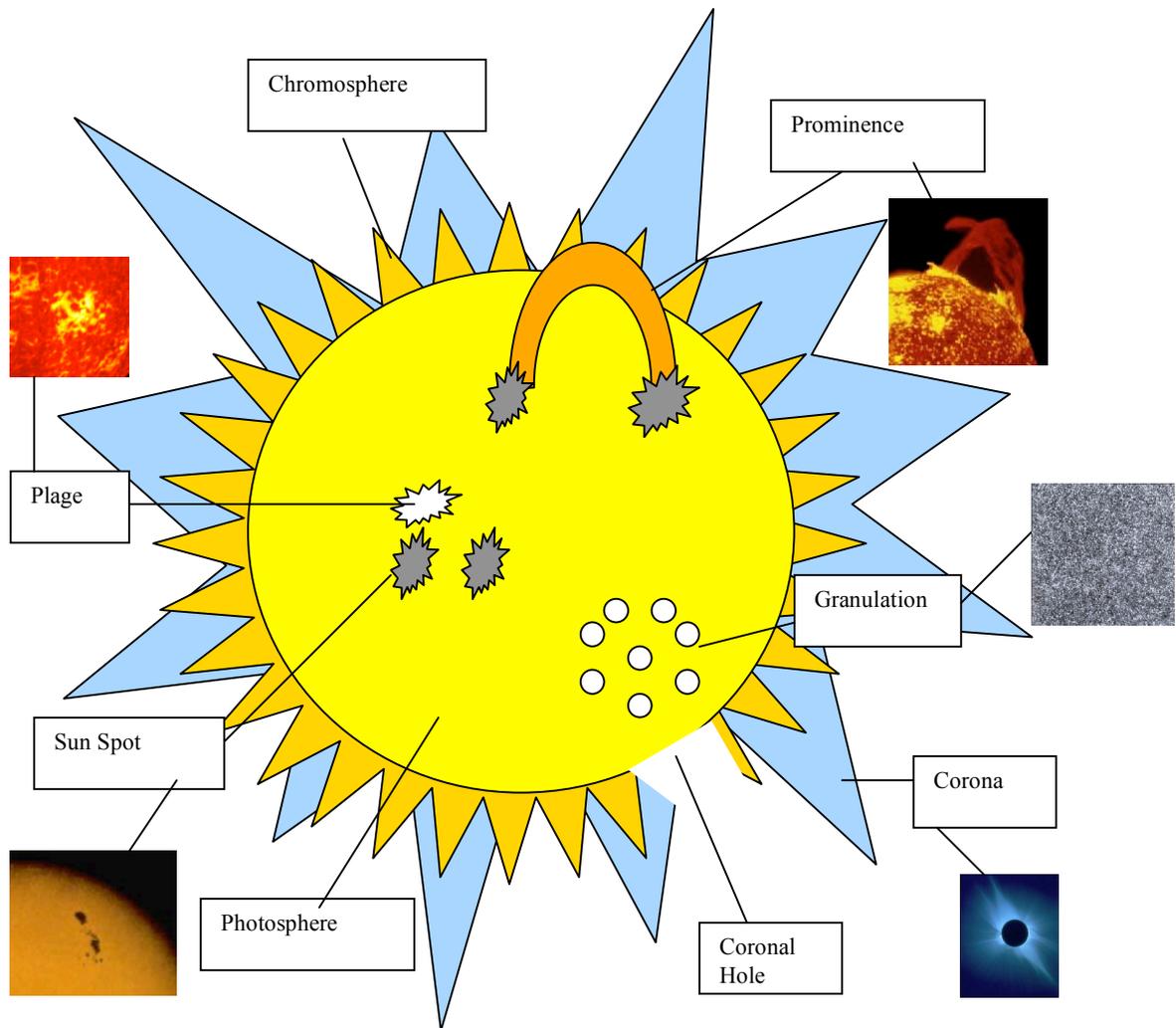
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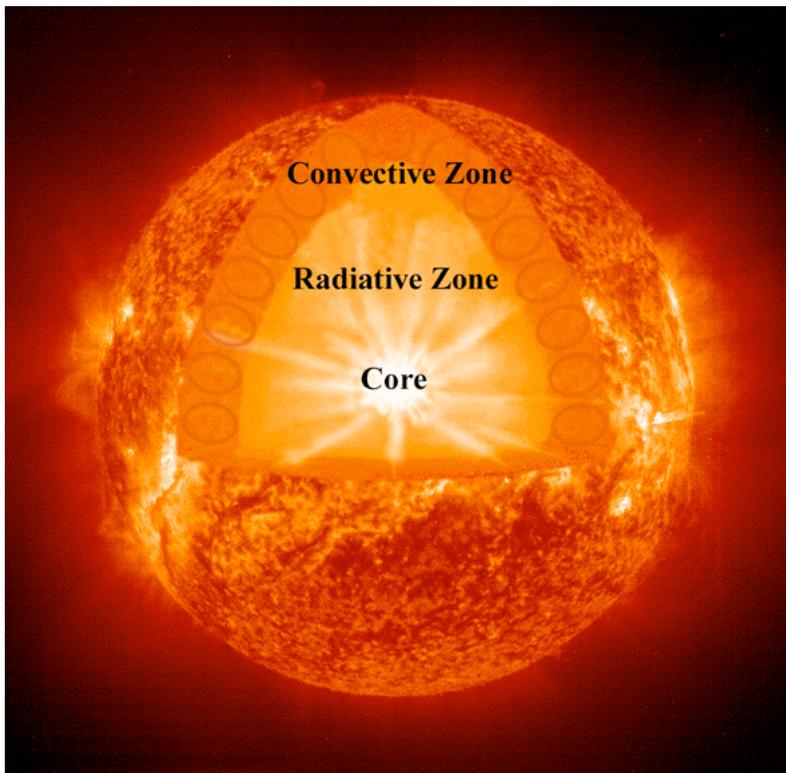
4. Think about a sunscreen bottle. What does the bottle say that it “blocks?” What do you think causes sunburn? *Ultra Violet or UV radiation; the pigments in the skin reacting to solar radiation (UV).*
  
5. Even though Chris doesn't get burnt, Chris' skin gets very hot, too. Where do you think the heat came from? Explain. *Energy from the Sun produces heat on the Earth. Chris' skin absorbs some of that heat coming from the Solar energy. Also Solar radiation.*
  
6. You've heard people talk about the word “radiation.” You're pretty sure that you saw that word on the sunscreen bottle, but you think that you've heard it some other places. What types of radiation have you heard of? Make a list. *Microwave, UV or Ultra Violet, IR or Infrared, Nuclear, Radio, Gamma Ray, X-ray. Accept various answers. Answers such as IR, Gamma Ray, and X-ray are more advanced.*

Short answer/ Draw a picture

5. Describe what you think the surface of the Sun is like. *The surface of the Sun is constantly changing, moving, convecting, with hot and cool spots, periods of high activity, coronal mass ejections, sunspots, prominences, grains, magnetic activity. Accept a variety of answers.*
6. Draw a picture of what you think the Sun looks like up close. Label the picture as well as you can. (*See "Features of the Sun"*)

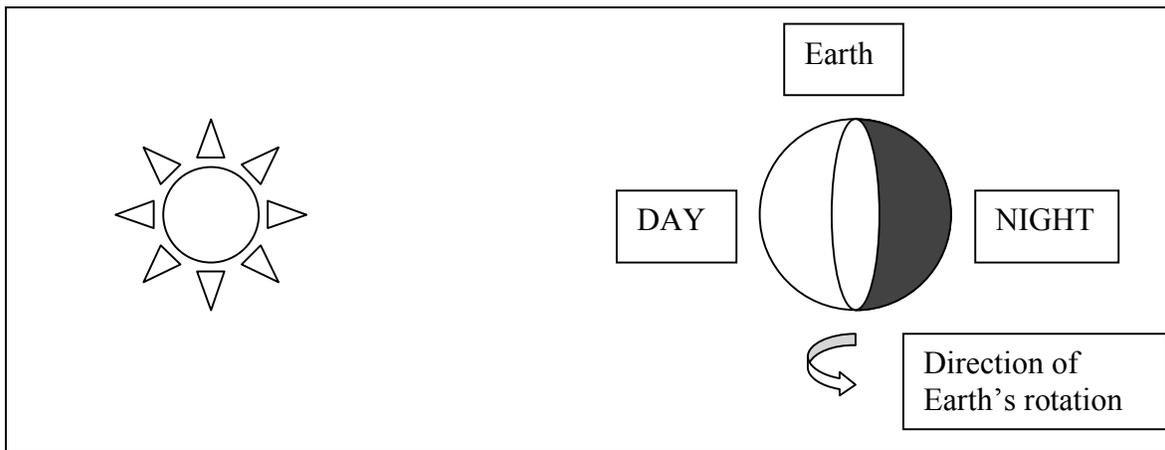


7. You have invented a Nobel Prize winning telescope that allows you to see inside of the Sun. Draw the Sun as you think you would see it through the telescope. Label the picture as well as you can.

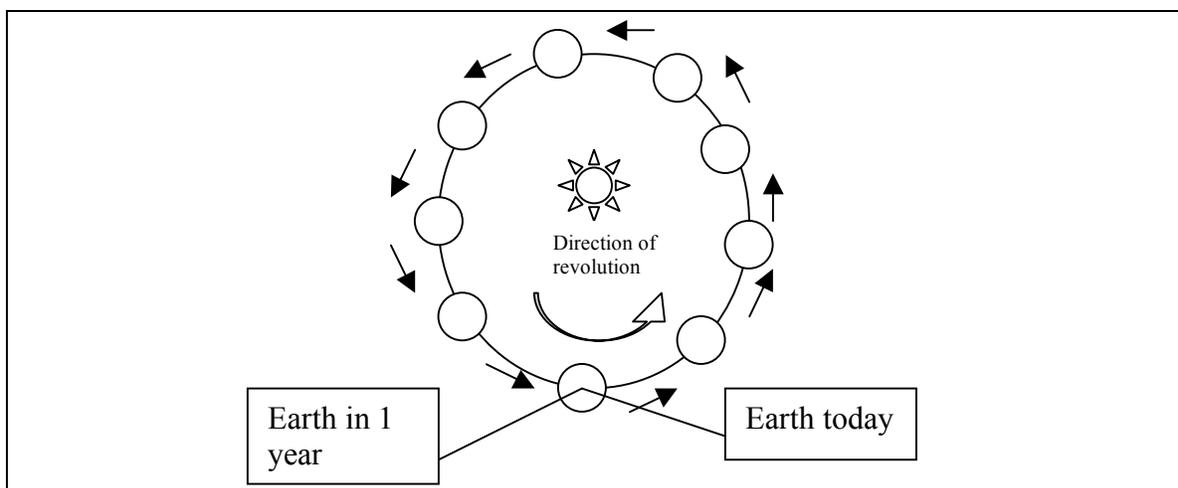


8. You meet some friendly aliens who don't understand some things about your language, but they know a lot about astronomy and your Solar System. Using their voice recognition translators, they ask you to define a "day" and a "year." They have some trouble understanding your answer, so you draw them some pictures:

Think of a way to draw a "day," and use the space below to show the idea to the aliens. (hint: Don't forget that a full day includes the nighttime) *Accept a variety of sensible answers.*



Now, use the space below to show them your idea of the definition of "year."



Fill in the blanks using the list below. Not every word will be used, but any given word can only be used once.

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| Sphere    | Moves          |
| Radiation | Circle         |
| Light     | Jupiter        |
| Water     | Latitude       |
| Helium    | Plants         |

11. The Sun is our closest Star.
12. The Sun is shaped like a Sphere.
13. The Earth Revolves around the Sun.
14. The Earth Rotates on its axis.
15. The Moon revolves around the Earth.
16. The Sun is the largest object in our Solar System.
17. The Sun provides Heat and Light to the Earth. (or Radiation)
18. The Sun is mostly made of Hydrogen.
19. The Magnetic Field of the Earth makes it possible to use a compass.
20. X-rays, UV-rays, Gamma rays, and Radio waves are all types of Radiation. (or Light)