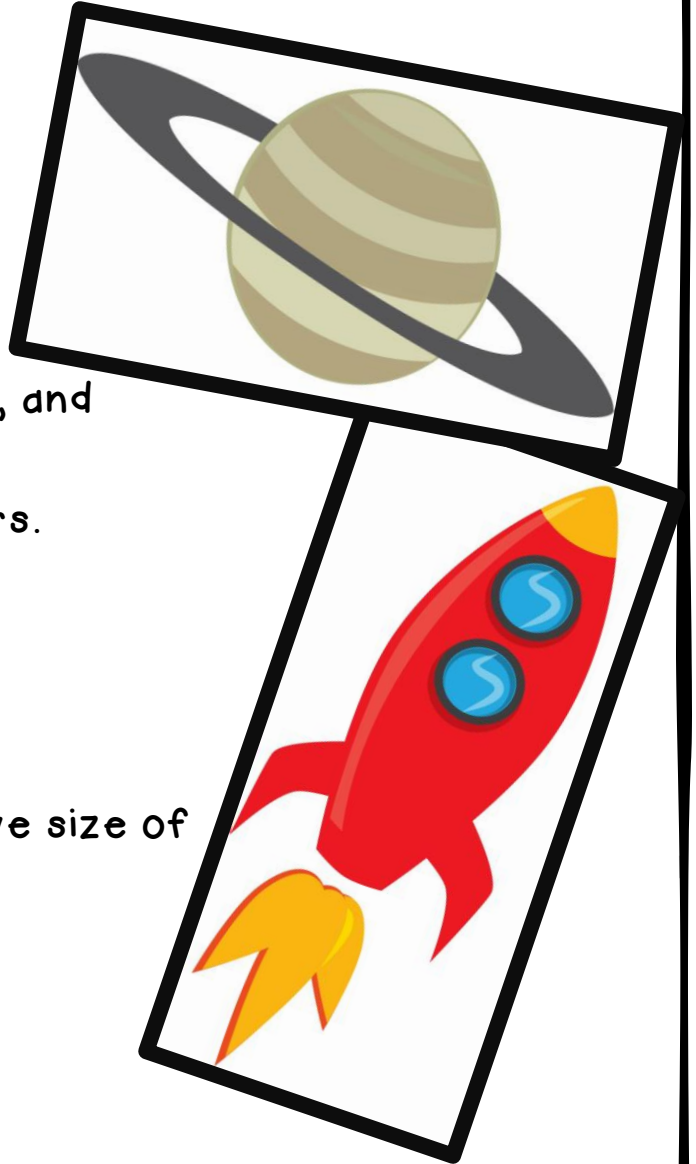


Space Interactive Internet Scavenger Hunt

This interactive internet scavenger hunt is aligned to various space standards. It provides students with an engaging way to learn about planets, the moon, stars, day & night cycle, and seasons. Students explore the mr.nussbaum.com, ducksters.com, and other websites to answer questions. An answer key is included for teachers.

Material Covered

- Order of planets from the sun
- Inner & Outer Planets
- What the planets look like, relative size of planets, distance from sun
- Phases of the Moon
- Types of stars, different temperatures, colors, and sizes
- Lifecycle of a star
- Day & Night Cycle
- Seasons

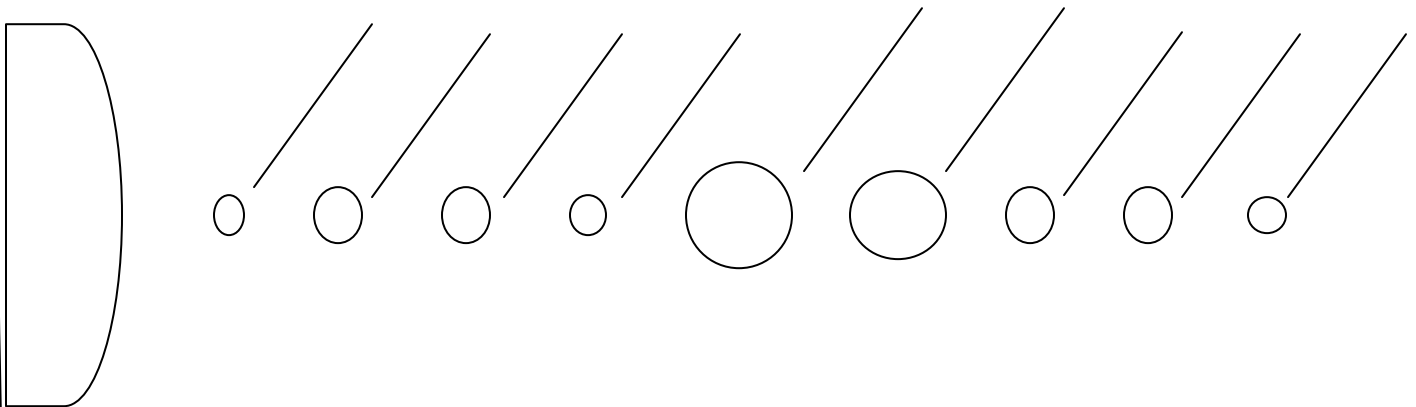


Space Interactive Internet Scavenger Hunt

Directions: Click on the links provided to help you answer the questions.

Planets

Use the [picture](#) to label the planets on the lines below.



Read through the paragraphs below the picture to answer the following questions.

1. The four inner planets are: _____, _____, _____, _____
_____. These are also known as _____.
2. The four outer planets are: _____, _____, _____, _____
_____. These are also known as _____.
3. Pluto is one of the _____.

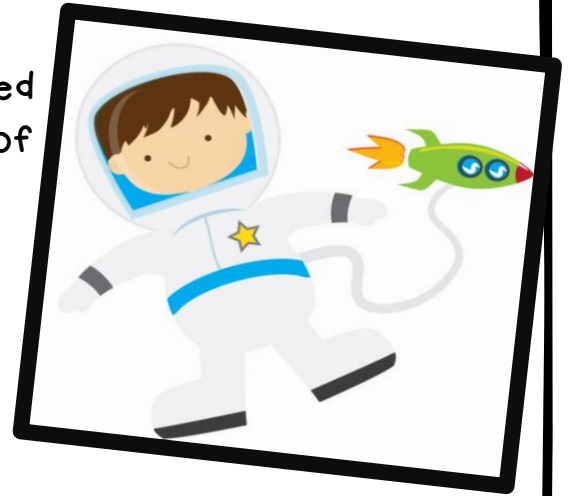
Mercury

Draw a picture of [Mercury](#) in the box below.



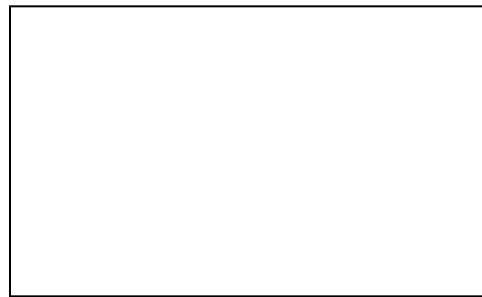
Read through the paragraph about Mercury to answer the following questions.

4. Mercury is the _____ planet. Compared to the earth, it is only about _____ percent of the earth's surface.
5. How far is mercury from the sun when it's at its closest? _____



Venus

Draw a picture of Venus in the box below.



Read through the paragraph about Venus to answer the following questions.

6. Venus is similar in size to _____. Compared to the earth, it is _____ percent of the earth's diameter.
7. How far is Venus from the sun? _____

Earth

Draw a picture of Earth in the box below.



Read through the paragraph about Earth to answer the following questions.

8. Earth is the only planet in the solar system that can _____.
9. How much salt water makes up earth? _____

10. How much land and fresh water make up earth? _____

11. How far is earth from the sun? _____

Mars

Draw a picture of [Mars](#) in the box below.



Read through the paragraph about Mars to answer the following questions.

12. Mars is much smaller than the _____. Compared to the earth, its surface area occupies _____ percent of earth's.

13. How far is Mars from the sun? _____

Jupiter

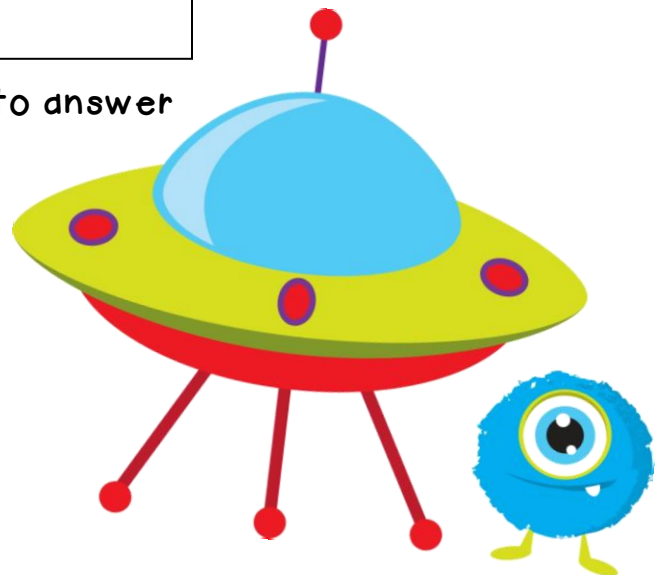
Draw a picture of [Jupiter](#) in the box below.



Read through the paragraph about Jupiter to answer the following questions.

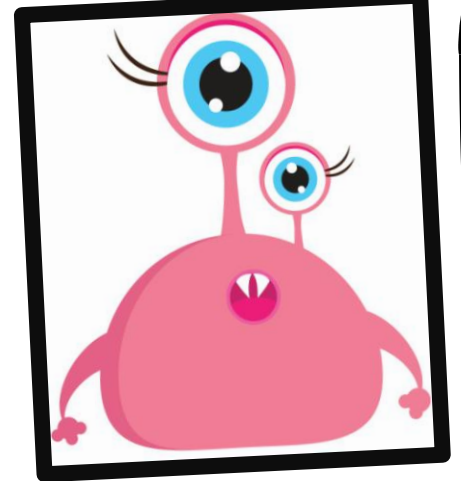
14. Jupiter is the _____ planet in the solar system. It is _____ times as massive as Earth.

15. How far is Jupiter from the sun?



Saturn

Draw a picture of [Saturn](#) in the box below.



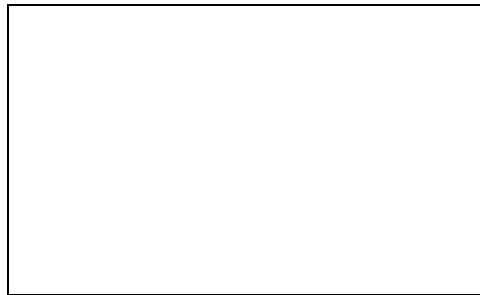
Read through the paragraph about Saturn to answer the following questions.

16. Saturn is the second _____ planet in the solar system. If Saturn were hollow, _____ earths could fit inside of it.

17. How far is Saturn from the sun? _____

Uranus

Draw a picture of [Uranus](#) in the box below.



Read through the paragraph about Uranus to answer the following questions.

18. Uranus is the _____ largest planet in the solar system. If it were hollow, _____ earths could fit inside of it.

19. How far is Uranus from the sun? _____

Neptune

Draw a picture of [Neptune](#) in the box below.



Read through the paragraph about Neptune to answer the following questions.

20. Neptune is the _____ largest planet in the solar system. If it were hollow, _____ earths could fit inside of it.

21. How far is Neptune from the sun? _____

Moon

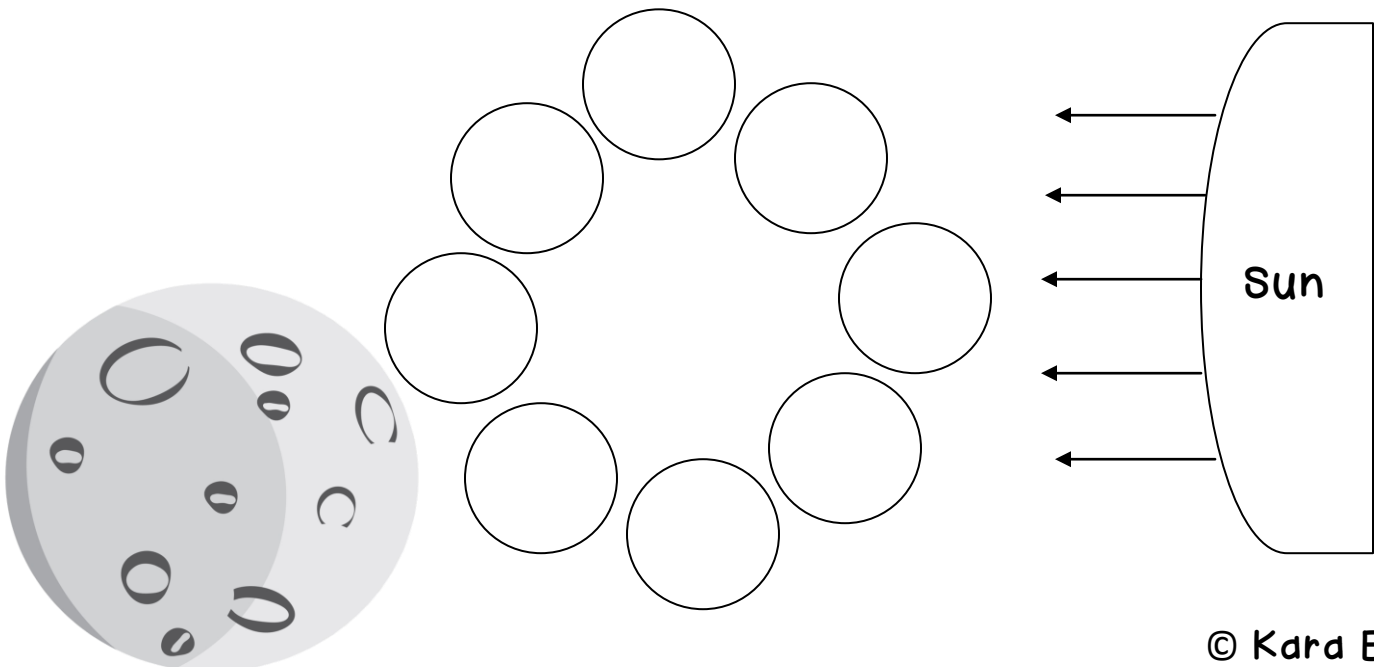
Read the passage and watch the video about the [moon](#). Write down three interesting facts that you learned.

1. _____
2. _____
3. _____

Write the [phases of the moon](#) below.

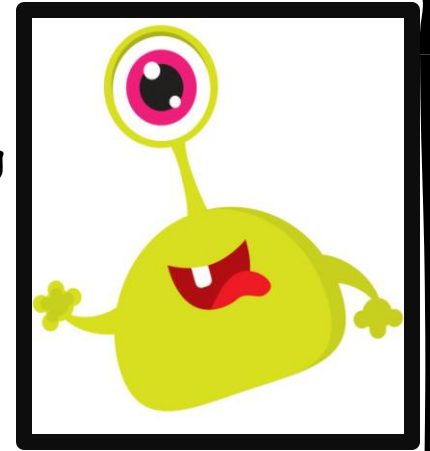
- | | |
|---------|---------|
| - _____ | - _____ |
| - _____ | - _____ |
| - _____ | - _____ |
| - _____ | - _____ |

Use the picture to help fill in the circles by drawing the [phases of the moon](#). Put your cursor over each phase of the moon to see what that phase is called. Write the name of each phase by the circles.



Stars

Read the paragraph in lime green to answer the following questions about stars.

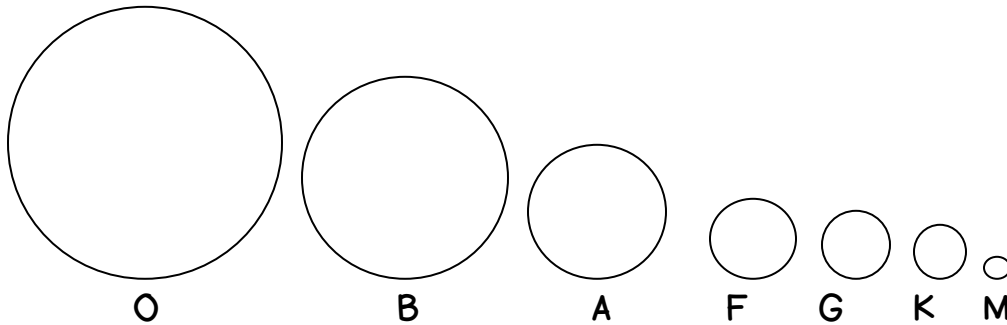


1. What are stars classified by?

2. How many types of stars are there? -----

3. Type O stars are the ----- and type M stars are the -----.

Color the stars according to the diagram and information on the website.

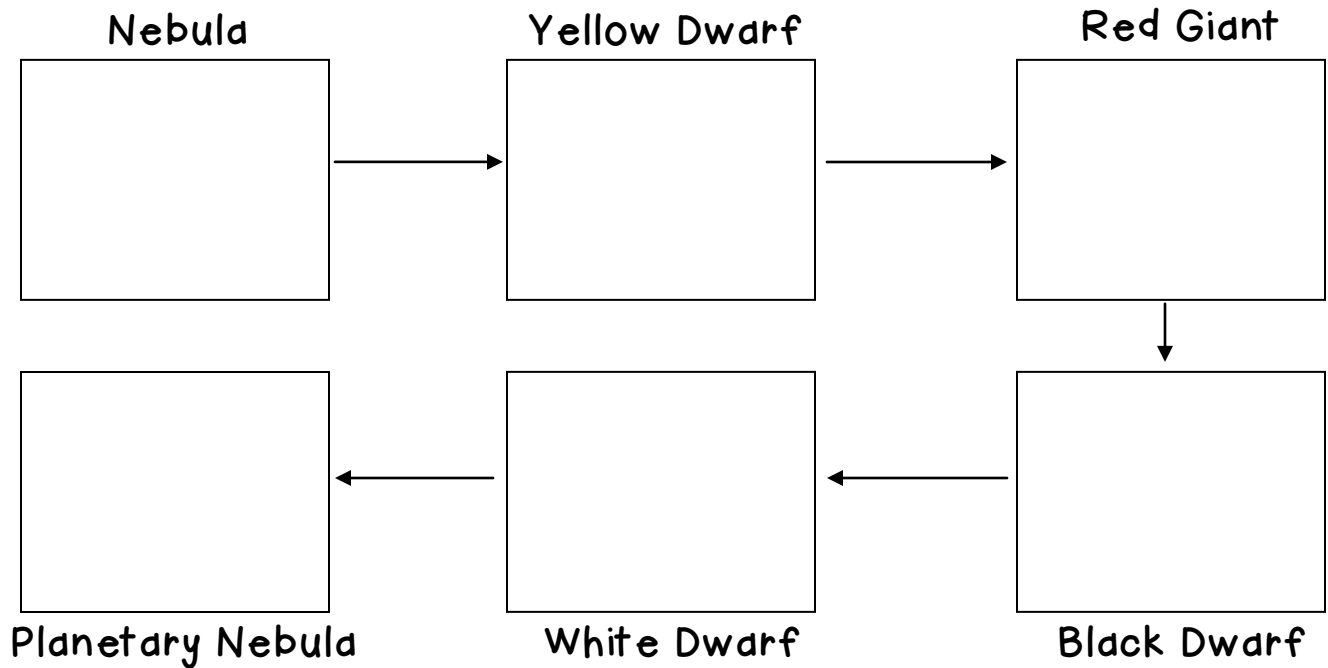


Fill in the chart by using the information about the surface temperature and radius of the stars in comparison to the sun.

Type	Surface Temperature	Radius in Comparison to the Sun
O		---- x the sun
B		---- x the sun
A		---- x the sun
F		---- x the sun
G		---- x the sun
K		---- x the sun
M		---- x the sun

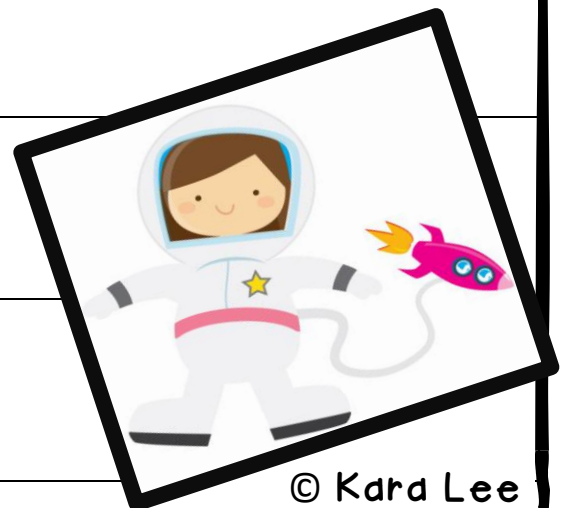
Use the [star life cycle](#) webpage to help fill in the chart below.

4. Draw pictures of the 6 stages of a stars lifecycle.



Click on the different stages of the stars lifecycle. In the chart below, write what happens at that stage of the stars lifecycle in your own words.

Star	Explanation of this stage of a stars lifecycle
Nebula (Stellar Nursery)	
Yellow Dwarf	
Red Giant	
Black Dwarf	

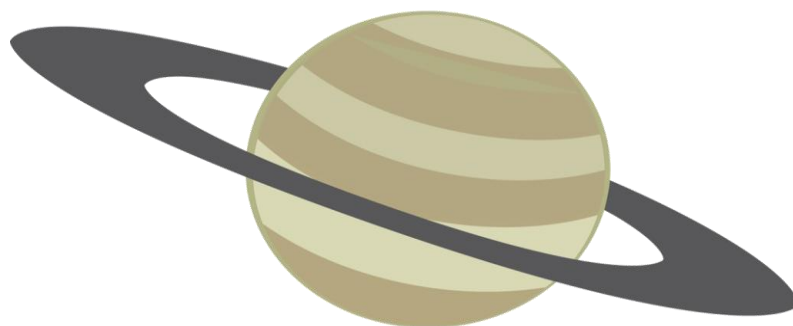


White Dwarf	
Planetary Nebula	

Day & Night Cycle

Read the paragraphs about the [day and night cycle](#) to fill in the blanks and answer the questions below.

1. It takes earth _____ hours to make one complete turn on its _____.
2. The sun lights up one _____ of the Earth, and the other half is in _____.
3. As the earth spins on its axis, we move from _____ to _____ and back to _____ and so on.
4. During the day, why is it that the sun appears to be moving through the sky? _____
5. During the night, we cannot see the sun. However, is the earth still spinning on its axis? _____



Seasons

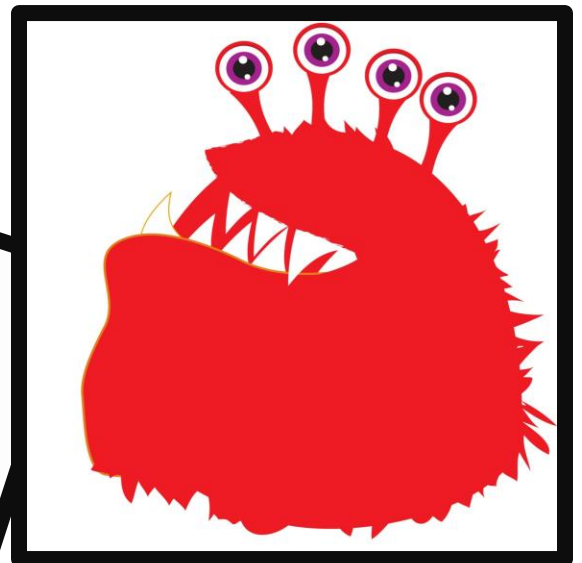
Read the paragraphs about seasons to fill in the blanks and answer the questions below.

1. In your own words, explain why seasons occur.

2. The earth rotates around the sun every -----.

3. What are the 2 major effects of the earth's tilt?

- -----
- -----



Answer Key

Planets

1. Mercury, Venus, Earth, Mars. Terrestrial Planets
2. Jupiter, Saturn, Uranus, Neptune. Gas Giants
3. Dwarf Planet
4. Smallest, 15
5. 28,600,000 miles
6. Earth, 95%
7. 67,000,000 miles
8. Support life
9. 71%
10. 30%
11. 93,000,000 miles
12. Earth, 28%
13. 138,000,000 miles
14. Largest, 318
15. 466,000,000 miles
16. Largest, 764
17. 855,000,000
18. Third, 63
19. 1.78 billion miles
20. Fourth, 58
21. 2.7 million

Moon

1. Answers will vary
2. Answers will vary
3. Answers will vary
4. Full moon, waxing crescent, first quarter, waxing gibbous, new moon, waning gibbous, third quarter, waning crescent

Stars

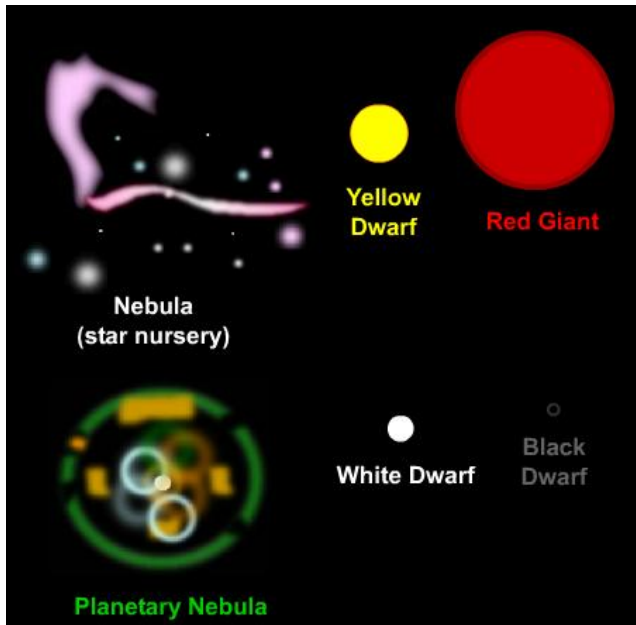
1. Their spectra (the elements they absorb)
2. 7

3. Hottest and coolest

O- blue, B- blue, A- blue-white, F- blue-white, G- yellow-blue, K- red-orange, M- red

Type	Surface Temperature	Radius in Comparison to the Sun
O	25,000 K	15 x the sun
B	11,000-25,000 K	7 x the sun
A	7,500-11,000 K	2.5 x the sun
F	6,000-7,500 K	1.3 x the sun
G	5,000-6,000 K	1.1 x the sun
K	3,500-5,000 K	0.9 x the sun
M	> 3,500 K	0.4 x the sun

4.



Answers in the chart below will vary. The information is what students will have read from the <http://mrnussbaum.com/space/stars2/> to write their answers.

Star	Explanation of this stage of a stars lifecycle
Nebula (Stellar Nursery)	A nebula is a molecular cloud in which stars are born. It must be very dense so that gas particles in the cloud come together rather than continue to orbit each other. The nebula must be relatively close to supernovae or large stars that exert gravitational force.
Yellow Dwarf	The star is formed in a nebula, where the dense parts of the clouds experience gravitational collapse and form a rotating gas globule. The globule is cooled by gravitational forces and shockwaves from a nearby supernova, or, from gas emitted by a nearby star. The globule then collapses and rotates over a period of many thousands of years. During this process, it heats up and rotates faster. The rotation helps to form a central core, surrounded by a disk made of dust. The core is the beginning of a star.
Red Giant	As the star continually converts the hydrogen in its core to helium over a period of time that may exceed ten billion years, the star will have exhausted its supply of hydrogen in its core, ceasing nuclear reactions and causing the star to contract. As the star contracts, hydrogen heats in the shell above the core, beginning a new wave of nuclear fusion. With the higher temperatures come increased fusion rates, which result in a massive increase in the star's luminosity (brightness). The outer layers of the shell expand, giving birth to the red giant. Because of the increase in size, the energy produced in the shell is spread out over a larger area, producing lower temperatures and an orange-red color output. The sun is expected to become a red giant in about five billion years, at which point Earth may be swallowed up by the expanding star. Long before then, however, Earth's biosphere will be destroyed by the sun's increasing luminosity.
Black Dwarf	The black dwarf is thought to be the final stage in the death of a star, though no such star has yet been discovered, making it only a hypothetical possibility. Scientists believe it would take a star such as the sun over 14 billion years to reach the black dwarf stage, a period of time greater than the estimated age of the universe. If black dwarfs were to exist they would be invisible and scientists could only detect them through their gravitational effects on other bodies.
	A white dwarf is a small star at the end of its lifespan.

White Dwarf	These type of stars are extremely dense and not very bright. They are essentially the leftover core of a red giant after is planetary nebula. White dwarf stars no longer contain the energy required for nuclear fusion, and therefore have no protection against gravitational collapse. Eventually, the white dwarf will cool to the point that it is no longer visible.
Planetary Nebula	A planetary nebula is a massive ejection of gas and plasma produced by a star when it dies. At the end of a star's lifetime, it becomes unstable due to the nature of helium fusion. Temperatures increase and reaction rate rises. These reactions cause the star to pulsate, eventually resulting in the star's atmosphere being launched into space, exposing the star's core and layers to its own recently expelled gases and debris. When the core reaches a temperature of 30,000 K, it emits the ultraviolet photons necessary to ionize (atoms into molecules) the expelled atmosphere and cause it to glow. The glowing cloud is the planetary nebula. At this stage, the star has begun the process of dying.

Day & Night Cycle

1. 24, axis
2. Half, shadow
3. Shadow, light, shadow
4. Because the earth is spinning on its axis
5. Yes

Seasons

1. Seasons are caused by earth's changing relationship to the sun. The Earth travels around the sun, called an orbit, once a year or every 365 days. As the Earth orbits the sun the amount of sunlight each place on the planet gets every day changes slightly. This change causes the seasons. (answer taken from ducksters.com)
2. Year
3. Angle of the sun and length of the days



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