Name: $\qquad$
Date: $\qquad$
Period: $\qquad$

## The Universe: How Big, How Far, How Fast

Video link: https://www.youtube.com/watch?v=Nlyl2mSZOtg

Objective: Students will understand the scale of size, distance between objects in the universe.


Before watching....

1. Write two things that you already know about the universe (please use complete sentences).
a. $\qquad$
$\qquad$
$\qquad$
b. $\qquad$
$\qquad$
$\qquad$

During the video....

1. In the observable part of the universe, there are how many galaxies?
a. One million
c. One billion
b. One hundred million
d. One hundred billion
2. How fast is the Earth orbiting the Sun?
a. 660 mph
b. $6,600 \mathrm{mph}$
c. $66,000 \mathrm{mph}$
d. $660,000 \mathrm{mph}$
3. Numbers like millions, billions, and trillions are hard for people to understand.
a. True
b. False
4. Bigger always means more massive.
a. True
b. False
5. The Sun is how many times more massive than Jupiter?
a. 100
c. 10,000
b. 1,000
d. 100,000
6. The monster truck and junk car represent which stars?
a. Regulus/Sun
c. Aldebaran/Betelgeuse
b. Sun/Antares
d. Zuben-el-Genubi/Sun
7. Regulus is $\qquad$ times more massive than our Sun.
a. 2
C. 4
b. 3
d. 5
8. The most massive star we know is how many times more massive than our Sun?
a. Between 100-150 times
c. Between 200-250 times
b. Between 150-200 times
d. Between 250-300 times
9. You mash $10,000,000$ monster trucks into the size of a sugar cube. Putting sugar cubes together, how big a stack of cubes would be needed to equal a neutron star?
a. 5 miles high and wide.
c 15 miles high and wide.
b. 10 miles high and wide.
d. 20 miles high and wide.
10. How much more would you weigh on a neutron star than on Earth?
a. 500,000
c. $500,000,000$
b. $5,000,000$
d. $5,000,000,000$
11. How long would it take a passenger jet to circle fully VY Canis Majoris once?
a. 120 years
c. 12,000 years
b. 1,200 years
d. 120,000 years.
12. If the Earth were the size of a basketball and the moon the size of a tennis ball, how far would it be from the basketball?
a. 6 feet
b. 11 feet
c. 16 feet
d. 21 feet

If the Sun were the size of a bowling ball, how far away would the following planets be from the Sun?

| 13. Mercury | A. 484 feet |
| :--- | :--- |
| 14. Earth | B. 142 feet |
| 15. Mars | C. 36 feet |
| 16. Jupiter | D. 2,798 feet |
| 17. Neptune | E. 93 feet |

18. If light were bouncing between LA and NY, it could do 38 bounces in one second.
a. True
b. False
19. How fast is the Sun going around the galaxy?
a. $4,830 \mathrm{mph}$
C. $483,000 \mathrm{mph}$
b. $48,300 \mathrm{mph}$
d. $4,830,000 \mathrm{mph}$
20. The distance to the Andromeda Galaxy is...
a. 250,000 light years
c. 250,000,000 light years
b. 2,500,000 light years d. 250,000,000,000 light years
21. If the Milky Way were in Los Angeles, one hundred miles across, where would the Andromeda Galaxy be?
a. Boston
c. New York
b. Chicago
d. Washington, D.C.
22. The Milky Way and Andromeda galaxies will eventually collide.
a. True
b. False

After watching....

1. Write two new things you have learned after watching this documentary (please use complete sentences).
a. $\qquad$
$\qquad$
b. $\qquad$
$\qquad$
