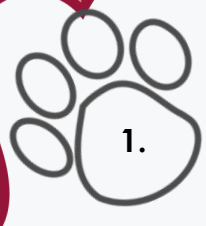
Read it: https://newsela.com/read/lib-nasa-size-age-universe/id/23731/

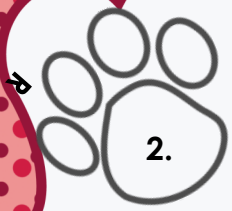
Available in different lexiles.

Read It!



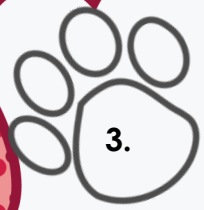
1. How old do cosmologists believe the universe is? What evidence do they use to support this?

Read It!



2. What fuels the sun? How long can a star like the sun burn?

Read It!



3. How does the study of the age of the universe help us understand the Big Bang Theory?

Read It!

4. How do stars help us understand the age of the universe?

Watch It!

1.

Go to the following Brainpop Video:

https://www.brainpop.com/science/space/bigbang/

1. Click Play on the video.
2. Answer questions from Cards #2-8 on your lab sheet.

Watch It!

2.

Where is the center of the universe located?

A. There is no center of the universe

B. At the center of the Milky Way Galaxy

C. 14.5 Billion light years away from Earth

D. In a large singularity near the Andromeda Galaxy.

Watch It!

3.

Which word best describes a singularity?

A. Large

B. Cold

C. Dense

D. Flammable

Watch It!

4.

What was contained in the singularity that gave rise to the big bang?

A. Gamma rays

B. Electrons in a highly excited state

C. One atom of every known element in our universe

D. All of the mass, energy and time in our universe.

Watch It!

5. Which term best describes the conditions a few seconds after the Big Bang took place?

A. Frigid

B. Scorching

C. Liquid

D. Placid

Watch It!

6. What do the initial moments after the Big Bang have in common with the universe as it exists now?

A. All of the stars, galaxies and planets that exist to day formed just a few moments after the Big Bang.

B. The universe back then could not sustain life and it can not sustain life now

C. The universe began expanding then, and it is still expanding today

Watch It!

7. How does the steady state theory of the universe differ from the Big Bang theory?

A. The Steady State Theory puts the age of the universe at 4 million years, ,the Big Bang puts it at 5 million

B. The Steady State Universe may have not had a beginning, the Big Bang Universe definitely did

C. The Steady State Theory claims that faster than light travel is possible, the Big Bang Theory claims it isn't.

Watch It!

8. Place the following in sequence: A) Hubble makes his discoveries; B) Cosmic background radiation is first detected; C) Lemaitre proposes his theory

A. ABC

B. BCA

C. CAB

D. CBA

Explore

1. Go to the Gravity Pitch Gizmo

Login:

6@ecms, ecms

Explore It!

2. Gravity on Earth:

Why do objects go around (orbit) other objects? Explore the different speeds of pitch and see what happens to the ball. Sketch the "trajectory" of the ball (how the ball flies) on the answer sheet.

Explore It!

3. Create a custom planet. Play with the different pitch speeds.

Research It!

1. How do comets, asteroids and meteorites influence life on Earth? Answer for EACH object.

Assess It!

1.

Compared to the Earth's Solar System, the Universe is inferred to be_____

A. Younger and Larger
B. Younger and Smaller
C. Older and Larger
D. Older and Smaller

Assess It!

2.

What evidence shows that the universe is expanding?

A. galaxies are moving closer together
B. galaxies are moving apart
C. the number of galaxies is growing
D. galaxies are getting bigger

Assess It!

3.

This theory states that the universe began with a tremendous explosion and that the universe continues to expand?

A. The Universal Theory
B. The Black Hole Theory
C. The Big Bang Theory
D. The Cosmic Radiation Theory

Assess It!

4.

What do all of the inner planets have in common?

A. Same period of revolution
B. Same period of rotation
C. Same diameter
D. Small and rocky surfaces

Assess It!

5. The Milky Way Galaxy is a

A. spiral galaxy
B. cloud galaxy
C. elliptical galaxy
D. irregular galaxy

Assess It!

6. What shape are the orbits of most comets?

A. long, narrow ellipses
B. circles
C. nearly circular ellipses
D. spherical

Assess It!

7. When a meteoroid enters Earth's atmosphere, it produces a streak of light called a

A. meteor
B. asteroid
C. meteorite
D. comet

Assess It!

8. One piece of evidence that supports the big bang theory is the observation that most galaxies are moving

A. toward our galaxy
B. toward one another
C. in random directions
D. away from one another

Research It!

1.

Illustrate It!

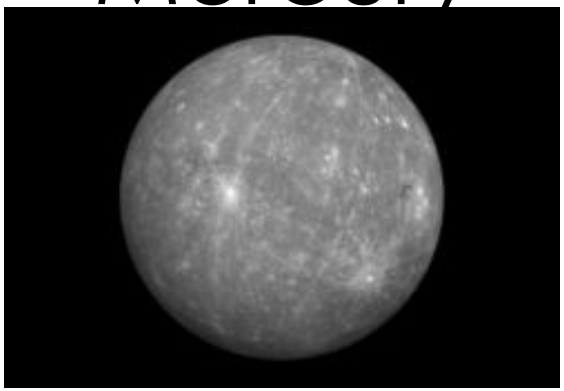
1. Draw the Heliocentric model of the universe and the Geocentric model of the universe. Label the sun and the planets.

Write It!

1. You are going on a trip to the moon. What three essential items would you bring with you? Why would you choose these items?

Write It!

2. Which planet would be easiest for humans to colonize? What features of the planet would make it the ideal location for humans to move?

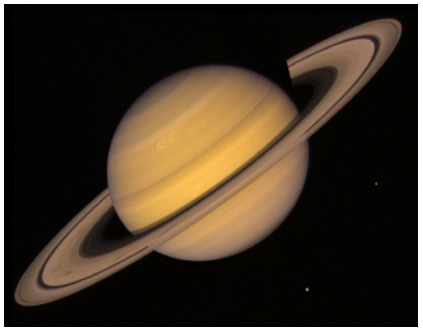
Made of rock	Large and gaseous	Most have rings
Are closer to the sun	Are farther than the sun	Mercury 
Venus 	Earth 	Mars 

Inner Planets

Outer Planets

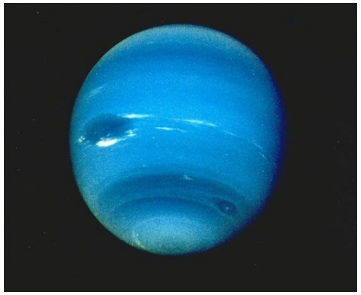
Jupiter

Saturn



Uranus

Neptune



Smaller in size

Name:_____ Class:_____ Date:_____

Input Stations

Explore It!

Predict: How would the trajectory of the ball change as the pitcher throws harder and harder?

Velocity:	Draw your results:
0.0 km/s (0 mph)	
3.0 km/s (6711 mph)	
5.0 km/s (11,185 mph)	
7.0 km/s (15,689 mph)	
8.0 km/s (17,896 mph)	
12 km/s (26,843 mph)	

Explore It! Continued

Task Card 3; Create a custom planet. What is the mass of your planet? _____ What is the radius of your planet? _____

What velocity created a perfect orbit? _____

Read it!

1.

2.

3.

4.

Watch It!

View the Brainpop Video and answer questions on task cards 2-8.

_____2. _____4. _____6. _____8.

_____3. _____5. _____7.

Research It!

Comets-

Asteroids-

Meteorites-

Output Stations

Write It!

Task Card 1:

Task Card 2:

Output Stations Continued

Illustrate It!

Don't forget to label your diagrams!

Assess It!

1. _____ ***2.*** _____ ***3.***_____ ***4.***_____

5._____ ***6.*** _____ ***7.*** _____ ***8.*** _____

Organize It!

Teacher Initials:

Reflection: How did you do? What did you find easy? What mistakes did you make?