

## Myth Project- Constellations

**Background Information:** Historically, constellations were groupings of stars that were thought to outline the shape of something, usually with mythological significance. There are 88 recognized constellations, with their names tracing as far back as Mesopotamia, 5000 years ago.

**Assignment:** There are three parts to your project. This project can be done individually or in groups (See part C for options based on group size).

### Part A: Constellation Snapshot (Worksheet Attached) (10 pt)

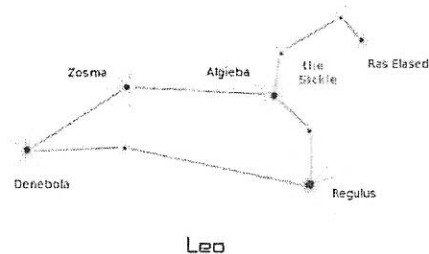
1. Name of constellation
2. Nickname of constellation
3. Number of stars in your constellation
4. Names of most well-known stars
5. Name of the brightest star
6. Color of the brightest star
7. Surface temperature of the brightest star
8. Best season/month to see your constellation
9. Location of constellation (longitude/latitude)
10. Location of constellation (northern/southern hemisphere)
11. List 3 other constellations that are found next to yours
12. A special feature or interesting fact about your constellation

### Part B: Picture of your Constellation (5pt)

1. Print or draw 2 pictures of your constellation

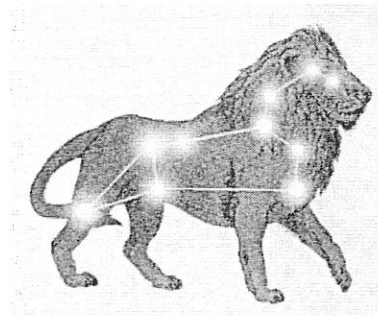
- a. Picture 1: Star Map

- i. Example:



- b. Picture 2: Picture of Constellation

- i. Example:



### Part C: Myth of Constellation (25 pt)

Each of the following constellations has a story, legend, or myth attached to it. Many have different myths from cultures all over the world, Greek, Native American, Chinese, etc. Your job is to research this myth and present it to the class in ONE of the following manners.

**Make sure to tell the class the origin of your myth! (Greek, Native American, etc)**

1. Movie Trailer (Individual or up to 4 people)
  - Pretend as though you and your group have made your constellation story into a movie. Film and edit a 2-4 minute movie trailer.
  - Before filming, think about necessary props and a script for your trailer.
    - i. Your trailer should tell the story of your constellation
2. Skit (3-4 people)
  - Write a script to perform a skit in front of the class
  - Your performance should be 3-5 minutes long and should tell the story of your constellation
  - May involve props/costumes
3. Narrative Song (Individual or group of 2)
  - Write a narrative song that tells the story of your constellation myth.
  - Can be an original tune or set to the tune of a well-known song
  - Record the song to be played in front of the class
4. Short Story (Individual)
  - Write a creative short story that tells the story of your constellation myth. Be sure not to plagiarize (use your own words!)
  - Main plot points of the story will be the same but you can go into more detail and show your creativity
5. Comic Book (Individual or group of 2)
  - Create a comic book that tells the story of your constellation
  - This should be 10 or more frames with original artwork in full color and dialogue
  - You may also use StoryBoard (but you will need to create 2 as they will only do 6 boards for free)

#### Constellation Options:

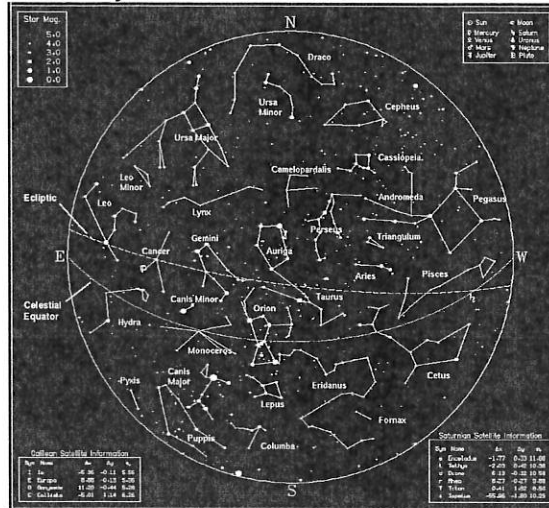
- |               |               |              |
|---------------|---------------|--------------|
| • Aquarius    | • Leo         | • Taurus     |
| • Aries       | • Libra       | • Virgo      |
| • Cancer      | • Pisces      | • Draco      |
| • Capricornus | • Sagittarius |              |
| • Gemini      | • Scorpius    |              |
| • Pegasus     | • Cetus       | • Cassiopeia |
| • Perseus     | • Cepheus     | • Andromeda  |
| • Ursa Major  |               |              |
| • Canis Major |               |              |
| • Orion       |               |              |
| • Hercules    |               |              |

## Constellation Snapshot

1. Name of constellation: \_\_\_\_\_
2. Nickname of constellation: \_\_\_\_\_
3. Number of stars in your constellation: \_\_\_\_\_
4. Names of most well-known stars:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
5. Name of the brightest star: \_\_\_\_\_
6. Color of the brightest star: \_\_\_\_\_
7. Surface temperature of the brightest star: \_\_\_\_\_
8. Best season/month to see your constellation: \_\_\_\_\_
9. Location of constellation (longitude/latitude): \_\_\_\_\_
10. Location of constellation (northern/southern hemisphere): \_\_\_\_\_
11. List 3 other constellations that are found next to yours:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
12. A special feature or interesting fact about your constellation:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

-**Constellations**-imaginary patters of stars / groups of stars that form pictures of people or animals

- Different cultures gave different names for constellations
- Astronomers use constellations to locate objects in the night sky
- Stars in constellations are not close to one another, they just happen to lie in the same part of the sky

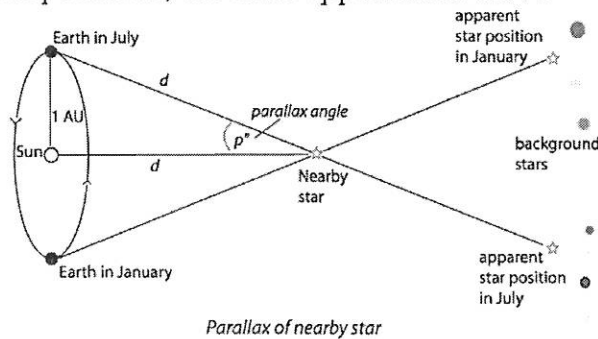


### Measuring Distances to Stars

- Light from the sun takes about 8 minutes to reach Earth
- Astronomers use a unit called the light-year to measure distances between stars
- In space, light travels at a speed of 186,000 miles per second
- A **light-year** is the distance light travels in on year, about 6 trillion miles

### Parallax

- Astronomers use parallax to measure distances to nearby stars
- Parallax**-the apparent change in position of an object when you look at it from different places
- Because you changed positions, the stars appeared to move



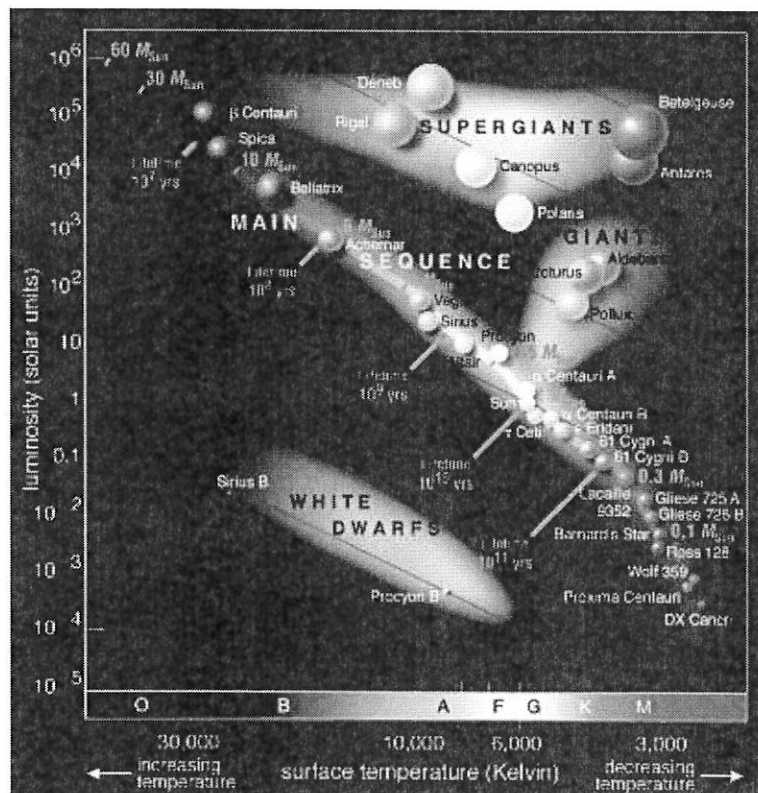
### Parallax in Astronomy

- Astronomers measure the parallax of nearby stars to determine their distances
- They look at nearby stars when Earth is on one side of the sun
- Then they look at the same star again six months later, when Earth is on the opposite side of the sun

- They measure how much the nearby star appears to move against a background of stars that are much farther away
- The less the nearby star appears to move, the farther away it is
- They can measure distances up to a few hundred light-years away
- The parallax of a star that is farther away is too small to measure accurately

### The Hertzsprung-Russell Diagram

- Two scientists made graphs to find out if the temperature and the absolute brightness of a star is related
- The graph they made is still used by astronomers today, it's called the Hertzsprung-Russell diagram or H-R Diagram
- Astronomers use H-R Diagrams to classify stars and to understand how stars change over time
- Most of the stars in the H-R diagram form a diagonal area called the **main sequence**
- More than 90% of all stars, including the sun, are main sequence stars
- Within the main sequence, surface temperature increases as brightness/luminosity increases
- Hot blue stars are located at the left of the H-R diagram and cooler red stars are located at the right of the diagram
- The brightest stars are located near the top of an H-R diagram, while the dimmest stars are located at the bottom



-Isaac Newton observed an apple falling from a tree

-**Force**-a push or a pull

- Everyday forces require objects to be in contact
- The force that holds the moon in orbit works over long distances, between objects that are not in direct contact

-**Gravity (a force):**

- A force that attracts all objects toward each other
- All objects are pulling on each other
- Gravity occurs everywhere
- The strength of gravity between two objects depends on the mass of the object and the distance between them

-**Law of Universal Gravitation:**

- Every object in the universe attracts every other object

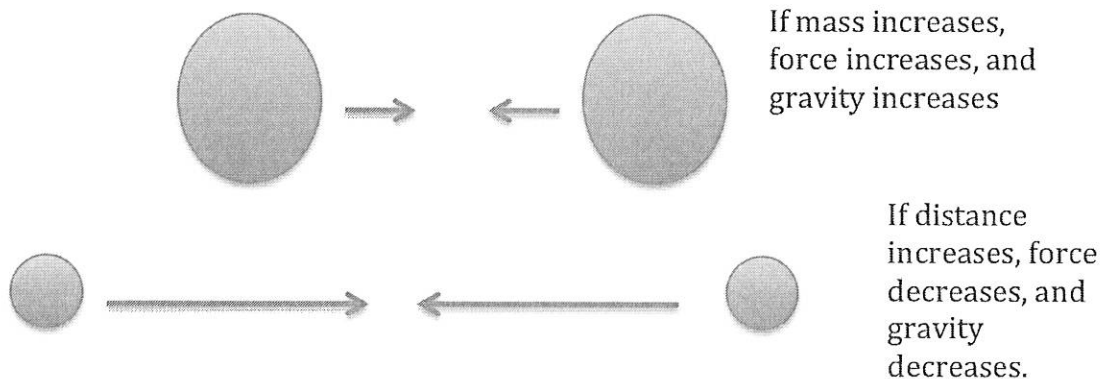
-**Mass**- the amount of matter (anything that exists and takes up space) in an object

- Mass doesn't change
- The more mass an object has, the harder it pulls

-**Weight**-the force of gravity on an object (measured in newtons)

- Weight can change depending on your location
- Example: the pull of the moon's gravity is far less than the Earth's gravity, because it is less massive, therefore you would weigh less on the moon

-**Gravity and Distance:**



-**Inertia**-the tendency of an object to resist a change in motion

- The more mass an object has, the greater its inertia
- An object with greater inertia is more difficult to start or stop

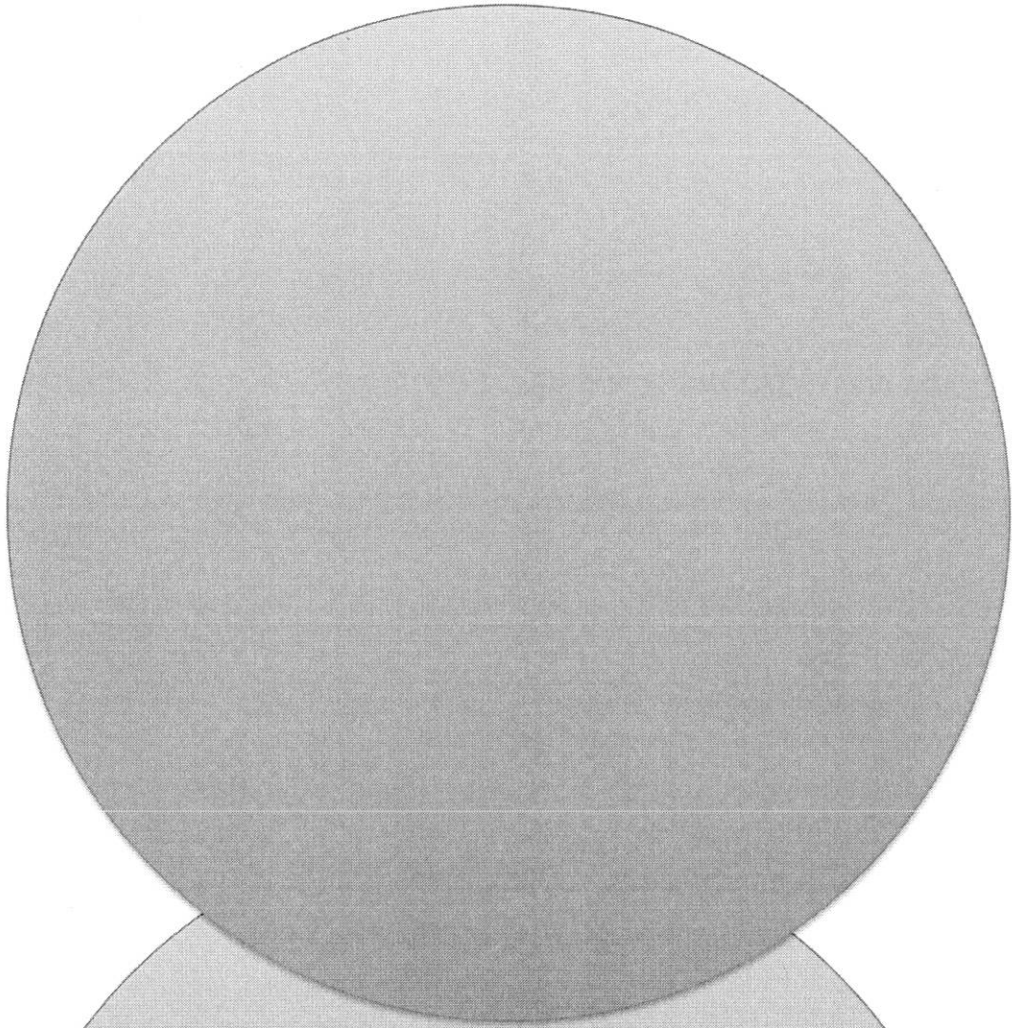
-**Newton's first law of motion:**

- An object at rest will stay at rest
- An object in motion will stay in motion with a constant speed and direction unless acted on by an unbalanced force

-**Orbital Motion: Why do the Earth and moon remain in their orbits?**

- Inertia and gravity keeps everything orbiting
- Earth's gravity pulls the moon toward it, preventing the moon from moving in a straight line
- The moon keeps moving ahead because of inertia

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