

# Study Charts Example: Space Exploration

**Space Exploration** is the search for a greater understanding of our universe and our place within it using evolved technologies.

It is fueled as part of an innate desire by humans to understand the environment around us.



Diagram 1: Marvin the Martian

## Timeline

Ancient Greeks and Romans (Ptolemy):	Observing and Watching the Night Sky
1500s: Nicolaus Copernicus:	Continued celestial observations, heliocentric model
1600s: Galileo Galilei:	Modern observation using the telescopes
October 1957:	1 <sup>st</sup> human object in space (Sputnik 1) – The Soviet Union
1961:	1 <sup>st</sup> human in space (Yuri Gagarin) –The Soviet Union
1965:	1 <sup>st</sup> spacewalk – The Soviet Union
July 20, 1969:	1 <sup>st</sup> moon landing – Unites States of America
1971:	1 <sup>st</sup> space station (Salyut 1) – The Soviet Union



Diagram 2: Early Telescope



Diagram 3:  
Space Telescope



Diagram 4: International Space Station  
(Scale Comparison)

## Why Explore Space

The battle to demonstrate global power (the cold war) fueled governments to fund advances in technologies for space exploration.

As noted in the timeline, the Soviet Union (USSR) managed many firsts in the 1950s and 1960s.

The United States of America landing men on the moon in 1969 is a monumental, technological (weaponry), scientific and political achievement.



Diagram 5: News of the Time – Sputnik in Space

## The Future

Planned missions to Mars: the search for life elsewhere and possible colonization of other bodies

Photon propelled space craft: NASA is claiming they have done so

Space tourism: flights and tours of low earth orbit for a fee

Expected costs are to be about \$250,000 per person

## Rocketry

In the 1970s and 1980s, space shuttle missions were frequent and relied upon significant advancements in rocket designs.

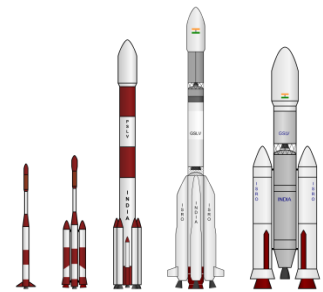


Diagram 6: Evolution of Rockets

## Tragedy and Triumph

The advancement of technology and desire for scientific answers have led to both the loss of lives and everyday technologies.

In 1986 and 2003, both the Space Shuttle Challenger (takeoff) and the Space Shuttle Columbia (reentry) exploded .

7 lives were lost in the Challenger explosion, including the first astronaut teacher (Christa McAuliffe)

7 lives were lost in the Columbia explosion.



Diagram 7: Challenger



Diagram 8: Columbia

## **Text Citations: in MLA style (not shown)**

<http://www.aerospace.org/education/stem-outreach/space-primer/a-brief-history-of-space-exploration/>

<http://science.nationalgeographic.com/science/space/space-exploration/>

## **Diagram/Picture Citations:**

Diagram 1: Marvin the Martian

<https://s-media-cache-ak0.pinimg.com/736x/92/b0/7f/92b07fd3826557dcf2d7180016e173d1.jpg>

Diagram 2: Early Telescope

[http://static.bhphotovideo.com/explora/explora/sites/default/files/styles/960/public/galileo\\_1.jpg?itok=\\_GOiu5RK](http://static.bhphotovideo.com/explora/explora/sites/default/files/styles/960/public/galileo_1.jpg?itok=_GOiu5RK)

Diagram 3: Space Telescope

[http://astronomynow.com/wp-content/uploads/2015/04/HST\\_in\\_orbit\\_620x400.jpg](http://astronomynow.com/wp-content/uploads/2015/04/HST_in_orbit_620x400.jpg)

Diagram 4: International Space Station (Scale Comparison)

[http://www.nasa.gov/images/content/693259main\\_jsc2012e219094\\_big.jpg](http://www.nasa.gov/images/content/693259main_jsc2012e219094_big.jpg)

Diagram 5: News of the Time – Sputnik in Space

<https://www.nasaspaceflight.com/wp-content/uploads/2015/10/2015-10-04-155224-350x197.jpg>

Diagram 6: Evolution of Rockets

<http://www.easternpanorama.in/images/stories/2008/november/Rockrevo.gif>

Diagram 7: Challenger

[http://a3.files.biography.com/image/upload/c\\_fit,cs\\_srgb,dpr\\_1.0,q\\_80,w\\_620/MTM2MTYwNTQ5NDc3MDM2ODYw.jpg](http://a3.files.biography.com/image/upload/c_fit,cs_srgb,dpr_1.0,q_80,w_620/MTM2MTYwNTQ5NDc3MDM2ODYw.jpg)

Diagram 8: Colombia

<http://media.gettyimages.com/photos/the-space-shuttle-columbia-touches-down-on-runway-33-of-kennedy-space-picture-id2912369>