



# Time & Space



## WHAT WILL BE LEARNED

The Exploring Space project will offer you the opportunity to explore past, present and future space technology. You will be challenged to connect the historical perspective with present data in order to logically predict and analyze future innovations, job options and moral and ethical dilemmas.

## Vocabulary

- APOLLO PROGRAM
- GEMINI PROGRAM
- RINGS
- ASTRONAUT
- GRAVITY
- ROCKET
- ASTRONOMER
- IONOSPHERE
- SATELLITE
- ATMOSPHERE
- LAUNCH
- SHUTTLE
- CELESTIAL
- METEOROLOGY
- SOLAR SYSTEM
- CHALLENGER
- MERCURY
- SPACE
- CONSTELLATION
- MILKY WAY
- SPACE PROBE
- COSMONAUT
- MISSION
- SPUTNIK
- DISCOVERY
- MOON
- STAR



The efg Portfolio System includes Performance Tasks and Core Skills necessary for work and citizenship now and in the future.



## RESEARCH LOCATIONS/BOOKS

Amazing Space (a set of web-based activities primarily designed for classroom use, but made available for all to enjoy) <http://amazing-space.stsci.edu/>

Ask an Astronaut [http://www.discoverspace.org/askastronaut\\_current.cfm](http://www.discoverspace.org/askastronaut_current.cfm)

Astronomers' and Physicists' Biographies <http://www.factmonster.com/spot/scibio6.html>

Boeing's International Space Station Home Page <http://www.boeing.com/defense-space/space/spacestation/>

The Challenger Center Online <http://www.challenger.org/>

Encyclopedia Astronautica <http://www.astronautix.com/>

Home in the Sky: The International Space Station <http://www.discovery.com/stories/science/spacestation/spacestation.html>

The Houston Chronicle (continuing coverage of space news) <http://www.chron.com/news/space/>

Johnson Space Center's Astronaut Biographies <http://www.jsc.nasa.gov/Bios/index.html>

Mars Millenium Project <http://www.mars2030.net/>

Mars Mission: Life on Mars Update <http://www.nss.org/news/releases/release70.html>

NASA CFO's Budget Page <http://www.nasa.gov/offices/ocfo/budget/index.html>

NASA Education Programs <http://education.nasa.gov/edprograms/overview/index.html>

NASA History: Orders of Magnitude <http://history.nasa.gov/SP-4406/contents.html>

NASA Home Page <http://www.nasa.gov/home/>

NASA Mars Home Page <http://mars.jpl.nasa.gov/>

NASA Space Link: Careers <http://www.nasa.gov/about/career/index.html>

NASA Human Space Flight Home Page <http://spaceflight.nasa.gov/home/index.html>

NASA Moonlink (Internet-based Space Education Program for NASA's Lunar Prospector Mission) <http://lunar.arc.nasa.gov/>

NASA Observatory (earth and space data) <http://>

## Vocabulary

- EXPEDITION
- NASA
- STATION
- EXPLORATION
- ORBIT
- STRATOSPHERE
- EXPLORER
- PLANET
- TECHNOLOGY
- GALAXY
- PROGRAM
- UNIVERSE





[observe.arc.nasa.gov/nasa/core.shtml.html](http://observe.arc.nasa.gov/nasa/core.shtml.html)

NASA Solar System Simulator <http://space.jpl.nasa.gov/>

NASA Space Science Education Home Page <http://spacescience.nasa.gov/>

NASA Spinoff Database <http://www.sti.nasa.gov/tto/spinselect.html>

NASA Technology Portal <http://nasatechnology.nasa.gov/>

The National Air & Space Museum <http://www.nasm.si.edu/>

The National Space Society Online <http://www.nss.org/>

Neat Solar Stuff <http://www.neatsolarstuff.com/>

The Planetary Society <http://www.planetary.org/home/>

Space Library <http://www.space.com/spacelibrary/>

Space Day (includes an electronic field trip) <http://www.spaceday.org/index.html>

The Space Frontier Foundation <http://www.space-frontier.org/>

The Space Place (space exploration history) <http://www.thespaceplace.com/index.html>

The Space Telescope Science Institute <http://www.stsci.edu/resources/>

ThinkQuest: A New Star on the Horizon (interactive space station) [http://www.thinkquest.org/library/site.html?team\\_id=19876](http://www.thinkquest.org/library/site.html?team_id=19876)

Understanding the Universe <http://school.discovery.com/schooladventures/universe/>



#### SUGGESTIONS FOR USING WORLD WIDE WEB SITES:

Read about space exploration.

A History of NASA: Orders of Magnitude <http://history.nasa.gov/SP-4406/contents.html>

The Space Place (Space History) <http://www.thespaceplace.com/index.html>

Conduct a mathematical analysis of the cost of building a space station.

NASA Office of the Chief Financial Officer <http://www.nasa.gov/offices/ocfo/budget/index.html>

Find a map, graph, or chart about space.

Encyclopedia Astronautic (download Russian rocket engine data table) <http://www.astronautix.com/>

Mars (NASA/JPL) (contains charts and maps of the planet Mars) <http://mars.jpl.nasa.gov/>

Find information about languages used in space missions with another country.



Boeing International Space Station Home Page (site lists participating countries) <http://www.boeing.com/defense-space/space/spacestation/>

Research changes in space exploration over time.

NASA Space History <http://history.nasa.gov/SP-4406/contents.html>

Identify the technologies and tools used to explore space.

NASA Technology Portal <http://nasatechnology.nasa.gov/>

Create an original mural of space.

Space Library (contains photos and original artwork of space-related items) <http://www.space.com/spacelibrary/>

Write a report about an astronaut, cosmonaut, or astronomer.

NASA Astronaut Biographies (includes Cosmonauts) <http://www.jsc.nasa.gov/Bios/more.html>

Famous Physicists and Astronomers (biographies) <http://www.factmonster.com/spot/scibio6.html>

Interact with an astronaut online.

Ask an Astronaut [http://www.discoverspace.org/askastronaut\\_current.cfm](http://www.discoverspace.org/askastronaut_current.cfm) (question a featured astronaut, or check Q&A archives)

Investigate the ways that people on earth benefit from space exploration. NASA Spinoff Database <http://www.sti.nasa.gov/tto/spinselect.html>

List the space related careers that are mentioned on these “links.”

NASA Space Link: Careers <http://www.nasa.gov/about/career/index.html>

#### TEST SITES

Bellflower High School, Bellflower, CA

Treasure Mountain Middle School, UT

#### POSSIBLE PARTNERSHIPS

The Challenger Centers

Boeing

Local science centers

Observatories





Planetariums

NASA

Rockwell International

Other space related  
corporations

Simulated activity centers

Patent Office/Patent Shop -  
Washington, D.C.

## Life2Learning Lessons

Lessons can be directed by teachers or created by students based upon their research of space.

## efgStandards

Time & Space

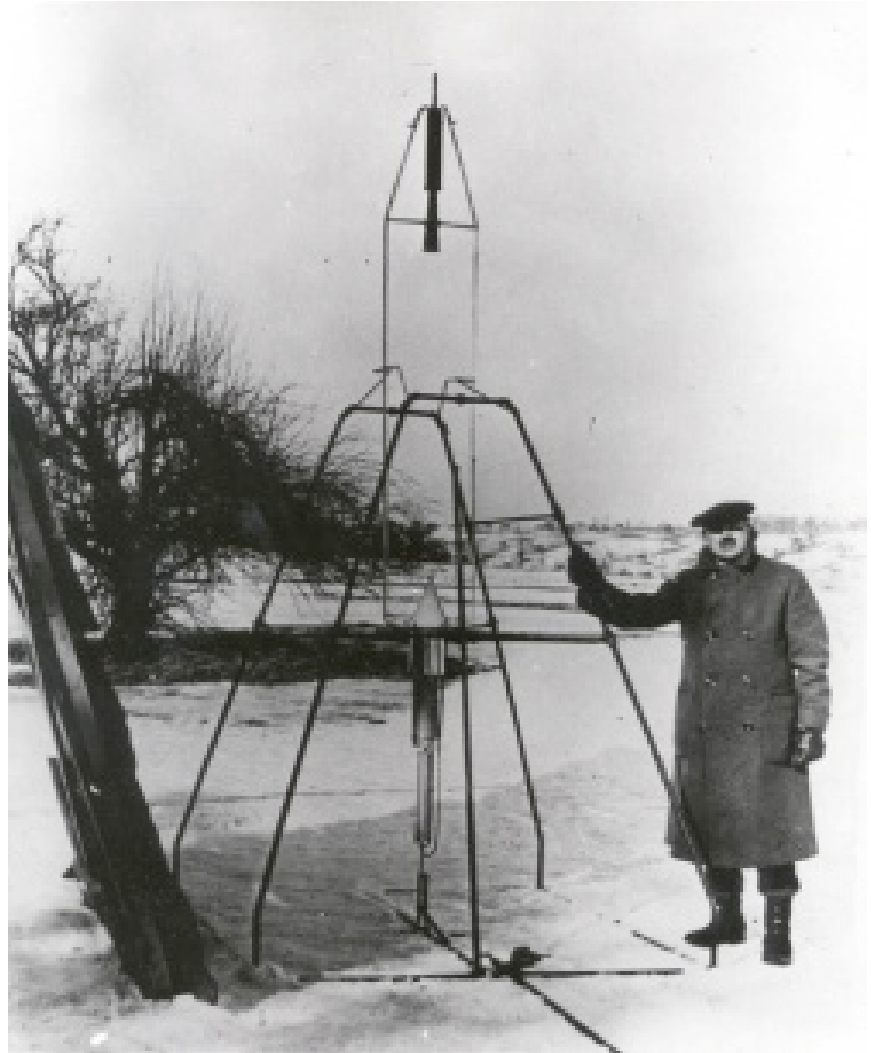
*efgProject™ Portfolio*

These efg standards can be applied to the “Time & Space” Project to insure that students are learning necessary skills to increase achievement and master the content standards in your state, nationally, or in your country.

### CONTINUOUS LEARNING RUBRICS IN 13 CONTENT AREAS

#### I. READING

Read about the benefits that have been derived from space explorations and specific space missions.



Read to research three jobs available in the space/technology field:

- a job that requires no formal training.
- a job that requires technical training.
- a job that requires a college degree or advanced training.

Read about the history of rocketry and space exploration technology over the last 150 years. You might want to answer the following questions:

1. What was the inspiration behind the development of space technology?
2. What was the need behind the development of space technology?
3. What was the creative thinking behind the development of space technology?
4. Was there a crisis that sparked or limited space technology?
5. What historical event, natural disaster, economic competition or societal



condition influenced the development of rocketry and space exploration technology?

## 2. MATH

Assume that there is a limited amount of money that is available. Rank order and justify how the money is shared between space exploration, and other government programs such as welfare and defense. Cross matrix the implications of each of these projects.

Analyze the cost of current space exploration in your country compared with another country. Conduct an analysis of space exploration with comparisons from different research agencies, companies or countries. Focus on a health issue, an environmental resource or specific technology.

Investigate the costs of training for a space related career.

Calculate miles traveled and elapsed time on a manned or unmanned space mission. Determine the difference in distance that each traveled.

## 3. MAPS / GRAPHS / CHARTS

Develop a time line of space exploration using mission patches and other NASA information. Present the growth of the space program in a graph or chart.

Using charts and/or graphs, forecast how the colonization of Mars would evolve over a ten-year period.



Complete a matrix presentation about careers in space and technology as part of a Space/Technology Career Fair. Elements should include job responsibilities, training required to enter job, training required to maintain job, salary range, job security, opportunities for advancement, average length of tenure in this job and why.

## 4. WORLD LANGUAGE

Create a picture dictionary with vocabulary words in two different languages. Use vocabulary words in other languages for graphs or charts.

Investigate the languages spoken on recent space missions. Determine why the countries decided to collaborate on space exploration and the difficulty of communicating in other languages. What language is spoken on the space station?

## 5. SCIENCE

Identify and explain in detail at least three scientific



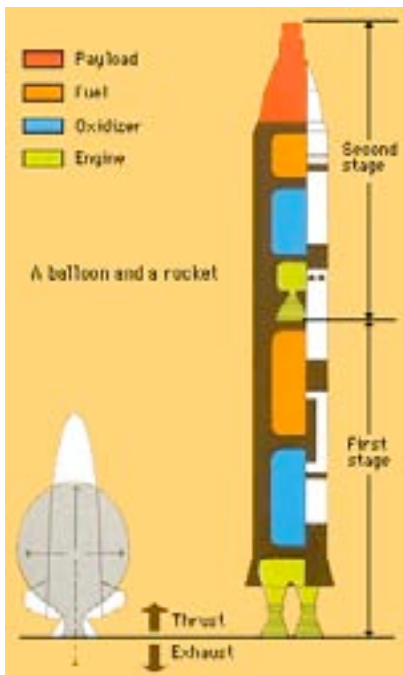


discoveries made as a result of space exploration.

Identify one or more human or environmental issues that has been affected by space exploration. Determine scientific experiments, specific studies or technology that has been launched that affects or improves life on earth. Investigate specific expeditions and the work that was done on each expedition.

Research a recent space mission and determine the scientific reason for the mission and the results of what was learned or discovered. Determine how this mission will affect future space exploration.

Identify the scientific disciplines involved in space exploration and report on the contribution of each.



Describe the physical characteristics of a planet in our solar system based on information collected by astronauts.

– How will we determine who claims newly settled territories?

– Will weapons be allowed on space stations or new space



## 6. SOCIAL STUDIES

Analyze how the Cold War with the U.S.S.R. influenced the U.S. space program.

In groups of three, dress as astronauts of the past, present and future using appropriate clothing items and sequence.

Compare and contrast the space programs of three nations.

Analyze the implications of global collaboration regarding space exploration and settlement. Answer some or all of the following questions:

– How will this affect each country's national defense?

settlements?

– How will we determine the form of government?

Analyze the economic cost of the U.S. space program and debate orally or in writing whether or not you believe the expense to be justified.

## 7. HEALTH /FITNESS

Research the health and fitness requirements necessary to become an astronaut.

Research the fitness program that astronauts participate in before going into space.



Investigate the effect that lack of gravity has on health.



## 8. TECHNOLOGY

Interact with astronauts in person, using the Internet or using videoconference tools.

Interview a person working in a space/technology career via the Internet.

Follow NASA daily activities by accessing the NASA Internet site.

Create a world wide web page displaying information from your space project.

Assess a major item of technology used in space exploration and prepare a futures-focused impact statement.

Compare and contrast different but related items of technology that have been utilized in space exploration.

Compare space exploration over the past 20 years and determine the advancement of technology over the period of time. Identify industries that create the technology and analyze specific products, competition, and future development. Select either an astronaut, a space related company or a particular space related technology to study over a period of time spanning multiple decades. Focus on what has changed and what has remained the same.

## 9. CREATIVE EXPRESSION

Create a badge or flag for your space exploration team.

Make a model of the solar system.

Design and build a model of a space craft of the future.

Investigate current trends in space suit design then create your own design and explain how it improves on present designs.

## 10. CAREERS

Plan and implement a career

fair of predicted space technology-related occupations.

Research three jobs available in the space/technology field:

- a job that requires no formal training.
- a job that requires technical training.
- a job that requires a college degree or advanced training.

Interview or “job shadow” a person with a career space technology.

Research the economic benefits resulting from several careers in space exploration.

## 11. COMMUNITY SERVICE

Record news stories about space exploration for the school information center.

Assist younger children at a Challenger Center.





Volunteer at a local museum, science center or observatory.

Create and donate posters or art work that can be sold at a local museum.

## 12. REPORT

Based on your research of three jobs available in the space/technology field, write a report on one job with a bibliography that includes at least three sources. Your report should cover the following areas: job responsibilities, training required to enter the job, training required to maintain the job, salary range, job security, opportunities for advancement, average length of tenure in this job and why.

Write a report about space exploration and environmental issues. Discuss the implications of allowing a space center to remain or be built in your community, moving the space center to another site, or eliminating the program all together.

Write a reports about a specific person, mission company or environmental issue associated with space exploration.

## 13. PRESENTATION

Develop interview questions and interview three people in the field of space exploration and technology. Share what you have learned with other students.



Participate in a debate about increased or decreased funding for space exploration in your country.

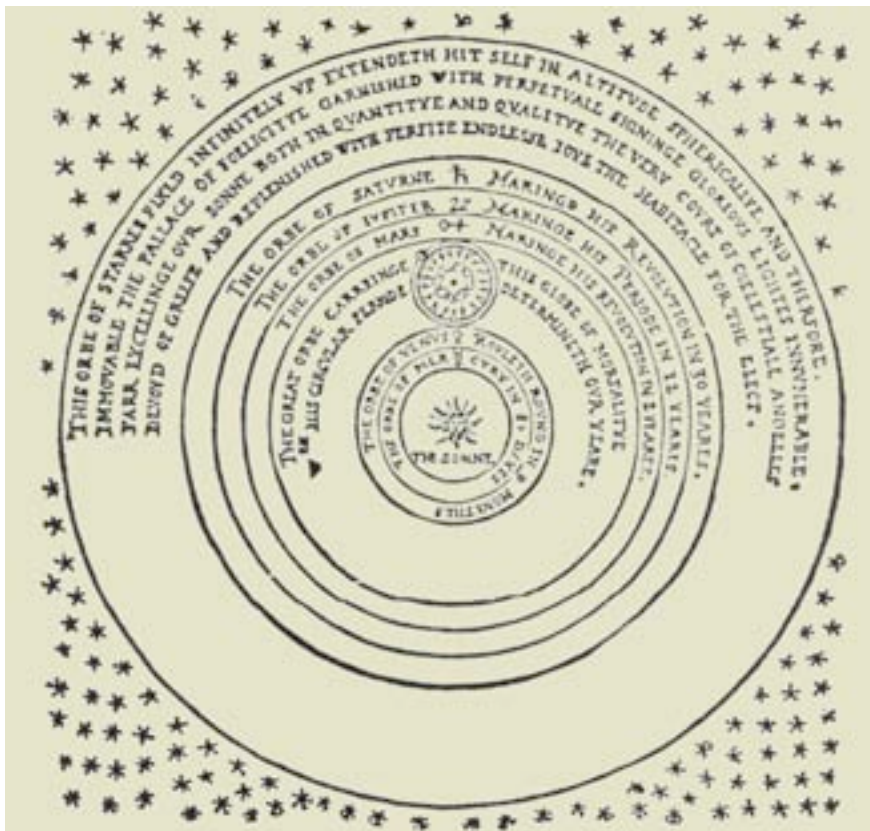
# Primary Content

## P1 READ TO UNDERSTAND ABOUT SPACE

1. Recognize, sound, spell and write the space vocabulary words
2. Identify correct meaning of words
3. Write space vocabulary words in sentences
4. Identify main idea, important elements and sequence of events in stories and articles about space

## P2 CONDUCT A MATHEMATICAL ANALYSIS OF SPACE

1. Use numbers to count, and identify space information





2. Use math to measure the faceplate of a space helmet

3 Use math to compare space information or solve a project problem

4. Understand money amounts and costs to send a rover to the moon

### P<sub>3</sub> CREATE MAPS, GRAPHS AND CHARTS ABOUT SPACE

1. Read and interpret space maps, tables, graphs and charts

2. Construct space graphs, tables, and charts from given Project information

3. Create a map of a section of Mars

4. Analyze information presented in space maps and graphs

### P<sub>4</sub> COMMUNICATE SPACE INFORMATION IN ANOTHER LANGUAGE

1. Recognize a few space vocabulary words in another language

2. Recognize all of the space vocabulary words in another language

3. Speak and write vocabulary words in one other language.

4. Label space pictures and charts using words in another language

### P<sub>5</sub> CONDUCT A SCIENTIFIC RESEARCH ABOUT SPACE

1. Generate reasonable explanations of zero gravity

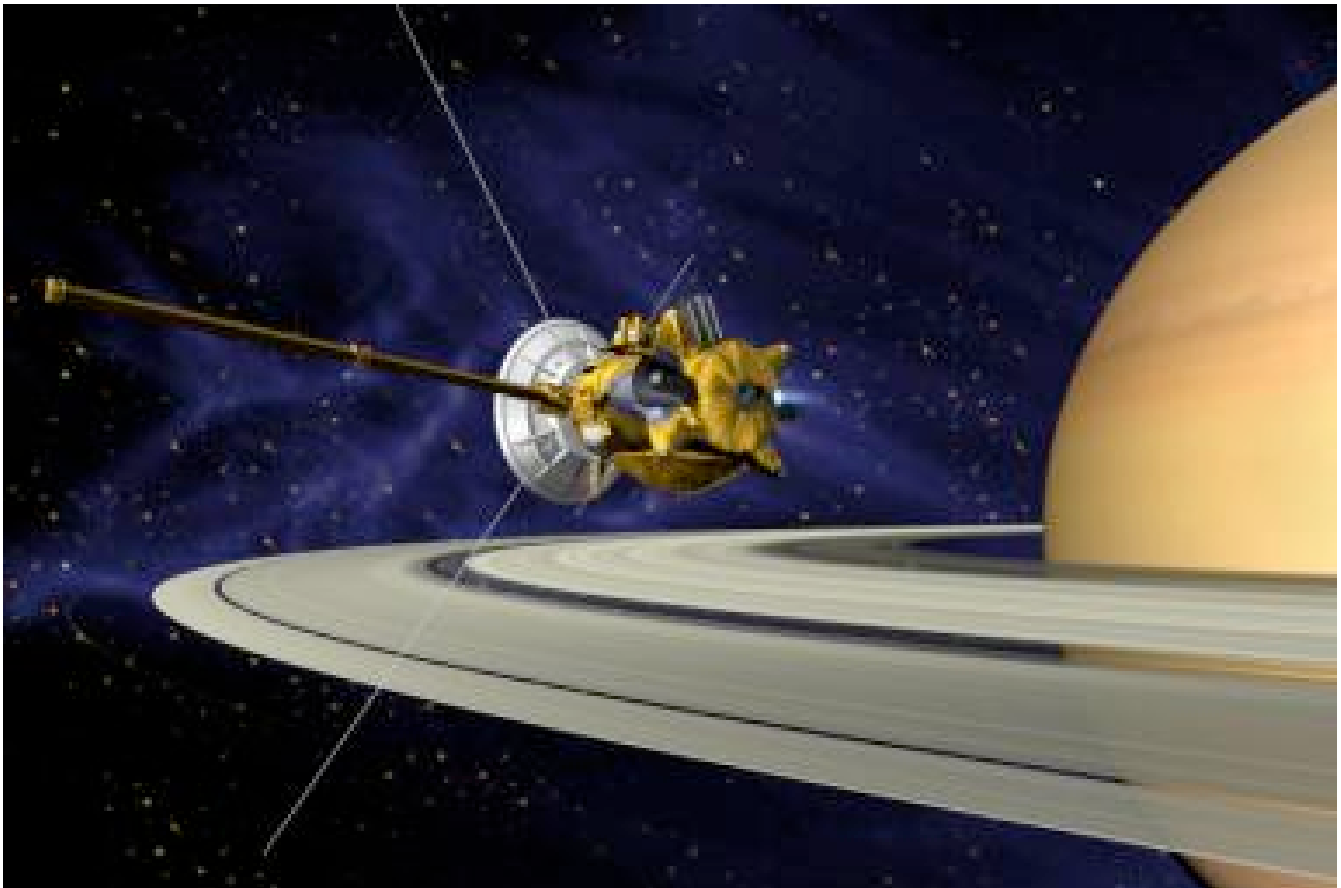
2. Use scientific method to understand the model rocket propulsion

3. Interpret scientific data about atmosphere on Jupiter

4. Investigate different types of wheels for rovers

### P<sub>6</sub> CONDUCT A SOCIAL STUDIES INVESTIGATION ABOUT SPACE

1. Identify and exhibit good citizenship in regard to international space cooperation





2. Identify and explain historical events in the U.S. space program
3. Identify space patches and pins and how they are sold
4. Evaluate different products that came about as a result of the U.S. space program

#### APPLICATIONS WITH SPACE

1. Learn how technology is used at Mission Control at the Johnson Space Center
2. Understand the purpose for a variety of technology tools at Mission Control

3. Analyze your space information using a technology tools

4. Record your space information using computers, the Internet, and digital equipment

#### P9 PRODUCE A CREATIVE EXPRESSION ABOUT SPACE THROUGH ART, MUSIC OR DRAMA

1. Research various space creative expressions such as art, music, dance, and drama
2. Analyze, interpret or create a space picture, poster or mural
3. Perform music or sing songs about space
4. Present an original space related work of art to an audience or in an exhibit

#### P7 INVESTIGATE THE HEALTH ISSUES RELATED TO SPACE

1. Understand the effects of zero gravity on the human body
2. Understand the reasons why zero gravity produces these effects
3. Identify a method for improving one of these conditions
4. Create a health poster about this condition

#### P8 UNDERSTAND THE TECHNOLOGY





#### P10 INVESTIGATE CAREERS ASSOCIATED WITH SPACE

1. Identify the multiple careers associated with space
2. Investigate changes in space careers over time
3. Determine skills necessary for each career
4. Summarize one space related career that is interesting

#### P11 COMPLETE A SPACE RELATED COMMUNITY SERVICE

1. Demonstrate understanding for the need for community service
2. Identify ways that people can educate others about safety in relation to space
3. Determine various space service options in your community
4. Complete a space related service project

#### P12 WRITE A REPORT ABOUT SPACE

1. Create a space dictionary with definitions
2. Present space information in a paragraph or report
3. Include accurate information and the most important ideas in your research
4. Use complete sentences, correct spelling, correct punctuation, appropriate capitalization

#### P13 MAKE A SPACE PRESENTATION FOR A JURY USING MULTI MEDIA TOOLS

1. Organize a space presentation for an audience
2. Develop charts or materials to portray information
3. Deliver presentation smoothly without notes
4. Use appropriate vocal inflections and verbal expressions

reports, resource books, annual reports and the Internet to gather specific space information

3. Identify details and specific information about space
4. Summarize, compare, contrast and draw conclusions from space facts

#### P2 CONDUCT A MATHEMATICAL ANALYSIS OF SPACE

1. Understand and use fractions and decimals to solve space problems
2. Measure length, weight, volume, area of model rocket and temperature at time of launch
3. Use mathematics to solve complex space problems
4. Calculate costs associated with creating a space suit

#### P3 CREATE MAPS, GRAPHS AND CHARTS ABOUT SPACE

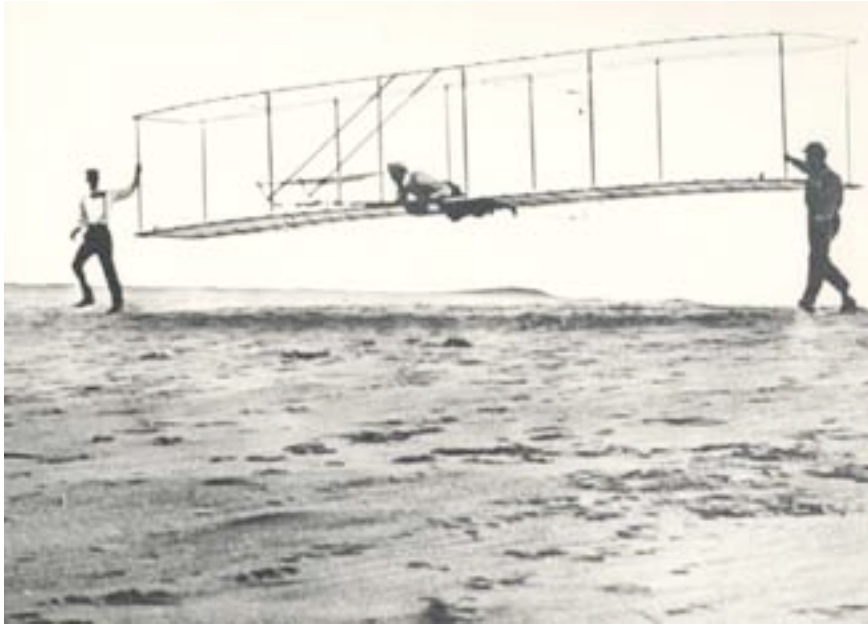
1. Explore a section of another planet using maps, graphs and charts

## Intermediate Content

#### P1 READ TO UNDERSTAND ABOUT SPACE

1. Read myths, legends, literature, informative articles, and biographies about space
2. Read from dictionaries, encyclopedias, atlases, newspapers, periodicals,





2. Recognize conflicting messages conveyed through graphical representations
3. Use graphics to present comparative information, interpretations, and analyses of space
4. Use maps to locate specific places on Earth being used to test rovers and habitats to be used in future space missions

#### P4 COMMUNICATE SPACE INFORMATION IN ANOTHER LANGUAGE

1. Follow simple directions in another language
2. Recognize space vocabulary words in two or more languages
3. Construct sentences and write space reports in another language
4. Speak and write vocabulary words in two or more languages

#### P5 CONDUCT A SCIENTIFIC RESEARCH ABOUT SPACE

1. Solve a range of space related problems using a variety of strategies and procedures
2. Use tools and technology to obtain up to date information about space issues
3. Understand the importance of water and energy in the space shuttle
4. Survey and interpret the macro-ecological issues related to space

#### P6 CONDUCT A SOCIAL STUDIES INVESTIGATION ABOUT SPACE

1. Understand how the space program affects communities' economy and transportation
2. Identify the laws that pertain to the U.S. space program

3. Determine how news sources report fact and opinion about the space program

4. Identify multiple historical reasons for the beginning and continuation of the space program

#### P7 INVESTIGATE THE HEALTH ISSUES RELATED TO SPACE

1. Identify health problems and disease related to traveling in zero gravity
2. Understand the need for preventative health care before an astronaut goes into space
3. Identify safety rules related to space travel
4. Identify space agency locations in the world that have serious health problems

#### P8. UNDERSTAND THE TECHNOLOGY APPLICATIONS WITH SPACE

1. Identify appropriate communication tools for





accessing up to date space information

2. Find space information on the efg world wide web site
3. Present space information using multi media tools and world wide web applications
4. Research space issues by asking questions of others using communication tools

#### P<sub>9</sub> PRODUCE A CREATIVE EXPRESSION ABOUT SPACE THROUGH ART, MUSIC OR DRAMA

1. Use creative expression to convey multiple and divergent perspectives of space issues
2. Research the historical perspective on a particular work of art that features space
3. Review, create or perform a musical work that represents space
4. Create a photo album depicting the space program in your part of the world



#### P<sub>10</sub> INVESTIGATE CAREERS ASSOCIATED WITH SPACE

1. Identify education necessary to obtain the skills for a space related career
2. Interview or “job shadow” various people in different space careers
3. Investigate geographic location for specific space careers
4. Research economic benefits from various careers

#### P<sub>11</sub> COMPLETE A SPACE RELATED

#### COMMUNITY SERVICE

1. Identify a volunteer opportunity or a service in the community
2. Develop goals for the service and a timeline to complete the assistance
3. Complete a service of short duration associated with the space project
4. Analyze the value of the service that was provided

#### P<sub>12</sub> WRITE A REPORT ABOUT SPACE

1. Organize space information, explanations and supporting details
2. Write unified and well-formed paragraphs which



develop specific space information

3. Write a report using notes, interviews, pertinent data and multiple sources of space information
4. Use transitions from one subtopic to the next

### P13 MAKE A SPACE PRESENTATION FOR A JURY USING MULTI MEDIA TOOLS

1. Create a chart, exhibition or Power Point presentation about the space study
2. Demonstrate clear connections to the oral presentation
3. Include one or more areas of emphasis and all important information
4. Respond to questions from the audience

## Advanced Content

### P1 READ TO UNDERSTAND ABOUT SPACE

1. Read about key space issues around the world
2. Analyze motive, point of view, conflicts and solutions related to space issues
3. Determine which ideas are accurate and complete. Distinguish fact from opinion
4. Answer Project questions in a manner that is plausible, logical, clear and well-supported

### P2 CONDUCT A MATHEMATICAL ANALYSIS OF SPACE

1. Using mathematics compare the cost of a typical meal in the U.S. to

the cost of a meal that is prepared for an astronaut to take on board the space shuttle

2. Calculate costs associated with sending a robotic rover to Mars
3. Analyze the contributing factors to that cost
4. Compare the cost between different countries

### P3 CREATE MAPS, GRAPHS AND CHARTS ABOUT SPACE

1. Create and use maps of different planets identifying land formations and climate
2. Identify the U. S. cities and states, as well as countries, which have NASA sites or contain other space agencies
3. Graph or chart U. S. space vehicles in the past compared to the present
4. Use graphs and charts to communicate mathematical interpretations





#### P4 COMMUNICATE SPACE INFORMATION IN ANOTHER LANGUAGE

1. Answer space questions in another language
2. Access world wide space information by communicating with a person in another language
3. Label space related equipment in another language
4. Write a summary of your space presentation in another language

#### P5 CONDUCT A SCIENTIFIC RESEARCH ABOUT SPACE

1. Describe an astronaut's equipment and uses in detail
2. Demonstrate an understanding of hydroponic plants related to their use in the space program
3. Research a space disaster and the effects on the environment and people

4. Understand the relation of human needs and the resultant effects on the ecosystem

#### P6 CONDUCT A SOCIAL STUDIES INVESTIGATION ABOUT SPACE

1. Demonstrate knowledge of local, state, national and world laws governing the U.S. space program
2. Analyze use of nuclear power in the space program, including positive and negative effects
3. Identify the creation and use of worldwide transportation modes relevant to transportation used in space programs
4. Create a 5 year analysis of space programs on a global basis

#### P7 INVESTIGATE THE HEALTH ISSUES RELATED TO SPACE

1. Investigate health standards for astronauts
2. Demonstrate knowledge of CPR
3. Describe how community health care agencies are involved in the space program
4. Determine if health insurance is a factor in space careers

#### P8. UNDERSTAND THE TECHNOLOGY APPLICATIONS WITH SPACE

1. Produce effective and accurate multi media presentations about your space research
2. Create a CD ROM, Power Point presentation or world wide web site of your space project





3. Evaluate two or more technology tools used at Mission Control
4. Present a plan for using robots in Mars missions

#### P<sub>9</sub> PRODUCE A CREATIVE EXPRESSION ABOUT SPACE THROUGH ART, MUSIC OR DRAMA

1. Categorize art created by former astronauts
2. Compile an historical timeline of music related to space
3. Create a mission patch for a future space station mission
4. Analyze a video depicting information about space

#### P<sub>10</sub> INVESTIGATE CAREERS ASSOCIATED WITH SPACE

1. List the careers or jobs that pertain to space
2. Create a newspaper ad for employees for a space related company or organization
3. Compile a personal resume of your employability skills
4. Investigate quality tools and personal responsibility necessary for particular careers

#### P<sub>11</sub> COMPLETE A SPACE RELATED COMMUNITY SERVICE

1. Complete a service project related to space
2. List the results and identify the persons or locations that have benefited from the work



3. Create and distribute an evaluation form for a person or organization to complete
4. Develop a plan for maintaining the improvement in the future

#### P<sub>12</sub> WRITE A REPORT ABOUT SPACE

1. Use the complete and accurate form required for the task (e.g., title page and bibliography)
2. Use illustrations, graphs and charts to complement and explain the ideas in the text
3. Use headings and subheading to represent the appropriate levels of organization and describe the

space information adequately and accurately

4. Produce an attractive, neat and easily read report that conveys all aspects of the space project

#### P<sub>13</sub> MAKE A SPACE PRESENTATION FOR A JURY USING MULTI MEDIA TOOLS

1. Make a space presentation using appropriate technology and multi media tools
2. Exclude extraneous details
3. Respond appropriately to questions from the jury or audience



4. Modify space presentation to reflect audience questions and interest

## Expert Content

### P<sub>1</sub> READ TO UNDERSTAND ABOUT SPACE

1. Read multiple sources of information, such as books, reports, newspapers and the Internet, about the past, present and future of issues concerning the International Space Station

### P<sub>2</sub> CONDUCT A MATHEMATICAL ANALYSIS OF SPACE

1. Create a mathematical analysis of one aspect of space over time. This could be analyzing costs of astronaut training, creating a new vehicle to replace the space shuttle, disposing of space garbage,

building a base camp on Mars, etc.

### P<sub>3</sub> CREATE MAPS, GRAPHS AND CHARTS ABOUT SPACE

1. Demonstrate knowledge of space and its relationship in the world by drawing on a blank globe or creating a 3 dimensional world model or diorama depicting locations of world training facilities, launch sites, and observation/tracking sites

### P<sub>4</sub> COMMUNICATE SPACE INFORMATION IN ANOTHER LANGUAGE

1. Interview someone from another country, in their language, and record their response to space related questions

### P<sub>5</sub> CONDUCT A SCIENTIFIC RESEARCH ABOUT SPACE

1. Survey a defined area of land or water on another planet. Interpret the macro-ecological surrounding including possible pollution. Include a detailed description of the area affected

### P<sub>6</sub> CONDUCT A SOCIAL STUDIES INVESTIGATION ABOUT SPACE

1. Conduct an economic examination



of the space use of a business, city, state or region over a 7 - 10 year time frame and identify the quality of space that is available for the inhabitants

### P<sub>7</sub> INVESTIGATE THE HEALTH ISSUES RELATED TO SPACE

1. Conduct a thorough analysis of the health issues associated with the effects of space flight on the human body

### P<sub>8</sub> UNDERSTAND THE TECHNOLOGY APPLICATIONS WITH SPACE

1. Analyze three space technologies that have evolved over time

### P<sub>9</sub> PRODUCE A CREATIVE EXPRESSION ABOUT SPACE THROUGH ART, MUSIC OR DRAMA

1. Create a work of art featuring one aspect of space





*All or some of these standards can be identified based upon student level of learning and the “Time & Space” Project Content and Lessons. These all connect to state and national standards used on standardized measurements. They also promote student research, problem solving, data analysis, record keeping, portfolio products and digital presentations. These are all real Life2Learning skills.*

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**P10 INVESTIGATE CAREERS ASSOCIATED WITH SPACE**

1. Analyze 3 separate careers in a space or space related industry and compare skills, educational requirements, economic benefits, and geographic locales

**P12 WRITE A REPORT ABOUT SPACE**

1. Write a complete space report with chapters describing research in each portfolio category, a table of contents, and a bibliography of books, periodicals, newspapers and Internet sites

**P11 COMPLETE A SPACE RELATED COMMUNITY SERVICE**

1. Organize a space exhibit for your area. Create advertising for the event, coordinate the service project, identify number of participants and report results

**P13 MAKE A SPACE PRESENTATION FOR A JURY USING MULTI MEDIA TOOLS**

1. Present the space project to a real or digital audience providing an opportunity for questions and responding with accurate answers