



## Moon, Mars, and ISS



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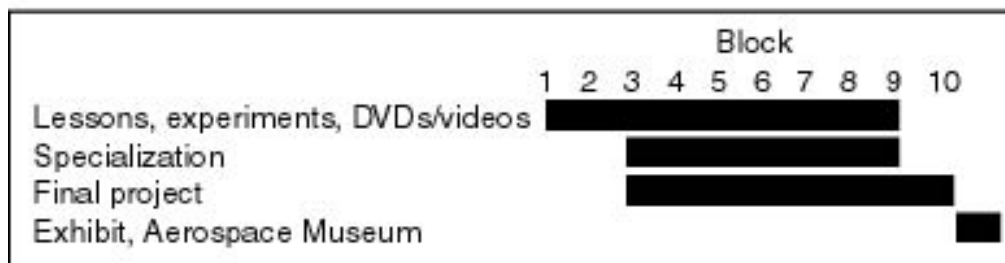
## Moon, Mars, and ISS Student Handout

### Overview

Dear Students, as graduation from Middle School is not far away, you are probably contemplating what it will be like in High School. Graduation from High School is another big milestone, and then after that graduation from College. Have you thought about where you might want to live when you will be on your own? Have you ever considered the possibility of moving out of planet earth? With technological advancements and a focused effort, in the not too distant future we will be colonizing the International Space Station (ISS), the Moon, and perhaps even Mars. Will you be among those to make one of these destinations your home?

In the next 4 weeks you will join NASA, form a Space Flight Center, and plan a manned mission to one of these three destination; Moon, Mars, or ISS. You will also learn a about the solar system, the universe in its entirety (and it is HUGE), and how the planets and stars were formed.

You will be working on Moon, Mars, and ISS for 10 blocks. In the first nine blocks there will be lessons, experiments, and DVDs/videos. In the 3<sup>rd</sup> block you will start working on your Specialization (more on this later) and together with you Space Flight Center, will be working on your final projects. Final projects will be presented in the 10<sup>th</sup> block and after that select projects will be exhibited at the San Diego Aerospace Museum.



Moon, Mars and ISS is a 10 block Program. It culminates with a student exhibit at the San Diego Aerospace Museum.

### Details

In the first block you will be introduced to the “Moon, Mars, and ISS” Program. Your teacher will form Space Flight Centers (SFC) consisting of 3-5 students. Each one of the Space Flight Centers will plan a manned mission to one of three destinations: (1) ISS; (2) Moon; or (3) Mars. You will proceed to give your Space Flight Center a name and an acronym. For example, our grant is from the GFSC, which stands for the Goddard Space Flight Center. You will then make a logo. For sample logos, check the NASA and Nu-Edu logos that are on all your handouts. You can look at products, magazines, and websites for other examples.

Working with your teacher, you will be assigned one of eight specialties:

- (1) Transportation – How to get from planet earth to your destination and back.
- (2) Terraforming – Turning your destination in a friendlier place that can satisfy human needs.
- (3) Space Health – Some destinations, such as the ISS, have zero gravity and all have harmful radiation. There are extreme temperatures and lack of oxygen. How do we make sure we are safe while in space?
- (4) Robots and Rovers – Robots are required in order to do tasks that humans cannot do and rovers are the vehicles that will take you around your destination.
- (5) Exploring – This is what you will be doing after you get to your destination. Many experiments have already been done on the ISS. What might you do on Moon, or Mars?
- (6) Radiation Damage – We are constantly being bombarded by ionizing radiation. Although radiation can neither be seen nor felt, it can be very dangerous. On earth, the atmosphere protects us. In space the radiation is very harmful to humans and to electronic equipment. One of our challenges is to find ways of protecting our equipment and ourselves.
- (7) Astro-biology – This fascinating specialization deals with searching for life outside of planet earth.
- (8) Commercial Opportunities – These are things that you will do to grow rich. You can start a touring company, mine for minerals, grow crystals, and much more.

In the 3<sup>rd</sup> block you will start researching your destination and specialty. You will be working independently on the computer, reviewing literature, answering questions of increasing complexity, and gaining the knowledge that you will need in order to plan your mission. You will get to work on your destination and specialty in class 6 times. You are encouraged to read-up at home. Many carefully selected references have been provided.

Moon, Mars, and ISS culminates with a final project. You can make a power point presentation, knowledge based game such as Jeopardy (and play it with your classmates), board game, write a science fiction story, make a tourism brochure and poster, skit, cartoon strip, and much more. This is where you get creative. Select projects will be displayed at the San Diego Aerospace Museum in late June. Projects may be exhibited in other locations as well.

Welcome to NASA, Space Explorers of the Future!