

About This Curriculum

How Easy Is This Curriculum to Use?

The curriculum was compiled by educators, reviewed by scientists, and field tested by students, making them accurate, classroom ready, and easy to use. Each activity has thorough background information, detailed procedures, student sheets, assessment recommendations, and extension suggestions.

The curriculum is divided into ten days, with a variety of activities aligned to each day's central topic, though it can simply be stretched to cover an entire school year. Each day's curriculum introduces the student to a specific subject and includes information matched with hands-on activities that challenge students to think, to do, and to understand. The activities are easily adapted up or down in grade level and readily lend themselves to an interdisciplinary organizational structure, supported in Social Studies (use of timelines), Library Media Center (development of research skills), Language Arts (writing descriptions of their findings), Math (use of spatial measurement to show chronological scale of historical events), and Art (use of appropriate design elements for visual displays).

The curriculum helps develop skills and understanding by responding to many of the Sunshine State Education Standards' recommendations for science teaching, content, and assessment. The activities can help educators implement these standards in a creative, innovative and multi-faceted program. Students conduct hands-on experiments to generate data and model processes that occur on Earth and Mars. These experiences build understanding and lay the conceptual and experiential base for subsequent activities. You may follow the sequence, building on previous activities, or alter the sequence as interest and time allow. Activities can be completed individually, in small groups, or adapted for large groups.

What Were the Considerations in Developing This Curriculum?

The education team at 4Frontiers Corporation has worked with teachers and science curriculum supervisors to gather activities and materials to be used in the classroom.

Science educators had a key role in developing this package, and the following are some of their incorporated recommendations:

1. ***Present Interdisciplinary Activities:*** Students do not differentiate between subjects. Space is an ideal topic for developing activities which combine various subjects, such as Arts, Geography, History, Language, Math, Science and Technology, Social Studies, and even Health and Physical Education.
2. ***Propose Project-Based, Hands-On Activities:*** Students participate actively in the activities, thus they have some control over the learning process and acquire knowledge more easily. Because the mastery of fundamental science concepts is dramatically enhanced when students feel ownership for their work, the activities directly involve students in the intellectual process going on in the classroom.
3. ***Bring Science to Life By Relating It to the Student's Lives:*** Students not only learn about Earth, Mars, astronomy, biology, chemistry, earth science, engineering, geography, geology,

and physics, but they also develop and hone their scientific thinking skills through analyzing data, designing experiments, devising models, developing and refining hypotheses, and applying their understanding to real-world situations. The Earth and Mars comparisons help students bridge the gap from a local, familiar environment on Earth to the distant and less familiar Mars.

4. ***Stimulate Curiosity and Creativity:*** Students have a natural interest in space, and cultivating this interest may lead significant numbers of these students to pursue careers in science, technology, engineering, mathematics, and space exploration. Activities relating to space help to develop qualities such as creativity, curiosity, enthusiasm, flexibility and cooperative work.
5. ***Build a Foundation for Understanding Current Data and Ignite the Desire for Learning More:*** Using the latest images and data from the past and current mission to Mars, the activities in this curriculum provide the students with skills to help them interpret the data and images, learn key research questions, and understand the necessity of planetary exploration. Mars exploration is at its beginning. The competing explanations within the scientific community and the gaps in the existing evidence leave plenty of room for students to develop their own hypotheses. Students can use evidence from their own investigations to take positions on a particular question, debate alternate hypotheses, and refine their own thinking.
6. ***Have fun while both teaching and learning!***

If there are any comments or recommendations you would like to make on the content, form or other aspects of this package, please do not hesitate to contact us directly via email (education@4frontierscorp.com).

The 4Frontiers Education Team