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IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
Lift Off - Secondary Space Education (2)

Author: Dr. Gary Kitmacher
National Aeronautics and Space Administration (NASA), United States

REQUIREMENTS OF A SPACE CURRICULUM

Abstract

The NRC, the NSTA, and the AAAS developed the Next Generation Science Standards (NGSS). Texas implemented parallel science requirements. Both NGSS and Texas requirements called for the establishment of a space-related curricula. The curricula was to be implemented at all grade levels, incorporate the history of technology and space science. Space science was to be taught on an equal basis with physics, chemistry and life sciences. This constituted a significant change in science education standards.

The author conducted a research study over a period of several years looking at the implementation of the new standards. Several hundred teachers provided inputs in interviews and surveys that provide insight into the challenges they faced in implementing the new educational requirements. The teachers identified the subject matter they felt should comprise space science. They identified the scope of technology, history, and the arts that should be incorporated. They identified issues they faced with finding suitable supporting resources.

Teachers stated that more definitive curriculum, with a focus on specific topics tied to particular grade and maturity levels need to be established. The overall curriculum should ensure continuity across grade levels.

Teachers said that the timely availability of the current and recent data and imagery from the ISS and its integration into comprehensive lessons is important. They said that providing a historical context for the evolution of technology and industry is important.

The teachers identified that the availability of specific resources impedes or enhances their ability to teach space subjects. They identified specific difficulties accessing available content. They identified the suite of content that is required as a comprehensive resource base. Teachers identified specific resources they now use. Several valuable educational programs and resources were identified. They also identified resources which are lacking.

This paper and presentation will provide an overview of the results of the research study and findings and how they may apply to new programs and products, texts, digital media, museums or science centers, and professional development. The teachers ranked the usefulness and availability of categories of resources.

Based on the study a picture emerges that identifies the requirements for teaching content that can develop the students' critical thinking skills.