NASA WAVELENGTH: EDUCATION AND PUBLIC OUTREACH RESOURCE FOR SCIENTISTS AND ENGINEERS. W. H. Cobb1, S. Buxner2, T. Schwerin3, A. Clark3, J. Grier2, and S. Shipp1; 1McREL International (4601 DTC Blvd, Denver, CO 80237, wcobb@mcrel.org), 2Planetary Science Institute (1700 East Fort Lowell, Suite 106, Tucson, AZ 85719, buxiner@psi.edu), 3IGES (1600 Wilson Blvd., Suite 600, Arlington, VA 22209, theresaschwerin@strategies.org, andrew_clark@strategies.org), 1Lunar and Planetary Institute (3600 Bay Area Boulevard, Houston, TX 77058, shipp@lpi.usra.edu).

Introduction: The NASA Education and Public Outreach Forums, funded by the Science Mission Directorate (SMD), produce high quality tools for use by scientists and educators. Among these is “NASA Wavelength” – an online clearinghouse of key activities and other resources for use with a variety of audiences and within different educational settings, both formal and informal.

Activities and Images: NASA Wavelength includes NASA peer-reviewed activities and NASA data and images. For an activity to appear in Wavelength, it must undergo NASA peer review. The peer review process ensures that any activities are sound both in science content and education pedagogy. The activities are for use from K-12, undergraduate, and beyond into life-long-learning. They are appropriate for formal education settings, i.e. for use in schools, but also for out of school programs, museums, libraries, and other informal educational venues. NASA Wavelength is a key resource in assisting NASA scientists and engineers in advancing high quality STEM education using NASA’s unique capabilities.

The data and image database is comprised of three levels of resources 1) introductory: images, animations, and visualizations that do not need special software of tools to access, 2) intermediate: science data and tools for use in the classroom, informal education settings, and by citizen scientists, and 3) advanced: full scientific datasets and analysis tools for conducting research and analysis.

NASA Wavelength Features: NASA Wavelength includes much more than the activities themselves, it includes features, tools, and search engines that allow for activities to be found quickly depending on the need, and then used in the most effective way.

Blog: NASA Wavelength has an internal blog that is updated regularly by education professionals. It offers perspectives and strategies for effective education, outreach, and communication.

Searching: NASA Wavelength is easily searchable by key words on topic, audience, and the nature of the activity (hands-on, inquiry, outreach-oriented, etc.).

Lists: After the creation of a personal profile, users can review activities of interest, and create lists. These lists are entirely under the control of the user, and can be related by science topic, audience, age, or any other criteria of interest to the user. After creation, lists can be made public and shared with other users, if the creator of the list wishes to do so.

Alignment with Federal Directives and National Benchmarks in Education: NASA Education programs are guided by its Mission Statement, “To advance high quality Science, Technology, Engineering, and Mathematics (STEM) education using NASA’s unique capabilities.”[1]. This includes being responsive to the national education landscape, recent changes, as well as established literacy benchmarks.

Committee on STEM Education. NASA is actively engaged in all five Co-STEM Goals:
- P12: Improve STEM Instruction
- STEM Engagement: Increase and Sustain Youth and Public Engagement in STEM
- Undergraduate Education: Enhance STEM Experience of Undergraduate Students
- Groups Under-represented: Better Serve Groups Historically Underrepresented in STEM Fields
- Graduate Education: Design Graduate Education for Tomorrow’s STEM Workforce

AAAS Science Literacy Benchmarks. The American Association for the Advancement of Science (AAAS) developed a roadmap to scientific literacy for all students exists, published in two volumes as “The Atlas of Scientific Literacy.”[2] The AAAS established the Project 2061 Benchmarks to ensure that the lessons learned at each grade level continue to build and relate to one another in such a way that students are guided towards scientific literacy in a natural progression. The interconnectedness of these benchmarks has been mapped out in the form of “Strand Maps.” Each map clearly defines an orderly method towards any one of nearly 100 different scientific concept domains, from Agricultural Technology to Weather and Climate.

Resources in NASA Wavelength are aligned with these benchmarks to make it easier for scientists and engineers to work with educators to identify the resources available to them to reach audiences in a given benchmark, ensuring presentations are developmentally appropriate and meaningful to the intended audience.


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