

Using the AESP Lunar Toolkit

This Toolkit is a guide to lunar resources that may be useful for K-12 STEM teacher professional development. Most of the materials have been carefully reviewed by Education Specialists in NASA's Aerospace Education Services Project.

Teacher's Guides, Lesson Plans, Handouts, PowerPoint Presentations and other PDF and Word files are located under the "Documents" heading at "Instructional materials." Also under the "Documents" heading is a list of Moon multimedia (video, animation, and audio), and many original documents and reports from the Apollo missions. All "Documents" materials are downloadable. Websites are located at "Educ materials sites" (under the "Lists" heading). Most of these websites also contain downloadable materials; they are maintained by other organizations.

You can access the metadata for materials under the "Documents" heading by scrolling your mouse over the individual "Name" (typically blue) of the specific item you wish to gather information about. Left click on the little arrow that pops up in the orange box around the item and choose "view properties." You can access the metadata for the materials under the "Educ materials sites" by scrolling over the "URL" (typically blue) of the specific item you wish to gather information about. Left click on the little arrow that pops up in the orange box around the item and choose "view properties."

Once you are at a list of materials or URLs you can change what information is displayed by choosing a "View," which is an orange pull-down menu located in the upper right hand corner of the window. Under "ratings" views, you will see the individual, mean, and total ratings given to each document or website by one or more AESP specialist reviewers. The scores for each of the six individual categories are out of a score of 5 and the total out of 30.

Key to reviews

Content: What is the overall quality of the background science content for teacher presented in the materials? (1=Poor, 5=Excellent, Blank=NA)

- Provides instructor sufficient background information to teach the content addressed in the materials.
- Background content accurate and based on solid scientific research.
- Information is well organized.

GLevel: How would you rate the grade level appropriateness of the materials?(1=Poor, 5=Excellent, Blank=NA)

- Grade-level appropriate, according to NSES.

- Students at this level likely to have the necessary supporting skills (e.g., math, language arts, technology).
- Required equipment and supplies readily available at the recommended grade level.

Inquiry: How well do the materials support students in doing inquiry and understanding processes of science?

- Offers opportunities to conjecture, gather evidence, and develop arguments to support, reject, and review explanations.
- Opportunities to clarify, refine, and consolidate ideas.
- Interesting, engaging, and effective for underrepresented and underserved students.
- Activities demonstrate and model the processes of science.
- Materials enact views of science inquiry as described in the NSES.

Align: Do the materials provide opportunities for students to develop accurate understanding of science concepts aligned with national standards?

- Activities lead to learning relevant science concepts.
- Science concepts are aligned correctly with national standards.
- Assess: What is the overall quality of teacher and student assessment?
- Includes different types of performance assessment (e.g., student presentations, paper/pencil, portfolios, embedded projects)?
- Includes different methods of educator evaluation of student performance?

Engaging: How engaging are the materials to students?

- Relevant to students.
- Clear expectations for student participation, beyond listening.
- Likely to hold their attention.

Our lists are not exhaustive. There are many other lunar resources available on the internet or from commercial vendors. We have focused primarily on NASA , NASA collaborative, and other open-source resources that are not protected by commercial copyrights. If you come across a broken link, find a mistake, or have a lunar resource to add to this toolkit please contact Betsy Larcom @ eal166@psu.edu. Thanks!