

Space Odyssey Online Teacher's Guide

Design A Museum Exhibit

Postvisit Activity for Deep Space



courtesy NASA/TIE

Grades 4-8
CDE Standards
Science: 1-6
Language Arts: 1-5
Math: 2-4

Preparation and Materials

Estimated Preparation Time: 10 minutes

Estimated Activity Time: Two or more class periods of 45 minutes each

Materials

Copies of the grading rubric

Map of *Space Odyssey* exhibition (optional)

Computers with Internet access

PowerPoint software (optional)

Poster board (optional)

Learning Goals/Objectives

Students will

- Identify important concepts within the study of deep space
- Apply knowledge of cosmology concepts to design a museum exhibit

Connection to *Space Odyssey*

Many of the concepts demonstrated in the *Space Odyssey* exhibition are centered on deep space. At the Life of a Star interactive, students learn how stars evolve over their lifetime. The Gas Tube Spectroscopy and Infrared Experiments interactives provide students information about the technology used to study stars that are light-years away.

Advanced Preparation

1. Make copies of the grading rubric for each of your students.
2. Make copies of the *Space Odyssey* map for each of your students.

Classroom Activity

1. Ask students to think about their visit to the Denver Museum of Nature & Science and specifically their experiences in the *Space Odyssey* exhibition.
2. Have students generate a list of the exhibits and activities they viewed in *Space Odyssey* that relate to their study of deep space. You may wish to print out a copy of the *Space Odyssey* exhibition hall map to help refresh students' memories.
3. Divide students into small groups of two to three students. Have students work as teams to develop a new exhibit for the Museum that will teach participants important concepts in deep space. For instance, students may choose to design an exhibit around SETI searches, types of stars or

galaxies, star formation and evolution, black holes, quasars, supermassive black holes, cosmology, dark matter, dark energy, or even planetary formation.

4. Provide students with a very specific set of criteria for their exhibit. Criteria might include
 - a. Deep space content
 - b. Interactive or hands-on requirements
 - c. Exhibit-building specifications (floor plans to scale)
 - d. Materials needed
 - e. Background information
5. Allow students several class periods to work on their exhibit design and background information.
6. Have students publish their work as a PowerPoint presentation, poster, or in other media to share with their classmates.

Variations/Extensions

1. Have student groups present their projects to the class. Allow fellow classmates to grade the projects using the rubric below.
2. If resources are available, allow students an opportunity to build their exhibit and share it with classmates.

Resources

Books

Danly, Laura, Leonard David, and Donald Goldsmith. *Chaos to Cosmos: A Space Odyssey*. Portland, Oreg.: Graphic Arts Center Publishing, 2003.

Bennett, Jeffrey, Donahue, Megan, Schneider, Nicholas, and Voit, Mark. *The Cosmic Perspective*. San Francisco, CA: Addison Wesley, 2002.

Tomecek, Steve. *Stars*. Washington D.C.: National Geographic Society, 2003.

Vogt, Gregory. *Stars*. Mankato, Minn.: Bridgestone Books, 2002.

Web sites

http://imagine.gsfc.nasa.gov/docs/teachers/lifecycles/SC_title.html

http://www.astro.uiuc.edu/~kaler/sow/star_intro.html

http://starchild.gsfc.nasa.gov/docs/StarChild/universe_level1/universe.html

<http://www.enchantedlearning.com/subjects/astronomy/>

Deep Space Museum Exhibits Rubric

	4	3	2	1	Score
Organization	The presentation has an easy-to-follow format and the text flows smoothly from one idea to another. Sequencing is logical and effective. The participant's questions are anticipated and answered.	The sequencing of the presentation is easy to follow. The participant is left with one or two questions.	The sequencing shows some logic but may sometimes leave the participant confused. The participant is left with a few questions.	The presentation lacks a clear sense of direction. The connection between ideas is confusing and the sequencing needs a lot of work. The participant is left with many questions.	
Creativity	The exhibit is interactive and will be a learning experience for all participants. Concepts are expressed clearly and in multiple ways.	The exhibit is interactive and will be a learning experience for most participants. Concepts are clearly explained in at least one way.	This exhibit is adequate but may not be interactive or educational for all participants. While presented, some concepts are left unexplained.	Many concepts are left unexplained and the exhibit is difficult to understand.	
Layout and Ergonomics	The exhibit has exceptionally attractive formatting and well-organized information. Graphics go well with the text. There is a balance of text and graphics.	The exhibit has attractive formatting and organized information. Graphics complement the text, but there may be a lack of balance between text and graphics.	The exhibit contains relevant information though the layout may be very general with few or no graphics.	The exhibit's format and organization are confusing to the participant. Graphics do not match the text or appear to be randomly chosen. This exhibit is difficult to understand.	
Scientific Accuracy	Scientific theories reflect current research. Where appropriate, conflicting views and interpretations are presented.	Scientific theories are accurately presented. There may be one or two errors or inconsistencies in the information.	Scientific theories are somewhat accurate, though there may be more than a few errors. The participant may need more information.	Scientific theories are completely inaccurate. The information is misleading or does not relate to astrobiology.	
Text Conventions	There are no grammar, spelling, capitalization, or punctuation errors in this piece. The author correctly uses scientific vocabulary and defines words unfamiliar to the reader.	There are very few mistakes in grammar, spelling, capitalization, or punctuation in this piece. The author correctly uses scientific vocabulary.	There are many mistakes in grammar, spelling, capitalization, or punctuation in this piece. The author sometimes struggles in using scientific vocabulary correctly.	This project is riddled with errors in grammar, spelling, capitalization, and punctuation. The author misuses vocabulary throughout the piece.	
Sources	The author has gone above and beyond to research information for this exhibit. The author used factual information and personal ideas to enhance the project. At least eight sources were cited for this project.	The author has done an excellent job of researching. He/she has correctly cited at least six sources of information to provide factual information to the participant.	The author used a minimum number of resources to provide factual information to the participant. Some of the author's citations may be incomplete or inaccurate.	The author did not include accurate documentation of his/her sources. Resources were not used effectively. The author did little or no fact gathering on the topic.	