
Session 11 – Visit from a (Space) Scientist + Making a Cosmic Quilt

General Description

This session is an opportunity for students to interact with a scientist and ask any questions that may have built up over the program. In addition, they will pick one of the topics they have learned about during the course of this program and do an activity demonstrating their understanding of this topic.

Objectives

- To provide students with a direct connection to a scientist.
- To offer students an opportunity to ask questions about program concepts or other related topics.
- To discuss and explore possible careers in science, technology, engineering, and math.

Materials

- Construction paper (at least 2 pieces for each pair of students)
- Glue
- Scissors
- A large bulletin board or wall space to post many sheets of construction paper
- Markers, crayons, colored pencils, and any other craft supplies that might be useful for the students to decorate their pieces

Session Overview

During this session, the students will interact with a scientist or engineer and learn about what they do. They can also ask questions of the scientist or engineer about any of the topics they have studied during this program. After the talk, students will work on their pieces for a “cosmic quilt” based on what they have learned in this program.

Preparation

- Invite a local scientist or engineer to come and visit your student group. Physics and astronomy departments at local universities are a good place to start if you don't know any local scientists. Some companies, such as Raytheon, ITT, Hughes, and Boeing, might also have programs related to space technology. They will mostly employ engineers rather than scientists, but this may be a good option if you are unable to find a local scientist. **Be sure to make the invitation early so that you can get on their calendars** (at least a month ahead of time is a good guideline).

- Give the scientist an overview of the topics you have covered as part of this program. Point them at the website for the program, and in particular at the outline of session topics and the manual. Be clear about what you expect of their visit — you would like them to discuss STEM careers with the students and answer questions related to space science and space technology that students might have. See our website for a document of helpful suggestions that might help your scientist prepare for his or her visit to your program.
- Have the students prepare a list of questions that they wish to ask the scientist — these can range from questions about the material they have studied over the course of this program, questions about careers in science, or any other questions relevant to the program.
- Prior to this session, pair up the students and ask them to pick a topic that was covered in one of the sessions they attended through the course of this program. These can be light, telescopes, spectroscopy, elements, stars, galaxies, black holes, or anything else that has been covered. Tell your students that they will be creating a “cosmic quilt” where each pair of students will design two “quilt” pieces that illustrate their understanding of their topic via art and writing.
- Ask your students to spend some time before the scientist visit thinking about their topic, what questions they might like to ask the scientist who visits, and what they might draw and write for their cosmic quilt.
- Remind the scientist one week before their visit and provide directions to your location and any other information or instructions you might wish to give them. Also, tell them about the cosmic quilt activity and that you would like them to help the students make up their “cosmic quilt.”

Activity

I. Discussion with a Scientist (25 minutes)

Moderate a discussion between the students and the visiting scientist. The students should feel free to ask the scientist questions about any topics you have covered in this program, about careers in science or engineering, or any other questions relevant to the program.

II. Cosmic Quilt (25 minutes)

(Adapted from the High Energy Groove Cosmic Quilt developed by the RXTE EPO program)

This activity will get students thinking about the various topics they have studied and the characteristics of the objects in the Universe that they have learned about. Students will learn to articulate their understanding of their selected topic.

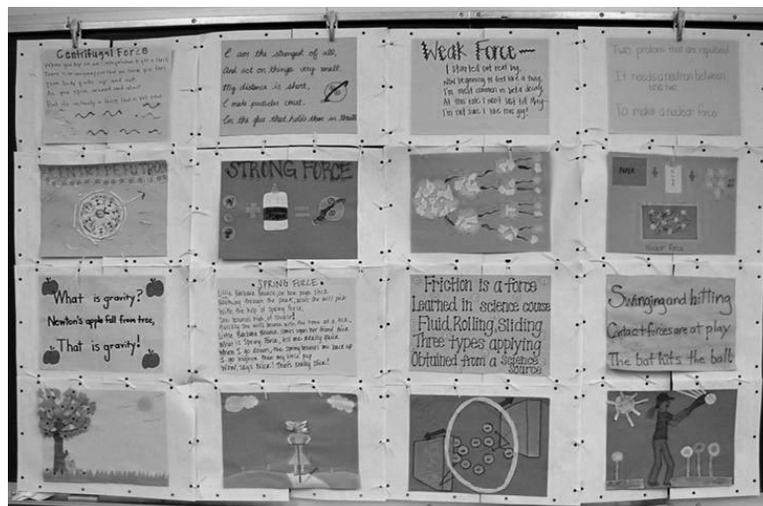
1. Each student should have picked a topic that was covered in one of the sessions they attended through the course of this program. Ask the students if they have any questions about their topic for the visiting scientist.

2. Tell the students and the scientist that they will now work together to create a piece of a “quilt” that relates to their topic. Each pair of students gets two “quilt” pieces.
3. On one piece of construction paper they should create an art piece related to the topic they’ve picked.
4. On the other piece of construction paper they should create a literary piece also related to their topic. This can be done in any literary form they wish to use. They can write a poem, a story, a comic strip, a straight factual description, or anything else they can think of. This should be written as neatly as possible, preferably in ink. If they would like to write a draft on other paper first for neatness, this is fine.
5. Encourage students to be creative in decorating their quilt pieces, and to talk to the visiting scientist about their design and any questions they may have.
6. Once all pieces are finished, piece together the quilt and post it for everybody to see. You can make it look like a real quilt by punching holes on the sides of the paper and “sewing” the pieces together with yarn or string. The following pictures illustrate what the finished “cosmic quilt” will look like.

Example of a Cosmic Quilt Layout:

Picture: Black Hole	Story: Black Hole	Picture: Supernova	Story: Supernova
Picture: Star	Story: Star	Picture: Galaxy	Story: Galaxy
Picture: Telescope	Story: Telescope	Picture: Electromagnetic Spectrum	Story: Electromagnetic Spectrum
Picture: Scientist	Story: Scientist	Picture: Red Giant	Story: Red Giant

Example of a Cosmic Quilt stitched together:



You can find a color version of this image, as well as other examples, in Appendix F.

Suggestions for Running this Session

- If you do not have a number of students in your class that makes a square or rectangular quilt possible, don't worry about it. Quilts can be any size or shape. Be creative in the placement of pieces.
- If you want your students to create their quilt pieces to all be either portrait or landscape, you will need to tell them this ahead of time. It is not necessary, and is up to you.
- Many students will draw or write all the way to the edges of their quilt pieces, and it's a shame if you have to punch holes through their hard work! If you punch the holes beforehand, you can set the margins for their artwork and writing. Also, it helps to punch the holes with even, consistent spacing, so your stitches will line up later.
- If something comes up and your scientist is unable to attend after all, you might want to think of backup activities for the session. Consider a kinesthetic activity or craft project with minimal prep work and supplies. For some ideas, see our website, and email us with your ideas if you have them. Did something work particularly well for you? Let us know so that we can share the idea with other program leaders.

Useful websites for background or activity extension

- **High Energy Groove Cosmic Quilt**
http://heasarc.gsfc.nasa.gov/docs/xte/outreach/HEG/cq/cosmic_quilt.html