

2012 SE MA STEM EXPO
Preparing Students for the Stem Expo

Pre-Expo Practice

Here are suggestions for two assignments to help students prepare for the STEM Expo:

- Research at least three careers in one of the STEM Majors.
- Discuss potential careers linked to each STEM Major.

Resources for completing the assignments:

STEM Career Exploration Workbook

Each student will receive a Workbook at the STEM Expo as a tool they can use to gather information. See a SAMPLE workbook here:

http://www.connectsemass.org/stem/documents/CareerExplorationWorkbookSAMPLE_000.pdf

We suggest that teachers work with students to familiarize them with the STEM Career Exploration Workbook. Using the questions from the Workbook, have students work in pairs to practice introducing themselves and asking questions of the presenters.

Students can use answers from STEM professionals gathered at the Expo to further round out the information on STEM Majors and careers suggested as assignments above.

STEM Majors (<http://www.connectsemass.org/stem/documents/STEMMajorsfromSAT.pdf>)

One goal of the Massachusetts STEM Plan is to increase the number of students who indicate they are interested in STEM Majors when they take the SAT in high school. In order to increase awareness of STEM Majors, activities at the STEM Expo are organized by STEM Major.

Attached is a list of STEM majors and the different jobs that fall under that major.

STEM Career Exploration Website <http://www.connectsemass.org/stem/workforce.html>

Students can use the links on this site to learn more about themselves, their interests and strengths, and to explore career opportunities open to students who pursue STEM Majors. The website can be used as part of a class lesson or students can use it independently. Some school districts plan to use it at least once a year in all classrooms for one class period. Students might use this site to further explore STEM majors (see suggestions above) and research STEM careers and jobs.

Post-Expo Presentations

At the STEM Expo, students will gather information for the presentation they will create for their classmates and others after the STEM Expo. Presentations should illustrate who they met and what they learned at the STEM Expo about STEM Majors and STEM careers. You and your students will be given a carry-all bag donated by U.S. Air Force to use to gather resources.

Presentation Suggestions

Ask students who attended the STEM Expo to consider organizing their presentations around these ideas:

- Give examples of careers in STEM Majors and illustrate what is exciting and interesting about careers in STEM fields.
- Show how STEM professionals protect the natural environment, or improve the human- made world, or help people live longer, healthier lives.
- Show how people make a difference using their STEM skills and knowledge.

- Create a STEM Hero: Write a story about a person who helps solve a mystery and saves the day by using their STEM skills.
- Make a STEM Professional Come to Life: Draw a picture of a STEM Professional using their STEM skills to protect the environment or improve the human-made world.

Discussion Questions

Following are questions that can be adapted for students and adult discussions about STEM.

- What is STEM?
- What examples of the natural environment do you see in your classroom? How do STEM skills protect the natural environment?
- What examples of the human made world do you see in your classroom? How do STEM skills improve on the human-made world?
- What are examples of how people use skills and knowledge in science, technology, engineering and math?
- Is there STEM in art or art in STEM?
- What is the relationship between STEM and music?
- What STEM concepts and/or vocabulary can be introduced to young children?
- What STEM concepts and/or vocabulary can be introduced to young children through play?
- Around the world and in the United States of America, people want safe communities. How does STEM help ensure safe communities?
- Why is it important to take STEM courses and to complete them even if they are difficult?
- How can STEM concepts can be introduced in art, history, music or physical education ?
- How can artists and writers find rewarding careers in STEM fields?
- STEM skills and knowledge support invention and innovation. Invention and innovation has shaped American history. How important do you think invention and innovation is to the United States in the 21st Century?
- If you wanted to increase the number of students who are prepared to enter STEM Majors when they graduate from high school, what would you suggest that the school district, community, family members and the government do?

Post- Expo Activities

After the STEM Expo, teachers will be sent information to help them extend the value of the Expo through additional in-classroom STEM activities and assignments.