Everything You Already Do is STEM

Time Available

10 minutes.

Learning Objectives

At the conclusion of this session, participants will be able to:

• Understand the background and purpose of STEM
• Know what STEM represents (science, technology, engineering, math)
• Implement STEM training in Scouting activities to help the youth learn.

Suggested Presenter(s)

Have one or more of the following people present this topic:

• A council or district STEM coordinator
• A successful unit leader familiar with STEM
• A Scouter who has a job in a field related to STEM
• A Roundtable commissioner or assistant commissioner
• A member of the training committee

Presentation Method

• Explain briefly what STEM is and that it is for every level of Scouting.
• Explain briefly the Nova awards.
• Display some of the merit badges and adventures related to STEM.
• Show experiments that are simple but fun to help the leaders be excited and encouraged to use them in their units.

BSA Reference Materials

• What is STEM Nova
• STEM Scouts
• Nova Award Requirements
• NOVA Award FAQ
• STEM at Camp
• Scouting Magazine: STEM Activities to Reinvigorate your Scouts'

Presentation Content

What is STEM?

• STEM is an acronym for Science, Technology, Engineering, and Math. It deals with placing academic emphasis on those areas to help students gain good jobs and to help the United States stay current in those areas. Due to advances in electronics and technology, these programs are increasingly important and relevant to everyday life.

Sample experiments

• Teach the game Rocks, Paper, Scissors, Math

○ You can only use the numbers 1, 2, 3, or 4
○ You can't use your thumb as a number
○ You must hold your hand flat
The first person to add the numbers together wins that round.

- Have students play the best of 5 rounds.

- Variations: One person is negative, both are negative, include the thumb, use both hands, or multiply the numbers. Use a variation appropriate for the age group.

- **STEM all the time**
  - Whether we recognize it or not, Stem is an important part of our lives every day and, is more than just math problems and formula.
  - Have the Scouts brainstorm and discuss the items used during their regular day which are related to STEM.
  - Examples: Alarm clock (technology), Shower (engineering), weather appropriate clothing (science), how much time before leaving (math).
  - Discuss other examples from everyday life.

### STEM Fun

Marshmallow Shooter **(DANGER: The marshmallows should not be aimed at any person. Set rules for the youth and make sure they understand and follow the rules so that all may have fun)**

- Take a strong paper cup and cut out the bottom. Fold down the excess.

- Take a 12-inch balloon. Tie a knot in the balloon (do not blow up the balloon). Cut off the top third or fourth of the balloon. Put the knot inside the cup and stretch the balloon over the cup. Use duct tape (if desired) to hold the balloon on the cup.

- Insert one miniature marshmallow. Pull on the knot and then release it to shoot the marshmallow.

- Create your own target (for example, with construction paper).

- Discuss the science. The more the balloon is stretched, the more potential energy exists. When released the potential energy is converted to kinetic energy. Kinetic energy is the energy of motion. The more kinetic energy, the faster (velocity) the item will move and the more dangerous it may be. Let the youth determine how far to pull the knot for the best accuracy.

**Source:**

*Marshmallow Shooter Stem Activity*