Professional Development Situation: Training

Skill Focus: Making Connections to STEM Careers

Time Required: 70 minutes

CONNECTING LEARNING ACTIVITIES TO STEM CAREERS

Participants will brainstorm STEM careers and connect them to common OST activities.

Agenda

Welcome— 5 minutes

See the Skill in Action—15 minutes

- What do STEM Professionals Do? video-based learning module

Brainstorming STEM Careers— 20 minutes

Hands-On learning— 15 minutes

- Connecting Common OST Activities to Careers

Conclusion— 15 minutes

Materials

- Computer with Internet connection
- Projector and speakers
- Flip chart paper and markers
- Pens for participants
- Timer
- What do STEM Professionals Do? video-based learning module
- One copy of Connecting Common OST Activities to Careers for each partner group.
- Optional: small prizes for competition winners

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Before the Session

- **Read this training guide** to become familiar with the content and allow time to personalize the activities to best suit your presentation style. Watch all videos and read informational materials.
    - *Italics indicate text that can be read aloud or emailed to participants.*
- Send reminder email about the training. Determine if any participants require accommodations (sight; hearing; etc.).
    - *The next professional development opportunity to enhance our STEM skills will be on DATE at TIME at LOCATION. Our focus for this session will be "Making Connections to STEM Careers". Let me know if you require any accommodations to participate in the training. I am happy to answer any questions you have and look forward to seeing you at the workshop. I can be reached at CONTACT INFO.*
- Gather all materials needed for the training.
- Develop a list of possible questions participants might have during the training. Create potential responses to be explored through informal conversation. Review any key terms or ideas that may be unclear.
- On the day of the training, test the audio and video equipment.

Training Outline

Welcome (5 min)

- Greet participants as they arrive. Make sure everyone feels welcome and comfortable.
- Introduce yourself and the focus of the session: "Connecting STEM Activities to Careers".
- Ensure participants are aware of the locations of restrooms facilities, refreshments, etc.

See the Skill in Action (15 min)

- Ask participants to think about how they use STEM in their own careers.
    - *How do you use STEM in your daily work?*
        - If participants struggle to answer this question, ask them about specific STEM practices, such as designing solutions, explaining things they do not understand, evaluating information, etc.
    - *Today, we will think about ways that we can connect specific STEM careers to our activities so that youth can start to see themselves as capable scientists and engineers.*
- Cue up the What do STEM Professionals Do? video-based learning module.

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- Play the video under step 2 of the module for participants.
    - *How does the facilitator get youth thinking about STEM careers?*
    - *Why is it okay to encourage youth to talk about STEM careers even if they aren't sure about the exact nature of the work?*
- Play the video a second time, if needed, for participants to hear what the STEM facilitator says.
    - *What career do you think this expert has? Are there other local connections you could make like this?*

Brainstorming STEM Careers (20 min)

- This activity is designed to be a fun way to identify and discuss possible STEM job/careers and think about pathways to these jobs. The activity can be used with frontline staff, but also with youth. Encourage thinking "outside the box".
    - *What are some unusual jobs/careers?*
- Split the group into teams of 2-3 people.
- Conduct three rounds of the competition, allowing for some discussion after each round. The team that gets the most points wins.
    - **Note:** A small prize is always a good way to spark interest.

Round 1: "Name That Job"

- Explain that the mission of a team is to brainstorm as many jobs and/or careers as possible in two minutes. This is any job participants can think of. Each team should record these on large poster paper.
    - If doing this with youth, you may need someone to help record examples.
    - **Note**: it may help to set a timer that will go off after the two minutes are finished to help cue groups that the round is over.
- Remind participants:
    - *Brainstorming means that you think quickly and come up with as many ideas as possible. Don't worry about making sense or being silly. Just shout out whatever comes into your mind. This is a time to think outside the box!*
- At the end of the round, count the number of jobs and record on a score sheet. Numbers are the key here, not the quality of job titles.

Round 2: Where's The STEM?

- During this round, the teams are to put the jobs they have identified into one of the STEM areas. Give teams five minutes to complete this round. Review what STEM stands for – Science, Technology, Engineering, and Math.
    - *Which of the jobs would you classify as needing STEM knowledge?*

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- Winning this round means that the team has identified at least one job for each STEM area – one point for each connection.
- Have each group discuss why and how they classified their jobs into STEM areas.
    - *What is the justification for your decisions?*
- Award participants one point for each connection they identified. Record the points for each team.

Round 3: Path Finder

- Each team should now choose one of the jobs/careers that they have identified and:
    1. *Explain why they think it would be classified in one of the STEM areas.*
    2. *Describe how one would prepare for the job/career.*
    3. *List where they would work if they had this job/career.*
- Give the teams five minutes to complete this round.
- Award one point for completion of each item above (a, b, c) for a possible total of three points.
- Upon the completion of this round (or the bonus round), determine which team has won the challenge and distribute prizes and/or applause to the winning team.

Bonus Round

- In case of a tie or just for fun, have each team list someone they know or know of that has this job. It can be someone local or a famous person. For each person they can identify the team gets one point.
- Give teams two minutes for the bonus round.

Hands-on Learning (15 min)

- Pass out the Connecting Common OST Activities to Careers handout. Participants will work with a partner to complete the document.
- For each common OST activity listed on the paper, participants will try to list STEM careers that connect to it.
    - *It is okay if the connection is loose or if you don't know the specific names of certain kinds of jobs. For example, instead of putting "forensic phlebotomist" you could put "crime scene analyst."*
- In the final column, participants will brainstorm local resources for teaching about STEM careers with their youth.

Conclusion (15 min)

- With an elbow partner (someone next to you) discuss your checklist and answer the following questions:

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- *Are there new ways you can reinforce career connections with the activities you listed on your checklist?*
- *What strategies might you use when you lead these activities the next time?*

- Offer some summary comments about careers and STEM.
  - *The vast range of STEM careers available to youth may seem intimidating. I want to encourage you to think about one activity and career area at a time.*
  - *Making connections to STEM careers can inspire youth to think beyond middle school or high school. A career goal and the understanding of what is required to get there are powerful tools to keep youth in school and motivate them to make wise choices.*

After the Session

- Within 2-3 weeks of the training, email to all participants. Include any notes or highlights from the session for participants.
  - *Thank you for your participation in the recent Click2Science "Making Connections to STEM Careers" training. I hope you found it useful. Consider meeting with a co-worker, supervisor, or friend to share the goals you are working on. I look forward to continuing our learning at the next session on SKILL/FOCUS on DATE at TIME at LOCATION. Please let me know if you have any questions. I can be reached at CONTACT INFO.*

Want to Earn Credit? Click2Science has teamed up with Better Kid Care to provide continuing education units. Check it out at: http://www.click2sciencepd.org/web-lessons/about

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Connecting Common OST Activities to Careers

For each activity, write careers and connections you could make for youth in your program.

Activity	Related STEM Careers	People I could contact
Turbulent Orbs – youth put dish soap and water in a bottle and swirl it to find patterns in the earth's surface.		
Building Circuits and Switches – Youth connect batteries, build switches, and discover circuits.		
Design a Grape Smasher – youth build and test a simple machine to smash grapes		
Wonderful Junk – youth recycle used paper, cardboard, and aluminum to build something of interest to them		
Soil Ecology – Youth analyze the contents of a jar of soil to distinguish gravel, silt, and organic matter.		
Build a Watershed – Youth crumple paper to build a "landscape" that they spray water on to see how water moves over land.		
Plant growth – Youth grow and observe plants as they grow from seeds.		
Earthquake towers – Youth build and test structures to withstand an earthquake.		
Sink or Float- Youth test whether objects sink or float and try to sink "boats" made of foil by adding items to them		

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