

Professional Development Situation: Training**Skill Focus: Connecting to Prior Knowledge and Experiences****Time Required: 60 minutes**

IMPROVING CONNECTIONS

Participants will design dough creatures to learn to connect youths' prior experiences to STEM activities.

Agenda

Welcome—5 minutes

Silent Introduction—5 minutes

See the Skill in Action –10 minutes

- [Linking my Experiences to Societal Needs](#) video-based learning module

Planning to Connect Experiences to Learning—10 minutes

Hands-on Learning—20 minutes

- [Dough Creatures](#)

Conclusion - 10 minutes

Materials

- Computer with internet connection
- Projector and speakers
- Nametags
- [Linking my Experiences to Societal Needs](#) video-based learning module
- One copy of [Dough Creatures activity guide](#) for each participant
 - Log in to pbs.org to access informational videos and guides
- Materials for Dough Creatures
 - LEDs
 - Play Dough
 - Gator clips

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 “Connecting to Prior Experiences and Knowledge” to STEM learning. 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 to Prior Knowledge and Experiences”.
- You can display the following text on a PowerPoint or write it on chart paper:
 - **Goal:** *Make science more relevant to youth by portraying science as a social, lived experience that is relevant to learners.*
- Ensure participants are aware of the locations of restrooms facilities, refreshments, etc.

Silent Introduction (5 min)

- Have each participant make a name tag with their name on it and write one fact they already know about electricity on their nametag.
- Have participants do a “silent introduction” walk around the room.
- See if any participant knows everyone’s name.
- Introduce the day’s agenda.

- *We will do part of an activity you can do with youth, called “Dough Creatures” from PBS.org. Then, we will see how we can connect this to kids’ lives.*

See the Skill in Action (10 min)

- Introduce the video-based module to participants.
 - *In this module, youth try to build a three-stone fire. This activity is courtesy of Techbridge Girls, Inc.*
- Show the [Linking my Experiences to Societal Needs](#) video-based learning module.
- Ask, “How does Gauri connect youths’ everyday lives to the stove activity?”
 - Possible responses: “Gauri asks, ‘What do we know about fire? How do you trap heat? What do I want that blanket to do? Do you know a word for that?’”
- Show the video in step 3 again if needed.

Planning to Connect Experiences to Learning (10 min)

- Participants will now do an activity together to think about how to connect youths’ lives to an activity.
 - *You are now going to look at an activity to plan for connecting youths’ backgrounds to the learning.*
- Pass out copies of the [Dough Creatures activity guide](#).
- Ask participants to read the guide and note places where they could connect youths’ experiences to the learning.
- Then pass out the [Making STEM Meaningful](#) strategies handout.
 - *Look through this list. How do you think you could stop during this lesson to help youth connect to their background experiences?*
 - *Write at least three places where you could stop to have youth think about their own relationships to electricity. (Possible ideas: what do they know about wires, especially metal & plastic, what happens when a lightbulb burns out and the filaments separate thereby breaking the circuit, previous knowledge of circuits or switches, other things they know that go in a circle, like blood in the human body, perhaps they’ve seen the electric wires in their home)*

Hands-on Learning (20 min)

- Participants will now do the dough creatures activity to practice connecting their backgrounds to the activity.
 - *Now you will do the activity yourselves in groups of four.*

- Split participants into groups of four.
- Pass out the materials to each group so they can begin to work with dough: gator clips, battery packs, LED lights, and play-dough. For the activity, as written, two types of dough are required: Insulating dough (which is made of sugar and does not conduct electricity) and conductive (which is made of salt and does conduct electricity).
- Give participants plenty of time to make a dough creature with pieces that light up.
 - **Troubleshooting tip:** LEDs typically only allow electricity to flow one way through them. If nothing is lighting up check the direction of the LED.
 - **Note:** If you don't have sugar-based dough, you can use modeling clay for insulating dough because it lacks salt.
- Allow all group members to showcase their creations before disassembling.

Conclusion (10 min)

- Debrief the activity with the group by asking:
 - *Where did you write down that it would be important to connect youths' experiences with the activity?*
 - *Did you make connections during this activity? What were they?*
 - *What other connections can we make to our environment or community?*
- Encourage participants to use the [Making STEM Meaningful](#) handout as they plan other ways to connect youths' experiences to your STEM programming.

After the Session

- Within 2-3 weeks of the training, email to all participants.
 - *Thank you for your participation in the recent Click2Science training on Connecting to Youths' Experiences. I hope you found it useful. Check out more STEM activities at <https://net.pbslearningmedia.org/resource/590bb20b-0f87-4946-bf5e-3705a0298131/dough-creatures/#.WRnNbmj1Dkk> Consider meeting with a co-worker, supervisor, or friend to share what you learned. 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>

Making STEM Meaningful

- Solving a problem that young people have
- Getting local people involved in activities
- Engaging the special talents or interests of youth
- Encouraging youth to connect their experiences at home
- Include local history
- Connecting to local places
- Invite family members to share their knowledge related to STEM. This might be related to cooking, health, technology, farming, or design.
- Valuing and including the experiences of nondominant youth (especially non-White students and girls)
- Incorporate current cultural trends (music, popular toys or dance moves, etc.)