

## EIGHT THINGS TO REMEMBER WHEN INTEGRATING STEM



By Anna Padget Crocker, Project Associate: Afterschool and Community Initiatives at the Franklin Institute Science Museum.

Feeling like integrating STEM into your current curriculum is an unsolvable equation? STEM doesn't have to intimidate or overwhelm you. It's an essential component of every afterschool program, so here are 8 tips to help you start the process.

**1 STEM PROGRAMMING DOES NOT REQUIRE STEM EXPERTS.** Remember, a good facilitator's role is to be a role model for youth and to cultivate curiosity and engagement. Instead of providing expert answers, STEM role models say, "I don't know the answer. How can we find out together?"

**2 SCIENCE PROGRAMMING DOES NOT ONLY MEAN CONDUCTING SCIENCE LABS.** Remember, STEM programming can be integrated into many disciplines or approached from many angles. Interpreting observations and using evidence in an argument are great examples of scientific habits of mind that are applicable across many disciplines.

**3 QUALITY HOMEWORK HELP, RECREATION, HEALTHY MEALS—MOST PROGRAMS HAVE MANY RESPONSIBILITIES.** When is there even time to integrate STEM into program hours? Always! Remember, engineering design challenges or science investigations can provide opportunities to integrate math concepts, as well as practice expository writing when making observations or drawing conclusions.

**4 IS STEM PROGRAMMING REALLY ALIGNED WITH YOUTH DEVELOPMENT GOALS?** STEM programming is an excellent way to build persistence in youth. Remember, scientists and engineers are constantly revising their ideas or reworking their designs. These STEM professionals are also constantly asking new questions as they make new observations or findings.

**5 OKAY, BUT WHAT ABOUT 21ST CENTURY SKILLS, SUCH AS COMMUNICATION AND COLLABORATION?** Remember, scientists and engineers do not work alone; these professionals rely on community analysis and feedback. STEM programming provides opportunities for youth to practice their complex communication and collaboration 21st century skills.

**6 TAPE, RULERS, PAPER, AND OTHER SUPPLIES ARE ALL OVER THE PLACE.** Youth are out of their seats, moving around, and talking loudly with one another. Remember, what looks chaotic, messy, and loud can also be a sign of highly engaged youth working together to solve a problem!

**7 THE STEM PROJECT IS COMPLETED, NOW WHAT?** Remember, family nights that allow the influential people in a child's life to learn with youth or youth to showcase their hard work are powerful ways to connect families to out-of-school time work. Reimagine a "finished" project as an opportunity for youth to mentor younger grades in a subject area where they are newly confident.

**8 STEM PROGRAMMING HAS REAL-WORLD APPLICATIONS.** Remember, connecting STEM programming to real-life careers helps youth channel their out-of-school interests into future aspirations.

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**SEE MORE AT:** <http://naaweb.org/tip-of-the-week/item/143-8-things-to-remember-when-integrating-stem#sthash.02yPXMV3.dpuf>

### **OPENING DISCUSSION**

Which of these stands out to you? Why?

Who has an example of a time when remembering one of these tips would have been helpful?

Which serves as a good reminder for you? Why?

What questions or other thoughts do you have about the article?

### **APPLICATION ACTIVITY**

A teacher in the building complains that your area is very messy after you lead a STEM activity. How do you explain this to the building's teachers and administrator?

Once the kids have completed their homework and eaten snack there is only a little bit of time left in the program. How would you incorporate STEM?

A parent comes to you and wants to know how the STEM activities you are doing benefits their child. What explanation would you give?

### **CLOSING REFLECTION**

What's one thing you will stop doing based on our discussion today?

If applicable, provide participants with the corresponding certificate of participation and if required ask them to complete the questions included on the certificate.

# **CERTIFICATE** of PROFESSIONAL DEVELOPMENT

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\_\_\_\_\_ **PROFESSIONAL DEVELOPMENT HOURS, EARNED BY:**

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### **CONTENT INCLUDED:**

Avoiding Intimidation • STEM aAn Essential Component • STEM Program Does Not Require an Expert  
Science Program Does Not Mean Conducting Labs • When Do You Find the Time?  
Aligning STEM with Youth Development Goals • Connecting STEM to 21st CCLC Skills  
Where Are the Supplies? • Next STEM Steps • Incorporating STEM Into the Real World

**FACILITATOR:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

| List three ways to integrate STEM into current activities in your afterschool program?

- a.
- b.
- c.

| How will you explain the real world or 21st Century skill connections of the program's STEM activities to children, staff, and parents?

| What ideas do you have for project showcase activities?