There are a lot of resources out there providing guidance on high-quality STEM programming, but not on the professional development (PD) process and content itself that make that programming possible. Our working group has been filling the gap by developing reflective instruments for formal and informal stakeholders and providers involved in STEM PD. We have taken theoretical constructs around quality and turned them into four concrete, educator-friendly tools that will help forge paths for long-term growth and improvement across the DC metro area.

The following four tools were developed this past year by the PD Working Group and can be found on the DC STEM Network website (dcstemnetwork.org):

1. **Formal and Informal STEM Education Core Indicators of Quality**
   High-Quality STEM PD addresses the interaction between the STEM PD provider – and program or school educators – and the program or classroom participants they will serve. Its offerings are intentional in their selection and planning, and are tailored to the needs and interests of the participant. Our process was anchored in the following three questions:
   - For whom is the professional activity intended?
   - Why is the topic or concept important to be addressed?
   - What is the intended outcome the activity or experience will have on the participants?

   With these in mind, we identified seven groupings of indicators, or core aspects of quality STEM professional development. High-quality STEM PD should:
   - Fit the background, experience and needs of training participants
   - Promote and extend the effective facilitation of its content
   - Leverage a variety of approaches to instruction and engagement
   - Connect young people to a wider world of STEM relevance and potential
   - Align with accepted standards and skill-sets
   - Base its success on outcomes and data
   - Make STEM education come alive with authentic learning experiences

   This construct has guided the creation of the following three specific tools to help both providers and consumers meet the goals above.

2. **Information Exchange to Inform STEM PD Selection and Design**
   STEM PD can be its most powerful when we first take the time to exchange information as we set it up. This way, consumers can get as clear a picture as possible of what they’ll be getting. And providers can get insights into client goals, needs and preferences that will help ensure success, follow-up and referrals. This instrument contains questions that can get that discussion going. The first list focuses on details that a classroom or program should share when first talking with a prospective PD provider. The second focuses on informative questions it can ask during that conversation.
3. **Best Practices in STEM Professional Development: Self-Assessment and Resource Links**

Providers of quality PD are a vital component to any ecosystem of STEM learning. Taking the time to objectively self-assess around best practices in the field can seem like a luxury. It is, however, key to growth and can be especially useful when links to helpful resources are paired with those best practices. In this way a provider can reflect in private and develop strategies in areas it may want to strengthen, and then take action using the supports it needs to make that improvement.

The vast majority of the self-assessment questions in this instrument are exclusively for personal use. We only ask you to share the answers to three baseline data questions with us first, so that we better know the landscape of STEM professional development in DC. Please use as many of the questions as are useful for your reflection and planning.

Each of these best-practice indicators is most useful when accompanied with examples of what it can look like. As we continue to develop this tool, please contact us with any informational links, references or strategies you think could be attached to illustrate any specific indicator. This will both build a common resource and a community of practice.

4. **Post-PD Feedback Tool**

Designing PD is, at its best, a practice of continual growth and refinement. Many providers of STEM PD gather and use immediate feedback from those they have just trained. The input can inform future efforts or be used to improve the very next session with a particular client. This document is a simple series of survey questions – based upon best-practices in STEM PD – that can be used alone or to augment any existing method of establishing this important line of communication. If you are a consumer, please feel free to use any combination of these questions in the feedback you give to a provider whose PD you have just taken. If you are a PD provider, please feel free to use this or add any of these questions to your own survey.