Great Science for Girls

Program Quality Tool

User Manual

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Introducing
The Great Science for Girls Program Quality Tool

Great Science for Girls (GSG), an initiative led by The Educational Equity Center at FHI 360 and funded by the National Science Foundation, builds the capacity of afterschool centers to provide inquiry-based, informal science learning programs that will stimulate girls' curiosity, interest and persistence in science, technology, engineering and math (STEM). (For more information and resources for implementing the GSG program, visit www.greatscienceforgirls.org.)

Quality programming is at the heart of Great Science for Girls. However, defining, measuring and improving program quality can be a difficult task. In order to help afterschool programs implement GSG in a way that promotes general youth development as well as specific GSG values such as gender equity and hands-on, inquiry-based science informal education, the GSG team worked with the David P. Weikart Center for Youth Program Quality, a division of the Forum for Youth Investment and developers of the validated and widely used Youth Program Quality Assessment (see appendix), to create the GSG Program Quality Tool. The GSG Program Quality Tool is intended to be used as a low-stakes tool, helping afterschool programs and the organizations that operate them ensure high quality programming in order to achieve the outcomes intended by GSG. Through the use of the tool, programs can learn about the strengths of their offerings, as well as identify areas to improve. The tool was created with the goal of facilitating understanding and awareness of best practices, as well as providing a vehicle for staff to share ideas, learn from each other, and improve program quality. The tool is not exhaustive in terms of afterschool program quality. There are many other indicators of program quality that may be relevant to your programs. The indicators in this tool focus most closely on those that align with the goals of GSG to provide high quality, gender equitable science in afterschool settings.

The GSG Program Quality Tool also was designed to offer flexibility in the way it is implemented. Rather than prescribing a specific process for using the tool, we offer several suggestions for use, believing that, while programs differ in their needs and capacity to conduct self assessment, the assess-plan-improve process is advantageous for all programs. In addition, keep in mind that not all of the examples provided in the tool may be relevant to your program. For example, we suggest field trips and site visits to STEM workplaces as a best practice that supports youths' understanding of a wide variety of STEM careers. However, we know that field trips and site visits may not be a feasible practice for some programs. Programs that cannot offer these opportunities are not considered lower quality by this fact alone.

The GSG Program Quality Tool is meant to be used internally, helping programs learn what they do well and where they could improve. Programs are not required to submit any data collected in the process. The Tool is provided as a resource to GSG programs and other afterschool programs with similar goals.

The GSG Program Quality Tool includes 7 of the 18 scales in the validated Youth PQA, with two additional observational scales focused on gender equity and scientific inquiry. There are also three additional scales that are collected through interview format; they focus on organizational practices that support gender equity, the exposure to STEM careers, and family connections.

Great Science For Girls (GSG) Program Quality Tool	
YPQA Domain*	**YPQA Scales Used***
I. Safe Environment	Psychological and emotional safety is supported
II. Supportive Environment	Activities support active engagement Staff support youth in building new skills Staff support youth with encouragement
III. Interaction	Youth have opportunities to participate in small groups
IV. Engagement	Youth have opportunities to set goals and make plans Youth have opportunities to reflect
GSG Best Practices **	**GSG Scales****
V. Great Science for Girls Observational Best Practices	Activities support scientific inquiry Staff interactions support gender equity
VI. Great Science for Girls Organizational Best Practices (interview format)	Program activities expose youth to STEM careers Organization policies promote gender equity Organization builds connections with families

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The GSG Quality Assessment Process

The GSG quality assessment process is intended to provide a structured method for measuring and setting improvement priorities for a program's ability to consistently deliver key youth development opportunities and best practices in STEM programming and gender equity.

There are a variety of ways that the GSG Program Quality Tool can be used. This flexibility ensures that GSG programs are able to adapt the process to their specific needs and purposes.

The team-based assessment and review process outlined in the following chapters provides meaningful data and facilitates discussion about program quality in the context of best practice. While this is optimal, we know that time, staffing and other constraints may not always allow programs to engage in the full process. With this in mind, we suggest several alternate ways to use the GSG Program Quality Tool for self assessment.

(1) Use the tool to individually review the GSG scale items and assess your own sessions.
Think about a recent GSG activity you have led. Read each of the indicators and try to rate the session. Then answer the following questions:

a) In what areas do you think you are strongest?
b) What are the best practices you incorporate in your work that you could share with other group leaders?
c) Which areas might you be able to improve? Are there other group leaders or staff at the agency with whom you could discuss best practices and strategies to improve in these areas?
d) What can you do to increase your comfort level with facilitating GSG activities? How can the organization help you with this?

(2) Use the tool to facilitate ongoing mentoring/coaching. Administrators or other staff may use the tool to conduct several observations over time, providing feedback and coaching in areas of need and highlighting strong practices. Observers and group leaders would review the scales together to facilitate a discussion of the practices and areas that could be strengthened and to identify best practices that can be shared with other staff in the agency. The discussion should generate ideas about how the agency and administrators can support strong practice. Questions to guide the discussion include:

a) In what areas did you see the strongest practice?
b) Which areas might be improved? What specific actions could be taken to make improvements in these areas?
c) What support can you seek from the agency/administrators that would strengthen practice, e.g., professional development opportunities, agency policies and procedures)?

(3) Use the tool with a colleague or activity co-facilitator/teacher. Pairs of group leaders may use the tool to observe each other. Each group leader could observe a 30 to 60 minute session and use the tool to rate the session. After the observations, pairs meet to share their observations and ratings and exchange ideas about best practices. Questions that may guide the discussion include:

a) In what areas did you see the strongest practice?
b) What one practice did you observe that you would like to replicate with your own students?
c) What support can you seek from the agency/administrators that would strengthen your practice, (e.g., professional development opportunities, agency policies and procedures)?

GSG Team-Based Self Assessment Step by Step

Program self assessment using the GSG Program Quality Tool is a highly effective, low stakes strategy for building a quality-focused culture. Team-based self assessment can help managers and staff co-create meaningful quality improvement objectives that ultimately impact outcomes for their youth participants. **This illustrates the process most recommended for program self assessment.**

Throughout the process, keep in mind these three elements of constructive self assessment:

- working as a team
- basing scores on observational evidence
- focusing on conversations about quality

STEP 1: Training and Team Selection

To implement the self assessment method, a Project Director and additional key staff first receive training. For those who did not attend the training at the GSG Institute, the Youth PQA Basics workshop (about 4- 6 hours of content) can be delivered on-line. To purchase access to the online workshop, contact the Weikart Center--see appendix. This training helps participants understand and talk about program quality and walks them through the observation and scoring processes required to complete the Youth PQA. The Project Director then assembles an assessment and improvement team, which is typically made up of direct-delivery staff but may include volunteers or parents. The team learns about the process, either formally via the Youth PQA Intro (free online course), or in a staff meeting led by the Project Director.

In addition, a free, 1-hour introduction to the YPQA is available for site managers or other administrators interested in supporting the site. To access, follow these steps:

1. Go to eTools.highscope.org
2. Pick 'Online Training'
3. Choose 'READ MORE' under Youth PQA Intro (Free Course)
4. Follow directions for creating and initializing an account.
5. After receiving your login information, log in and do the 1-hour YPQA Intro (Free course)

STEP 2: Data Collection

Team members collect data by taking turns observing their programs in action. Sometimes, schedules need to be rearranged, or a Project Director needs to provide coverage in order to provide the opportunity for staff to observe each other. Observe in at least 30-minute chunks, including start and end times and transitions.

Team members collect objective, anecdotal records of the programs they observe. Observers should find a place to sit that allows them to see and hear as much as possible without getting in the way. Observers should take notes by hand or using a laptop. As a general rule, 4–8 handwritten pages (2–4 typed) of notes should be written for each hour of observation. See the following table for effective note-taking tips.

Effective notes and anecdotes…	Ineffective notes and anecdotes…

▪ Are factual and objective
▪ Offer rich detail in snapshot form
▪ Focus on the interactions between
  ▪ Staff and youth
  ▪ Youth and youth
  ▪ Youth and environment
▪ Depict interactions that have been allowed to reach completion (i.e., observe a full interaction before shifting focus) and when applicable, state the outcome of the interaction
▪ Describe who, what, when, and where
▪ Contain quotes: what youth and staff *actually said*
▪ List the materials used
▪ Describe what you see in the room
▪ Can *stand alone* — someone who is not the assessor should be able to read anecdote and score correctly
▪ Can be used for more than one indicator row
	▪ Use subjective terms such as good or bad
	▪ State your opinions
	▪ Make assumptions about internal states: "*she felt angry"; "he did not get it"*
	▪ Are too vague, lack detail
	▪ Lack facts about what you saw and heard
	▪ Summarize discussions instead of using quotes
	▪ Repeat what the indicator says
	▪ Do not fit the indicator
	▪ Could support more than one score

STEP 3: Team-based Scoring Meeting

After all data has been collected, the Project Director leads the team in scoring a single, program-wide GSG Program Quality Tool Form. This scoring process can last up to three hours and may be divided among several shorter meetings. During the scoring meetings, the team will pool and review all anecdotal records and go through the GSG Program Quality Tool item by item, selecting an anecdote and agreeing on a score for each. It is important that the team rely on the anecdotes, rather than their memories, to produce scores.

> ***The most important outcome of the scoring meetings is not the numeric scores but the conversation that occurs while discussing scores and arriving at consensus.***

First, turn observational notes into anecdotes.

The following examples list sample anecdotes for several indicators. Note how the anecdotes focus on specific events and avoid inferences or interpretation. Notice also that one piece of anecdotal evidence can be used to score indicator rows under two different items.

- Item IV-P, row 1 (Youth have multiple opportunities to make plans for projects and activities [individual or group].)
  No planning observed and none indicated in follow up with staff: "No, we don't really do that."
- Item V-B, row 1 (Staff actively challenges gender stereotypes in assigning tasks)
  Staff says, "Suzy and Katherine, please help me move this table. "

Second, review program policies and turn policies into anecdotes for Section VI - Organizational Policies and Practices.

Section VI of the GSG Program Quality Tool includes items that would not be observed but can be measured by reviewing the structure and policies of the organization. Fill out the space for anecdotes with relevant information from your organization's policies.

Then, fit and score.

Match the content of your written evidence to relevant scales on the GSG Program Quality Tool and then fit evidence to the most appropriate item row under that scale.

Once you have gathered supporting evidence for an item, write the appropriate evidence in the evidence box for the item row where it fits best. Look to the 5's to see a description of what the item row is about. Based on the evidence you have gathered, score the item row by choosing only one score (1, 3, or 5) for each indicator row.

The evidence boxes for each item row provide important instructions for evidence gathering and scoring. If the evidence box for an item contains a question(s), and the relevant evidence was not observed during the session, the standard question(s) provided at the top of the column should be addressed to the program leader. Staff answers should be written as evidence and then scored on the appropriate item rows. If the evidence box is marked with a n/o=1, n/o=3, or n/o=5 and if applicable evidence was not observed, then the row is scored a 1, 3, or 5 as instructed.

If two team members have conflicting evidence, it is up to the team to balance such evidence and decide what score best fits your site. Go for the preponderance of evidence, where evidence is objective and fact-based. For the most accurate data, score from your notes rather than by memory or by what you "know" happens in your program.

TRY TO COMPLETE EVERY ITEM ROW FOR EVERY SCALE.

STEP 4: Make an Improvement Plan

Once scores have been produced, they can be used for a variety of purposes, including celebrating strengths and targeting program improvement efforts. Many self assessment teams create a formal program improvement document that defines performance objectives in terms of the GSG Program Quality Tool. We find that organizations that produce such a document are more successful in building and sustaining a quality-focused culture and continuous improvement orientation.

RECOMMENDATIONS

Emerging evidence suggests that networks and programs that start their quality improvement initiative with program self assessment build the professional learning communities and relational trust necessary to support subsequent higher stakes quality accountability and improvement policies.

"YPQA has absolutely changed the way we are looking at assessment, from the inside out."
-Debbi Herr, Georgetown, CA

GSG Program Quality Tool Self Assessment at a Glance

PROCESS

Step	Tasks
1. Training and Team Selection	☐ The self assessment team should consist of the program administrator and at least two direct-delivery staff, volunteers, or parents.
2. Data Collection a. Plan	☐ Team members collect data by taking turns observing their programs in action. ☐ Sometimes, schedules need to be rearranged, or a Project Director needs to provide coverage in order to provide the opportunity for staff to observe each other. ☐ Notify frontline staff of scheduled observation times. ☐ Plan time as soon as possible following the observations for discussion and scoring.
Data Collection b. Observe	☐ Observe full program offering – when students enter the room, until they leave, or as much of the program as time and coverage will allow. ☐ Take notes throughout offering on *factual information* (include quotes, actions, etc.)
3. Team-based Scoring Meeting	☐ Self Assessment Team discusses each item and row: each team member presents evidence from their observations; together, they select the best score for each item.
4. Make an Improvement Plan	☐ Use the scores to guide an improvement process and set goals. ☐ Implement the *Program Improvement Plan* and monitor change.

DO
Arrange for direct-delivery staff to participate.

DON'T
Include only administrators.

DO
Involve program staff in scoring meetings.

DO
Plan more time than you think you need.

DO
Use scores to create professional development plans.

DON'T
Use scores to compare your program to others.

I. Safe Environment

I. Safe Environment I-A. Psychological and emotional safety is promoted.
1. The emotional climate of the session is predominantly positive (e.g., mutually respectful, relaxed, supportive; characterized by teamwork, camaraderie, inclusiveness, and an absence of negative behaviors). Any playful negative behaviors (not considered offensive by parties involved) are mediated (countered, curtailed, defused) by staff or youth.
2. There is no evidence of bias but rather there is mutual respect for and inclusion of others of a different religion, ethnicity, class, gender, ability, appearances, or sexual orientation.

A high score for Scale A happens in an emotionally safe environment—a space in which youth feel safe to be themselves, to take risks, to share, to get to know each other, and to learn. This is a difficult concept to measure, but an absolutely essential aspect of quality. The two measurable items in this scale get at the concept.

Row 1 assesses the climate—the general feel of the social and emotional environment. Do the youth and staff respect each other? Do people get along? Are there lots of conflicts? Do youth include each other in activities?

There is no magic pill for establishing a positive climate, and, indeed, it is not completely in the control of the youth worker. But it begins with the staff setting a positive tone, modeling positive climate, and encouraging youth to do the same.

Row 2 specifically deals with bias along the lines of religion, ethnicity, class, gender, ability, appearances, and sexual orientation. Bias, no matter how it is intended, can have a negative effect on program climate. It is particularly important to address subtle bias (e.g. youth say "that's so gay" to indicate dislike for something).

A common question is this: What if our youth playfully tease each other and that is part of how the youth build community? Here are two questions in response: Is there any way to know that every youth in every situation is not affected negatively by such teasing? Could you help the youth build community in a way that does not rely on stereotypes and slander?

Scenarios and How to Score		
Indicator	Scenario	Recommendation
I-A, row 1	The emotional climate is pretty positive, but playful negative behaviors (e.g. name calling) are ignored.	Since the level 5 descriptor requires that "any playful negative behaviors are mediated by staff or youth", this occurrence should score a '3'.
	Youth call each other names but it is in a positive, "community-building" sort of way.	In most cases this should score a '1'. Even though insults can be intended and even received playfully, you never know when an insult will be taken at face value and as a result a youth will feel unsafe. Children and youth are often more sensitive than they might appear to playful insults—even if they act like they don't mind. However, if a session is overwhelmingly positive with a few ignored playful insults, an assessor may score this row a 3 at his or her discretion.
I-A, row 2	There is no evidence of bias but no evidence of mutual respect for other identity types.	This would be not observed and therefore score a '5'.
	Youth direct comments or slurs at another youth but the insults are clearly intended to be playful.	As with the second example for row 1 above, this should score a '1'. (See above for more information).

II. Supportive Environment

II. Supportive Environment II-H. Activities support active engagement.
1. The bulk of the activities involve youth in engaging with (creating, combining, reforming) materials or ideas or improving a skill though guided practice.
2. The program activities lead (or will lead in future sessions) to tangible products or performances that reflect ideas or designs of youth.
3. The activities provide all youth one or more opportunities to talk about (or otherwise communicate) what they are doing and what they are thinking about to others.
4. The activities balance concrete experiences involving materials, people, and projects (e.g., field trips, experiments, interviews, service trips, creative writing) with abstract concepts (e.g., lectures, diagrams, formulas).

Youth learn best when they use not only their minds but also their physical skills and energy. Listening to a lecture without any chance to actively engage is not their most effective mode of learning. Youth thrive when given opportunities to work with materials and tools and to engage in tasks that push them to their learning edge.

***Row 1: Engaging with materials or ideas*.** This is the "hands-on" part of active learning. This row is about getting young people up and moving and using their hands and bodies as well as their minds. Motivation and learning increase when youth experiment with and actively manipulate materials and critically engage with ideas or processes. Figuring out problems also allows youth to engage—for example, youth may be given wires, batteries and bulbs, and be asked to figure out how to make the bulb light up. Through this process, they can learn about issues related to current and voltage and the vocabulary needed to talk about electricity.

Row 2: Tangible products or performances that reflect ideas or designs of youth. A tangible product or performance allows youth to experience feelings of success. By tangible, we mean something that can be seen, felt, or heard, and shown to other people. For example, youth may create objects, demonstrations, shows, or presentations. Specifically, they may build a model boat, record or perform a song, create a poster entitled Teen Drug Use, or chart a shift in their thinking about civil discourse.

Row 3: Opportunities to talk about what they are doing. Learning occurs when youth mentally connect what they are doing to their prior knowledge and construct new understandings. This can happen when youth describe their experience using their own words and ideas. Adults can create opportunities for youth to share their understanding with others. For example, have youth talk about a project and what they think about it in small groups or pairs.

Row 4: Balance concrete experiences with abstract concepts. The final indicator looks for a nice balance between abstract thinking and concrete experience. Abstract concepts are important, for example, a verbal discussion and explanation of the nature of electricity. Concrete experiences are also important to make the concepts "real" for youth. For instance, a related concrete experience is creating an electrical circuit that turns on a small fan. Kindness is also an abstract concept. To make it more concrete, have a simulation game in which people are kind and not kind to each other. When the abstract and concrete are put together—for example, a debriefing discussion in that simulation game—high quality learning can occur.

Scenarios and How to Score		
Indicator	Scenario	Recommendation
II-H, row 1	Youth spent the bulk of the time completing math worksheets.	The intention of the indicator is to get at assessment of the item: "Activities support active engagement." Worksheets do not qualify even though it is possible to argue that worksheets can involve "engaging with ideas". Score a '1'.
	Youth are sitting the whole time and they read to each other.	If there is no or very little engagement with materials, then as an assessor you must make a decision about whether the activity involves "engaging with ideas" or improving a skill. If this reading activity is skill building, then score a '5'. If it appears to be busywork and many youth are not engaged, score lower.
II-H, row 2	Youth are singing scales. There will be a concert at some later point.	Score a '3', unless youth ideas or designs are incorporated somehow.
	Youth are playing basketball. It's a drop-in activity—no set teams or preplanned games, and no drills.	Score a '1'.
II-H, row 3	*Isn't there always the opportunity for youth to talk about what they're doing?*	When unsure, add the word "intentional" to this indicator. To score a '5', some way for youth to talk about what they're doing must be intentionally set up (presumably by the youth worker).
	Youth talk to each other to complete a task, but that's all.	The point of the indicator is to assess whether youth talk *about* their activities, not just talk. Score a '1'.
II-H, row 4	*What are concrete and abstract and how do I score this indicator?*	Concrete means activities that involve actual things, people, situations, ideas, or instances. Concrete activities involve youth doing things, trying things out, using their hands or bodies, etc. Abstract concepts are separate from particular instances as in general ideas. Often this indicator requires a close examination of the program offering observed. Abstract concepts may be less obvious—such as youth drawing out plans. Concrete experiences and abstract concepts can be connected, for example, after building towers out of newspaper, youth may discuss engineering concepts. To score, think through everything observed, then make a decision about whether a balance was achieved.
	Mostly youth spent the time doing a craft activity but at the very end the youth worker asked some abstract questions not related to the activity.	Score a '3'.
	A guest lecturer spoke to the youth almost the entire time. He occasionally asked them some questions.	Score a '1'.

II. Supportive Environment II-I. Staff support youth in building new skills.
1. All youth are encouraged to try out new skills or attempt higher levels of performance.
2. All youth who try out new skills receive support from staff despite imperfect results, errors, or failure; staff allow youth to learn from and correct their own mistakes and encourage youth to keep trying to improve their skills.

Scale I is about setting up an environment in which youth move beyond just having fun with friends (although this is important too) and into learning and building their skills, For example, in STEM activities, staff encourage and facilitate further investigation. Like some other important concepts in the Youth PQA, these items are not intended to be a comprehensive, but to get at the concept in measurable ways.

Row 1 simply assesses whether youth are encouraged to achieve. This is a very simple indicator to read, but requires a great deal of skill for a youth worker to do well.

Row 2 looks for a "mistakes allowed" environment in which it is clear that youth will receive support when they try new things.

The way to encouraging youth to learn is to help them enter their learning zone. The learning zone is the mental state in which conditions are right for learning. This concept overlaps with numerous terms including learning edge, teachable moment, flow, stretching, and zone of proximal development.

How do you help youth experience their learning zone? The key is scaffolding, an educational term that means providing tasks at just the right level for youth and giving them just enough support to be successful.[1] Scaffolding may involve breaking up a task into smaller tasks that youth can do. Or it may mean performing or directing parts of a task that are too difficult for a youth. When an adult scaffolds a task with youth, she or he provides supports to help the youth succeed and meet high expectations.

There is no shortcut to learning how to provide effective scaffolding. It is one of the most difficult and most important things to do when building learning environments for youth. Providing learning zone tasks and supporting youth in achieving success takes skill, patience, and practice.

Scaffolding involves working side-by-side with youth and carefully monitoring their participation in activities.[2] A youth worker can then adjust the level of support to best meet youth needs and scaffold tasks appropriately. The other advantage of working side-by-side with youth is that you get to know them as individuals and can attempt to connect tasks to individuals' strengths and areas for learning.

The following guidelines provide a framework for scaffolding.

- *Break big tasks into manageable pieces*
  One way to employ scaffolding is to break a large task into smaller parts that youth are able to do, and to do the parts that are currently too difficult for them. For example, a group of youth may not be able to independently put together a kiosk at the local mall to showcase their photography; but they could be guided in determining and completing the tasks that go into the project—communicating with the mall, assembling the kiosk, selecting photographs, etc. An adult might complete some of the tasks, such as arranging transportation, or following up with mall personnel.

- *Work side-by-side with youth and target their learning zone*
  Working closely with youth is a key to providing effective scaffolding. Working side-by-side with youth allows adults to pay close attention to young people's strengths, capabilities, and areas of growth. Youth experience their learning zone when a task is just the right challenge—not too easy and not too difficult. We want to encourage youth to stretch, but we don't want them to become overwhelmed; the way to do this is to learn all we can about them and do our best to present tasks in their learning zone, then to carefully monitor progress and respond thoughtfully while youth complete tasks.

- *Engineer success: Promote high expectations, growth, and realistic goals*
  In order for youth to engage and participate, it's very important that they believe they can succeed.[3] It's also important that they are presented with challenging, yet attainable tasks.[4] So in order to engineer success, a youth worker guides youth in a dance between dreaming big and being practical. One of the hallmarks of participatory learning is that youth become excited about projects and may be overly ambitious in their goal-setting. If this happens, be happy! Excitement about learning is the most important thing a leader can cultivate. Your task is now to help youth be successful without quashing their enthusiasm.

Scenarios and How to Score		
Indicator	Scenario	Recommendation
II-I, row 1	It is difficult to judge whether the activity is challenging for youth or not.	Observe the youth carefully and try to see hints about whether or not they are challenged. Ultimately, you will have to make a decision based on your experience there so the more concentration you are able to give this during observation, the better.
II-I, row 2	Only one youth tries out new skills and she is supported.	Score a '5'. The rubric states "All youth who try out new skills", so you should score this based on the youth who tried new skills—in this case, only one youth.

II. Supportive Environment II-J. Staff support youth with encouragement.
1. During activities, staff are almost always actively involved with youth (e.g., they provide directions, answer questions, work as partners or team members, check in with individuals or small groups).
2. Staff support at least some contributions or accomplishments of youth by acknowledging what they've said or done with specific, nonevaluative language (e.g., "Yes, the cleanup project you suggested is a way to give back to the community." "I can tell from the audience response that you put a lot of thought into the flow of your video.").
3. Staff make frequent use of open-ended questions (e.g., staff ask open-ended questions throughout the activity and questions are related to the context).

Item II-J is about strategies for encouragement. The scale contains three distinct strategies, spelled out in the three indicator rows. Together, these research-based strategies help build relationships between adults and youth, and build on youths' motivation.

A distinction should be made here between intrinsic and extrinsic motivation. Intrinsic motivation is the drive that comes from the inside; whereas extrinsic motivation involves youth doing things for some external reason like a reward or grade. Some "common sense" youth work strategies, like praise, can actually have a detrimental effect on youths' intrinsic motivation. Ample research exists to support the validity of the three strategies in this item.

Row 1 is easy to do but often lacking in youth programs. It's the simple idea that you should partner and participate with youth—not spend all of your time sitting at a desk in front of the room. Work side by side with youth. Become a partner in the learning process by following their lead, experimenting with the materials they are using, and exploring the problems they are attempting to solve.

This idea is validated in NASA's 2006 report *NASA and Afterschool: Connecting to the Future*. The report highlights co-inquiry—where the facilitator and the students learn together. Students who see this modeled are more likely to be motivated and engaged in the activity.

Row 2 looks for encouragement and does not promote praise. Do you make comments to youth like "Good job," "Way to go," "Nice, work", or "I like the way Molly is paying attention right now"? If so, you are like most adults who work with youth. Most of us have probably made statements like these for years. We may have even received training in how to praise.

Adults praise youth with the best intentions. We want our youth to feel good about themselves. But in the long term, praise has the opposite effect. Praise sets up a dynamic in which a youth is being evaluated by an adult. Power shifts to the adult. Even though an evaluation may be positive, it is an evaluation. Judgment is passed. Instead of praising youth, here are some things you can do:

- *Encourage youth to describe their plans, efforts, and goals.* The goal is to have the youth, rather than adults, evaluate their work. If youths' self-confidence is to be enhanced through the learning process, they need to be able to recognize and articulate their own accomplishments. One way to facilitate this is to ask open-ended questions like:

  Who will be involved in your project?
  How did you build this model of a volcano?
  How will you continue to develop and improve your poem?

- *Acknowledge youth work and ideas by making specific comments.* You can encourage youth to describe and expand their ideas by making specific, objective comments about their work as you talk with them. The following kinds of comments provide necessary adult acknowledgment without being judgmental. These comments are simple but the real effect is to encourage youth to do the talking:

  I see that you have listed all these details that will go into the event.
  You used lots of different colors on your volcano.
  You've found ways to use alliteration at several points in your poem.

It can be a subtle distinction, but the key is not to judge youth. Here is a sampling of what researchers and child development experts say about praise and reward environments:

1. "Students frequently try to read or check the teacher's eyes for signs of approval or disapproval. Praise lowered students' confidence in their answers and reduced the number of verbal responses they offered."
   Rowe, M.B. (1974). Relation of wait-time and rewards to the development of language, logic, and fate control. *Journal of Research in Science Teaching*, 11(4), p. 292.
2. "To judge at all implies superiority and takes away from the children's power to judge their own work. Such praise is not conducive to self-reliance, self-direction, or self-control. To the child, if the authority figure can judge positively, they can also judge negatively."
   Ginott, H. (1974). *Teacher and child*. Boston, MA: Macmillan Co., p. 93
3. "Praise can actually lessen self-motivation and cause children to become dependent on rewards. Praise may be useful in motivating students to learn by rote, but it may actually discourage problem solving."
   Martin, D.L. (1977). Your praise can smother learning. *Learning*, 5(6), p. 51.
4. "Some students are particularly adept at pulling praise from teachers by smiling or beaming proudly, showing off work, and even communicating an expectation of praise. This praise, however, may have a negative effect such as diminishing a child's sense of worth and struggle for independence."
   Brophy, J. E. (1981). Teacher praise: A functional analysis. *Review of Educational Re search,* 51 (1), p. 27
5. "Children praised for intelligence preferred to find out about the performance of others on the tasks rather than to learn about new strategies for solving the problems, even when these strategies might have improved their future performance."
   Mueller, C. and Dweck C. (1998). Praise for Intelligence Can Undermine Children's Motivation and Performance. *Journal of Personality and Social Psychology.* 75(1), p. 48.
6. "The most notable aspect of a positive judgment is not that it is positive but that it is a judgment. Older children and adults may hear praise as condescending, as a reminder of (or an attempt to bolster) the greater power of the person giving it."
   Kohn, A. (1993). *Punished By Rewards*. Boston, MA: Houghton Mifflin, p. 102.

Row 3 is about asking questions, and in particular asking open-ended ones. Asking questions is a vital part of working with youth. Asking questions can be much more effective than making statements in helping youth learn. How the questions are phrased and what type of information they ask for are both important factors in building strong relationships and effectively challenging youths' thinking.

Closed-ended questions have a "right" answer which may be "yes" or "no." They usually elicit only a minimal response. The questioner usually has the answer in mind or is gathering factual information.

Examples: When was this youth program founded?
Is driving drunk okay?

What is the capitol of Mexico?
What school do you go to?

Open-ended questions do not have a single right answer; rather, there is usually a range of correct or possible responses. Because of this, open-ended questions may elicit long, in-depth answers. The questioner doesn't necessarily have an answer in mind.

Examples: What does leadership mean to you?
Why do you think people wear certain clothes?
What are some things you know about Mexico?
What about your school works well?

The way adults interact while asking questions goes hand-in-hand with the open-ended questioning strategy. With open-ended questioning, you should move your body to meet the youth at his or her level, make eye contact, and share the task at hand. With closed-ended questions on the other hand, adults tend to hear (or half-hear) the quick response, then move on. In other words, the open-ended strategy involves more time spent in a more valuable interaction.

The strategy of asking open-ended questions has a range of benefits for adult-youth relationships and for the cognitive development of youth. Open-ended questioning…

- Stimulates deep thinking, critical thinking, and problem-solving
- Encourages genuine youth-adult partnerships around ideas and tasks
- Empowers youth
- Builds relationships
- Helps adults understand youth
- Improves conversation
- Leads to opportunities for encouragement

With all of this said, however, you wouldn not want to ask constant open-ended questions and do nothing else. In addition there are other guidelines that can help you be successful when you employ this strategy. Here are a few:

- Balance questions with comments and dialogue
- After you ask a question, listen to youths' answers
- Use questions purposefully
- Go beyond the surface and ask challenging—but not impossible—questions
- Ensure that every youth in a group has input
- Restate youth answers, using the words youth use as appropriate

Scenarios and How to Score		
Indicator	Scenario	Recommendation
II-J, row 1	One staff member is involved but others are not.	Score a '3'.
II-J, row 1	Staff member gives directions, works with youth for a few minutes, then sits at desk.	Score a '1'.
II-J, row 2	*What am I looking for here?*	Here you are looking for the way that staff respond to youth accomplishments. Do they offer encouragement or praise? Is the language used specific and non-evaluative or is it subjective?
II-J, row 2	Staff member says, "Good job" numerous times, but also says a few details about the youths' work.	Score a '3'.
II-J, row 2	Staff member says, "Good job" a lot.	Score a '3'.
II-J, row 3	Staff member fires closed ended questions at youth like an interrogation.	Score a '1'.

III. Interaction

III. Interaction III-M. Youth have opportunities to participate in small groups.
1. Session consists of activities carried out in at least 3 groupings—full, small, or individual.
2. Staff use 2 or more ways to form small groups (e.g., lining up by category and counting off, grouping by similarities, signing up).
3. Each small group has a purpose (i.e., goals or tasks to accomplish), and all group members cooperate in accomplishing it.

Collaboration in work, play, and learning enables young people to interact with others, to appreciate others' opinions and experiences, and to enhance personal perspectives, goals, and projects. In many traditional teaching models, helping one another is considered cheating, and competition is promoted by the practice of grading on a curve. Small group work, however, is now common in "real world" work situations. Scale M is based on the assumption that young people can learn as much from one another as they can from adults, and that working in small groups can have a range of benefits.

In school and elsewhere, youth may have experienced group work of varying levels of quality. Small group activities can be less than effective; most of us have experienced poor quality grouping situations. Nevertheless, the danger of creating less than perfect small group environments should not stop youth workers from experimenting with and practicing grouping.

Row 1 assesses whether small group work is happening. The indicator looks for at least 3 group sizes to occur in a program session. The typical way to score a 5 on this item is to have some individual time, some small group time, and some full group time. If you are employing small grouping strategies this shouldn't be hard to accomplish, and it's well worth the effort. Most youth activities can be improved by the use of effective small group strategies.

Row 2 looks for staff to use multiple ways to form small groups. The idea is to keep things interesting for the youth, and to mix them up as well. We will call ways to form small groups 'Group Formers'. Below are several examples. Many of these Group Formers rely on random chance; however, sometimes an adult leader may wish to engineer groups based on the personalities of the youth involved. Sign-ups provide a way for an adult leader to provide choice, but still have the final say in how groups form.

Counting off – This is the default, probably most commonly used group former. It's not very exciting, but works, and requires very little preparation. Choose the number of people you want to be in each group and then divide that number into the total number of youths present. The result is the number young people use to count off.

Famous Trios – Participants pick from a collection of prepared cards. On each card is the name of something or someone who is connected to a commonly known trio. Examples:

- Red light, Yellow light, Green light
- Larry, Moe, Curley
- Earth, Wind, Fire
- Executive branch, Legislative branch, Judicial branch
- Scarecrow, Tin man, Lion

Line up by … – Ask youths to line up according to a certain criterion. Then make groups from this line, for example by having them count off. Depending on the criteria and the energy level of the group, you might have them do the procedure in silence. Some examples of criteria:

- Pants color (from light to dark)
- Birth date (month and year, from January to December–works well to do without talking)
- Height
- Hair length

Be aware that many personal characteristics, like height or hair length, have the tendency to segregate boys and girls—this may or not be desired, depending on your purpose.

Mill to music – This is somewhat similar to the popular children's game 'musical chairs.' Play music either with a musical instrument or recording (upbeat music without words tends to work well). While the music plays, have youth move around the room—they don't have to dance or even move to the beat; they simply mill about. When the music stops, ask them to form pairs with those to whom they're standing closest. Give young people a question to respond to with the person who is closest to them. Pairs take a few minutes to ask and answer the question to each other. Start the music again and participants "mill" again. You can repeat this through several rounds. For example, play South American dance music and ask youth to mill about. After participants move around for several seconds, stop the music. Say, "Find a partner closest to you." Once they have done this, say, "Ok, share with your partner what you did over the weekend." After a minute or two, play the music again and do the procedure again with a different question.

Sign-ups provide an excellent opportunity to offer choice, as in self-selection, while still maintaining the final say so you can engineer groups for success. Make sign-up sheets and distribute them to youth. Ask youth to fill them out individually (rather than signing up only for choices their best friend makes). On the sheets, they can prioritize their "top choices"— the three projects, for example, in which they would most like to participate. You can use youths' requests to create groups that will maximize success while still allowing youths the opportunity to work on a project of their choosing. For example, your sign-up sheet might contain the following workshop choices:

___ photo club
___ newspaper
___ drama club
___ team sports
___ science club

One youth may rate 'science' as her #1 choice, "team sports" as her #2, and "photo club" as #3. You can then create balanced groups, while giving people their first second, and occasionally their third choices. You can try to engineer successful groups based on the personalities of the youth involved.

Row 3 assesses two things: whether small groups have a clear purpose and whether all group members cooperate toward that purpose. When the goals are clear to all members of the group, the group will be more focused on its pursuits. Depending on the task, it can be useful to have youth differentiate roles. For example in a small group engaged in planning a presentation for younger youth, one youth might take notes, one draw pictures for a presentation poster, and one take responsibility for public speaking. Making sure everyone has a role can help create an environment in which each youth participates and can develop a sense of group membership.

One way to make it more likely that all group members cooperate toward a shared purpose is to keep group sizes small. In a large small group, say 6 or 8 members, it can be easy for a shyer youth to "check out".

"Group Shapers" are ways for groups to carry out tasks. Using a variety of Group Shapers will help keep things interesting for the youth, help keep group members accountable, and make it more likely that group members cooperate in accomplishing the task at hand. Different Group Shapers are appropriate for different tasks. Here are several examples.

Fishbowl – Three to eight participants sit in a circle in the front of the classroom and take part in a discussion around a particular topic. All other young people observe. A youth in the circle can exit the "fishbowl" whenever he or she desires. Observers can enter the circle when a space opens up. Adults can participate alongside youth in this exercise. For example, you could set up a fishbowl discussion on bullying. Five participants discuss for a few minutes. Then Andy, a youth who has been watching, taps Crystal on her shoulder. Crystal stands up and leaves the fishbowl, and Andy takes her chair. He then participates in the ongoing conversation. Fishbowl topics of discussion can involve planning and reviewing projects or activities. A fishbowl can also be used to role play scenarios (such as conflicts that may arise in a group), or to learn or practice skills.

Matter of Opinion – For this activity, designate corners of the room as: strongly agree, agree, disagree, and strongly disagree. You can do this with posters prepared beforehand. Read a statement, and have young people move to a corner of the room that represents their interests or opinions about the topic or statement. Young people then discuss the topic with the like-minded youths in their corner. After some time, each corner can elect a representative to share with the full group what was discussed. Some example topics:

- "I believe schools should require students to wear uniforms."
- "I support corporal punishment; that is, I believe the death penalty is necessary in some circumstances."
- "I believe cats are better than dogs."

As a simplified variation, you can designate one side of the room agree and one side disagree.

Think-pair-share – This simple exercise can really help get a conversation going, especially when youth don't feel comfortable sharing in a large full group. Youths review or consider a question, a video clip, or an article. Youths next discuss the question, clip, or article with a partner, then with the rest of the class. For example, you could tell the full group, "I want you to consider this question: What is the most important message to take away from that movie? Think about it yourself first, and jot down an answer. Then talk to your partner about it. Then we'll have a full group discussion."

Expert groups – In this activity, different small groups learn about different aspects of a topic, then share with the full group. Each small group researches and produces information to share—often in the form of a poster. For example, if the full group is learning about work skills, each small group is responsible to learn about and present on one of the following subtopics: interview skills, where to find out about jobs, resume writing, getting references.

Rotation Brainstorm – In small groups (or individually), young people start brainstorming on a piece of butcher paper that is headed with a topic or concept. It is typically good to have each group select a person to scribe. After some period of time the facilitator plays a sound (e.g., slide whistle, tambourine, etc.), calls "Switch," and each group moves to the next station to continue brainstorming where the previous group left off. At the end, make sure to provide time for participants to read all the sheets. If you have enough wall space, you can place the sheets side by side where everyone can see them and facilitate a large group reflection. For example, tape three easel sheets up to different walls and label each as follows: Places we could hold our fundraiser; Entertainment at fundraiser; and, Food possibilities. Divide into three groups using a Group Former. Have one group go to each station and start

brainstorming. Say, “Please have one person list all the ideas your group comes up with – and go as quickly as possible!” After three minutes, ring a bell and say, “Rotate clockwise.” Help groups move clockwise to the next station, where they add to the brainstorm list of the previous group. After three rotations, ask participants to walk around and read over the three sheets.

Scenarios and How to Score		
Indicator	Scenario	Recommendation
III-M, row 1	It’s a lecture for all or almost all of the observed time.	Score a ‘1’ because this means that students were in only one grouping, full, for the session.
III-M, row 1	Youth are together for the first half of the program offering, then in pairs for the rest of the time. During pair time, a few youth are working individually.	Score a’3’ while two groupings are used, it is important to note that the groupings are not clearly structured because some students are working individually during pair time.
III-M, row 2	The groups were apparently formed in an earlier session. Staff member just says, “get into your project groups” and the youth know who they’re working with.	Score a ‘3’ because staff only uses one way to form small groups.
III-M, row 3	Everything is large group, but there is a clear purpose.	Score a ‘1’ because staff does not use small groups for activities.
III-M, row 3	Two groups are working on a project. Three other youth leave the room to do something else.	Score a ‘5’ because the two groups that remain in the room are working on a project, thus the small group has a purpose.

IV. Engagement

IV. Engagement IV-P. Youth have opportunities to set goals and make plans.
1. Youth have multiple opportunities to make plans for projects and activities (individual or group).
2. In the course of planning the projects or activities, 2 or more planning strategies are used (e.g., brainstorming, idea webbing, backwards planning).

The scales within the engagement domain can be seen as three parts of an overall method for working with youth, most easily remembered as plan-do-review.

The plan-do-review method can be a powerful way to help youth engage in their experience. This three-part sequence of planning, carrying out plans, and reflective evaluation helps young people learn and grow. The sequence is essentially a simplified scientific method—making hypotheses about what will work, trying them out, and learning from the results. When youth conduct this sequence, they become actively involved in managing their time, making decisions, and connecting their experiences to learning.

Although it is beneficial to engage children in planning as early as preschool age, the increased cognitive abilities that emerge in adolescence make planning particularly important for youth. Adolescents are able to think abstractly and consider the implications of different possible plans. Helping them make plans—even for simple projects—helps them establish patterns that have lifelong implications. If, for instance, a youth can intentionally put together a plan for a performance, they may use those same skills in planning a pathway to higher education.

- *Plan* – Youth become aware of and take responsibility for their thinking process. They are encouraged to analyze situations, set goals, consider a variety of resources, and be open to new approaches, alternatives, and solutions.

- *Do* – Youth make choices, propose initiatives, test different approaches, and carry out plans. They are encouraged to take risks and to persist in the tasks they design, even when faced with obstacles.

- *Review* – Youth reflect on the effectiveness of their actions in regard to their own objectives and in regard to the impact of their actions on others. They also consider and determine revisions to original ideas or plans that might have resulted in more desirable outcomes.

Almost every activity should involve youth in all three aspects of the cycle in some way—planning, doing, and reviewing. Even if youth are working on a half-hour project, taking short amounts of time for planning and for review can greatly improve the experience. Youth workers can improve existing activities by simply adding in planning and reviewing time. This is an ongoing and cyclical process; for example, reviewing a project's progress at the end of a work session will inevitably lead to further planning for future stages of the project

Row 1 assesses whether youth have opportunities to make plans. These do not have to be big life plans but rather small plans for how they will spend their time or conduct an activity or project. The ideal is to give youth several opportunities throughout each session to make plans. The more they plan, the better they will get at this important life skill.

Here are two examples of high scoring experiences for row 1:

- *Youth planned budget activities and a science event.*
- *Youth filled out planning forms at the beginning of the day. The form had five questions, e.g., What homework do you plan to work on?; How do you plan to spend choice time?*

Row 2 is about the variety of ways a youth worker sets up youth planning opportunities. Without a planning strategy, the default for many youth workers is to simply ask the youth what they are going to do. This is not really planning but more of a simple choice. The next step better is for a youth worker to encourage youth to make a plan—verbal or written. There are also countless structured ways to make the planning process interesting, varied, and fun.

Here are two examples of high scoring experiences for row 2:

- *Youth brainstormed and discussed ways to plan budget spending. Small groups planned one part each for the science event and shared back with the large group.*
- *When young people got stuck on their planning forms, staff helped them use different strategies. For example, a staff asked a student with a lot of homework to brainstorm and list out all his school subjects, and to circle the priorities.*

IV. Engagement IV-R. Youth have opportunities to reflect.
1. All youth are engaged in an intentional process of reflecting on what they are doing or have done (e.g., writing in journals; reviewing minutes; sharing progress, accomplishments, or feelings about the experience).
2. All youth are given the opportunity to reflect on their activities in 2 or more ways (e.g., writing, role playing, using media or technology, drawing).
3. In the course of the program offering, all youth have structured opportunities to make presentations to the whole group.
4. Staff initiate structured opportunities for youth to give feedback on the activities (e.g., staff ask feedback questions, provide session evaluations).

Reflecting on an experience is where processing new information and learning can occur. It is therefore incredibly beneficial for youth workers to deliberately build in time for young people to reflect. Consider the following list:

What young people do as they review

- Recapture experiences
- Consider feelings connected to experiences
- Evaluate experiences
- Connect experiences to abstract principles about how the world works
- Refine their understanding
- Learn from experiences
- Engage in critical thinking
- Recognize accomplishments
- Make new plans

Row 1 assesses whether an intentional reflection occurs. This does not mean deep, spiritual life reflection, but rather, a simple processing of activities and events. Reflection can be as simple as taking 5 minutes at the end of a session to discuss what we did today.

Here are two high scoring examples for row 1:

- *Full* group *reflected on last year's science event ("What went well during last year's event?") and how they felt about it (this helped plan current event.)*
- *Youth came* together *for the last ten minutes of enrichment time to write in their journals about yesterday's activity.*

Row 2 looks at the variety of ways youth are given the opportunity to reflect. As with planning, structured techniques for review can often be effective. For example, rather than a full group discussion, a youth worker may have youth write in a journal for 5-10 minutes, discuss with a partner, then discuss with the full group. A youth worker may create a rotation brainstorm in which youth rotate to different stations and list different aspects of an experience.

Here are two high scoring examples for row 2:

- *Staff gave each youth an index card and said, "Write two good things and two bad things about last year's event." She then asked partners to share, then led a full group reflection discussion.*
- *Youth came together for the last ten minutes of enrichment time. They wrote in their journals, then the staff led a reflection discussion about yesterday's speaker: "Yesterday she asked us how much trash we throw away in a day; did anyone notice how much trash we made this afternoon?"*

Probably the most common way to review with youth is through questions and conversation. Questioning as an educational technique has a long history—the Socratic Method is an example of this. The Socratic Method has been used for centuries and is still used in many law schools. Students are repeatedly asked questions, even if they do not initially know the answers. The very act of asking questions shifts the focus of knowledge creation to the student, rather than the ineffective student-as-receiver-of-knowledge model.

The "What? So what? Now what?" sequence is quite effective for leading reflection conversations. The technique was originally developed for experiential, team-based settings as a way to help a group debrief after a challenge or accomplishment. The sequence has since found application in numerous settings including those involving service learning, corporate team building, and rehabilitation. It is an effective framework in any situation in which a group can learn from a shared experience or even in which an individual can learn from an experience.

In any situation youth bring a wealth of knowledge and background. It's important to be aware of this and to help them tap this knowledge. Factors in the environment also affect how youth process an experience. Taking this into account, the "What?, So what?, Now what?" sequence challenges youth to explore their experiences, make sense of them, and ultimately apply their learning.

- *WHAT?*
  What are the facts? How do you feel about them? In this stage of reflection, ask youth specific questions about their experience, and make sure and ask questions related to <u>feeling</u>. Use what you know about youth and the experience to ask specific questions.

- *SO WHAT?*
  How does this relate to your past experiences? Why did it happen this way? Why does this matter? In this stage, help youth make connections to their knowledge, and background. This is where youth begin to make sense of an experience.

- *NOW WHAT?*
  How can you apply this? In this stage you help youth to make plans to apply their learning to future experiences.

Row 3 assesses whether all youth have opportunities to make presentations to the group. Presentations can be as simple as having youth stand up and briefly share what they have been working on, or they can be more elaborate and planned out. Presentations are a powerful way to give youth the opportunity to reflect and also allow them to practice public speaking and establish their role in the group.

Although it is easy to ask youth to present, they may resist the idea at first, especially if they are not used to presenting. It is important to be persistent and to regularly ask youth to present. Pretty soon it will not be so stressful for them and the benefits will outweigh the resistance. Youth may present alone, or as part of small groups.

Here are two high scoring examples for row 3:

- *Each small group presented progress to the full group (e.g., one group presented their ideas about food for the event) and some youth presented info about other workshops happening at the center.*
- *The catapult group hopes to present their project next time. Each marking period, a different group of youths present their plans for the next semester (they cycle through so every youth eventually presents).*

Row 4 looks at the critical issue of whether you ask youth for feedback. It's important to have structured ways to get youth feedback on the activities. It is good to ask youth whether they like activities or not, and it is good to go further and have them answer more specific questions, write feedback, complete session evaluations, etc.

Here are two high scoring examples for row 4:

- *Youth fill out feedback surveys twice per year and are invited to meet with staff informally whenever they like.*
- *There is a feedback box. After events, staff members regularly ask youth about how they liked it.*

Scenarios and How to Score		
Indicator	Scenario	Recommendation
IV-R, row 1	Youth informally reflect about school (or other outside events) but not about what they're doing.	Score a '1'.because while youth are reflecting, it is not intentional and it is not about what they are doing or have done.
IV-R, row 1	The session is a reflection activity.	Score a '5'.
IV-R, row 2	Some youth reflect in two ways, and some in just one way.	Score a '3' because all youth are given the opportunity to reflect on their activities in at least one way.
IV-R, row 3	Youth will present at a later date.	Score a '5'.
IV-R, row 3	There is an informal presentation but not to the whole group.	Score a '1' because youth are not given a structured opportunity to present to the whole group.
IV-R, row 4	Staff member asks youth, "Did you have a good time today?"	Score a '5'. (Although this is a convergent question it is still a feedback question).

[1] The concept of 'scaffolding' is now used extensively in education. The term was coined in 1976 by Wood, Bruner, and Ross in the article, "The role of tutoring in problem solving." *Journal of Child Psychology and Psychiatry, 17,* 89-100.

[2] This concept, commonly called 'guided participation', was introduced by Rogoff, B. (1991). Children's guided participation in planning imaginary errands with skilled adult or peer partners*. Developmental Psychology*, 27:3. American Psychological Association.

V. Great Science for Girls Best Practices Observational Items

V. Great Science for Girls Best Practices V-A. Activities support scientific inquiry.
1. All youth have an opportunity to observe phenomena and document their observations.
2. All youth have an opportunity to form a hypothesis.
3. All youth have an opportunity to discuss what they are learning (to create a "youth voice" and bring ownership to the process).
4. Staff interactions encourage all youth to follow the scientific process (i.e. observing, testing a hypothesis, making conclusions based on those tests).
5. Staff ask 3 or more challenging questions (e.g., questions that make youth think, require more than a quick answer, require youth to analyze, evaluate, make connections).
6. Staff actively encourage youth to take an activity in a new or unplanned direction (e.g., staff say, "Can you think of another way to do this or how we might change this activity to make it more interesting?"). Staff support youth's suggestions.
7. Staff appear enthusiastic about STEM and do not make disparaging remarks about STEM such as, "This is hard. Math is boring."

This scale is focused on best practices for programs with science content. The item rows each focus on youth being given structured opportunities to practice key elements of inquiry and the scientific process, including observing and questioning, hypothesis making and testing, experimenting, taking experiments or projects in new directions, and forming conclusions and follow-up questions.

The staff's attitude and approach in facilitating scientific inquiry can make all the difference in creating an environment that engages **every** student in science. Staff can help students work together to form questions, problem-solve, make observations and describe their discoveries. Like scientists, staff should encourage students to collaborate on their work, supporting each other's ideas and helping each other feel good about their guesses and results. As a facilitator, staff can encourage risk-taking (let's see what happens); pose open-ended questions and be alert to negative comments (e.g., "girls aren't good at science") that may discourage youth from full participation.

Row 1 This row encourages the development of observation skills—perhaps the most important STEM skill. All youth should have the opportunity to observe, note detail, make comparisons, and document their observations

Row 2: This row concerns the opportunity to develop and refine questions and making hypothesis, essential parts of the scientific process. During science activities all youth should have the chance to explore and develop their questions and to propose a hypothesis either verbally or through writing.

Row 3: This row measures whether all youth have an opportunity to create a "youth voice" and bring ownership to the scientific process by discussing and giving their thoughts and opinions.

Row 4: This row measures whether or not staff are encouraging youth in the scientific process, or whether staff are focused primarily on youth finding the correct answer.

Row 5: Similar to II-J4, this row looks at the questions staff ask youth. Challenging questions should be open-ended but focused. Challenging questions such as "how" or "why" or "what if" questions help youth delve deeper into the content. For example: "How would your results be different if you changed one factor in the experiment?"

Row 6: This row measures how willing staff are to allow youth to explore the content and take their explorations in unplanned and unexpected directions, thus learning through their own initiative not just the plan that the staff has created.

Row 7: This row measures whether staff are supportive and enthusiastic about the scientific process and science, technology, engineering, and math skills.

Scenarios and How to Score		
Indicator	**Scenario**	**Recommendation**
V-A Row 1	Staff remind students to hurry to finish in the allotted time.	Score "1". Observation takes time –the experience should be revisited, not rushed.
V-A Row 2	Staff reference the scientific process/steps in the activity, but do not encourage all students to follow it.	Score "3". All students must be given the opportunity to engage in the scientific process.
V-A Row 5	Staff ask, "What is the correct answer?"	Score "1". There may not be a single correct answer and frequently, we learn more from a "failed" experiment than one that went exactly as expected.
V-A Row 5	Staff encourage further inquiry by asking "Why?" "How?" and "What if?"	Score "5". Students have been challenged to think beyond scientific process and to give their data meaning.
V-A Row 6	At the end of the activity staff ask "What new questions do we have? How can we answer them?"	Score "5". Students are being encouraged to be self-directed learners, to use the scientific process to produce knowledge, and to reiterate what they have learned.
V-A Row 7	Staff remark "This won't be the fun part because you'll have to think and use your math skills."	Score "1". The staff are actually portraying STEM activities as difficult and not fun.
V-A Row 7	Staff remark, "I'm excited about finding out."	Score "5". The staff are reinforcing the students' interest.

V. Great Science for Girls Best Practices V-B. Staff interactions support gender equity.
1. Staff actively challenge gender stereotypes in assigning tasks (e.g., girls are first to be given a leadership role or conduct the hands-on activities, while boys are asked to observe and take notes).
2. Staff encouragement of girls is exclusively focused on contributions and accomplishments by acknowledging what they've said or done with specific, non-evaluative language, rather than on their appearance or personality.
3. Staff encourage all girls to participate in meaningful roles with responsibilities (e.g., noticing if girls have not fully participated, coaxing more reticent students to participate).
4. Staff actively encourage girls to speak up and be assertive (e.g., by calling on girls, assigning leadership roles to girls and encouraging girls who express strong opinions).

This scale, based primarily on the GSG Gender Equity Assessment (available online at http://www.greatscienceforgirls.org), looks at staff interactions with youth around gender equity. It looks for staff to level the playing field between girls and boys, as well as for staff to employ strategies to address gender stereotypes when working with youth.

Row 1: This row looks at how staff assign basic tasks within the program. This row sets a high bar for gender equity and a score of 5 requires that staff take a gender equitable approach by deliberately assigning tasks in ways that combat gender stereotypes. For example, staff can make it a point to create opportunities for girls to play a leadership role in an activity ("today I will ask Ayana to report on the group's discoveries").

Row 2: This row looks at how staff interact with girls in the program, particularly around acknowledging their achievements. Girls are often complimented by adults for being "nice" or "sweet" rather than for their accomplishments. The staff can convey positive messages related to activities ("Ayana, I see that you measured each liquid and wrote down your results before pouring each into the bottle").

Row 3: This row measures whether or not strategies are being used to encourage all girls to participate, with staff employing specific strategies to make sure girls (including girls of color and girls with disabilities) are fully participating in meaningful roles with responsibilities. For example, if staff only or primarily call on boys when hands are raised, it would score a 1.

Row 4: This row also sets a high bar in gender equity practice. It is not enough for staff to interact neutrally but to be active in promoting gender equity. To score a 5, staff can actively encourage girls to be more assertive in the programming.

Scenarios and How to Score

Scenarios and How to Score		
Indicator	Scenario	Recommendation
V-B row 1	Staff rotate roles in the group but always allow boys to go first.	Score"3". If roles are rotated, each student will eventually get the opportunity for each role—however, frequently the first child to have the hands-on experience is a boy in the group.
V-B row 1	Staff rotate roles in the group but select girls to go first.	Score"5". Staff are active in combating gender stereotypes.
V-B row 1	Staff assign leadership roles to girls.	Score"5". Girls are guaranteed an experience to lead the group.
V-B row 1	Staff assign leadership roles based on the assertiveness of students, e.g., shouting out or waving hands.	Score "1".Shy or reserved students would not have the opportunity for leadership.
V-B row 3	Staff assign only boys to report to the whole group on outcomes from the activities.	Score "1". Girls should also have the opportunity to take on meaningful roles and activities such as reporting to the whole group.
V-B, row 4	Staff say "Ayana that's an interesting point. Did anyone else observe that?"	Score "5". The student's observation is validated and the rest of the group is invited to give feedback.

VI. Great Science for Girls Organizational Best Practices Interview Format

The following scales focus on overall organizational practices and will not be assessed in an observation. These items can be assessed during the consensus meeting or during a separate organizational interview that takes place before the consensus meeting.

In preparation for scoring these items, it may be helpful to collect documents such as program schedules, lists of guest speakers, and lists of staff or program vendors.

VI. Great Science for Girls Organizational Best Practices VI-A. Program activities expose youth to STEM careers.
1. Within each program cycle, staff intentionally introduce and explore STEM careers on multiple occasions.
2. Within each program cycle, there are multiple opportunities for youth to engage in activities that reflect STEM careers.
3. Within each program cycle, there are multiple opportunities for field trips to locations where people are engaged in STEM work.
4. Within each program cycle, there are multiple opportunities for youth to be exposed to guest speakers (in person or on-line) or facilitators who have careers in STEM.

This scale focuses on the existence of multiple opportunities for youth in the programs to be exposed to STEM role models and careers. It may be helpful in completing this scale to first gather program documents such as schedules, list of field trips, lists of guest speakers and curriculum.

Students will benefit greatly from exposure to role models and careers that connect what they are learning to real-life experiences. In addition, students need to see and learn about scientists that look like them in order to understand that they, too, can pursue their interests in STEM. Another reason role models are important comes from the extensive research on "stereotype threat" that has shown that negative stereotypes (particularly around race and gender) can have a negative effect on girls' performance on tests (Halpern, et. al., 2007).[1] Exposure to female role models who have succeeded in STEM fields can improve performance on achievement tests and help dispel these stereotypes. There are several ways staff can include role models in afterschool programming.

Row 1: This row measures the number of concrete references to STEM careers. It is important for students to know that their experiences are directly related to future STEM careers.

Row 2: This row asks about structured opportunities within the curriculum for youth to engage in meaningful activities that are reflective of or related to activities in STEM careers. Youth learn best through hands-on experiences that challenge their thinking, allow them to explore, and are connected in some way to real world, every day experiences.

Row 3: This row measures the number of field trip opportunities offered within the program cycle, specifically if the field trips are to locations doing STEM work. There are numerous opportunities for students to take community trips to find diverse people who use science, technology, engineering and math in their career. Think about the many STEM careers found at the local hospital, zoo, museum, fire station, water or recycling plant, radio station, and college. You may also have access to local businesses like the phone company, computer repair shop, pharmacy, etc. Finding these local resources can be an activity for students.

Row 4: This row measures opportunities to hear and be exposed to guest speakers or program facilitators who have STEM careers. It is important to provide students with opportunities to meet and ask questions of individuals involved in STEM. You can have students invite members of the community who use STEM in their work like a fire fighter, doctor, pharmacist, computer programmer, chef, or telephone technician. Don't forget to ask the family members of your students who may be involved in STEM. It is important to ensure that the speakers/facilitators reflect the diversity of both the population and the diversity of STEM fields.

VI. Great Science for Girls Organizational Best Practices VI-B. Organization policies promote gender equity.
1. There are policies in place to encourage youth to participate in non-gender stereotyped activities (e.g., all youth are required to take cooking or girls are specifically recruited for science).
2. The majority of guest speakers, displays, and materials expose youth to women and people from other underrepresented groups who have STEM careers.

This scale assesses organization policies that encourage youth to participate in non-gender stereotyped activities as well as make sure that youth are exposed to images and real-world examples of women and other underrepresented groups in STEM careers. This can be accomplished by bringing in speakers, posters, or videos or by having staff who can share relevant real-life experiences.

Row 1: This row sets a high bar for gender equity by asking about specific policies in the organization to counter gender-stereotyped behavior and programming and to encourage young people to participate in programs that do not match gender stereotypes. Scheduling of afterschool activities can also impact gender participation ratios. For example, scheduling some activities traditionally selected by girls (such as drama, cooking, or art) at the same time as science may reduce the number of girls selecting science. Scheduling science at the same time as a potentially male-dominated activity (e.g. basketball) may encourage more girls into science.

Row 2: This row measures how youth are exposed to a diverse group of people (women, people of color, people with disabilities, and people of low income) in STEM careers. This exposure can be a combination of diversity in staff, diversity in guest speakers and/or in displays or curriculum content that emphasize women and underrepresented groups in STEM. There should also be awareness of the diversity of STEM careers.

VI. Great Science for Girls Best Practices VI-C. Organization builds connections with families.
1. Organization has established mechanisms to communicate with families of youth participants (e.g., newsletters, email, conferences, group meetings, dinners or picnics, informal discussions at pick-up time).
2. There are multiple structured opportunities in place to engage families in the content of the program (e.g., parent information booklets, program orientation meeting, youth presentations on their work, open house nights, at-home science activities).
3. Organization removes barriers to parent participation (e.g., accounting for parents' availability in scheduling, allowing siblings to participate with families, providing at-home opportunities for parents and youth to engage in).
4. There are multiple opportunities for families to have input in program/activity planning (e.g., parents serve on planning committees or advisory board, parent feedback surveys are done periodically).

Families play a key role in youth's education, and that is why family involvement in the program is a crucial part of Great Science for Girls. Parents and family members can advocate for quality science education, help students see themselves as scientists, and encourage their interest in STEM throughout their education. This scale measures the organizations practices that encourage families to take an active role in the organization.[2]

Row 1: This item measure the organization's commitment to communicating with the families of participants. Communication may include letters to families, follow-up activities for the home, newsletters, email, conferences, meetings, dinners, picnics, etc.).

Row 2: This item moves beyond parent communication and measures the organizations efforts to engage parents in the content of the programming so that parents can support their children's learning experience.

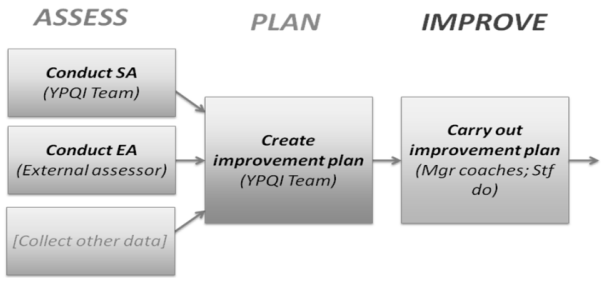
Row 3: This item measures organizational practices that consider the barriers that may exist for families, including financial barriers, time constraints and childcare responsibilities.

Row 4: This item looks at policies that encourage families to influence the format and content of the programs. Families can serve as an important resource to your organization through their work and community experiences as well as their first-hand knowledge of their children.

1. Halpern, D., Aronson, J., Reimer, N., Simpkins, S., Star, J., and Wentzel, K. (2007). Encouraging Girls in Math and Science (NCER 2007-2003). Washington, DC: National Center for Education Research, Institute of Education Sciences, U.S. Department of Education.
2. How Dad's Influence Their Daughter's Interest in Math, in Science Daily. 2007
http://ncer.ed.gov

Appendix:
Introducing the Youth Program Quality Intervention

The Youth Program Quality Intervention is a comprehensive system for improving the quality of youth programs. Program leaders and staff can use the Youth PQA to conduct team-based self assessment and/or the YPQA can be used by external assessors. The advantages of each form of assessment are outlined in the table below. Data from the assessment is used to set improvement goals tied to the observable measures in the PQA. Programs then are supported in reaching those goals and increasing program quality. This ASSESS-PLAN-IMPROVE sequence establishes a supportive system for continuous improvement.



The sequence is more than just a process for monitoring or external evaluation. It is a process of learning. The sequence approaches professional development and quality improvement in a new way: rather than promoting one-size-fits-all training, we offer powerful tools to help you examine your program and make it better. The process builds on you and your staff members' strengths.

Once you make improvement planning a component of your program, you can keep doing it every year. And it will never be the same twice. The more you engage in improvement planning, the better you will get at using data to effectively improve the experience youth have in your program.

	Continuum of Assessment		
	Lower Intensity	⟶	**Higher Intensity**
Type of Assessment:	Mentoring/coaching or pairs assessment	Team-based program self assessment	External assessment
Quality of Data:	Rough data to get staff thinking about program quality and best practice	Intensive team-based process that produces meaningful data and facilitates discussion about program quality	Precise data for internal and external audiences for evaluation, reporting, monitoring, accountability, improvement
Resources Required:	Less time Less money Lower impact on internal audiences	Moderate time Less money Impacts internal audiences	More time More money Impacts external and internal audiences

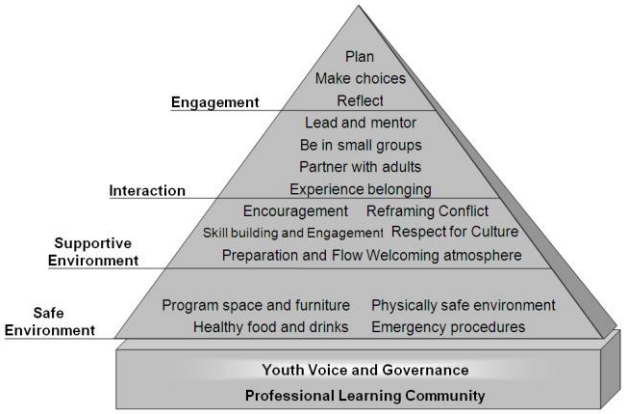
The Youth Program Quality Assessment

The Youth PQA is a research validated observational assessment designed to measure quality in youth programs. The Youth PQA defines process quality by the pyramid in figure 2. The Youth PQA assesses what actually happens with the adults and the young people, with a strong focus on staff

performance. For those of you familiar with psychological studies, the pyramid may look familiar. It is, in fact, aligned with Maslow's hierarchy of needs.[1]

The pyramid is grounded in reality and validated by data. Most youth programs tend to receive high marks for safety, but progressively lower scores as they move up the pyramid. But engagement and interaction are the most important indicators of quality: The youth programs with high engagement and interaction scores are among the highest rated by youth. To give young people a powerful after-school experience, we must maintain safety but set sights on engagement.

Figure 2: The Pyramid of Youth Program Quality



Available Youth PQA Resources

For more information or Youth PQA resources, contact:

David P. Weikart Center for Youth Program Quality
124 Pearl Street, Suite 601,
Ypsilanti, Michigan 48197
Phone: 734.961.6900

Website: cypq.org

1. **Online Youth PQA Intro (Free Course**)***

This 1 hour course is self enrollable, free, and always available. The Youth PQA Intro is designed to introduce the YPQA Self Assessment process to members of the self assessment team. It is assumed that the team leader has gone through the full YPQA Basics training.

To access the training, follow these steps:
Go to etools.highscope.org
Pick 'Online Training'.
Click 'READ MORE' under Youth PQA Intro (Free Course)
Choose 'Click here to register and enroll!'
Follow instructions to create and validate new account.
Login and complete training.

2. Online Youth PQA Basics***

This is the online version of the 1-day live workshop and takes between 3-6 hours to complete and is appropriate for those that were not able to attend the live training or who are new at a program. This course is available for $100/person. Contact the Weikart Center for Youth Program Quality to enroll.

For more information about Great Science for Girls, please contact:

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For a downloadable copy of the GSG Program Quality Tool and Manual, please visit the GSG website:

www.greatscienceforgirls.org

Great Science for Girls (GSG) is a five-year initiative, funded by the National Science Foundation, to enhance the capacity of after-school programs to provide quality gender equitable STEM opportunities. Through the GSG website, you will find virtual support: resources, research, downloadable "take action" tools and an online network to share questions, additional resources, and experiences.