BEST PRACTICES FOR AFTERSCHOOL SCIENCE

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Science Project Leaders

These checklists are adapted from the NPASS2 Science Trainer 3-Hr Workshop Observation Form. See this and other documents related to professional development for afterschool science at: http://npass2.edc.org

1. Preparing the Space

- Choose a space that is ***free from distractions***
- Have enough tables, chairs and ***room for movement***
- ***Chart paper*** or whiteboard
- Organize and prepare the materials
- Be ***welcoming*** and ***begin on time***

Exploration, problem solving, teamwork and discussion are much more productive in a calm space, away from other distracting activities. Arrange the space so that teams can see each other but can work separately. Also, chose a place for the whole group to gather away from the materials for periodic discussions.

2. Preparing for the Activity

- Attend a training session
- Read the Guidebook
- ***Practice the activities*** yourself
- Think about the ***main idea*** of the project
- Map out ***goals*** for the project and for each session

After you are trained on a project, ***read the guidebook*** and ***do all the activities yourself***. Look for (decide on) one or two ***main ideas*** that bind all the activities in a project together. Consider how you will lead the activities so the students notice/discover these ideas.

3. Starting each Session

- ***Review, Share*** on previous session/topic/issues
- ***Overview*** of today's Agenda and Procedures
- ***Introduce*** the new project/activity
  - *Engage (use stories where you can)*
  - *Focus the thinking (remember the **main idea**)*
  - *Inform (materials, rules, limitations, roles, teams)*
  - *Describe the Challenge*

Keep reviews and overviews relevant and short. Your introduction to the new topic/activity should be short too, but ***engaging, focused and informative***. A story or scenario can frame the challenge and relate it to prior experience. Save "real world" connections until after the learners have had direct experience with the project.

4. Working with Teams/Groups

- Visit each team (often) ~60 sec each time
- ***Show interest and enthusiasm***
- Ask ***questions*** to stimulate thinking
- Make ***no judgments*** (right/wrong, good/bad)
- Give ***just enough*** help
- Refer students' questions back to other students
- Encourage roles (ambassador, reporter, spy)

Stay connected with the learners at all times. Visit each team often. Show enthusiasm, be encouraging and be helpful. Think of yourself as the ***scaffolding*** (not the builder) for students' thinking and problem solving. Give just enough help, support, hints to jump start the next level of exploration or sense-making

5. Questions to Ask (Troubleshooting)

- What did you notice/see/hear (*rewind the movie*)
- What did you do/try (*and what was your thinking*)
- What would happen if/when….
- What works (well, better, best)
- What patterns do you notice
- What else is like this
- What's going on *(keep this one for last)*

Observe each team at work. Then ask some of these (open-ended) questions. There are no right answers: the questions are designed to encourage students to think (out loud) about what they are doing and why they are doing it. Be persistent, but don't expect complete responses at first. Keep asking, and always acknowledge the answers you get. Your goal is to develop the habit (culture) of reflection.

6. Leading Group Discussions

- Gather ***away from their materials***
- Keep it ***focused, respectful and short***
- Use chart paper or white board
  - *What Works? What Do You Notice?*
  - *Findings/Discoveries/Patterns*
- Stick to ***observations and evidence*** (not theories)
- Encourage drawing, gesture (non-verbal sharing)
- ***Reframe the challenge***

Move all the students away from the materials to avoid distraction. Discussion should be frequent, brief (~ 5 min). Use charts and lists to record what the group notices and discovers. Respect all input but put red herrings on the ***parking lot.*** Make discussion feel fair and useful to the students.

7 Ending the Session

- Gather ***away from their materials***
- Summarize finding,
- Congratulate successes
- Acknowledge unresolved challenges
- Preview the next session
- Show results to others

Don't let the session fizzle out because children leave or lose focus. A short final discussion, away from the materials is a good way to maintain control of the learning process. Very briefly, summarize, congratulate, acknowledge and set up the next session. Better to end early than have the students lose interest or misuse the materials

NPASS2 Taking NPASS to Scale

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BEST PRACTICES FOR AFTERSCHOOL SCIENCE **Science Coaches/Trainers**	**These checklists are adapted from the NPASS2 Science Trainer 3-Hr Workshop Observation Form. See this and other documents related to professional development for afterschool science at: http://npass2.edc.org**

1. Starting Your Workshop
• ***Review, Share*** on previous session/topic/issues
• ***Overview*** of today's Agenda and Procedures
• Set up a ***Parking Lot***
• ***Introduce*** the new project/activity
  ○ *Engage (use stories where you can)*
  ○ *Focus the thinking (remember the **main idea**)*
  ○ *Inform (materials, rules, limitations, roles, teams)*
  ○ *Describe the Challenge*
	While making obvious adjustments for adult learners, your presentation should model all the *Best Practices* in the ***Checklist for Afterschool Science Leaders***. They will learn these skills primarily by observing you using them. Talk about them later – ***separate from doing them*** – when the learners are ready to reflect on their professional practice.

2. Pacing a 3-Hour Workshop • ***Explore-discuss x 2*** at least one activity • Lead 3 or 4 other activities in some depth • Engaged staff ***as learners*** for all the activities • Lead frequent discussions about the exploration • Discuss implementation and extensions ***separately*** • Present one ***teaching tip*** in every workshop	3 hours is not enough time to lead all the activities in a ***Design-It!/Explore-It*** project. Model at least one activity exactly as afterschool staff should lead it with children – for ~ 45 min – and the rest as fully as time allows.

3. Managing your Roles
• Lead activities first: Talk about leading them later
• Let trainees ***get immersed in the activities***
• Put implementation issues in the ***Parking Lot***
• Make sure to return to the parking lot later.
• Announce each change of trainer role, e.g.
  ○ *Activity leader*
  ○ *Coach/Teacher/Scientist*
	Keep your role as activity leader separate from your role as teaching or implementation coach. Lead activities just as you wish staff to lead them with afterschool students! This models good teaching ***and*** lets them experience the activities as learners. Keep implementation and coaching discussion separate from doing the activities. To avoid confusion, announce when you switch from *activity leader* to *implementation coach*

4. Delivering Teaching Tips e.g. • Working in ***teams*** (managing roles) • ***Introducing*** a new project/challenge • ***Working the floor*** (interacting with teams often) • Finding the ***main idea(s)*** in a project • Leading ***discussions*** (small, large) • Managing ***competition, frustration, apathy*** • Creating/using ***extensions*** to maintain engagement • Managing science ***vocabulary and concepts***	The best way to teach good teaching and classroom management is to model best practices in your own actions. But also draw attention to your modeling – a little at a time. Each workshop should include a brief discussion about ***one teaching tip*** – ~5 minutes – drawing on concrete examples from that day's workshop
5. Closing the Session or Workshop • ***Summary*** of findings, achievements • Identify outstanding challenges • Revisit ***Parking Lot*** • ***Feedback*** from attendees (perhaps written) • Preview content of next session • Logistics (date, time, place) of the next session • ***End on time***	Always end on a high note. Summarize successes and remaining questions. Give a hint of good things to come and be sure to clarify logistical arrangements. Invite feedback from attendees in writing even if you also ask for verbal feedback.