DESIGN SQUAD TRAINING OTHERS TALKING POINTS

SLIDE 1—TRAINING

1. Welcome participants to the *Design Squad* Training.

2. Introduce yourself and share why you are involved with *Design Squad*.

3. Announce length of training and other logistics such as break times and locations for bathrooms, water fountains, and emergency exits.

SLIDE 2—A MULTIMEDIA PROJECT

I. Introduce *Design Squad*:

   a. *Design Squad* is a reality competition show aimed at kids and people of all ages who like reality or how to television. Its goal is to get viewers excited about engineering and the design process. Over the course of 10 episodes, six teens tackle engineering challenges for real world clients—from creating remote-controlled flying football targets for Hasbro to dry land dog sleds for the Jamaica Dog Sled Team. In the final episode, the two top-scorers battle for the Grand Prize—a $10,000 college scholarship provided by the Intel Foundation.

   b. The show is hosted by Nate Ball, a real engineer, and is the only engineering show on television for kids.

   c. Video profiles of real engineers will dispel the "I can't do that" stereotype and replace it with "That's engineering? I *want* to do that." Visit pbskidsgo.org/designsquad/engineers to download the D-Squad Pro Files.

   d. Each episode of *Design Squad* utilizes animations to illustrate the engineering, science, and math concepts necessary to solve that week's challenge.

2. Tell them about the Web site:

   The *Design Squad* Web site goes "behind-the-scenes" with cast interviews, photos, outtakes, and the inside scoop on each *Design Squad* challenge. Online, visitors may watch full-length streams of *Design Squad* episodes, share their thoughts, and learn more about the role of engineers in society. The Web site also offers downloadable resources for events and workshops such as video clips and printable signs. A whole section of the site is devoted to engineers at pbskidsgo.org/designsquad/engineers.

3. Discuss the outreach campaign:

   Tell your workshop participants that *Design Squad* is building a community

committed to fostering a positive image of engineering. Through partnerships with engineering groups and education groups, we can work together to deliver engaging engineering activities to places where 9- to 13-year-olds can be found: afterschool programs, schools, museums, and malls.

Point out that the show, Web site, and outreach are aimed at reaching middle school students with the message that engineers are creative problem solvers.

SLIDE 3—TODAY'S AGENDA

1. Review the agenda.
    a. Sneak Peek: We'll get a chance to see a short clip from the show.
    b. Design Process & Educational Goals: We'll examine the educational underpinnings of the show.
    c. Pop Fly: Our challenge of the day is to send a ping-pong ball flying—our materials are a paint stirrer, some tape, and a spool. We'll learn to guide kids through an activity using the design process.
    d. Today's Tweens: We're going to spend some time learning about 9- to 13 year-olds. We'll review the research results from the Engineer Your Life campaign. While this research focuses on what high school girls are thinking about engineering and careers, it illustrates how important it is for us to begin reaching out to middle-school aged kids, and how we can talk to them about engineering.
    e. D-Squad Pro File: We'll get a chance to watch a profile of a real engineer.
    f. Resource Review: We'll review *Design Squad's* resources.
    g. Workshops & Events: We'll learn how you can use *Design Squad's* resources with kids in workshop settings and at events.
    h. Get Involved: We'll also discuss additional ways to get involved in the *Design Squad* outreach campaign.
2. Summarize by letting participants know that they'll leave the training with ideas and hands-on challenges they can use immediately with kids.

SLIDE 4—SNEAK PEEK

Show the 4 minute overview of *Design Squad*

SLIDE 5—DESIGN PROCESS

1. Joke with your audience that you hope this looks familiar!

2. Tell them that every aspect of *Design Squad*—the television show, the Web site, and the outreach campaign—reinforces the design process.

SLIDE 6—EVALUATION: SERIES

1. Tell your participants that *Design Squad* is committed to achieving its outreach goals. Specifically, *Design Squad* aims to:

    - Increase kids' knowledge of engineering
    - Improve kids' design process skills
    - Promote engineering as creative problem solving
    - Expose kids to engineering and technology careers

2. And it's working! In 2007, an independent research study found that *Design Squad* is effectively reaching it's outreach goals. Highlight some of the key findings about the series from the Goodman Research Group's Final Evaluation Report by reading through the bulleted list.

SLIDE 7—EVALUATION: EDUCATOR'S GUIDE

Highlight some of the research findings about the Educator's Guide by reading through the bulleted list.

SLIDE 8—QUESTIONS?

SLIDE 9—POP FLY

I. Before your training:
    - try this activity yourself
    - review the challenge sheet
    - collect the necessary materials
    - make copies of the challenge sheet for each of your attendees

2. Distribute copies of the challenge sheet and materials to attendees.

3. During the training, facilitate this challenge as you would lead it with kids.

SLIDE 10—DESIGN PROCESS

Reiterate that every aspect of *Design Squad*—the television show, the Web site, and the outreach campaign—reinforces the design process. For example, did they notice that on the challenge sheet, each step in the challenge is introduced as a step in the design process (i.e., brainstorm, build)? This structure provides a path for both the kids and the facilitators to use when doing activities.

SLIDE 11—TODAY'S TWEENS: WHAT DO THEY THINK?

The information on the next several slides is from the Engineer Your Life campaign (EYL). Before the training, download the research report at http://www.engineeryourlife.org/cms/8750.aspx?subpage=8765 and review. We

recommend that you view the video of Kito Robinson presenting this research, also on the Web site.

1. Ask your participants how much contact they have with 'tweens,' people between the ages of 9 and 13.
2. Ask your participants, "What do you think they think about engineering?"
3. Share with your participants that this is what high school girls think about engineering. And while our audience is middle school-aged kids, it is safe to assume that they are probably thinking this as well.
4. Discuss with your audience the meaning of "love" for a young person. For example, while the average adult might love sushi, for a young person, love is associated with strong passion and overwhelming feelings. It is a very strong word.

SLIDE 12—WHAT WE'RE TELLING THEM

Share with your attendees the meaning of the word "superior" for young people, especially girls. Superior abilities to young people means getting all A+'s, not B+'s or even A's.

SLIDE 13—WHAT DO THEY WANT?

Researchers from EYL asked girls what they wanted from a career. Review the list on the slide.

SLIDE 14—DISCONNECT

1. From this research we have learned that engineers stress the process of becoming an engineer, rather than the benefits and rewards of being an engineer. When doctors talk about their careers they don't typically start with how good you have to be in math and science or the number of standardized tests you'll take over a lifetime. They talk about the joys of savings lives and helping people.
2. Discuss that it is not that the message about engineering isn't reaching young people, it is that they do not like what they are hearing about engineering.

SLIDE 15—WHAT CAN WE SAY?

1. Use these real quotes from the EYL survey to lead a discussion about how engineers can start talking about the benefits and rewards of being an engineer and how in sync these are with the type of careers young people want:
    - Enjoying what I do

- Good work environment
- Making a difference
- Good income
- Flexibility

2. Encourage participants to visit the Engineer Your Life Web site for more information and resources on this topic.

SLIDE 16—D-SQUAD PRO FILE

1. Demonstrate positive engineering messages in action by showing participants a D-Squad Pro File.

2. Let participants know that D-Squad Pro Files can be downloaded for free off of the *Design Squad* Web site.

SLIDE 17—RESOURCE REVIEW

I. You've already told them about the TV show, engineer profiles, animations, and Web site, so concentrate on the great resources they can use in their outreach. There are six *Design Squad* guides that include a total of 35 hands-on challenges that will bring engineering to life for kids:

Teacher's Guide: Developed for middle school science and technology teachers, the new Teacher's Guide blends hands-on engineering challenges with 3 core science topics—force, electricity, and sound. The challenges use low cost, readily available materials and are linked to national science and technology standards. Free print copies of the guide can be requested at: http://pbskids.org/designsquad/engineers/newsletter.html

On the Moon Guide: Contains six open-ended challenges with multiple solutions that will develop kids creative-thinking and problem-solving skills. Along the way, kids will learn about and consider key issues related to living and working on the moon, while gaining insight into NASA's history and future plans for lunar exploration. The activities are appropriate for kids in grades 3-12 in classrooms, afterschools, and at events.

Invent It,, Build It: Five hands-on challenges designed to spark the inventive spirit of kids aged 9–12. These challenges bring invention to life for kids, inspire them to think like engineers and inventors, and illuminate how invention improves people's lives. A full Spanish translation of the guide is available as well.

Activity Guide: The Activity Guide features five hands-on engineering challenges for kids ages 9-12, leader notes, discussion questions and

answers. The activities use modest amounts of readily available materials, give kids many ways to succeed, and are manageable with large numbers of kids. They offer anyone running afterschool programs, workshops, or events engaging, effective ways to get kids thinking like engineers.

Educator's Guide: Geared to afterschool programs, this resource provides four multi-session engineering challenges that you can use with 5th to 8th graders over a 10-week period.

Event Guide: Complete with five hands-on activities developed for use at events, this guide contains tips, reproducible handouts, and evaluation forms that will help you plan and organize your event from beginning to end.

2. Download copies of all guides from pbskidsgo.org/designsquad.
3. Remind them that the rest of the training is designed to show how they can use these resources with kids in workshop settings and at events.

SLIDE 18—WORKSHOPS

1. Talk to your participants about presenting a *Design Squad* workshop to a small group of kids in classrooms or afterschool programs.
2. The Educator's Guide and Teacher's Guide have multi-session units, divided into individual challenges. Each challenge emphasizes teamwork and creative problem-solving and comes equipped with leader notes, discussion questions (and answers!), and activity sheets. Each unit takes two to three meetings to complete and includes teaching tips, science and engineering background information, and group management strategies.
3. Use the graphic on this slide to illustrate how the challenges in the Educator's Guide and Teacher's Guide are designed to be flexible and can accommodate a variety of schedules.
4. You may want to remind your audience that they can download the guides from pbskidsgo.org/designsquad.

SLIDE 19—EVENTS

1. Review the basics of what a *Design Squad* event looks like with your participants.
2. You might also want to brainstorm some potential locations—libraries, afterschool programs, malls, and museums.
3. Share with them the resources they can use
    a. Challenge stations—Set up tables at the event that feature activities

from the Activity Guide, Event Guide, and On the Moon Guide.

b. Testing zones—Create a space where participants can test their results—how far their rubber band car travels, how well their sculpture holds up in the wind, or how high their Ping-Pong ball flies.

c. Engineer profiles—Set up a monitor to showcase the engineer profiles. Remember they can be downloaded from the Web site.

d. Reproducible signs—There are a variety of designed signs they can download from the Web site to use at their event.

4. Also discuss the importance of partners. Remind them that they can convene a committee. Partners may be able to offer a venue, volunteers, and/or publicity opportunities. Consider asking representatives from various engineering disciplines and companies, schools and afterschool programs, universities and colleges, and your local public television station and other media partners to volunteer.

SLIDE 20—WORKING WITH KIDS TIPS

1. Before the training, make copies of the "Working with Kids" handout from the Event Guide for each of your attendees.
2. Review the tips on the slide and encourage participants to review the handout after the training.
3. Encourage them to keep the following tips in mind when leading engineering activities with kids:

    - Emphasize to your participants the importance of doing the activities before leading them with kids in order to anticipate where kids might need help.
    - Engineers communicate visually as well as verbally. Have kids keep design notebooks to sketch their ideas and results.
    - As kids progress through a challenge, point out the steps of the design process.
    - Guide kids by asking questions. To help kids discover answers for themselves, ask: What have you tried? How did it work? Why do you think it didn't work? What else could you do?
    - When something fails, encourage kids to try again. Testing a design and then revising it based on what you've learned is an important key to success.

SLIDE 21—GET INVOLVED!

1. Share with your participants that there are many ways to get involved in

Design Squad, from working with kids in a small group setting to hosting a large event.

2. Participants can train other engineers about *Design Squad's* resources. A PowerPoint presentation and talking points are available on the Web site at pbskidsgo.org/designsquad/engineers.
3. Partnerships—Ask them to think about who they are already working with and what new partnerships they may be able to develop. *Design Squad* is creating partnerships at the national level with groups like local public television stations, Girl Scouts and Boys & Girls Clubs. Visit pbskidsgo.org/designsquad for a complete list of national partners.
4. Spread the word—Let your participants know that *Design Squad* welcomes all help in getting the word out about the show and its resources. Brainstorm potential ways people can spread the word, from linking to our Web site to sending emails to friends and family, to writing articles about the show and their outreach efforts.

SLIDE 22—PBS PARTNERS

1. Participants can support *Design Squad* locally by providing local corporate underwriting on their local stations.
2. Remind your participants that local public television stations set their broadcast schedules. If a local station isn't airing *Design Squad,* participants can call the station to discuss the decision.
3. Many public television stations have an outreach staff. Participants may want to contact theirs about partnership opportunities.

SLIDE 23—SUPPORTING DESIGN SQUAD

Design Squad couldn't survive without the support of our national funders—please be sure to thank them on this slide.

SLIDE 24—QUESTIONS?