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TECHNOLOGY

# TAPESTRY WORKSHOP-IN-A-BOX: Professional Development for High School Teachers



Tapestry Workshop-in-a-Box contains materials for organizing professional development workshops that train high school educators in research-based, field-tested ways to attract and retain more and diverse students to computing courses. This Box includes information about the objectives and content of a Tapestry Workshop; advice on logistics and budgeting; suggestions for selecting participants and presenters; and a sample agenda, templates, and evaluation tools.

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**TABLE OF  
CONTENTS**

**1 Welcome ..... 3**

1.1 Introduction..... 3

1.2 Features of the Workshop..... 4

**2 Before the Workshop ..... 5**

2.1 Timeline and Checklist ..... 5

2.2 Obtaining Participants ..... 7

2.3 Obtaining Presenters ..... 8

2.4 Communication..... 9

2.5 Logistics ..... 10

2.6 Funding and Budgeting ..... 11

**3 Workshop Content..... 14**

3.1 Agenda Overview ..... 14

3.2 Outline of Tapestry Workshop Elements ..... 15

3.3 Descriptions of Tapestry Workshop Elements ..... 16

**4 Evaluation ..... 20**

**5 After the Workshop ..... 21**

**Appendix A: Sample Website Pages ..... 22**

Sample Home Page ..... 22

Sample Application..... 23

**Appendix B: Sample Letters..... 26**

Sample Announcement Letter ..... 26

Sample Acceptance Letter..... 27

Sample Declination Letter ..... 28

Sample Declination Letter with Explanation ..... 28

Sample Reminder Letter ..... 29

**Appendix C: Sample Agenda ..... 30**

**Appendix D: Sources And Links ..... 32**

Sources for Logic Problems ..... 32

Links to Organizations and Resources ..... 32

**Appendix E: Sample Evaluations..... 33**

Tapestry Pre-Workshop Survey ..... 33

Tapestry Workshop Survey..... 36

Tapestry Follow-Up Survey ..... 40

# 1 Welcome

## 1.1 Introduction

Tapestry Workshops are professional development opportunities for high school teachers, counselors, and administrators who care about promoting diversity and enhancing the quality of their computing courses. Workshop organizers are often (but not always) college or university computing faculty. The workshops train educators in research-based, field-tested ways to attract and retain more and diverse students to computing courses. They provide resources for inclusive pedagogy and develop a community of educators who actively recruit diverse students. The ultimate goal of a Tapestry Workshop is to increase the number of female and underrepresented minority (URM) high school students who are well prepared and motivated to pursue collegiate computer science courses.

For success, Tapestry Workshop goals and objectives must be clearly communicated to all participants and presenters. In contrast to many computer science professional development opportunities, Tapestry focuses explicitly on recruiting and inclusive pedagogy. If any computer science content material is presented, it is only through that lens.

If you are interested in organizing a Tapestry Workshop, we recommend that you contact NCWIT early in the process. Assistance with funding, logistics, and speakers may be available.

### TAPESTRY GOALS

- *ATTRACT MORE AND DIVERSE STUDENTS TO COMPUTING*
- *ENHANCE CLASSROOM PEDAGOGY*
- *CONNECT HIGH SCHOOL AND COLLEGE COMPUTING DEPARTMENTS*
- *FORM A COMMUNITY OF EDUCATORS SHARING SUCCESSFUL TEACHING AND RECRUITING METHODS*



## 1.2 Features of the Workshop

Tapestry is a three-day summer workshop for approximately 25-35 participants.

*The defining features of the Tapestry Workshop include:*

- Organizers, presenters, and participants who are committed to improving high school computer science education diversity and quality.
- Research-based practices that work with diverse students. The effectiveness of all recommended practices must be documented.
- Active learning components, such as group problem solving, to encourage networking and collective involvement.
- Individual workshop presentations that include:
  - » Explanation of the current computing environment and the need for high school computer science courses
  - » Example of a computer science course (or courses) that results in more and diverse computing majors
  - » Pedagogical practices like pair programming and other forms of collaborative learning
  - » Explanation of and methods for mitigating stereotype threat
  - » Recruiting techniques that increase enrollment of diverse students
  - » Specific examples of teacher successes with recommended practices, presented by energetic high school teachers (local if possible) who can provide before and after comparisons
  - » Foundational skill-building exercises such as logic puzzles and spatial rotation practice
- Daily sessions of participant reflection that include collective sharing of thoughts, experiences, and plans for action.
- Examples and techniques that participants can easily use or modify without ongoing instruction or support.
- Formative and summative evaluations that measure workshop efficacy and participant outcomes to enable ongoing workshop improvements.
- Monetary compensation to demonstrate respect for the value of participants' time and their interest in improving high school computer science education.

# 2 Before the Workshop

The Tapestry Workshop-in-a-Box includes everything you need to plan a successful workshop. Topics covered include the timeline and logistics, budgeting, finding and selecting participants and presenters, workshop agenda and content, and evaluation. The Resources folder that accompanies the Box provides templates, sample presentations, and suggested sources for speakers. If you find something missing or have questions, please contact us at [info@ncwit.org](mailto:info@ncwit.org).

## 2.1 Timeline and Checklist

If possible, attend a Tapestry Organizers Training and/or an established Tapestry Workshop before planning your own. Experiencing the character of the event firsthand is enlightening.

A summer workshop is most convenient for teachers. To help you develop your workshop plan, a suggested timeline is presented below. Count back from your workshop's date to determine when to acquire funding, reserve lodging and workshop space, publicize your workshop, contact speakers, accept applicants, and order necessary supplies. Try to obtain funding as early as possible, preferably a year prior to your workshop.

Organizing will be easier if you assemble a small team to share the work. The time required varies significantly over the course of the year. Planning and making arrangements are spread out over many months. More time is required after the applications are received, to select participants and respond to their questions. The two weeks leading up to the workshop, and the workshop itself, are quite busy. During the workshop, plan to have at least three people available to perform last-minute tasks and run the workshop.

### TAPESTRY ORGANIZER TIMELINE

#### *6-12 months out*

- Read over all NCWIT Tapestry Workshop-in-a Box materials.
- If available, attend a Tapestry Organizers Training or an actual Tapestry Workshop.
- Plan a budget.
- Acquire funding – monetary and in-kind contributions.
- Reserve conference facilities and hotel or dorm rooms. Summer is a popular time for holding conferences and events, so this should be done as early as possible.

#### *5 months out*

- Create a website, an application form, and an information form for selected participants. (See Appendix A: Sample Website Pages, for sample forms)
- Decide on selection criteria for participants.
- Finalize the budget and funding.
- Advertise the workshop and recruit participants.

## **BEFORE THE WORKSHOP**

- Solicit presenters with expert knowledge of your session topics. Contact NCWIT to arrange for a speaker to present NCWIT resources.
- Draft an agenda.

### *2 months out*

- Select participants. Send out acceptance and rejection letters; encourage rejected applicants to consider applying next year.
- Keep any waitlisted candidates updated on their status.
- Determine accessibility needs and make any necessary arrangements.
- Determine food requirements and note special needs such as allergies or vegetarian diets.
- Order relevant NCWIT resource materials for distribution at the workshop (allow 6 weeks for delivery).
- Finalize the agenda. Prep speakers and agree on outlines of their presentations.
- Pre-order food.
- Update participants on location, agenda, and other logistics.
- Arrange for honoraria checks.

### *1 month out*

- Confirm lodging and workshop venue.
- Confirm food orders and delivery.
- Confirm Internet availability and access instructions.

### *1-2 weeks out*

- Send out last-minute reminders.
- Set up post-workshop evaluation.
- Print agenda, maps, photo release forms, speaker handouts, tent cards with participant names on both sides, ID badges, and certificates of completion.
- Obtain event services items including room keys, dining cards, and parking passes.
- If necessary, purchase snacks and beverages.

### *During the workshop*

- Welcome participants.
- Check in participants and distribute meal cards, parking passes, and keys.
- Ask participants to sign a photo release.
- Be available before, during, and after each workshop day to assist participants and speakers, to set up and break down the venue, and to answer last minute questions.
- Act as host and Master of Ceremonies.
- Take photos to document the workshop.
- Take a group picture.
- Obtain honoraria checks.

## BEFORE THE WORKSHOP

### *At the workshop close*

- Encourage participants to join Tapestry’s Facebook page for ongoing support.
- Have participants fill out evaluations.
- Retrieve keys, dining cards, etc.
- Distribute honoraria and certificates of completion.
- Distribute swag (if you provide t-shirts for participants, distribute them early in the workshop and ask participants to wear them on the same day so you can take pictures).

### *Immediately after the workshop*

- Update your website with pictures, links to resources, and speakers’ slides.
- Send thank-you notes to speakers and sponsors.

### *End of the following school year*

- Distribute the follow-up survey.

## 2.2 Obtaining Participants

### RECRUITING APPLICANTS

Actively recruit teachers in regional high schools, particularly those in the science, math, and computing departments. (A list of high schools may be available on your state’s K-12 education department website.) Publicize your upcoming Tapestry Workshop through a variety of local, state, and national organizations. Below is a list of organizations you should include:

- [CSTA - Computer Science Teachers Association](#) including your local chapter
- [SIGCSE - Special Interest Group on Computer Science Education](#)
- [SIGCAS - Special Interest Group Computers and Society](#)
- [NCWIT Aspirations Awards teacher mailing list](#)
- [Tapestry Facebook Page – CS@HS Tapestry](#)

### SELECTING PARTICIPANTS

Tapestry targets teachers who introduce students to the intellectual content and foundational skills of computing. Most are high school teachers leading computing classes. Teachers of keyboarding, applications, and certification-focused classes are not the target audience. Regional conditions may require some flexibility in these criteria. For example, if computer science is not offered in your regional high schools, then potential teachers, guidance counselors, and high school administrators could be welcome additions to your workshop.

Ideally, participants will be experts in teaching introductory computer science concepts at the high school level. They will be asked to share their best field-tested content and methods, and to consider how their practices align with the Tapestry Workshop recommendations. This type of peer support is one of the major goals of Tapestry.

It is important that participants clearly understand and endorse the Tapestry Workshop’s goal of increasing the number and diversity of students in computer science courses. They must understand from workshop announcements and upon acceptance that the workshop is *not* about programming.

Potential participants will apply via your website. Appendix A: Sample Website Pages contains a sample application webpage, and Appendix B: Sample Letters contains sample acceptance and rejection letters. Modifiable templates for letters can be found in the Resources folder that accompanies this box.

*Factors to consider when selecting participants:*

- *Interest:* Are applicants motivated to increase the number and diversity of students in computer science courses? Do they clearly understand the goals of the workshop?
- *Teaching Domain:* Teachers of IB or AP computer science should have priority. Next best are those who teach courses that focus on programming. If necessary, applicants who do not currently teach computer science but are motivated to introduce a computer science program in their schools should be considered.
- *Geographic Location:* Ideally, a large part of your state or region should be represented. Focus on areas that provide prospective applicants to your university.
- *School Demographics:* Are applicants from rural, urban, or suburban schools? Large or small schools? A large school will reach more students than a small school. Ethnic diversity within the school is desirable and often varies by school location.
- *Peer Support:* Selecting participants from the same school or district fosters ongoing peer support for implementing Tapestry Workshop recommendations. If the number of seats is limited, however, selecting across schools may be more important. Strive for a balance that achieves the greatest influence.
- *Previous Tapestry Experience:* Although first-time attendees should have priority, educators can benefit from repeated attendance. Among repeat attendees, those who can contribute accounts of successful recruiting for From the Classroom presentations are preferred.

## **2.3 Obtaining Presenters**

### **FINDING PRESENTERS**

A three-day Tapestry Workshop has approximately ten presenter-led sessions. Some presenters can cover more than one session. Thus, about seven presenters are typically needed. Finding suitable presenters can be challenging. Candidates should be experts in their content area. Presenters' recommendations concerning pedagogy and increasing diversity in computing must be evidence-based, and presenters should be forthcoming about the limits of the research. Presenters must be effective communicators who will respect your participants and be cognizant that they are high school educators.

Members of your organizing team or faculty at your college or university may be able to cover some presentations. NCWIT will provide a staff member to discuss resources and the Aspirations in Computing Awards, and may be able to provide or recommend a social scientist to cover topics such as Gender in Computing or Active Recruiting. See the Resources folder for a list of recommended speakers, as well as sample slides from past presentations.

### **PREPARING PRESENTERS**

First-time presenters require more preparation than those who have previously presented at Tapestry Workshops. Although most of your communication will likely be by email, you may find a telephone call useful to ensure that the speaker understands the workshop's goals and audience.

- Work with your presenters to ensure that they clearly understand and endorse the goals of the Tapestry Workshop.

- Presenters should respect the workshop’s primary audience. They must understand that high school teachers are expert, skilled instructors who are passionate about what they do.
- Make sure presenters are aware of the time constraints and understand your desire for hands-on experiences. Suggest that they use at least 1/3 of their allotted time for activities and discussion.
- To prevent overlap, make sure presenters know what the other speakers will cover, and send a copy of the agenda to each presenter as early as possible. Extra coordination may be necessary for presenters with potentially overlapping topics.
- The problem of diversity in computing should be covered first in the workshop; make it clear that later speakers should not repeat it.
- All speakers should be encouraged to avoid emphasizing negative stereotypes of computing professionals and to instead promote positive images.
- Ask presenters for brief biographies to use when introducing their presentation and/or to post on your workshop’s website.

## **2.4 Communication**

### **WEBSITE**

Your website is your primary means for communicating with participants. You should use it to:

- Announce and advertise your workshop.
- Collect applications and participant information.
- Post the agenda and speaker biographies.
- Provide details about the workshop’s location and accommodations.
- Continue to serve as a hub for workshop participants after the workshop.

You will need to designate a webmaster and arrange for your college or university to host the website. Main pages may include:

#### *Home page:*

The home page includes specifics such as when and where the workshop will take place, the goals of a Tapestry Workshop, and who should apply. It should display your event’s logo and/or the logo for your college or university, and any sponsor logos or grant funding sources. Once applications are closed, change the application link so it connects to a page that encourages applying the following year. For a sample home page, see Appendix A: Sample Website Pages.

#### *Application:*

For processing, the application form should be linked to a database (e.g., a spreadsheet). Collect the applicant’s name, position, and professional and personal contact information including addresses, email addresses, and telephone numbers. Information useful for making acceptance and declination decisions includes computing courses taught by the applicant, computing courses offered at the applicant’s school, overall school demographics, and demographics for all computing courses taught at the school. For a sample application form, see Appendix A: Sample Website Pages.

#### *Agenda:*

Post the workshop agenda, including session dates, times, speakers, and location information.

**BEFORE THE  
WORKSHOP**

*Participant’s page:*

You should require a password for access to this page. Distribute the password to applicants when they are accepted. Provide maps, directions, and information about meals, housing, and parking. Ask participants whether they will be staying in the facilities you provide, and if so, when they will be arriving. Ask participants to indicate their parking needs (none, standard, or handicap access), any dietary requirements, and any other questions, comments, or special needs they may have. Do not ask for information that you do not plan to use.

*Organizer’s page:*

Provide the names, roles, and contact information for the workshop organizers.

*After the Workshop page:*

Post photos from the workshop, speakers’ slides, links to additional resources, and a link to the Tapestry Facebook page.

**SOCIAL MEDIA**

Encourage your participants to visit and join Tapestry’s Facebook page, CS@HS Tapestry, where they can ask questions, post pictures, and share information with other educators who have attended Tapestry Workshops. The Facebook page helps to maintain a sense of community, even after the workshop is over.

**2.5 Logistics**

**THE VENUE**

Choose a venue with features that facilitate interaction and participation. Consider providing two rooms, one for presentations and one for interactive and collaborative sessions. It may also be useful to have breakout spaces where small groups can interact separately from one another.

<b>SPACE AND VENUE FEATURES</b>	<b>SUGGESTED ATTRIBUTES</b>
Décor	The space should be comfortable and attractive for a diverse audience of adults.
Size	Good flow is needed throughout the space, with room to accommodate participants’ activities without excessive movement of tables and chairs.
Acoustics or microphone	Good acoustics are critical. Microphones or a lanyard may be necessary.
Screen	The screen should be visible to the bottom from all seats. If not, make sure the presenters know of the limitations well in advance.
Layout	The room layout should allow for small group collaboration during demonstrative presentations. Half-moon tables with seating for six are ideal.

## **HOUSING AND COMMUNITY-BUILDING**

Most Tapestry Workshops draw from large (multi-state) geographical areas and thus provide housing for participants, often in on-campus housing. Make sure to clearly communicate the nature of the housing in advance. Tell participants if rooms and bathrooms are shared, and if they are expected to bring their own linens and/or toiletries. Include availability of Internet, likely room temperatures, and so on. It is preferable to explain any possible shortcomings of housing in advance than to have participants be unpleasantly surprised when they arrive.

The environment should foster sharing and create a sense of community. Promote informal discussion outside of workshop hours by housing participants together, and by encouraging walking or carpooling to and from the workshop. Schedule informal social activities such as a tour of the scenic features of your campus, or a dessert in an outdoor commons area. Invite all speakers to meals and social events, and consider housing out-of-town speakers at the same location as the participants.

## **FOOD AND MEALS**

Treat all attendees as guests. Provide meals, and offer snacks and drinks throughout the day. Accommodating dietary requests and restrictions is essential. Your budget may limit your choices, so be sure to plan in advance.

## **2.6 Funding and Budgeting**

Your Tapestry Workshop will depend on funding you obtain from local, state, and national organizations. Draft a one-page description of the workshop to share with potential funders. Make sure that the workshop goals and expected outcomes are clearly stated. This description also can be used for your website, newsletters, press releases, and other communications.

### **INTERNAL FUNDING**

Your college or university has many possible sources of funding.

- Alumni sometimes give money directly to the department. Ask your department head, college foundation, or university official whether such funds are available for a high visibility event.
- A recruiting office, office of diversity, or office of women's affairs may contribute.
- Others who are engaged in outreach activities at your institution may collaborate, provide expertise, and share funds with you.
- Do not limit your scope to diversity, outreach, or computer science. Watch for every funding opportunity, and tailor your proposal to show how your workshop fits the funding requirements.
- If you obtain an external grant, ask your department to match it.

### **GRANTS**

Check federal funding sources such as the National Science Foundation, Department of Education, or others with education and diversity initiatives.

## **CORPORATE FUNDING**

Technology and other companies often have small grants available for workshops such as Tapestry. For example, Google has provided funding for teacher professional development workshops.

Make sure you understand your college or university's rules for seeking corporate or private funding. Consult with your department head or dean about this process.

Suggestions for securing external funding:

- Introduce yourself to potential corporate funders at educational technology conferences (e.g. ISTE). Visit booths and attend vendor-hosted events.
- Make connections by visiting technology companies near your institution. Attend community events they sponsor, and contact your institution's alumni at their work. Use the connections you make to gain introductions to top management and community affairs personnel.
- Rather than providing funds, a company may provide an employee who can give a presentation. This might be valuable to your program, and it maintains the company's relationship with you. Make sure the talk is not a sales pitch. It should be either complimentary to your workshop goals or something that will excite most participants.
- If funding is not possible, a company may host a visit to their location or provide giveaways you can use during the workshop.
- Look beyond technical companies to other business sectors. Retail, banking, and communications firms employ large IT workforces and support innovation in computing and IT.
- Foster relationships with college alumni. Alumni may contribute to outreach efforts directly, or connect you with people and organizations that will.
- Explore student internship programs to look for natural connections for supporting outreach.
- If you obtain corporate funds for one workshop, prove yourself and show the program is worth funding again next year.

Recognize corporate supporters by thanking them publicly and by displaying their company logos on your website and printed materials, but be careful to avoid inappropriate or excessive promotion. Companies can also gain recognition by providing giveaways or "swag" for your participants, or by hosting a particular event such as reception.

To show your appreciation, invite company representatives to visit and perhaps participate in the workshop. Send follow-up letters to thank supporters for contributing to the workshop's success. Include photos of participants enjoying the workshop and evaluation data documenting the positive outcomes.

## **BUDGETING**

The budget should include costs for lodging, meals, parking, the venue, honoraria for participants, and fees and/or coverage of travel expenses for external speakers. Honoraria for participants show appreciation for the value of their time. The amount you choose will significantly affect your budget. Previous workshops typically offered \$1,000 per participant, but surveys indicate that \$500 may be an adequate incentive for teachers. If all attendees are local, then the honoraria can be reduced. If you offer honoraria, you can expect participants to cover their own travel expenses to your location.

The fees for external presenters will vary, and you should expect to provide reimbursement for travel and hotel accommodations. Local college professors and graduate students normally present for free. NCWIT may be able to provide a speaker who will introduce resources (see Workshop Content, below) and/or a social scientist to cover other topics as well.

**BEFORE THE  
WORKSHOP**

The following sample budget is based on a workshop with 30 participants, held at a university with economical facility fees and dorm accommodations for participants. A blank budget template appears in the Resource folder.

ITEM	ESTIMATED COST	TOTAL FOR 30 PARTICIPANTS
Participant stipends – includes travel expenses	\$500 to \$1000 per participant	\$15,000 to \$30,000
Presenter stipend and travel expenses <ul style="list-style-type: none"> <li>• Internal: no cost</li> <li>• External: varies</li> </ul>	Varies	\$3,000 to \$10,000
Parking	\$450	\$450
Venue/ Facility <ul style="list-style-type: none"> <li>• University meeting room/classroom</li> <li>• Meeting room rental</li> </ul>	\$500	\$500
Dorm Housing <ul style="list-style-type: none"> <li>• Two to three nights in air conditioned dorm, one person per room, shared bathroom</li> </ul>	\$100 per person	\$3,000
Meals <ul style="list-style-type: none"> <li>• Two breakfasts</li> <li>• Two dinners</li> <li>• Three lunches</li> </ul>	\$100 per person  \$500.00 possible University Conference Services Fees	\$3,500
Snacks <ul style="list-style-type: none"> <li>• Beverages</li> <li>• Healthy snacks</li> <li>• Candy/Mints</li> </ul>	\$150	\$150
Other <ul style="list-style-type: none"> <li>• Notebooks, pens</li> <li>• Name badges, tent cards</li> <li>• Miscellaneous</li> </ul>	\$100	\$100
Total		Approximately \$29,000 to \$50,000

# 3 Workshop Content

## 3.1 Agenda Overview

To be a Tapestry Workshop, the agenda must include presentations on diversity in computing, the necessary elements for active recruiting, and broadly effective computing pedagogy. Participants must be given opportunities to discuss successful pedagogical and recruiting practices, and time for reflection and planning. Multiple presentations can incorporate one or more of these components, but repetition should be avoided. All information and practices presented must be evidence-based and supported by research. To keep participants engaged, vary the types of presentations and intersperse presentations with active demonstrations, discussions, and planning sessions.

For a successful workshop:

- Include interaction in each session.
- Avoid talking “at” participants; recognize and respect their expertise.
- Give participants time to think about how they will apply information.
- Give participants time to share resources.
- Use high-energy speakers or physical movement late in the day to keep participants engaged.
- Encourage membership in the Computer Science Teachers Association (CSTA) for on-going support and engagement.
- Avoid directly promoting your institution or sponsors. A good workshop and appropriate expressions of thanks to your sponsors will be more effective.

Carefully consider your start time, especially on the first day. For example, if you select a morning start on the first day, you may need to house participants the night before. For a mid-day start, housing the night before may not be required. Similarly, if the final day of the workshop concludes late in the afternoon, some participants may require lodging that night. These decisions will impact your overall budget.

As you plan your agenda, ensure that each day includes a mix of presentations and hands-on activities. Take care to avoid overscheduling, so presenters and participants do not feel rushed. Allow plenty of time for formal and informal brainstorming, and plan at least three 15-minute breaks in addition to meals each day. Breaks also allow flexibility for getting back on schedule if sessions run over time. Lunch should be a solid break where participants can mingle; avoid “working lunches” or mealtime presentations. Keep evening activities social, fun, and optional.

The following sections describe the individual components of a Tapestry Workshop. When planning the agenda, carefully consider the topics of the presentations. Ideally, you should schedule presentations that introduce the major issues, such as Gender and Computing, early on the first day. Also consider clustering presentations according to topic, and be sure that the problem and remedy are presented before sample applications. For example, Active Recruiting could be followed by Teachers’ Recruiting Experiences. For a sample agenda, see Appendix C: Sample Agenda. Examples of some presentations can be found in the Resources folder that accompanies this box.

## **3.2 Outline of Tapestry Workshop Elements**

The parts of a Tapestry Workshop are listed below; see Section 3.3 for descriptions of each.

### **BEGINNING THE WORKSHOP:**

- Soft Start and Introductions
- Tapestry Welcome Presentation
- Icebreaker with Logic Problems

### **PRESENTATIONS:**

Presentations that are essential in a Tapestry Workshop:

- Gender and Computing
- Active Recruiting
- Stereotype Threat
- Inoculating Against Stereotype Threat
- From the Classroom: Teachers' Recruiting Experiences
- From the Classroom: Rethinking CS 1
- Resources and NCWIT Aspirations Awards
- Brainstorming and Integration

Presentations that are encouraged:

- New CS Introductory Courses/ AP CS / CS Principles
- Research Supported Pedagogy
- Pair Programming
- Spatial Skill Development
- Logic Groups

Presentations that are nice, but not necessary:

- CS Unplugged
- Student Panel

### **CONCLUDING THE WORKSHOP:**

- Integration and Commitment
- Evaluation
- Honoraria and Certificates of Completion

## **3.3 Descriptions of Tapestry Workshop Elements**

### **BEGINNING THE WORKSHOP:**

#### *Soft Start and Introductions (Approximately 30 minutes)*

A 30 minute “soft start” enables participants to arrive, have coffee and a light snack, and visit with other participants in a relaxed setting. This gives you time to take care of last minute logistics and questions, and helps encourage participants to be on time.

Set out materials for participants, including their name badges, name tent cards, agendas, maps, and accommodation information. Ask participants to sign a photo release form so you can take pictures to document the workshop and to publicize future workshops. Consider having reference information, such as the NCWIT Talking Point Cards and other NCWIT resources, on a table for participants to view and take. If space allows, keep the resource table available for the duration of the workshop.

#### *Tapestry Welcome Presentation (Approximately 30 minutes)*

Formally begin with a Welcome Presentation that introduces the organizers and the presenters, and reminds participants of the goals of the Tapestry Workshop. A sample Welcome Presentation is included in the Resources folder of this box. You can add your own institutional background to the slides, and the slides marked “TEMPLATE” can be customized with announcements, maps, instructions for internet access, and other information specific to your workshop.

A welcome from a dean or other university representative can be included, and should communicate the host institution’s commitment to the goals of the workshop. However, directly promoting the institution should be avoided.

#### *Icebreaker with Logic Problems (Approximately 30-45 minutes)*

Incorporating logic problems into the icebreaking activities encourages interaction among participants and models practices that can be used with students. For example, randomly assign participants to teams of three which compete to develop an algorithm to quickly put a deck of cards in order. For sources for additional icebreaker activities and logic problems, see Appendix D: Sources and Links.

### **PRESENTATIONS:**

#### *Gender and Computing (Essential – 1 hour, including discussion)*

This presentation describes national trends in computing and explains the strategic importance of computing in education. The current lack of diversity in computing should be highlighted, as well as job statistics, current college major declarations, and other interesting information about the computing field. The information should be supported by data and directed at the workshop’s primary audience — teachers, counselors, and administrators — but could also be applicable to industry professionals and researchers who may be attending the workshop as presenters or guests. Explicitly encourage participants to share facts from this presentation with principals, school boards, and parents.

This presentation is often given by a keynote speaker, and should be one of the first presentations of the workshop.

*Active Recruiting (Essential – 1 hour, including discussion)*

This presentation explains how to actively recruit girls and other underrepresented groups to computing. The presentation discusses intentional role models, describes the conditions that encourage girls to choose computing, and highlights aspects of computing and technology that appeal to girls.

This presentation should be given on day 1 or day 2 of the workshop.

*Stereotype Threat: What Keeps People Away (Essential – 1 hour, including discussion)*

Stereotype threat is the fear of confirming negative beliefs about one's group. This presentation reviews research showing how stereotype threat negatively affects learning and performance, and discusses the implications for recruiting and retaining women in computing.

*Inoculating against Stereotype Threat (Essential – 1 hour, including discussion)*

Participants are given research-supported strategies to minimize the effects of stereotype threat in their own classes. These include actions such as providing opportunities for self-affirmation, promoting a growth mindset, using wise feedback, providing role models, and ensuring that tasks are challenging but not threatening.

Ideally, this is a stand-alone presentation, but it may be combined with Stereotype Threat (above) into one, longer presentation.

*From the Classroom: Teachers' Recruiting Experiences (Essential – 1 hour, including discussion)*

These presentations are often given by teachers who have attended past Tapestry Workshops and have put the principles into action. Consider doing two of these, perhaps on Day 2 and Day 3, because they tend to be inspirational, high-energy talks that are well-received, even late in the day. Ask presenters to include evidence of the differences in their computing classes before and after attending a Tapestry Workshop, and make sure that the material presented relates to the primary audience at the workshop.

Organizers of previous workshops may be able to help you identify potential presenters who report strong results.

*From the Classroom: Rethinking CS1 (Essential – 1 hour or more)*

This presentation showcases pedagogic practices that can be used in introductory computing courses to establish a positive class culture, appeal to and retain diverse students, and encourage students to persist with computing. It *must* include evidence of effectiveness. Please see the Resources folder that accompanies this box for recommended speakers on this topic.

*NCWIT Aspirations Awards and NCWIT Resources (Essential – 45 minutes to 1 hour, including discussion)*

NCWIT will provide a speaker for this presentation. The *Award for Aspirations in Computing* honors young women at the high school level for their computing and IT aptitude, leadership ability, academic history, and plans for post-secondary education. The *Aspirations in Computing Educator Award* recognizes educators for their efforts to promote gender equity in computing.

## WORKSHOP CONTENT

A wide range of print and digital resources are available from the NCWIT website. Ordering print versions to display in a prominent location at your workshop enables teachers to browse and collect the resources at their leisure. See Appendix D: Sources and Links, and be sure to highlight any local resources participants should know about as well.

### *Brainstorming and Integration Sessions (Essential – 30 minutes to 1 hour per day)*

One of the primary goals of a Tapestry Workshop is to form a community of educators who share successful teaching and recruiting methods. The brainstorming and integration sessions are essential to this process. Brainstorming should be used at the end of each day to allow participants to process information and consider how it applies to their own situations. Schedule at least one brainstorming session on each day of the workshop, with the final session including integration and commitment to a plan of action.

Consider structuring your integration sessions as follows:

- Briefly summarize the topics discussed that day.
- Allow participants to individually reflect on what they heard and how it applies to their own situation.
- Ask participants to engage in small group discussions.
- Invite each individual or group to share a few of their thoughts.

### *Pair Programming (Encouraged – 45 minutes, including activities and discussion)*

Pair programming is a collaborative learning method in which students program in pairs instead of individually. The presentation should describe research demonstrating the benefits of pair programming, and should address factors to consider when implementing pair programming such as pair formation, assignments, and assessment. Direct participants to resources such as NCWIT's *Pair Programming-in-a-Box* [www.ncwit.org/pairprogramming](http://www.ncwit.org/pairprogramming) for more information.

### *New CS Introductory Courses/ AP CS/ CS Principles (Encouraged – 1 hour, including discussion)*

Where are we headed with high school computer science courses? This can be a presentation or a panel discussion. Make sure to focus on the recruiting and diversity opportunities presented by the new curricula.

### *Research Supported Pedagogy (Encouraged – 1 hour, including activities or discussion)*

This presentation focuses on one or more aspects of pedagogy. Be sure to choose only topics that are solidly supported by research and in practice. For example, the presentation could address research on memory and cognition and its implications for teaching computer science.

### *Spatial Skill Development (Encouraged – 1 hour, including activities)*

Well-developed spatial skills are necessary for success in computer science and many other STEM fields. Gender differences are also evident in many western cultures, with males typically being better prepared. Fortunately, spatial skills can be improved with training and practice. This presentation discusses the research and gives participants resources and sample exercises for implementing spatial skills training with their students.

## WORKSHOP CONTENT

### *Logic Groups (Encouraged – 1.5 hours that should be broken into 30 minute segments)*

Cooperative logic groups help students develop problem solving skills, logical thinking, communication skills, and social skills, all of which are necessary for success in computer science. Students work in groups of three or four to solve a logic problem, which they enjoy and view as a time-out from class. Similarly, working together to solve sample problems provides workshop participants with a welcome break and an opportunity to get to know each other. A 30-minute session of logic problem solving is an ideal way to open your workshop. At some point during the workshop, also include a 30-minute session *about* teaching with logic problems. Please see the Resources folder that accompanies this box for recommended speakers for this topic.

### *CS Unplugged (Nice to have – 1 hour, including activities)*

CS Unplugged introduces the fundamental building blocks of computer science without using computers. Fun, hands-on activities and games are used to teach concepts such as decimal and binary number systems, algorithms, variable manipulation, and logic. Unplugged activities give students an opportunity to get up, move around, and work together. The activities can also be used as a recruitment tool outside of CS classes. A hands-on CS Unplugged presentation can provide a nice break for Workshop participants. See NCWIT's resource *Unplug Your Curriculum* [www.ncwit.org/unplugged](http://www.ncwit.org/unplugged) and Computer Science Unplugged [www.csunplugged.org](http://www.csunplugged.org).

### *Student Panel (Nice to have – 45 minutes to 1 hour)*

The student panel can be either a separate session or part of Active Recruiting. Invite diverse students who are well spoken and who represent females and other underrepresented groups. Students should discuss their reasons for entering computing and any experiences that may have encouraged or discouraged them from pursuing this path. Organizers should pre-interview students to make sure they are a good fit.

## CONCLUDING THE WORKSHOP:

### *Integration with Commitment (Essential – 1 to 1.5 hours)*

The final integration session is a chance for teachers to reflect on the entire workshop, discuss implementation strategies with one another, and then share their commitment to act with the entire community of fellow Tapestry participants. It typically consists of three parts. First, participants form small groups to discuss ideas they have heard and challenges they face. Second, within the groups, teachers discuss their concrete plans for improving diversity, recruitment, and pedagogy. Finally, each teacher shares one concrete goal from each of those broad areas with the full community.

### *Evaluation (Essential – 15 minutes)*

Evaluation is very important to ensure ongoing improvement and funding of Tapestry Workshops. The Tapestry Workshop Survey can be printed or adapted for an online survey tool such as Survey Monkey (see the Appendix E: Sample Evaluations). If most participants have access to a smart phone, tablet, or laptop, then electronic administration is ideal. To ensure completion, ask participants to fill out the survey before receiving their honoraria.

### *Honoraria and Certificates of Completion (Essential – 15 minutes)*

Distribute honoraria and certificates at the end of Day 3 to discourage participants from leaving early. Participants must attend the entire workshop to receive an honorarium.

## 4 Evaluation

Evaluation is an essential component of Tapestry. Data are collected at three points: before the workshop, at the conclusion of the final day of the workshop, and at the end of the school year that follows the workshop. The Tapestry Pre-Workshop Survey documents the initial number and diversity of students in participants' computing classes, and is obtained online as part of the information requested from accepted participants. At the workshop's conclusion, the Tapestry Workshop Survey provides insight into participants' learning and their intentions for applying newly learned practices, and solicits feedback on the effectiveness of different aspects of the workshop. This survey can be administered on paper or online. The Tapestry Follow-Up Survey inquires about participants' efforts to implement improved pedagogical and recruiting practices during the following school year, and the effect of these changes on participation in computing classes. This survey is sent as an email link to be completed online. See Appendix E: Sample Evaluations for survey materials.

Evaluations enable you to assess the success of your workshop and identify improvements for future efforts. These data are also useful for sharing with potential donors, who are more likely to fund workshops if they know their money will be well spent. Please send copies of the evaluation data to the Tapestry Workshop developers via [info@ncwit.org](mailto:info@ncwit.org) for further analysis and to be shared with the National Science Foundation, our original sponsor.

## 5 After the Workshop

Immediately after the workshop concludes, update your website with pictures, slides from the presentations, and links to resources. Send thank-you notes to speakers and sponsors. When thanking sponsors, consider including pictures, quotes from participants, anecdotes, and data to illustrate the success of your workshop. You may want to return to these sponsors for future funding.

At the end of the school year following the workshop, email the link for the follow-up survey to participants. See Appendix E: Sample Evaluations, for survey materials.

# Appendix A: Sample Website Pages

## Sample Home Page



**Tapestry Workshop 2017**  
June 27 - 28, 2017  
University of Virginia  
Charlottesville, VA

[Home](#)   [Agenda](#)   [Participants](#)   [Application](#)   [Resources](#)   [Organizers](#)

**IF YOU ARE INTERESTED IN**

- Attracting more and diverse students to high school Computer Science classes
- Influencing students, parents, colleagues, and administrators on the importance of your courses and the opportunities they provide
- Engaging your students in the exciting and rewarding field of computing

**THEN YOU ARE INVITED TO**

- [Apply](#) to attend a summer workshop on the better attraction and engagement of female students to computer science.

**QUESTIONS**

- If you have questions about the University of Virginia Tapestry Workshop please contact [Jim Cohoon](#) or [Luther Tychonievich](#).

**WHAT IS A TAPESTRY WORKSHOP?**

The goals of the workshop are to share strategies, research-based practices, and field-tested good ideas for teaching computer science in a way that reaches all students regardless of sex or ethnicity. Workshop participants will

- Explore activities for gaining the interest of all students
- Interact with national experts on teaching and diversity practices
- Meet university faculty desiring to serve as ambassadors to their schools
- Form a network of like-minded people for ongoing discussion and development.

**THANKS**

- Development and running of the workshop has been funded by the National Science Foundation (grant 1042452). This support is greatly appreciated.
- Links to past Tapestry workshops are [available](#)

## Sample Application

All people requesting to attend a workshop must provide contact information, school background information, and indicate their workshop expectations.

### PROFESSIONAL INFORMATION

- Name
- Position (select all that apply)
  - » Teacher
  - » Department head
  - » Administrator
  - » Counselor
- School
  - » Street 1
  - » Street 2
  - » Town or City
  - » State
  - » Zip code
  - » School e-mail
  - » Repeat school e-mail
  - » School telephone

### PERSONAL CONTACT INFORMATION

- Primary e-mail
- Repeat primary e-mail
- Cell
- Repeat cell
- Curriculum information
  - » Computing courses at your school
  - » Computing courses you teach
  - » Your other curriculum responsibilities (if any)

- Level
  - » High school
  - » Middle school
  - » Middle and high school
  - » K-12
- Setting
  - » Rural
  - » Suburban
  - » Urban
- Population
  - » Female and male
  - » Female only
  - » Male only
- Type
  - » Public
  - » Public charter
  - » Public magnet
  - » Private
  - » Tribal
- Mission
  - » College preparatory
  - » Comprehensive
  - » Technical / vocational preparation
  - » Other (describe below)
- Size
  - » < 500
  - » 500 - 1000
  - » 1000 - 2000
  - » 2000
- Percentage of students who are members of minorities that are underrepresented in computing (e.g., Black, Hispanic, and Native-American)

**PROGRAMMING COURSE(S) DEMOGRAPHICS FOR 2014-2015 ACADEMIC YEAR**

- Grades you taught. Please select all that apply.
  - » Grade 7
  - » Grade 8
  - » Grade 9
  - » Grade 10
  - » Grade 11
  - » Grade 12
- Total number of students across all programming classes you teach
- Total number of students across all programming classes you teach that are female
- Total number of students across all programming classes you teach that are members of minorities underrepresented in computing

**COMPUTER SCIENCE ADVANCED PLACEMENT (CS AP) COURSE DEMOGRAPHICS FOR 2014-2015 ACADEMIC YEAR**

- Total number of students across all CS AP classes you teach
- Total number of students across all CS AP classes you teach that are female
- Total number of students across all CS AP classes you teach that are members of minorities underrepresented in computing

**TAPESTRY WORKSHOP**

- When did you last attend a Tapestry Workshop?
- Your expectations for the workshop
- How did you find out about this workshop?
- If you attended a previous Tapestry Workshop, how would your attendance help both you and other workshop attendees?

**QUESTIONS OR COMMENTS TO HELP US EVALUATE YOUR APPLICATION**

Thank you for your interest in the Tapestry Workshop. By submitting this form, you are declaring that the information being supplied is correct to the best of your knowledge. You are also agreeing to allow this NSF-supported project to evaluate your submission.

Contact information will be used to provide applicants with workshop updates, workshop follow-ups, and host organizations' opportunities.

Tapestry attendee honorariums (\$500) will only be paid to attendees who attend the entire workshop.

# Appendix B: Sample Letters

## Sample Announcement Letter

If you are interested in:

- Attracting more and diverse students into your high school Computer Science class
- Influencing the perceptions of students, parents, guidance counselors, administrators, and other teachers on the importance of your courses and the opportunities they provide
- Engaging your students in the exciting and rewarding field of computing
- Sharing strategies, practices, and good ideas for teaching computer science

and you are teaching at a high school in the USA, then we invite you to apply to our summer workshops on attracting and engaging diverse high school students to computer science.

Thanks to <National Science Foundation in support of the TAG project (Teachers Attracting Girls to Computing) and the Tapestry Project (Weaving a Diverse Computing Community),> the workshops will be tuition-free with lodging and meals provided.

Honoraria of <\$500> will assist attendees with time and travel costs, and show our appreciation for their participation in assessment of the workshop program and activities.

The workshop will be offered

<June 28-30, 2011      Host: University of Virginia, Tapestry website>

The goals of the workshop are to share strategies, practices, and good ideas for teaching computer science.

Workshop participants will:

- Explore activities for gaining the interest of all students
- Interact with national experts on teaching and diversity practices
- Hear about interesting topics in computer science and computer science education
- Meet university faculty desiring to serve as ambassadors to their schools
- Form a network of like-minded people for ongoing curriculum discussion and development

For information about the <University of Virginia Tapestry Workshop, contact Name at email or Phone Number or visit Tapestry website>

Cordially,

<Name, Position,

Department>

## Sample Acceptance Letter

Dear Tapestry Applicant:

It is our pleasure to admit you to <the University of Virginia Tapestry 2015 Workshop> and to acknowledge your interest in its focus on influencing and improving the diversity in computing.

If you accept this invitation, please reply back to <Name>.

Please read this entire message. It contains important information about next steps.

The workshop will start <mid-morning on Tuesday June 23, 2015>. If your travel plans require your arrival on <Monday>, housing will be available.

Parking passes will be available <starting at 8:00 AM, Tuesday, in Rice 120>. Housing staff will check people in and distribute keys <at the workshop during a break on Tuesday>. If you plan to arrive on <Monday> we will need to make individual plans with the housing staff.

To help us prepare for the workshop, please visit two web pages.

<The first page enables you to register with the Procurement Office at the University of Virginia. You must provide the necessary information in order for us to generate an honorarium check. Officially, the University considers Tapestry participants to be vendors supplying a service. Without supplying this information it is not possible to award your honorarium>.

- <Procurement office website>

The second page is the participant section of the <University of Virginia Tapestry website>. Access to this page requires an account name and password. They are both set to <XXXX>.

- <Participants page of the Tapestry website>

In the Tapestry Participants section you will be able to specify

- Your intention to use <the University of Virginia supplied housing>. Each participant staying in <the University of Virginia supplied housing will be provided with private sleeping quarters, which in our University's terminology is called a half suite. Each half suite comes with two single beds and shares a bathroom with another half suite>.
- Indicate dietary restrictions or special needs.
- Indicate vehicle information in order for us to arrange free University on grounds (campus) parking during the workshop.

Please note that receiving the honorarium requires that you participate in the full workshop. Also note that attendees are limited to one Tapestry Workshop per summer.

It is our intention for everyone at the workshop to be a participant rather than just an attendee. We hope you will share your expertise and experiences during the workshop as well as through evaluation surveys and our Facebook [page](#):

Cordially,

<Name>

## Sample Declination Letter

Hello:

I am sorry but we are unable to enroll you this year as a participant at a Tapestry Workshop. Spots were extremely limited and we received more than <three-hundred> applications.

We appreciate your interest in improving computer science education and hope that your efforts for this coming year will be successful.

We plan to offer more workshops next summer.

Cordially,

<Name>

## Sample Declination Letter with Explanation (For rejected applicants who request more information)

Hello <Name>:

Again, I regret that we were unable to offer you admission to the workshop.

In response to your question regarding acceptance criterion:

- We gave preference to people whose applications explicitly demonstrated their interest in the underlying workshop goals.
- We gave preference to people currently teaching an AP programming course or an introductory programming course.
- We gave preference to people in school systems who had no prior involvement with the workshop.
- There was a tie-breaking geographic preference for people at schools that were within reasonable driving distance from our school. One goal of the overall project as funded by the NSF is to increase the number of computing majors at our school. As the workshop web page indicates it is our intention to establish an ongoing relationship with the participants. We are happy to visit their schools and meet with their classes to discuss computing majors and careers. However, there is almost no travel budget for such visits, thus driving is the only viable transportation.
- There was also a tie-breaking preference for people at schools with a diverse student body.

Cordially,

<Name>

## Sample Reminder Letter

Dear Tapestry Participant:

I hope all is going well with you. If there are any changes in your plans, let <Name at email> know as soon as possible. Changes can be made, but we are subject to increasing late fees as we get closer.

If you have not yet filled out the polo shirt <link to form> please do so.

If you are bringing a guest(s) with you, please let us know as soon as possible. It is possible we can help with meals.

Conference services indicates they supply fresh bedding and towels, but do not supply toiletries.

We expect the workshop to begin promptly at <10:30 on Tuesday.>

Another email will be sent tomorrow giving an official link to a short form that will provide us with information about your high school computer science program. Such information is important in the aggregate to our sponsors.

In terms of getting around, I suggest comfortable shoes. <It is a ten-minute walk from the housing (Brown College) to the cafeteria (Observatory Hill) and a ten-minute walk from there to workshop meeting room (Zehmer Hall).>

Cordially,

<Name>

# Appendix C: Sample Agenda

Day 1	
TIME	SESSION
9:30 a.m.	Soft Start <i>Organizer</i>
10:00 a.m.	Icebreakers/Logic Problems <i>Presenter or Organizer</i>
10:30 a.m.	Welcome <i>Organizer</i>
11:00 a.m.	Gender and Computing <i>Presenter or Keynote Speaker</i>
12:00 p.m.	Lunch
12:45 p.m.	Research Supported Pedagogy <i>Presenter</i>
1:45 p.m.	CS Unplugged <i>Presenter</i>
2:45 p.m.	Break
3:00 p.m.	New CS Introductory Courses <i>Presenter</i>
4:00 p.m.	Brainstorming and Integration <i>Organizer</i>
5:00 p.m.	Dinner

Day 2	
TIME	SESSION
7:00 a.m.	Breakfast
8:00 a.m.	Socializing and Welcome <i>Organizer</i>
8:30 a.m.	Logic Problems <i>Presenter or Organizer</i>
9:00 a.m.	Stereotype Threats: What Keeps People Away <i>Presenter</i>
10:00 a.m.	Inoculating Against Stereotype Threat <i>Presenter</i>
11:00 a.m.	Break
11:15 a.m.	From the Classroom: Rethinking CS 1 <i>Presenter</i>
12:30 p.m.	Lunch
1:15 p.m.	Pair Programming <i>Presenter</i>

**APPENDIX C**

2:00 p.m.	Active Recruiting <i>Presenter</i>
3:00 p.m.	Break
3:15 p.m.	From the Classroom: A Teacher's Recruiting Experience <i>Teacher and former workshop attendee</i>
4:15 p.m.	Brainstorming and Integration <i>Organizer</i>
5:15 p.m.	Dinner
6:30 p.m.	Evening activity

<b>Day 3</b>	
<b>TIME</b>	<b>SESSION</b>
7:00 a.m.	Breakfast
8:00 a.m.	Socializing and Welcome <i>Organizer</i>
8:30 a.m.	Spatial Skill Development <i>Presenter</i>
9:30 a.m.	From the Classroom: Teacher Recruiting Experiences <i>Teachers and previous workshop attendees</i>
10:30 a.m.	Break
10:45 a.m.	Aspirations and NCWIT Resources <i>NCWIT staff member</i>
11:30 a.m.	Teaching with Logic Groups <i>Presenter</i>
12:00 p.m.	Lunch
12:45 p.m.	Integration with Commitment <i>Organizer</i>
2:15 p.m.	Assessment <i>Organizer</i>
2:45 p.m.	Honoraria <i>Organizer</i>
3:00 p.m.	Adjournment

# Appendix D: Sources and Links

## Sources for Logic Problems

*Crossing the River with Dogs: Problem Solving for College Students* by Ken Johnson, Ted Herr, and Judy Kysh. Published by John Wiley and Sons.

Cards from the game “MindTrap,” from MindTrap Games Inc.

Project Euler: <https://projecteuler.net/>

Search online for “logic problems” or “river crossing problems.”

## Links to Organizations and Resources

- ACM SIGCSE Nifty Assignment: <http://nifty.stanford.edu/>
- ACM Special Interest Group on Computer Science Education (SIGCSE) [www.sigcse.org](http://www.sigcse.org)
- ACM Special Interest Group on Computers and Society (SIGCAS) [www.sigcas.org](http://www.sigcas.org)
- ACM-W: <http://women.acm.org/>
- Aspirations in Computing – awards that honor computing and technical accomplishments of high school girls and college women, and the educators who support them: [www.aspirations.org](http://www.aspirations.org)
- AspireIT K-12 outreach program – connects high school and college women with K-12 girls interested in computing: [www.ncwit.org/aspireit](http://www.ncwit.org/aspireit)
- Code.org : [www.code.org](http://www.code.org)
- Computer Science Teachers Association (CSTA): [www.csta.acm.org](http://www.csta.acm.org)
- Computer Science-in-a-Box: Unplug Your Curriculum: [www.ncwit.org/unplugged](http://www.ncwit.org/unplugged)
- Computer Science Unplugged [www.csunplugged.org](http://www.csunplugged.org)
- Counselors for Computing (C4C) – information and resources for school counselors: [www.ncwit.org/c4c](http://www.ncwit.org/c4c)
- Dot Diva: [www.dotdiva.org](http://www.dotdiva.org)
- EngageCSEdu – a searchable, peer-reviewed collection of computer science course materials that align with evidence-based retention principles: [www.engage-csedu.org](http://www.engage-csedu.org)
- Google Made with Code: [www.madewithcode.com](http://www.madewithcode.com)
- Lighthouse for Computer Science – Information on Tapestry Workshops and other projects aimed at increasing diversity in high school, community college, and university computer science classes: [LH4CS.org](http://LH4CS.org)
- National Center for Women & IT (NCWIT): [www.ncwit.org](http://www.ncwit.org)
- North Carolina State University Pair Programming Tutorial: [tinyurl.com/ncsu-pair-programming](http://tinyurl.com/ncsu-pair-programming)
- Pair Programming-in-a-Box: [www.ncwit.org/pairprogramming](http://www.ncwit.org/pairprogramming)
- Tapestry Facebook page: CS@HS Tapestry [www.facebook.com/groups/107753865985279/#](http://www.facebook.com/groups/107753865985279/#) =
- Tapestry Workshops website: [www.tapestryworkshops.org](http://www.tapestryworkshops.org)
- Tapestry Wiki – a collection of materials and resources from past Tapestry Workshops: <http://cstapestry.wikidot.com/>

# Appendix E: Sample Evaluations

## Tapestry Pre-Workshop Survey

### WELCOME

As we do our final planning for your summer Tapestry Workshop, we need to understand the current state of Computer Science education at your school.

The survey should only take a few minutes of your time and we greatly appreciate your participation.

All your answers will be kept confidential for both you and your school.

The answers in total will help guide the offering of this workshop and future workshops. The collective answers will be used in reports to our funding agency — the National Science Foundation — and to the public at large. Neither you nor your school will be identified in any report.

There is no direct benefit to you for completing the survey or any penalty for refusing to do so.

If you prefer not to answer a particular question, then skipping is permitted. For any question that you believe asks for an opinion, we are seeking your response as an individual rather than as a representative of your school.

### YOUR SCHOOL

Environment

- Urban     Suburban     Rural

What level do you teach?

- Middle School     High School

What type of school do you teach at?

- Public - Comprehensive     Public - Charter     Public - Magnet     Private

Is your school a residential school?

- Yes     No

Is your school a technical school?

- Yes     No

Is your school a vocational school?

- Yes     No

School student population

- Less than 100
- 101 - 250
- 251 - 500
- 501 - 1000
- 1001 - 2001
- 2001 - 3000
- > 3000

### INTRODUCTORY PROGRAMMING COURSES

For the current academic year, number of students in your school's introductory programming (not computer applications) courses? \_\_\_\_\_

- How does this number compare with the enrollment in the previous year?  
 More       Less       Same

For the current academic year, number of female students in your school's introductory programming courses? \_\_\_\_\_

- How does this number compare with the enrollment in the previous year?  
 More       Less       Same

For the current academic year, number of under-represented minority (i.e., not White or Asian) students in your school's introductory programming courses? \_\_\_\_\_

- How does this number compare with the enrollment in the previous year?  
 More       Less       Same

For the current academic year, did you teach an introductory programming course?

- Yes       No

Will you teach an introductory programming course in the next academic year?

- Yes       No

### AP COMPUTER SCIENCE COURSES

For the current academic year, number of students in your school's AP Computer Science courses? \_\_\_\_\_

- How does this number compare with the enrollment in the previous year?  
 More       Less       Same

For the current academic year, number of female students in your school's AP Computer Science courses? \_\_\_\_\_

- How does this number compare with the enrollment in the previous year?  
 More       Less       Same

## APPENDIX E

For the current academic year, number of under-represented minority (i.e., not White or Asian) students in your school's AP Computer Science courses? \_\_\_\_\_

- How does this number compare with the enrollment in the previous year?

More       Less       Same

For the current academic year, did you teach an AP Computer Science course?

Yes       No

Will you teach an AP Computer Science course in the next academic year?

Yes       No

### CURRENT RECRUITMENT PRACTICES

Please state your level of agreement or disagreement with the following statements using a scale of Never, Recently begun, or Longstanding.

I have successfully recruited students into my computing classes.

Never       Recently begun       Longstanding

I actively recruit students to computing courses at my school.

Never       Recently begun       Longstanding

I am actively trying to recruit girls into my computing classes.

Never       Recently begun       Longstanding

I have successfully recruited girls into my computing classes.

Never       Recently begun       Longstanding

I am actively trying to recruit minority students into my computing classes.

Never       Recently begun       Longstanding

I have successfully recruited minority students into my computing classes.

Never       Recently begun       Longstanding

Tell us what recruitment activities, if any, you have performed in the past year.

### CONTACT INFORMATION

- Name \_\_\_\_\_
- School \_\_\_\_\_
- City/Town \_\_\_\_\_
- State \_\_\_\_\_
- Country \_\_\_\_\_

## Tapestry Workshop Survey (Given at the conclusion of the workshop)

Please take a few minutes to give us feedback about your experience at the workshop this week by selecting your choices below. Use a scale of Strongly agree, Moderately agree, Moderately disagree, Strongly disagree, Not applicable.

### OVERALL WORKSHOP AND MATERIALS EVALUATION

Overall, this workshop provided information that will help me attract more students to my CS classes.

<input type="radio"/>				
Strongly agree	Moderately agree	Moderately disagree	Strongly disagree	Not applicable

Overall, this workshop provided information that will help me attract diverse (girls or minority) students to my CS classes.

<input type="radio"/>				
Strongly agree	Moderately agree	Moderately disagree	Strongly disagree	Not applicable

Overall, this workshop provided information that will help me persuade decision-makers about the importance of my CS courses.

<input type="radio"/>				
Strongly agree	Moderately agree	Moderately disagree	Strongly disagree	Not applicable

Overall, the information presented at this workshop was credible. The logistics of this workshop were well done.

<input type="radio"/>				
Strongly agree	Moderately agree	Moderately disagree	Strongly disagree	Not applicable

The NCWIT materials will be very useful.

<input type="radio"/>				
Strongly agree	Moderately agree	Moderately disagree	Strongly disagree	Not applicable

Speaker handouts or reference materials will be very useful.

<input type="radio"/>				
Strongly agree	Moderately agree	Moderately disagree	Strongly disagree	Not applicable

## APPENDIX E

The website with resources and references will be very useful.

<input type="radio"/>				
Strongly agree	Moderately agree	Moderately disagree	Strongly disagree	Not applicable

This workshop compares favorably with other high school teacher workshops I have attended.

<input type="radio"/>				
Strongly agree	Moderately agree	Moderately disagree	Strongly disagree	Not applicable

I would recommend this workshop to other high school computer science teachers.

<input type="radio"/>				
Strongly agree	Moderately agree	Moderately disagree	Strongly disagree	Not applicable

Comments about the workshop overall:

## INDIVIDUAL SESSION EVALUATIONS

### Day 1

The icebreaker activity helped me feel comfortable with other workshop participants.

<input type="radio"/>				
Strongly agree	Moderately agree	Moderately disagree	Strongly disagree	Not applicable

Persons xx, xx, and xx provided an excellent overview that helped me make the most of the workshop.

<input type="radio"/>				
Strongly agree	Moderately agree	Moderately disagree	Strongly disagree	Not applicable

Session 1: xxxx (Leaders xx and xx)

<input type="radio"/>				
Strongly agree	Moderately agree	Moderately disagree	Strongly disagree	Not applicable

**APPENDIX E**

Session 2: xxxx (Leaders xx and xx)

<input type="radio"/>				
Strongly agree	Moderately agree	Moderately disagree	Strongly disagree	Not applicable

...

Integration (Leaders xx and xx)

<input type="radio"/>				
Strongly agree	Moderately agree	Moderately disagree	Strongly disagree	Not applicable

*Day 2*

Session 1: xxxx (Leaders xx and xx)

<input type="radio"/>				
Strongly agree	Moderately agree	Moderately disagree	Strongly disagree	Not applicable

Session 2: xxxx (Leaders xx and xx)

<input type="radio"/>				
Strongly agree	Moderately agree	Moderately disagree	Strongly disagree	Not applicable

...

Integration (Leaders xx and xx)

<input type="radio"/>				
Strongly agree	Moderately agree	Moderately disagree	Strongly disagree	Not applicable

*Day 3*

Session 1: xxxx (Leaders xx and xx)

<input type="radio"/>				
Strongly agree	Moderately agree	Moderately disagree	Strongly disagree	Not applicable

**APPENDIX E**

Session 2: xxxx (Leaders xx and xx)

- |                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <input type="radio"/> |
| Strongly agree        | Moderately agree      | Moderately disagree   | Strongly disagree     | Not applicable        |

...

Integration and commitment (Leaders xx and xx)

- |                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <input type="radio"/> |
| Strongly agree        | Moderately agree      | Moderately disagree   | Strongly disagree     | Not applicable        |

*Additional comments about individual workshop sessions*

Which session did you find most valuable? Why?

Which session did you find least useful? Why?

What ideas or suggestions do you have for us for organizing future workshops?

What, if anything, will you take back to your classroom? Why?

Other comments:

Demographic Information

What is your sex?

- Female
- Male
- Other (please specify) \_\_\_\_\_

What is your primary job title?

- Teacher
- Principal
- Counselor
- Other school administrator (please specify) \_\_\_\_\_

Number of years teaching \_\_\_\_\_

Number of years teaching computer science \_\_\_\_\_

**Tapestry Follow-up Survey  
(Given at end of the successive school year)**

To plan for future Tapestry Workshops, we need your feedback on the effectiveness of the information and strategies presented in the 20xx Tapestry Workshop at XXX. The answers that you provide will help us to improve our next offering and may also be used to report the program’s results to our funders and to the public. There is no direct benefit to you for completing the survey nor any penalty for refusing to do so. This survey should only take a few minutes of your time and we greatly appreciate your participation.

Thank you very much.

The Tapestry Workshop Planning Team

**WORKSHOP OUTCOMES**

Please state your level of agreement or disagreement with the following statements. Use a scale of Strongly agree, Moderately agree, Moderately disagree, Strongly disagree, Not applicable.

I used the information to promote computing education in my school.

- |                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <input type="radio"/> |
| Strongly agree        | Moderately agree      | Moderately disagree   | Strongly disagree     | Not applicable        |

I am actively trying to recruit students into my computing classes.

- |                       |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <input type="radio"/> |
| Strongly agree        | Moderately agree      | Moderately disagree   | Strongly disagree     | Not applicable        |

## APPENDIX E

I have successfully recruited students into my computing classes.

- Strongly agree       Moderately agree       Moderately disagree       Strongly disagree       Not applicable

I am actively trying to recruit girls into my computing classes.

- Strongly agree       Moderately agree       Moderately disagree       Strongly disagree       Not applicable

I have successfully recruited girls into my computing classes.

- Strongly agree       Moderately agree       Moderately disagree       Strongly disagree       Not applicable

I am actively trying to recruit minority students into my computing classes.

- Strongly agree       Moderately agree       Moderately disagree       Strongly disagree       Not applicable

I have successfully recruited minority students into my computing classes.

- Strongly agree       Moderately agree       Moderately disagree       Strongly disagree       Not applicable

I would recommend this workshop to my colleagues.

- Yes       No

### WORKSHOP ELEMENTS

Did you use any of the ideas presented in the workshop during the past school year?

Recruiting Students to CS (Leaders xx an xx)

- Yes       No

Current conditions and need for computing in high school (Leaders xx an xx)

- Yes       No

Logic Games (Leaders xx an xx)

- Yes       No

## APPENDIX E

Interesting projects to retain students (Leaders xx an xx)

Yes  No

Gender and Computing (Leaders xx an xx)

Yes  No

CS1 for inexperienced students (Leaders xx an xx)

Yes  No

XX (Leaders xx, and xx)

Yes  No

XX Panel (Panelists xx, xx, and xx)

Yes  No

Pair Programming (Leaders xx an xx)

Yes  No

Active Recruiting (Leaders xx an xx)

Yes  No

Advocating for CS Education (Leaders xx an xx)

Yes  No

### CLASSROOM PRACTICES

Please indicate the effect of workshop recommended classroom practices on your students. Use a scale of Beneficial, No Impact, Detrimental, Did not use.

Use logic puzzles/games

Beneficial  No Impact  Detrimental  Did not use

Put girls in groups where they are the majority

Beneficial  No Impact  Detrimental  Did not use

Use collaborative learning (e.g., pair programming, peer-led team learning)

Beneficial  No Impact  Detrimental  Did not use

Use assignments and classroom examples that are meaningful to both boys and girls

Beneficial  No Impact  Detrimental  Did not use

## APPENDIX E

Shut down show-offs

- Beneficial       No Impact       Detrimental       Did not use

Personally encourage girls to continue with computing

- Beneficial       No Impact       Detrimental       Did not use

Express to girls confidence in their abilities

- Beneficial       No Impact       Detrimental       Did not use

Actively minimize stereotype threat

- Beneficial       No Impact       Detrimental       Did not use

Other classroom practice you used (please specify)

Of the classroom practices listed above that you may have used in your classes, please rate the most effective, 2<sup>nd</sup>-most effective, and 3<sup>rd</sup>-most effective for engaging your students.

Use logic puzzles/games

- Most effective       2<sup>nd</sup> most effective       3<sup>rd</sup> most effective       Other

Put girls in groups where they are the majority

- Most effective       2<sup>nd</sup> most effective       3<sup>rd</sup> most effective       Other

Use collaborative learning (e.g., pair programming, peer-led team learning)

- Most effective       2<sup>nd</sup> most effective       3<sup>rd</sup> most effective       Other

Use assignments and classroom examples that are meaningful to both boys and girls

- Most effective       2<sup>nd</sup> most effective       3<sup>rd</sup> most effective       Other

Shut down show-offs

- Most effective       2<sup>nd</sup> most effective       3<sup>rd</sup> most effective       Other

Personally encourage girls to continue with computing

- Most effective       2<sup>nd</sup> most effective       3<sup>rd</sup> most effective       Other

## APPENDIX E

Express to girls confidence in their abilities

- Most effective     2<sup>nd</sup> most effective     3<sup>rd</sup> most effective     Other

Actively minimize stereotype threat

- Most effective     2<sup>nd</sup> most effective     3<sup>rd</sup> most effective     Other

Other classroom practice you used (please specify)

### RECRUITING PRACTICES

Please indicate the effects of Tapestry-recommended recruiting practices on diverse enrollment in your courses. Use the scale Beneficial, No Impact, Detrimental, Did not use

Talk to girls about computer science and your classes

- Beneficial     No Impact     Detrimental     Did not use

Recruit girls in groups

- Beneficial     No Impact     Detrimental     Did not use

Create posters

- Beneficial     No Impact     Detrimental     Did not use

Recruit girls to programming/robotics teams

- Beneficial     No Impact     Detrimental     Did not use

Puppies

- Beneficial     No Impact     Detrimental     Did not use

Recruit girls at open houses/assemblies

- Beneficial     No Impact     Detrimental     Did not use

Recruit from math classes

- Beneficial     No Impact     Detrimental     Did not use

**APPENDIX E**

Outreach to middle schools

- Beneficial       No Impact       Detrimental       Did not use

Outreach to other departments in your school

- Beneficial       No Impact       Detrimental       Did not use

Dot.diva website

- Beneficial       No Impact       Detrimental       Did not use

NCWIT Aspirations Awards

- Beneficial       No Impact       Detrimental       Did not use

Talk to parents

- Beneficial       No Impact       Detrimental       Did not use

Talk to school counselors

- Beneficial       No Impact       Detrimental       Did not use

Service projects

- Beneficial       No Impact       Detrimental       Did not use

Discuss social relevance of computer science

- Beneficial       No Impact       Detrimental       Did not use

Create gender neutral classroom decor

- Beneficial       No Impact       Detrimental       Did not use

Other recruiting methods you used (please specify)?

What other workshop components do you plan to use in the future?

How many of your female students applied for an NCWIT Aspirations Award in this academic school year?

## CLASSES AND STUDENTS

It is very important that we measure the outcomes of the Tapestry workshops. In the section below, please tell us as accurately as possible how many computer science classes you teach and how many students are in those classes.

How many classes did you teach in the following subjects in the academic years before and after attending the Tapestry workshop?

- AP Computer Science  
Academic year before Tapestry \_\_\_\_\_ Academic year after Tapestry \_\_\_\_\_
- Non-AP Computer Programming (e.g., Java, JavaScript, Alice, Snap, C++)  
Academic year before Tapestry \_\_\_\_\_ Academic year after Tapestry \_\_\_\_\_

In the academic year *before* attending the Tapestry Workshop, how many AP Computer Science students did you have? If you did not teach AP Computer Science, enter 0.

- Total \_\_\_\_\_
- Females \_\_\_\_\_
- Under-represented minorities \_\_\_\_\_

In the academic year *before* attending the Tapestry Workshop, how many Non-AP Computer Programming students did you have (e.g., learning Java, JavaScript, C++, Scratch, Alice)? If you did not teach Computer Programming, enter 0.

- Total \_\_\_\_\_
- Females \_\_\_\_\_
- Under-represented minorities \_\_\_\_\_

In the academic year *after* attending the Tapestry Workshop, how many AP Computer Science students did you have? If you did not teach AP Computer Science, enter 0.

- Total \_\_\_\_\_
- Females \_\_\_\_\_
- Under-represented minorities \_\_\_\_\_

## APPENDIX E

In the academic year *after* attending the Tapestry Workshop, how many Non-AP Computer Programming students did you have (e.g., learning Java, JavaScript, C++, Scratch, Alice)? If you did not teach Computer Programming, enter 0.

- Total \_\_\_\_\_
- Females \_\_\_\_\_
- Under-represented minorities \_\_\_\_\_

Do you attribute the change in enrollments, if any, in part or in whole to implementing workshop-recommended practices?

- AP Computer Science  
 Yes       No       No Change
- Non-AP Computer Programming  
 Yes       No       No Change

How many of your current students are planning to major in computer science in college?

Is this number different from previous years? If different, to what do you attribute the difference?

What recommendations do you have for improving the workshop?

Additional comments or other information for the Tapestry organizers.

**DEMOGRAPHIC INFORMATION**

What is your sex?

- Female
- Male
- Other (please specify) \_\_\_\_\_

What is your primary job title?

- Teacher
- Principal
- Counselor
- Other school administrator (please specify) \_\_\_\_\_

Number of years teaching \_\_\_\_\_

Number of years teaching computer science \_\_\_\_\_