The ICT4me Curriculum

About ICT4me

ICT4me is an after school and summer curriculum for middle school youth to develop ICT fluency, interest in mathematics, and knowledge of information, communication, and technology (ICT) careers. This problem-based curriculum capitalizes on youth interest in design and communication technologies. ICT4me provides structured interactions with ICT professionals, including having youth participate in engineering design and development teams. ICT4me's promotes a train-the-trainer approach to building capacity in informal ICT learning.

Build IT vs. ICT4me
ICT4me is a derivative of the Build IT curriculum co-developed between SRI International and Girls Inc. of Alameda County. Questions about the Girls Inc. implementation of Build IT can be directed to them at http://www.girlsinc-alameda.org/about/contact.

SRI is no longer supporting the development of ICT4me, so the curriculum materials are offered as is.

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Electronic Versions of Materials

Electronic versions of all materials in this unit are available for download from the website at http://ict4me.sri.com/.

Contact Information

Please contact the SRI International Inquiry line for questions about ICT4me.
https://www.sri.com/contact/form

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Unit 2:
Design Online: Communication, Collaboration, and the Internet

Overview

Youth are introduced to the Internet and Internet-based collaboration tools such as the Web, blog, chat, IM, and other new tools available. They learn about the structure of the Internet, online safety, and explore the design of a variety of communication tools on the Internet. In teams, youth explore and design social networking tools. Two tools will be explored in depth: blogs and an online social network space. Youth complete two projects with these tools focused on understanding the form and function of Internet-based social networking. Blogs and social network tools are compared at the end of the unit. Youths enrich their experience on technology-focused field trips and ICT professional visits. Youth present their designs and share their reflections at the Family Tech Night.

Enduring Understandings

- Designs have both form (how it is designed, what it looks like) and function (what it is designed to do). The functionality can be visible (e.g. web page navigation and hidden (e.g. html code) to the user.
- Networked computing enables three types of communication: one to one; one to many; many to many. Audience and intent of the communication should determine communication design and choice.
- The Internet is a large global network comprised of thousands of smaller networks that allow information to be routed among computers. These structures have an impact on the flow of information that can affect a user's experience.
- How to use structured approaches and models to address complicated counting problems that are found in the development of Web applications. (i.e. algorithmic thinking)

Essential Questions

- Identify the form and function of a communication tool. How does the form of a communication tool relate to its function?
- How does your audience and the intent of the communication affect your technology choices?
- How does information travel on the Internet?

Unit Layout

Unit 2 is designed for two 2 hours and 10 minutes over 15 weeks. This document includes weekly leader preparation and curriculum sections.

The Summary and Getting Ready sections are to help leaders prepare for a week's activities. The Summary section includes the Schedule and goals, Essential Questions, Design Process concepts, Glossary definitions, and a list of all the Materials needed that week. The Getting Ready section includes an overview of the week's activities and Background information for the leader.

Every week is broken down into Warm-up, Challenge, Main Activity, and Discussion/Reflection curricular sections. Activity Pages include the handouts needed for the week.

Thoughts on Gender

Design is all around us, done by adults and youth. ICT4me units are designed to engage all youth in learning about design and Computer Science. It was especially designed for getting girls, African-American and Latino/a youth hands on opportunities to learn and develop expertise in these fields.

All youth should have an opportunity to explore the materials without being deterred by their own or others' preconceptions about gender and race, in safe environments that promote collaboration, learning, and self-expression. All youth should have the same opportunity to see themselves reflected in the ICT professionals with whom they interact. Please read and do the activities in the Equity Guide before you implement the ICT4me curriculum.

Gender Tips appear in orange boxes throughout the curriculum, with ideas on how to address particularly equity issues.

Gender Tips

Connecting gender to ability (or lack of) or the way someone or something looks or behaves is a slur. Just like a racial slur. Explain to youth that slurs (racial, gender, sexual orientation, age, etc.) are not cool and not welcome.

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Week 1: Introducing the Internet

Summary

Schedule

OPTIONAL PRE-WEEK 1 ACTIVITY: Technology Check		*25-60 min*
	Youth are introduced to the hardware, operating system of their computers, and find the web browser to access the Internet.	
Warm-Up	Youth will play the game, Getting the Message.	15 min
Challenge	Youth learn the three categories of communication in the "Communi-puting Game."	40 min
Main Activity	Youth learn the three categories of communication in the "Communi-puting Game."	45 min
Discussion/Reflection	Youth reflect on the similarities in the design of web pages.	15 min
Total Time		**2 hr 20 min**

Essential Questions

- How does the form of a communication tool relate to its function?
- How does information travel on the Internet?
- How does your audience and the intent of the communication affect your technology choices?

Design Process Concepts Involved

- Use it.

Glossary

- **Applications.** Computer programs or online programs used for creating art, writing documents, or playing games.
- **Browser.** Software that allows you to "surf" the Internet. Safari, Internet Explorer, and Netscape are examples of browsers.

- **Face-to-face** communication (or **FTF**). A term used to refer to talking to someone when you are physically in their presence in contrast to being on the Internet when you talk with them: FTF vs. online communication.
- **Internet**. An electronic network of computers that includes nearly every school, university, government, and research facility in the world as well as many other organizations. The Internet started with four networked computers in 1969 and was known as ARPAnet. It uses a common set of communications protocols to exchange information in text, graphical, video, and audio formats.
- **Many-to-many.** One of three major Internet computing paradigms. With Internet developments, such as file sharing, blogs, Wiki, and tagging, a new set of Internet applications enable:
- People to both contribute and receive information and,
- Information elements can be interlinked across different websites. This kind of Internet application shows the beginnings of the "many-to-many" paradigm.
- **One-to-many.** One of three major Internet computing paradigms. The World Wide Web made one to many computing possible: One computer can display a web page and many computers can access it. People communicate one to many using the web as well as any other time they broadcast a message to many people.
- **One-to-one.** One of three major Internet computing paradigms. Like one-to-one communication between people (two people talking to each other), one-to-one computing is two computers talking to one another. For example, an email message sent from one computer to another or files transferred from one computer to another computer
- **URL**. Stands for Uniform Resource Locator. This is the address used to locate a web page.
- **World Wide Web (also known as WWW or the Web).** A network within the Internet that allows easy linking of pages, called web pages. The Web uses HTTP protocol to transfer documents and multimedia files formatted in hypertext markup language (HTML). Not all servers on the Internet are part of the World Wide Web.
- **Web page**. A document or file, written in HTML, that is stored on a web server and can be viewed over the Internet using a web browser.
- **Website**. A collection of web pages at a specific location. The Web pages are all linked together. Users are directed to a homepage (e.g., www.girlsinc.org) from which they navigate to the other web pages on the website.

Materials

- Blank sheets of paper
- Pens/pencils
- Computers and Internet access.
- Web Page Design (Electronic Activity). Make sure to load this document onto all the computers before this session.
- Poster board and markers
- If you are doing the Technology Check activity, you'll need to create a Unit 2 folder on each computer. Inside that folder, save a file and call it “Secret Image”. This can be any image that you have on the computer or download that you think the youth will like (they will go on a hunt for the image during the activity).
- Elements of a Web Page Activity Poster. Using the “Elements of a Web Page” Handout, design a poster that looks like this handout. To do this, create index cards with the names of web page elements on them so that youth can pin them on the poster.
- Venn Diagram with three overlapping circles with the following headers: one-to-one; one-to-many; many-to-many (you should make and save this Venn Diagram, it will be used in Weeks 3 and 5)
- Venn Diagram cards (4 sets)

Getting Ready

Overview:

In Week 1, youth are introduced to the Internet and the World Wide Web as communication technologies. They investigate the design of web pages in order to understand why designers made the decisions they did.

Note: There are a lot of glossary terms in ICT4me. Use the activities to engage youth in learning the words. Integrate glossary terms as needed. Avoid doing vocabulary-based activities. If needed, show additional websites and have youth identify the elements (in the glossary) on those webpages. Do not make a list of glossary words with definitions. Instead, get youth to identify what they see.

Parts of a Website

- **Home page.** The main page of a website. Typically, the home page serves as an index or table of contents to other documents stored at the site.
- **Navigation**. Navigation helps you find your way around a website. It is often on the left or at the top of the page. This area is usually the first thing that people see.
- **Hyperlink**. A clickable word, phrase, or image that connects you to other pages on the website or to other websites.
- **News & Information.** Web pages generally have information to share. Some of this information is updated on a regular basis (i.e., news).
- **Contact information.** A phone number, e-mail address, postal address, or fax number to contact the developer of the site.
- **Communication tools.** Tools that facilitate communication among visitors to the site. The tools may also enable visitors to talk with developers. Tools may include discussion boards, polls, or chat.

Place electronic activities like the one in Week 1 on all of the youths' computers so they can use them to access the websites. Come up with a strategy for organizing these materials. One idea is to create a folder called Unit 2 on your computer. Then make a file for each activity and name it according to the week it is associated with (for example, Week 1 Web Page Design.doc). Copy this folder onto a portable drive (flash drive or external drive) and upload the folder on all of the youths' computers. It is best if you place the folder in a place that is easy to find such as the desktop. You can then ask the youth to go to the folder named Unit 2 on their desktops and open the activity named Week1WebPageDesign.doc.

Background

To prepare for this week, and the rest of Unit 2, you'll want to be comfortable that you understand how the Internet works. Spend some time doing the following activities yourself before you work with the youth:

Learn the Net

- Animations of how the Internet works:
  http://www.learnthenet.com/english/animate/connect.html
- Intel's The Journey Inside
- Eight Lessons with visuals on how the Internet works:
  http://educate.intel.com/en/TheJourneyInside/ExploreTheCurriculum/EC_TheInternet/

In order to answer youths' questions, to guide them in their learning, or just know what to do next, you should spend some time to do the following for Unit 2:

- Learn how the Internet works (Weeks 1 and 2).
- Learn how the web works and how it differs from the Internet (Weeks 1 and 2).
- Learn what a URL is and the meaning of its components (Week 2).
- Learn how to use various communication tools (Weeks 3-7).
- Learn what a blog is and create one yourself (Weeks 9-11).

For every hour of activities, a facilitator can expect to spend around 30minutes-1hour up to do all the activities themselves. In order to get comfortable with the concepts as well as facilitation it's really important to do the activities! Plan to spend a couple of hours per week (e.g., 2 hours for preparing Week 1) if you are not familiar with the Internet, blogs, and discussion boards. You may spend less time if you use these tools regularly.

Tech Tips

MAKE SURE TO CHECK THAT ALL OF THE WEBSITES THROUGHOUT THE UNIT WORK FROM YOUR SITE OR SCHOOL COMPUTERS. Some schools have firewalls that block sites. Check the websites listed in each week's "Background" section. If they do not work you should find alternatives that address the week's concepts before implementing an activity.

BE PREPARED FOR THE TECHNOLOGY NOT TO WORK. If you are demonstrating from a website or only need to be online for a small portion, you can print out the website information for the youth or capture it (with screen shots) on your computer. You can then display the images using a projector. It's a good idea anytime you are doing a presentation, (think Family Tech Night!), to have the web pages you want captured in a PowerPoint presentation or in your browser so you are not relying on the Internet. See Weeks 14-15 (Family Tech Night) to learn how take screen shots of websites pages.

Some activities in ICT4me require the youth to be online, such as creating their blogs and

clubhouses. If the Internet is down on these days, have youth use paper to design and write up what they plan to implement when the Internet is available again.

For the Challenge activity, become familiar with the three computing and communicating paradigms: one-to-one, one-to-many, and many-to-many. The early Internet applications of e-mail, FTP and Telnet are characterized as **one-to-one**, because they are primarily communication means from one individual (or computer) to another.

With the advent of the World Wide Web, one can display information on a website that is accessible by many others. Thus we have the second paradigm **one-to-many**.

With developments such as file sharing, blogs, Wiki, and tagging, a new set of Internet applications enable:

- People to both contribute and receive information and,
- Information elements can be interlinked across different websites. This kind of Internet application shows the beginnings of the "many-to-many" paradigm.

With the evolution to the **many-to-many** computing paradigm, people can input and receive information to and from the Internet. They will be able to connect and communicate dynamically; there will be no artificial boundary between information and communication tools, and the definition of "many" will go well beyond people to include entities such as organizations, products, events, ideas and so on.

For the Main Activity, you'll need to use the Activity Page "Elements of a Web Page" to design a poster that introduces the elements of a web page. The poster should look like the homepage of a website. Create index cards with the names of the elements on them so that youth can pin them on the poster. You can turn this poster into a game like Pin the Tail on the Donkey (and save it for Family Tech Night).

Technology Check

Time: 25-40 minutes

Purpose: Youth are introduced to the hardware and operating system of their computers

Youth find the web browser and access the Internet from their computers.

Materials

- Computers with Internet connection
- Facilitator's computer with a projector
- You'll also need to create a Unit 2 folder on all computers. Inside that folder, save a file and call it Secret Image. This can be any image that you have on the computer or download that you think the youth will like (they will go on a hunt for it during the activity).

To Do

- If the majority of youth have little or no computer experience, it works well to have two Facilitators (one leading and one walking around to help individuals).
- If you have a mix of experienced and novice computer users, pair experts and novices together, making sure that the novices are the ones using the computer with the experts on the side assisting.
- Facilitators will want to demonstrate the following on their own computers at the front of the room as well as walk around to make sure youth are understanding the concepts. Follow the instructions below:

The Hardware

1. Introduce youth to turning on the computer and using the mouse. The hardware is the physical parts of the computer the youth can see and touch (as well as what's inside the computer that they can't).

2. ***Turning on the computer***. Push the button that looks like this.

3. Allow the computer time to turn on until you see the desktop.

4. Ack, there's a mouse!

   - The mouse that looks like this  or this  will be your constant companion as you use your computer. The mouse allows you to move the cursor on your computer screen.

   - For this mouse,  try moving it around on its mouse pad so you can see the cursor move on the screen.

   - For this mouse (also called a touch pad)  use your finger to get the cursor moving.

5. Think of two or three tasks for the youth to do on their computers that require them to use a mouse. If you want some additional ideas for mouse activities, see http://minimouse.us/

The Operating System

6. Explain to the youth that the Desktop is important. That's where they can open applications and find files and folders.
7. Ask the youth to figure out how to open a variety of applications. Choose applications that are in the toolbar—the Dock on the Macintosh and the Taskbar on the PC— and that the youth are likely to use. For example, you could have them open Internet Explorer, Safari, and Microsoft Word.

   - The following icons represent the applications on the Macintosh Dock:

8. Now tell the youth they are going to go on a hunt. You have created a folder named "Unit 2" on every computer and inside it, there is a document called "Secret Image." Have youth search for the "Unit 2" folder and the "Secret Image."
9. Next, teach the youth how to create their own folder, with their name as the title. They should put this folder inside the Unit 2 folder that already exists.
10. Finally, have the youth open a Microsoft Word document, type something (anything) and save the file to the folder they just created, with their name on it.

11. Point out the importance of keeping folders and files organized. Having everything all over the Desktop makes it hard to find the right file—just like a desk at school or at home! Also point out that the names they give to files are important—it's a lot easier to find their favorite image of Tinkerbelle if the file is named "Tinkerbelle" than if it's named "Image," for example.

Accessing the Internet

12. Have youth check that they are connected to the Internet. They can start this check by going to the wireless icon to see if the bars are black (indicating a wireless signal), or have them check that there is a wired (Ethernet) connection to their computer (if there is an Ethernet connection you should see that the bars are grey and see the words "AirPort: Off").

13. Next, ask youth to find a web browser in the toolbar and double click the icon to open it. Note that Safari, Firefox, and Google Chrome are highlighted below in the toolbar.

14. Go to Google at www.google.com. (Hint: Youth will need to enter this address in the text box at the top of the browser and hit Return.)

15. If they can go to this website or another popular site, then they are connected to the Internet.

16. Ask youth to find your afterschool program's website. Walk them through the steps if necessary. Type the name of the afterschool organization in either text box at the top of the browser. If they know the URL, they can type it into the text box.

17. To further check on youth's Internet skills, ask youth to go to https://maps.google.com/ and find their location.

Warm-Up

Time:	15 minutes
Purpose:	Youth will play *Getting the Message*, which will help them understand the advantages and disadvantages of face-to-face communication.
Materials	Half sheets of paper Pens/pencils

To Do

1. Split the youth into two teams (team A and B). Teams A and B will be competing against each other. The number of teams depends on the number of participants. There should be 6 youth per team at a minimum.
2. Explain to youth that each group is responsible for creating a 5-7 word message or phrase (i.e.: students are strong, smart and bold). After deciding on the message, a recorder must write the message on a half sheet of paper. Since the message needs to be kept a secret, youth need to be secretive and quiet as they're deciding on their message or phrase.
3. Allow 5 minutes to create the message. After writing it on the piece of paper, have each group fold their written message in half.
4. Ask youth to select one representative from their team to "deliver" the message to a representative from the opposing team. Explain to youth that "delivering" the message means to whisper the message to the opposing team's representative so that others on that team do not hear.
5. Instruct each group to get into a small circle (sitting down or standing up). Ask each representative to walk in between the two circles to exchange messages. Each representative returns to their team to deliver the message received, allowing the message to be whispered from youth to youth. When it reaches the last youth, that youth needs to say the message out loud and ask the other team if it's correct. The other team reads their original message on the sheet of paper.
6. Ask youth: How is this way of communicating useful? (You can send a message to someone without shouting it across the room.) How is it a problem? Guide youth to the understanding that in addition to becoming distorted as the message is passed along, a whispered message is not a practical means of communicating over long distances, as it would require long lines of people standing shoulder to shoulder.
7. Explain to youth that in Unit 2 they are going to explore the design of the Internet and web pages (aka communication tools), meet women who design different parts of the Internet, and get an opportunity to design some Web pages themselves.

Challenge

Time: 40 minutes

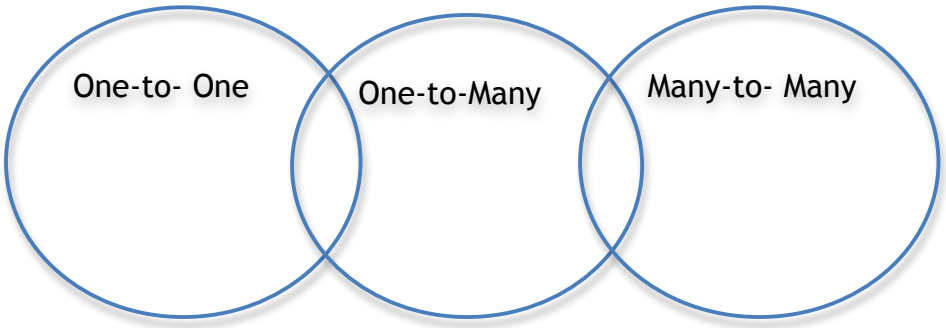
Purpose: Youth learn the three categories of communication for humans and computing in the Communiputing Game

Materials

- Venn Diagram on large paper (that looks like below). Each circle has one of the following headers: one-to-one; one-to-many; many-to-many (Save this Venn Diagram to use in future weeks)
- Activity page: Venn Diagram cards (4 sets)
- Pens

To Do

1. Explain to youth that they are going to explore the ways we communicate with everyone around us, face-to-face and online. Share with them the three categories of communication that experts use to talk about communication (one-to-one, one-to-many, many-to-many). Explain to them that engineers use these categories to categorize Internet computing—the ways computers are talking to each other. I want to get you familiar with these categories then we're going to play a game with how we communicate.
2. Put up 3 the Circle Venn diagram:



3. Introduce each circle with ONE example from face-to face (FTF communication). [One to one: Mom tells you to clean your room, whisper to a friend. One to many: Teacher tells class to do something. You tell your friends what you did over the weekend. Many to many: Your friends and you share what you did over the weekend. Sharing pictures in a group. Collaborating in class. Family reunion.]
4. Ask youth to share their examples of communication they've had today and where it fits on the diagram. Note participants' responses on the board (not on the Venn Diagram).
5. Once every youth has shared at least one form of communication and you have a few things in every category, discuss FTF communication or tools that fit into more then one category, then move on to the "Communiputing Game".

6. Put youth into no more than 4 teams total. Each team receives two FTF communication cards (e.g. whisper to a friend; tell 4 people in a room that you are home), two technology cards (e.g. chat with 3 people; email), and two blank cards—the blank cards should have one with "FTF" in the top corner and the other with "Technology" in top corner. Cards should be color-coded by team. Remind youth how a Venn diagram works—that some forms of communication may belong in more than one category (in this case they belong in the overlapping section of the circles).
7. Explain to youth that teams have 3 minutes to come up with unique forms of communication and arrange their cards to go up on the Venn diagram in appropriate spots. Youth can use chart paper and markers to brainstorm their own Venn Diagrams to illustrate their points.
8. Explain to youth that each team has to place their four cards on the Venn diagram posted on the wall. Their four cards should include the two that were pre-written and on the blank cards youth should come up with their own unique example. So, youth must come up with one unique example of FTF communication and one unique example of communication through technology. See Activity Pages for Venn Diagram cards.
9. After three minutes, teams individually go up to place their cards in the Venn diagram. Each team can challenge the placement of the other team's cards. If the class agrees with the challenge, the challenging team gets a point. If not, the team who put the card up gets a point. There's one point for each card placed in the right spot. One point per card for 'unique' ideas. If no one else had the idea on one of their blank cards, the team who did get a unique idea gets 1 extra point.
10. Encourage youth to challenge the placement of other teams' cards, and to use their creativity in creating unique examples for the blank cards and coming up with examples for forms of communication.

Gender Tip

Encourage everyone's voice to be heard and their participation appreciated.

Main Activity

Time: 45 minutes

Purpose: Understanding the general design of web pages

Materials

- Computers and Internet access
- Activity Page: Elements of a Web Page. Create a poster-sized version of this page, or project it large enough on the wall.
- Activity Page: Web Page Design (Electronic Activity). Upload this Activity Page on every computer.

To Do

1. Explain to participants that they are going to have the opportunity to investigate the design of web pages, key tools for communicating information to others on the Internet. Some web pages also have communication tools on the page itself that allow you to communicate with the designers or other visitors to the web page. Ask participants what they are familiar with. Take a few examples.
2. This is a good time to review the glossary for Week 1.
3. Explain that many people design web pages, spending a lot of time thinking about how best to organize the information so that people who use the web page can find what they need.
4. Tell youth: These web designers, engineers, and usability experts use a **Design Process** to create the pages. While each website may have its own look and feel, there are common ways to organize a website so that people can find their way around (navigate it) easily. We're going to learn about these common features so that:
   - **You can design** your pages on the Web
   - **To understand the language** (vocabulary) that designers speak
   - You can find things more easily when you are using the Web!
5. Ask youth: Can you think of examples where you've organized something to make it easier for people to use? Guide the youth to suggesting things they have written, closets or rooms they've helped organize for their family. (**The goal here it to get youth thinking like Web designers.**)
6. Use the poster you created from the Activity Page "Elements of a Web Page" as an example, have youth pinpoint (they can describe or actually pin) the elements of the webpage on your poster. You can turn this activity into a game like Pin the Tail on the Donkey (and save it for Family Tech Night).
7. Introduce each element giving its definition and ask if someone knows where it belongs on the poster. Have the youth place the index cards in the appropriate spot until every

element is in its correct spot. Encourage youth to discuss the placement of these elements as a group:

- ***Navigation***. Often on the left or at the top of the page. Navigation helps you find your way around a website. This area is the first thing that people see.
- ***Homepage***. Main page of the site, located at the domain name level (e.g., http://www.engineergirl.org).
- ***Hyperlinks***. Link to other pages on the website or to other websites.
- ***News & Information***. Web pages generally have information to share. Some of this information is updated on a regular basis (i.e., news).
- ***Contact information***. Way to contact the developer of the site via e-mail address or other means.
- ***Communication tools***. Facilitate communication among visitors to the site. The tools may also enable visitors to talk with developers. Tools may include discussion boards, polls, or chat.

*Answers to the Elements of a Web Page Activity:

- Navigation: Arrow pointing to orange bar on the left of the first page.
- Homepage: Arrow pointing to "Home" on the second page.
- Hyperlink: Arrow pointing to "Space" on the first page.
- News and Information: Arrow pointing to "Hey Engineer Girl/Fun Facts" sections on first page.
- Contact Information: Arrow pointing to "Contact Us" on first page.
- Communication Tools: Arrow pointing to e-mail address on second page. Note that the e-mail address is a hyperlink—this means you could send an e-mail to that address by clicking on it.

8. Ask youth to pair up and find these elements on a few websites. Have youth use the Web Page Design (Electronic Activity) to compare web pages. You can either have them write their answers on the sheet or discuss them in pairs.

Tech Tips

You may need extra time for this activity if the youth do not have experience accessing the Web.

Discussion/Reflection

Time: 15 minutes

Purpose: Youth reflect on the similarities in the design of web pages and why those similarities are important.

Materials

- Computer with Internet access and a couple websites to compare (website of your choice)

To Do

1. Ask the youth:
   - What do the websites have in common in their design?
   - Are there more similarities or differences?
   - Why are the similarities useful for users?
2. Guide the youth to understand that common navigation and other conventions on websites are helpful to users. While there are many differences and unique features, the general layout of a website is similar, which aids users' navigation of a site.

Week 2: E-mail Accounts & The Internet

Summary

Schedule

Warm-Up	Customize e-mail accounts and use e-mail accounts.	40 min
Challenge	Understanding URLs.	30 min
Main Activity	Create a model of the Internet. Show how e-mail travels and how websites are accessed.	40 min
Presentations	Youth present their models and reflect on the path of sending an e-mail and accessing a web page.	30 min
Total Time		**2 hr 20 min**

Essential Questions

- How does the form of a communication tool relate to its function?
- How does information travel on the Internet?
- How does your audience and the intent of the communication affect your technology choices?

Design Process Concepts Involved

- Research it
- Sketch it
- Brainstorm it

Materials

- Computers with Internet access
- Computer with Internet access connected to a projector for Facilitator
- Adult volunteer to help youth with session activities
- Colored paper
- Cardboard toilet paper rolls
- Colored Pens
- Tape
- Grid Paper
- Note cards or poster for capturing email account information
- "Clue" cards or glossary list with definitions of each of the network elements
- Handout
- Twine or yarn – different colors
- Paper
- Boxes or computers
- Scissors

Getting Ready

Overview

Youth should participate in customizing their own Yahoo! e-mail accounts, and other web activities to help them conceptualize how the Internet works. They will do activities that help them understand URLs and networks.

Note: It is important, when possible, to have youth reflect on the following questions:

- How can I keep safe while using the Internet?
- How can e-mail help me to communicate with others?
- What does the Internet (and the Web) look like?
- What is designed on the Internet (and the Web)?

Glossary

- **Blog.** Blog is short for weblog. A blog is a website on which items are posted on a regular basis. Information is usually displayed in reverse chronological order, so the most recent posts are at the top. Many people use blogs to tell friends about their lives or to comment on issues in the news. Readers of blogs can also make comments on the blog.
- **Chat.** Chatting is a way of "talking" with someone who is online at the same time as you. You use a computer program to send typed messages back and forth to each other. It's like having a conversation, but it's all typing instead of talking. Often you can chat with more than one person at a time in a "chat room."
- **Client.** A computer and application that requests services or information from another computer. E-mail and the Web are examples of a client/server relationship. The client (your computer with an application
(this can be an e-mail program or web browser application on your computer) requests e-mail or information from a website from an appropriate server (e-mail server or web server on another computer).
- **Domain name**. After www comes the domain name—so for the Yahoo domain, you go to http://yahoo.com. Sometimes there will be two names, separated by periods, like http://kids.yahoo.com. The domain name indicates which computer hosts the website (where it lives).
- **Download.** Downloading is receiving information from a remote computer system. For example, you might download a chat program like Yahoo! Messenger from yahoo.com. That means you will take the program from Yahoo's website and put it on your computer.

- **E-mail**. The exchange of electronic messages and computer files between computers that are connected to the Internet or some other computer network. E-mail messages require an e-mail application and e-mail server.
- **E-mail address.** An e-mail address is a location to which electronic mail can be sent. It consists of a username and a domain name. These are connected by the @ sign. Example: janesmith@hotmail.com. An e-mail is an electronic message. It's like a letter, but it is sent via the Internet.
- **E-mail server**. A computer that distributes and stores e-mail messages for people to view with their e-mail application from their computers (the clients).
- **Filename**. Sometimes a web address will end with the name of the specific file. In this example, it's the index file: http://pbskids.org/dinosaurtrain/index.html
- **Instant message**. An instant message (IM for short) is real time text communication between two or more people through a network such as the Internet. Instant messaging requires an Instant Messenger application.
- **Internet Service Provider (ISP)**. An organization with computers that provides Internet access to many users.
- **Local area network (LAN)**. A computer network limited to the immediate area, usually the same building.
- **Protocol.** Website addresses almost always start with http://. This tells the browser and web server to communicate using Hypertext Transfer Protocol (it's a language that the computer uses).
- **Pathname**. There are often slashes (i.e., /) in web addresses. The slashes tell the computer what path to follow to a specific file. It's basically a way to keep things organized. So all the kids' activities on National Geographic are at http://kids.nationalgeographic.com/Activities/.
- **Post**. Posting is putting something up on a web page, like a blog. For example, you might say, "I posted my pictures from last week's field trip on the school website."
- **Routers**. A computer that finds the best route for a message to take to reach its destination.
- **Software.** Computer program is another term for software. While hardware means the actual parts of your computer, software refers to the programs that live on your computer. Software consists of encoded information, or computer instructions. Microsoft Office is a software package.
- **Spam**. Spam is e-mail that you receive that is unwanted. Usually it comes from people trying to sell you something and is sent to thousands of recipients.
- **Web server**. A computer that serves up web pages for people to view from their computers (the clients).
- **Wires**. The physical electrical lines that connect computers in order to allow information to reach people.

Background

For the Warm-Up, you will need to set up your own Yahoo! e-mail (or other email account) to make sure you can guide the youth through their email setup. Also, before working with the youth set up e-mail accounts for each youth and write down each username and password on an index card, then bookmark the e-mail website on each computer. Follow the same instructions you will give to them in the Warm-Up and Challenge.

For the Challenge, you should make placards for address lines and URL elements. You should also upload the Activity Page "Understanding URLs" onto each computer, in the Unit 2 folder on each computer's desktop. For the Main Activity, you should walk through the "Email and Website Paths on the Internet" activity. In general, to save time, you should prep computers to have bookmarks for email and other websites. You can also write out placards with URL elements on white paper, and use colored paper for network elements for each group of youth. You can use the Activity Page "Facilitator Page: Answer Key" as a guide.

Spend some time doing the following activities yourself before you work with youth:

Learn the Net

Animations of how the Internet works:

http://www.learnthenet.com/english/animate/connect.html

Intel's The Journey Inside

Eight Lessons with visuals on how the Internet works:

http://educate.intel.com/en/TheJourneyInside/ExploreTheCurriculum/EC_TheInternet/

In order to answer participants' questions, to guide them in their learning, or just know what to do next, you need to spend the time to do the following for Unit 2:

- Learn how the Internet works
- Learn what a URL is and the meaning of its components
- Learn how to use various communication tools

Warm-Up

Time: 40 minutes

Purpose: Youth customize their e-mail accounts and practice using new e-mail accounts.

Materials

- Computers with Internet access
- Note cards, with a username and password for each email address (facilitator may hold on to this)
- Additional adult, if possible
- Pens/pencils
- Computer with Internet access connected to projector for facilitator

To Do

1. Tell the youth that today they will each get to customize their own ICT4me e-mail accounts and practice using their new e-mail accounts. Some of the youth may already have e-mail addresses—explain that this address is only for ICT4me activities. They will need e-mail addresses in order to create a blog, as well as for many other ICT4me activities.
2. If possible, have one youth per computer. Have them work in pairs or small groups if there are not enough computers. If youth share computers you will need to repeat this activity until each youth has a chance to customize their email. In this case, one youth at a time will customize and the other should help them.
3. Walk youth through the process of customizing an e-mail account on Yahoo!:
   - Pass out note cards with participants' usernames and passwords. Have all the youth use the same password. It is a good idea to use letters, numbers, and symbols to make the password hard to guess. Try using the first letters of a sentence. For example, "ICT4me is the best" would be "biitb". Then add a number and a symbol—for example, "biitb3!" Have youth record their passwords on the note cards in their design notebooks. It will be easier to keep track of this information if all are the same.
   - Have youth use their browsers to go to mail.yahoo.com.
   - Have youth sign in to their email account using the username and password you provided them with.
   - Walk around the room to check which youth needs help correcting errors.
   - Youth should see a screen that says "Welcome!"
4. Once the youth have accessed their email, collect the note cards with their username and password. Store them in a safe space.
5. Use flipchart paper to create a list of e-mail. Ask each youth to write their e-mail address on it. (You will use this later in the session)
6. If youth are in partners or groups, have them click on "Sign Out" in the top left now.

7. Once all the participants now have e-mail accounts, it's time to learn how to use them. Have youth click "Continue to Yahoo! Mail" in the bottom right corner. (Note: a box may pop up asking if you want to send the information to the next page. Click "continue.")
8. If you would like the youth to have their own passwords, rather than the group password, try giving them a challenge: have them figure out how to change their passwords once their account is created. Hint: When logged in, click on "My Account" (under the login name at the top of the page). They will have to reenter their password. On the screen that appears, click on "Change Password" (in the middle). They will need to enter their current password and the new password twice. Make sure that you know which participants are changing their passwords and ask youth to write down their new passwords on their index card, and in a safe place that they can refer to.
9. Give youth time to customize their accounts. Youth can also go through the Yahoo New to e-mail tutorial. Youth can access this when they sign in to their Yahoo accounts for the first time.
10. Remind them about Internet safety—they should not reply to any e-mails from strangers.
11. Walk around the room to make sure all youth are logged into their e-mail accounts (one per computer—some youth may need to alternate).
12. Have youth check their Inbox and open the email from Yahoo!
13. Next ask youth to send an e-mail to a friend.
    - Have the youth click on "Compose."
    - Have youth ask the youth or group next to them for their e-mail address (i.e. firstname2007@yahoo.com). Enter this address in the "To" field.
    - Make sure youth enter a subject for the e-mail in the "Subject" line.
    - Youth then write an e-mail message in the textbox and click "Send." Show youth that if they want to use different colors and fonts, they can use the toolbar above the message composition box.
14. Have youth send e-mails to each other, to you, to the other program facilitators, etc. Circulate around the room, helping them to check mail, send, make an address book, etc. Make sure that youth sharing computers take turns.
15. Wrap up by asking the youth what they like and don't like about sending e-mail.

Challenge

Time: 30 minutes

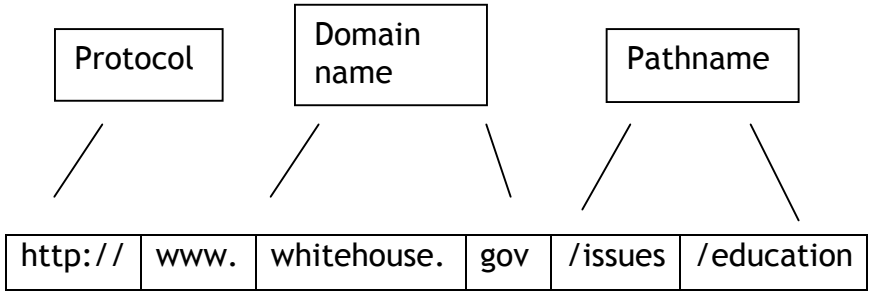
Purpose: Understand what a URL is.

Materials

- Activity Page: Understanding URLs (Electronic activity)
- Computers with Internet access
- Diagram of URLs (See To Do #7) on a chart, board, or PowerPoint
- 20 Placards

To Do

1. Before the session, using placards, write the elements of a postal address, one element per card. For example: (1) Name, (2) Street address or PO Box, (3) City, (4) State, (5) Zip Code, (6) Country (Suggestion: Color-coordinate the placards so that city, state, and zip code are all the same color because they all go on the same line.)
2. Have six volunteers, each holding a placard, assemble themselves into the correct order for mailing a letter. In other words, what comes first, second, etc.
3. Have the larger group (1) let them know if they are in the right order, and (2) discuss why it is important to have the right format on a letter. (Makes it easier for computers and people to read the address and accurately route the mail.) What happens if there is a piece missing or it's not in the right order? (Mail may be returned if you have written your return address correctly or may not be delivered to anyone.)
4. Use a web browser and projector to show youth how to type in a URL and go to a web page. You can use the Understanding URLs for ideas of websites to visit. Go to a variety of types of organizations (e.g., .org versus .com versus .net).
5. Distribute the Understanding URLs worksheet to the youth. Ask the youth to look carefully at the list of URLs on the activity, and try to figure out the similarities and differences in the addresses. Tell them that unlike last week, when they looked at the design of different websites, this week they are focusing on the addresses.
6. As a group, have the youth share some of their thoughts on the similarities and differences in the addresses. Note them on the board.
7. Tell the youth that they have been describing URLs (pronounced "U-R-L," not "erl"). URL stands for Uniform Resource Locator and it is the official name for a web address. URLs have specific parts that tell the computer exactly which file you want to look up. Use the following diagram (reproduced on the board or a poster) to help explain the concepts to the youth (further explained below):



- **Protocol**. Website addresses almost always start with http://. This tells the browser and web server to communicate using Hypertext Transfer Protocol (it's a language that the computer uses). Ask youth to think about how people use languages to communicate—even slang helps groups communicate quickly.
- **WWW**. Stands World Wide Web. Some web addresses (but not all) have www after http://. It indicates that the resource is on the Web.
- **Domain name**. After www comes the specific domain name—so for the Yahoo domain, you go to http://www.yahoo.com. The domain name indicates which computer hosts the website (where it lives).
- Websites have a **.com**, **.org**, **.gov**, or other ending depending on whether they are a **com**pany, nonprofit **org**anization (like Girls Inc.), **gov**ernment organization, or **edu**cational organization, to name a few.
  - **.com**. Usually a business (like Discovery Kids, http://kids.yahoo.com)
  - **.org**. Usually a nonprofit organization (like Girls Incorporated, http://www.girlsinc.org)
  - **.gov** or **.us**. A government site (like the White House, http://www.whitehouse.gov)
  - **.edu**. An educational organization (like the Exploratorium, http://www.exploratorium.edu)
  - **.k12.ca.us**. This URL indicates the site is for a K-12 school in California in the U.S. All public K-12 schools in the U.S. follow this pattern (like their school – use their school's URL. Oakland Unified School District, http://www.ousd.k12.ca.us)
  - Other countries have their own endings: .mx is Mexico, .es is Spain. (You might ask youth to look up their country of origin or their family's.)

8. Have youth return to the electronic activity to look at the different URLs. Ask them for the name of the site that is a government site; a site from a country other than the U.S., etc.

- **Pathname**. There are often slashes (i.e., /) in web addresses. The slashes tell the computer what path to follow to a specific file. It's basically a way to keep things organized. So all the kids' files on www.nationalgeographic.com/kids are in the kids' folder.

- **Filename**. Sometimes a web address will end with the name of the specific file. In this example, it's the index file.

9. Using the same placard model, put youth into groups of four (or more if your URL is a long one) to assemble the URLs. Once again, try using colored placards to show which pieces go together. For example, in the URL below, /issues and /education are both pathnames.

http://	www.	whitehouse.	gov	/issues	/education

10. Once each group is ready, have the larger group (1) let the youth know if they have assembled the URL in the right order, and (2) discuss why it is important to have the right order and spelling. [Makes it easier for the computers to read the URL and accurately direct the person to the right web page.] What happens if there is a piece missing, a misspelling, or it's not in the right order? [Takes you to a different page than you intended, including one that says "Can't find the web page."

Main Activity

Time: 40 minutes

Purpose: Youth create a model of what the Internet looks like based on what they learned from the animations and images. The youth use this model to demonstrate how an e-mail is sent and how a website is displayed.

Materials

- Colored pieces of paper for youth to write the elements of the network:
  - Client
  - Web server
  - E-mail server
  - Router
  - ISP
- "Clue" cards or glossary list with definitions of each of the network elements above plus request, image file, and wires/connections
- Twine or yarn—(have plenty of it so the youth feel like they can model lots of connections if they choose to)
- Masking tape
- Scissors
- Pens

To Do

1. Start with the essential question: What does the Internet look like? Get youth thinking about what they've learned so far about what the Internet looks like and what it does.
2. Explain to the youth that they will create a physical model of the Internet by demonstrating how e-mail is sent and web pages are viewed. (Brainstorm using sketches and built it using twine and colored paper, demonstration with youth as the youth acting out a client request).
3. Introduce the glossary. The words and their definitions can be on clue cards or just in a glossary list (knowing these terms are essential in making the network model):
   - **Client.** A computer that sends requests or information to a server. Hint: The Internet uses a client-server architecture. Personal computers are often clients when they send e-mails, access a web page, or use other communication technologies on the Internet.
   - **Server.** A computer that responds to requests from clients by giving information or resources requested. A web server "serves up" web pages to clients; an e-mail server "serves up" e-mail messages to clients. Hint: The Internet uses a client-server architecture.
   - **Request.** A message sent from a client to a server for some information or to complete a task. Hint: Sending an e-mail or using a URL to access a website involves a request.

- **Router.** A computer that finds the best route for a message to take to reach its destination. Like an air traffic controller, it determines the best path and sends the message on its way. Hint: There are lots of routers on the Internet so that if one is unavailable or broken, information still flows.
- **Image file.** There are several image file formats that allow photographs and other graphics to be easily sent via the Internet. JPEG, TIF, and GIF are common formats. Images can be stored on either a client or a server. Hint: When you send e-mail with an image attachment, the image resides on the client. When you are sending a request to view a web page with images, the images reside on the server.
- **Wires or connections**. The physical electrical lines that connect computers in order to allow information to reach people. In some parts of the network, there are no physical wires, for example, when satellites are involved in sending information or when a wireless network is being used.
- **ISP.** Internet Service Provider. An ISP is an organization that provides access to the Internet for users (individuals or companies).

4. Split youth into groups of 5-7 youth. Explain that each group will create a model of the Internet to demonstrate how their message or web page would travel. The model must include the following elements:
   - Network Connections/Wires (if youth want to include satellites as well, that's fine.)
   - Client (personal computer people use to send messages and access the Web
   - Web server (for web page group)
   - E-mail server (for e-mail group)
   - Internet Service Provider (ISP)
   - Routers

Gender Tips

In co-ed classes, make sure that boys and girls participate equally in whole and small groups.

5. Review with the youth what each of the above elements does. Ask them to **tell** you what it does before they **show** you what it does in the models they are about to build.
6. Youth may need some additional information about routers. Point out to youth that routers **route** information. Take them through the following scenario to solidify the concept:
   - Students are familiar with the difficulties of moving from one place in the school to another when the hallways are full of people. Have them consider the way the school is built and think about the decisions they make when they move from one place to another. What change do they make in their route if they are to take a message from the classroom to the main office as quickly as possible in different conditions:
     a. All classes are in session

   b. No classes are in session and most of the students are in the hallways.
   c. Would they consider an outside route when the hallways are full to get the information to the office faster? Some other shortcut?
   – Another example is the route they choose to go home or go to the park. What path and form of transportation do they take, when do they take it, and why.

7. Youth should brainstorm their network using sketches, then try the twine-colored paper model to represent the connections (twine) and the network elements they need in their network (writing on colored paper): **client**, **web server**, **e-mail server**, **ISP**, **network connections**, and **router**. If you need to save time, write out the network elements for each group while prepping for the activity. Use the "Facilitator Page: Answer Key" as a reference on how an e-mail and website path works.
   - **Client** (You'll need at least two clients to demonstrate e-mail; and one to demonstrate web requests.)
   - **Web server** (You'll need at least one, but many websites have multiple servers to serve up their pages.)
   - **E-mail server** (You'll need two e-mail servers since a message goes to the sender's e-mail server than the recipient's e-mail server before going to the recipient's client.)
   - **Routers** (Many routers can exist on a network to determine the best path for a request.)
   - **Request** (For requests, have one youth represent a web request and another youth represent an e-mail request.)
   - **Image file** (Have one youth represent an image file on a website and another youth represent an image file as an e-mail attachment)
   - **Connections** (Use twine. All youth should help with the connecting.)
   - **ISP** (You'll need at least one, but two or more is more realistic since these organizations enable everyone [e-mail senders and receivers, web requestors and website] to access the Internet.)
8. Once all groups have had a chance to design their network and review the clue cards if needed, they'll create their networks. The networks, we'll imagine, are a part of the Internet. The network, once they build it, should allow for people to do such activities as send e-mail to each other or access web pages.
9. The network should have as many ways as possible for clients to communicate with each other. Have the youth tape the twine to the floor and connect the network elements, as many as they deem appropriate. Encourage youth to create as many communication paths as they wish.
10. During this time, the staff should make observations of the networks to determine whether:
    - Clients are connected to each other *through* servers and routers, not directly to each other.
    - Clients are connected to web servers and e-mail servers, to make as many links between clients as is possible.

- Requests and image files are not part of the network itself.

11. Ask the youth to stay in their groups and keep their network structure. Now, the youth are going to test their network to see how well it works for sending an e-mail or accessing a web page. Groups should make sure they have enough people representing network elements to act out (1) a web request and an e-mail request, and (2) an image file on a website copied to a personal computer and sent via e-mail. Everyone should have a role. Roles should be the elements that travel on the network (i.e. images, web requests, e-mail requests). Once the youth have tried out their network by taking on their roles, the groups will "run" their human simulations for each other as a whole group.
12. Youth will try one of two tasks:
    - **Web simulation**. Show what happens when you download an image from a website.
    - **E-mail simulation**. Send an e-mail with an image file attachment.
    - If youth are confused, try to model a simulation with them on one network with input from the entire group. Then ask youth to come up with a simulation with their own group.
13. As youth run their simulations, there are some key things to look for, which are reflected on the "Facilitator Page: Answer Key."
    - In Simulation 1, the first step should be a request from a client. A youth should be the request from the client, another youth should be the image located on the web server. The request should go get *a copy of* the image off the web server and bring it back to the client. It may be that some groups start the simulation from the server, but the simulation should begin with a request from the client. Youth who are still having trouble understanding the difference between clients and servers may not even place the image file on the server; they may associate the image file with a connection or with a client.
    - In Simulation 2, you can watch for evidence of sending the e-mail and its attached image file through the server, rather than directly to clients. One youth should be the image; a second youth can be the e-mail message. A third youth should be the request to the recipient's e-mail server to get the e-mail message with the image. Youth may also want to be the sender (a person) and the receiver (another person) of the e-mail message. In the case of attaching an image file to the e-mail, the image is on the client. In addition, to provide a correct representation, youth should recognize that sending an e-mail involves going through both clients' e-mail servers. Because this concept is difficult, and may be new to youth in ICT4me, you can tell youth during the reflection that a request is involved when the second client checks their e-mail if they don't include it in their simulation.

Discussion/Reflection

Time:	30 minutes
Purpose:	Youth present their models and reflect on the path an e-mail and web page take.
Materials	Participants' models

To Do

1. Have youth present their models to the large group. Below are some things to look for in each of the models and questions to ask:

E-mail models

- Message sent from one personal computer to another personal computer.
- Users send and view messages in their e-mail client (e.g., gmail)
- Message travels on wires, goes to ISP of sender (which can have the e-mail server), through router(s), and through ISP of receiver.
- If on a LAN, e-mails are sent to computers on the LAN without going through ISP or routers
- Senders and receivers of e-mail do not need to be online at the same time. E-mail messages are like voicemail – they are not intended to be received in real time although this can sometimes happen.
- If there is an element missing, ask youth about it:
    a. What happens if the LAN's connection to the Internet is disconnected?
    b. What happens if the ISP is not working?
    c. What happens if…

Website models

- The person who wants to see the web page sends a request (i.e., types the address, the URL, into a browser) to call up the page from their personal computer. The request does not have much data so it goes quickly through ISP to web server.
- The requested web page then travels back through the Internet to the requestor's personal computer to be displayed in the browser.
- The Web is a network within the Internet.
- If there is an element missing, ask youth about it:
    a. What happens if the web server isn't working?
    b. What happens if a router isn't working?
    c. What happens if…

2. **IMPORTANT:** Once you have gone through the models, ask the youth to imagine that all of their networks are combined and all the messages are going at the same time. How are the different elements handling all this activity?
    a. What happens if this wire breaks? [Demonstrate by pointing to a specific connection]
    b. What happens if this [router, ISP, personal computer] goes down? Demonstrate physically.

Week 3: Internet Safety & Design

Summary

Schedule

Warm-Up	Youth will watch "Eva's Story" and discuss how to keep their information private. Youth will brainstorm an Online Safety Agreement and sign it.	20 min
Challenge	Youth compare and learn the difference between real-time exchanges (synchronous) to saved or posted messages (asynchronous).	40 min
Main Activity	Youth identify advantages and disadvantages of various communication tools.	50 min
Discussion/Reflection	Youth reflect on the safety of communication tools.	20 min
Total Time		**2 hr 20 min**

Essential Questions

- How does the form of a communication tool relate to its function?
- How does information travel on the Internet?
- How does your audience and the intent of the communication affect your technology choices?

Design Process Concepts Involved

- Research it
- Brainstorm
- Sketch it
- 

Materials

- Chart Paper
- Paper and pens
- Computer connected to overhead so whole group can see demonstration of accessing sites (Nice to have, but not required)
- Venn Diagram from Week 1 (save this again for Week 8)
- Computers with Internet access
- Placards
- Electronic Activities: How the Internet Works and Understanding URLs. Make sure to load these documents onto all the computers before this session.
- Privacy Scenarios (see Common Sense Media PDF Handout: Privacy Student Discussion Guide). Prepare 1 scenario for each group of 4 youth.

Getting Ready

Overview

In Week 3, youth learn about Internet safety and how to effectively use online communication tools. Youth learn about two distinct forms of communication (synchronous and asynchronous) and brainstorm advantages and disadvantages of communication tools.

Glossary

- **Synchronous.** Real-time communication, such as chat and IM, in which both the sender and receiver of the information are online at the same time sending messages to each other.
- **Asynchronous.** Delayed communication, such as on discussion boards. The sender and receiver of the messages do not need to be online at the same time to receive each other's messages.
- **Blog.** Blog is short for weblog. A blog is a website on which items are posted on a regular basis. Information is usually displayed in reverse chronological order, so the most recent posts are at the top. Many people use blogs to tell friends about their lives or to comment on issues in the news. Readers of blogs can also make comments on the blog.
- **Chat.** Chatting is a way of "talking" with someone who is online at the same time as you. You use a computer program to send typed messages back and forth to each other. It's like having a conversation, but it's all typing instead of talking. Often you can chat with more than one person at a time in a "chat room."
- **Client.** A computer and application that requests services or information from another computer. E-mail and the Web are examples of a client/server relationship. The client (your computer with a corresponding application (e-mail program or web browser) requests e-mail or a website from the appropriate server (e-mail server or web server).
- **Collaborate.** To work together with others to achieve a common goal, such as developing an idea, creating a product, or agreeing on a course of action.
- **Domain name.** After www comes the domain name—so for the Yahoo domain, you go to http://yahoo.com. Sometimes there will be two names, separated by periods, like http://kids.yahoo.com. The domain name indicates which computer hosts the website (where it lives).
- **Download.** Downloading is receiving information from a remote computer system. For example, you might download a chat program like Yahoo! Messenger from yahoo.com. That means you will take the program from Yahoo's website and put it on your computer.

- **E-mail.** The exchange of electronic messages and computer files between computers that are connected to the Internet or some other computer network. E-mail messages require an e-mail application and e-mail server.
- **E-mail address.** An e-mail address is a location to which electronic mail can be sent. It consists of a username and a domain name. These are connected by the @ sign. Example: joesmith@hotmail.com. An e-mail is an electronic message. It's like a letter, but it is sent via the Internet.
- **E-mail server.** A computer that distributes and stores e-mail messages for people to view with their e-mail application from their computers (the clients).
- **Filename.** Sometimes a web address will end with the name of the specific file. In this example, the filename indicates that it is a page on how to create good filenames: http://www.thesitewizard.com/webdesign/create-good-filenames.shtml
- **Instant message.** An instant message (IM for short) is real time text communication between two or more people through a network such as the Internet. Instant messaging requires an Instant Messenger application.
- **Internet Service Provider (ISP).** An organization with computers that provides Internet access to many users.
- **Local area network (LAN).** A computer network limited to the immediate area, usually the same building.
- **Online forums or discussion boards.** A place for users to post questions or comments. Other users then reply to these posts to create an online discussion. The discussion posts are stored and sorted chronologically to form threads.
- **Protocol.** Website addresses almost always start with http://. This tells the browser and web server to communicate using Hypertext Transfer Protocol (it's a language that the computer uses).
- **Pathname.** There are often slashes (i.e., /) in web addresses. The slashes tell the computer what path to follow to a specific file. It's basically a way to keep things organized. So all the kids' activities on National Geographic are at http://kids.nationalgeographic.com/Activities/.
- **Post.** Posting is putting something up on a web page, like a blog. For example, you might say, "I posted my pictures from last week's field trip on the school website."
- **Routers.** A computer that finds the best route for a message to take to reach its destination.
- **Software.** Computer program is another term for software. While hardware means the actual parts of your computer, software refers to the programs that live on your computer. Software consists of encoded information, or computer instructions. Microsoft Office is a software package.
- **Spam.** Spam is e-mail that you receive that is unwanted. Usually it comes from people trying to sell you something and is sent to thousands of recipients.
- **Web server.** A computer that serves up web pages for people to view from their computers (the clients).
- **Wires.** The physical electrical lines that connect computers in order to allow information to reach people.

Background

To prepare for this week, you'll want to spend some time using the communication tools featured this week. You'll need to understand their main purpose and how to use them. Spend some time familiarizing yourself with the tools so you can troubleshoot with the youth.

You'll want to use chat, discussion boards/forums, groups, and comment wall or status message when the youth compare tools. Pay attention to how these tools are similar and different.

Spend the time to do all the activities in order to become comfortable with the concepts as well as facilitation. Plan to spend a couple of hours preparing for Week 3 if you are not familiar with the Internet-based communication tools. You may spend less time if you already use these tools.

In the Warm-up you will show "Eva's Story", a video about over sharing on the Internet from Common Sense Media. Prior to the activity, make sure you can access "Eva's Story" a video located at: http://www.commonsensemedia.org/educators/lesson/oops-i-broadcast-it-internet-6-8. See videos on the lower right of the page. During the Main Activity, youth will explore communication tools. Be sure to set up the four computer stations. On each computer station make sure that the communication tool is ready to go for that station (For room set up see activity page "Example Station Setup."

To prepare for the Internet safety activities, see the PDF resources from Common Sense Media and go through some of the "Digital Citizenship" links on their website. In addition, there are a number of websites on Internet safety. Check out some of these to familiarize yourself with the issues:

- Common Sense Media's Digital Literacy and Citizenship for Grades 6-8 http://www.commonsensemedia.org/digital-citizenship/6-8#privacy
- http://safekids.com/
- http://www.netsmartz.org/

In ICT4me, we strongly urge you to adopt the rule that the youth should not communicate with anyone they do not know. They can e-mail each other but should not chat or e-mail with strangers. Internet safety is critical, but the idea in this session is not to scare youth. They should recognize that the same things they do to keep themselves safe every day also apply to Internet use. If they are aware, they can protect themselves.

Make sure you know the computer usage policies for the location where you are using the computers (particularly important if you are using a school or library computer lab). The youth should follow their rules as well as any you decide as a group.

Warm-Up

Time: 20 minutes

Purpose:
- Introduce youth to Internet safety.
- Brainstorm about keeping safe.

Materials
- Chart Paper
- Markers
- Privacy Scenarios (see Common Sense Media PDF Handout: Privacy Student Discussion Guide). Prepare 1 for each group of 4 youth.

To Do

(This Activity is written from excerpts of activities by Common Sense Media)

1. Watch "Eva's Story" at: http://www.commonsensemedia.org/educators/lesson/oops-i-broadcast-it-internet-6-8
2. Ask youth about what they saw from "Eva's Story":
   - Do you think it was fair of Eva's friend's dad to look at the chat transcript?
   - What might be the consequences for Eva of her dad knowing about the IM chat?
   - What does Eva mean when she says, "Stuff online is not private"? (Write these comments on the board).
3. Have youth refer to the Venn diagram where they identified different types of communication tools on the Internet (from Week 1, save this again, it will also be used in later weeks).
4. In groups of four, youth will think about possible threats for each of these common communication tools. (i.e. Chat, e-mail, Instant Messaging, Blog)
5. In groups, have youth respond to threat scenarios and decide how to handle themselves if they were in a potential threat. You can provide them with a scenario that you've read from the "Getting Ready links", or see the Common Sense PDF "Privacy Student Discussion Guide".
   - **Note:** If you print out the Common Sense PDF, it is a wordy document with discussion questions from a different video. It would be wise to copy/paste the "Case Studies" found on the PDF for use in this warm-up.
6. Have youth report back to the entire group. Facilitators and youth should compile a list of threats and solutions.
7. Go through the list to make sure youth understand what the threat scenario looks like. Ask youth who came up with the scenario to give an example if other youth don't understand the scenario.
8. After all the threat scenarios are understood, have youth create a list of guidelines to support Internet safety that all youth will sign. Call this "Online Safety Agreements".

9. Discuss with youth how the anytime-anywhere-everywhere nature of the Internet and digital media uploaded onto the Internet requires responsible choices.
10. Ask youth what type of information do they consider private, or important? List their responses on the board next to their Online Safety Agreements.
11. Ask youth to draw lines between the lists of thing they consider private (called safety considerations) and how it is protected on their Online Safety Agreements list.
12. It is important that everyone understands the connections, how their privacy considerations are connected to the group agreements. Check to see that youths' safety agreements have considered all that they have considered private.
    - Examples of privacy considerations and links to agreements:

Safety Considerations	Online Safety Agreements
• Identity: i.e. Full name, age, location	• Do not give out personal information through chat, email, or posting on walls/forums/discussion boards
• Love life information: i.e. My crushes, who I'm dating	• No gossip, do not forward or post any one else's information if they told you with confidentiality in mind.
• My feelings	• Golden Rule: Treat others like how you would want to be treated. Don't say or post hurtful comments about others.

13. Discuss how to protect youths' privacy if links are missing between youths' safety considerations list and the online safety agreements list.

Challenge

Time: 40 min

Purpose:
- Youth compare and learn the difference between real time exchange (synchronous) to saved or posted messages (asynchronous).

Materials
- Poster
- Pens
- Note cards (different color than poster)

To Do

1. Before the session,
    a. Clear wall space and post chart/butcher paper large enough for each youth to post a note card and have space around it.
    b. Make directions for each computer station that lists the name of the station, what communication tool is being looked at, and what website URL to go to.
    c. During the session, be sure to discuss how each station is set up so that youth can reset the station before they leave. Ask youth to "leave a station looking like how they started it". Ask youth to click back on the station bookmark so that the station is ready with a fresh page for the next group.
    d. During the session, walk around visiting each station as youth do the activity. Ask open-ended questions around youths' thinking rather than providing them the answers.
2. Explain to the whole group of youth that each person is going to have the opportunity to respond twice to the question: "If the light (or other object) in our room could talk, what would it say about our group?" If another object is more central or something youth come in contact with frequently, you can use that instead of the light.
3. Pass around two note cards per youth.
4. Each youth should come up with two responses to the above question and write them down on the note cards, one response per card. Ask youth to put their name on each of their cards.
5. Explain to youth that they will share their responses in two ways: on the bulletin board where they post one of the cards, and in going around the room with each one reading the other card.
6. One of the note cards from each youth should be posted on a bulletin board or wall where everyone can see it. Make sure that the wall space where the butcher paper/poster is on has enough writing surface so youth can respond to the cards. Have youth view the cards. Tell them they can write a short response to one post. To help keep things orderly, try the following:

- Facilitator collects the first card youth complete, and posts them on the board. Make sure the board is a writing surface and there is enough space between cards so youth can write their responses on the poster/butcher paper.
- When youth have completed their second card response, have youth ask the Facilitator's approves to comment on the cards posted on the board.
- Allow no more than three youth at the board at any one time.
- When youth are at the board, youth should take time to silently read other posts, and write comments.
- Youth who had their turn writing comments can then get their computers, set it at their desk/station, and rejoin the group.

7. Gather youth back into a group circle. Have each youth read their second note card (the card that was not posted on the board). Allow one or two verbal responses from youth for each card read.
8. Ask youth:
   - Did posting the cards and responding OR reading the cards aloud and responding make it easier to communicate?
   - When would it be helpful to post? [Answer: When everyone cannot be together at the same time. More time is needed for the post and for the response. For example, when you have a particularly long post and you want many people to read it and respond after they think about it.]
   - When would it be helpful to share in real time? [Answer: For a conversation, when you need to have a dialogue about something.]
9. Explain to youth that online both types of communication are possible in several forms. (Point out the glossary words.) These two types of communication are called:
   - **Synchronous**. Real-time communication, such as chat and IM, in which both the sender and receiver of the information are online at the same time sending messages to each other.
   - **Asynchronous**. Delayed communication, such as e-mail and discussion boards. The sender and receiver of the messages do not need to be online at the same time to receive each other's messages.
10. Ask youth what are some possible safety risk scenarios when using:
    - Synchronous (i.e. Strangers asking where their location, strangers constantly messaging about meeting up, people (adults) pretending to be teens, people pretending to be who they aren't.)
    - Asynchronous (i.e. People posting confidential or hurtful information about you for everyone to see, people posting private emails or forwarding to other people to see).

Main Activity

Time: 50 minutes

Purpose: Youth identify advantages and disadvantages of various communication tools.

Materials

- Computers with Internet access
- Comparison Chart of Communication Tools

To Do

1. Ask the group a series of questions to get them thinking about how communication tools are used:
   - If you need help with homework that you have to turn in the next day, what do you do?
   - When you want to plan a birthday party how do you inform your friends about it?
2. Be prepared that most youth will respond: "by telephone, by texting." Redirect them by asking them to think beyond calling a friend and how they could use the Internet to share/or receive information. Ask them how they use the Internet now to communicate with friends and family?
3. Explain to youth that they will use different communication tools and explore the advantages and disadvantages of each of these tools and how to keep safe while using these tools. Youth can refer to safety ideas that they came up with in the warm up activity.
4. Put youth into groups of two or more depending on the number of computers at each station (you can have more than one computer at each station).
5. In groups, youth will explore communication tools at four stations: 1. Chat; 2. Discussion boards; 3. Blogs; 4. Status messages
6. Assign each group one scenario. Youth will use each communication tool to respond to their scenario. They should experience the constraints and affordances of the different communication tool based on their communication needs in their scenario.

Scenarios

- Give a 5th grader advice on entering middle school
- Decide what type of fieldtrips the ICT4me group should go on
- Tell other youth what you did/or will do on your summer vacation
- Plan an event (i.e.: family night, food drive, health fair, toy drive, etc.) and delegate tasks to each youth in the group
- Host a party online

7. Give groups 5-10 minutes to use each tool and fill out the Comparison Chart before moving to the next communication station. Note: Be sure to have the tools set up ahead of time, preferably with bookmarks set up that go to a specific webpage.

8. After youth use each communication tool, they should arrive back to the first station that they started with. Ask youth to share their thoughts on this first tool by asking them to explain their scenario and how did they use this communication tool (this should work out so that each station has youth reporting back about a different scenario).
9. After a group reports their findings hold a short discussion on what others youth thought about the station.
   - Highlight the agreements and differences that the youth have for advantages and disadvantages of the communication tool. Breakdown the type of communication needs addressed with that tool (synchronous vs. asynchronous; one to one, one to many, many to many; visuals, audio vs. text only)
   - Have everyone in the group categorize the different scenarios by communication type (one to one, one to many, many to many) and determine which feature works best for which type of communication tool.
   - Capture what youth are saying on chart paper that has each scenario listed. Make columns similar to the Comparison Chart of Communication Tools, so you can complete it as a group.
10. Explain to youth that people often need to compare tools in order to choose which communication tool to use, or product to purchase. Have them indicate which is the best tool they could use for each type of communication scenario.
11. Engineers also compare features of tools in order to understand which features people prefer. Ask youth to name different discussion boards, chat tools, blogs, and status message tools that they know. What's their favorite? Why?
12. Have youth keep their notes and Comparison Chart of Communication Tools in their design notebooks.

Gender Tips

Remind you of the agreement: 'no yucking my yum.' Commenting that someone's favorite toy is "too girly" or "only for boys" is a 'yucking my yum.' Encourage everyone to appreciate another person's favorite, even if it's not their favorite.

Tech Tips

Have webpages bookmarked in the Internet browser tool bar in preparation for this activity.

Discussion/Reflection

Time: 20 minutes

Purpose: Youth reflect on safety of communication tools

Materials
- Flip chart/whiteboard
- Pens

To Do

1. Ask youth, "Based on our earlier discussion of safety and our recent discussion of communication tools, how do the guidelines/rules that you created earlier apply to each tool?" What are some other safety tips you would give for using:
   - Chat?
   - Discussion boards?
   - Blogs?
   - Status messages?
2. Capture youth thoughts on flip chart or white board
3. When thinking about using a specific communication tool, what do you consider about safety?
4. Ask youth based on this discussion, is there anything they want to update in their Online Safety Group Agreements?

Week 4: Site Visit and ICT Visitors

Summary

Schedule

Warm-Up	• Youth prepare for site visit: they take on roles and tasks.	15 min
Challenge	• Youth research the organization they will visit. • Youth explore related careers. • Youth review their questions for the ICT professionals.	30 min
Site visit Occurs	•	2 hrs
Main Activity	• Youth create ICT professional snapshots.	30 min
Discussion/Reflection	• Youth reflect on the essential questions and the careers they encountered.	15 min
Total Time		**3hr 30 min (or more)**

Essential Questions

- How does the form of a communication tool relate to its function?
- How does information travel on the Internet?
- How does your audience and the intent of the communication affect your technology choices?

Design Process Concepts Involved

- Research it.
- Brainstorm.
- Sketch it.
- Develop designs.

Materials

- 2 Gathering Bags (recycled bags), for Gatherers
- 4 Clipboards, for Interviewers & Gatherers
- 2 Digital Recorders (optional), for Interviewers
- 2 Digital cameras that have filming capacity and 2G SD cards, for each Photographer
- 2 Sets of Colored pencils, for Sketch Artists
- 2 Vellum spiral bound drawing books (or other bound sketch book i.e. sketch/artist pads of paper that are 11”x8.5”), to use as “Innovation Notebooks” for Sketch Artists
- 8 (2 of each role) Site visit Planner “Role Sheets” for “Gatherer, Interviewer, Photographer & Sketch Artist”
- Optional: LCD projector projecting “Role Sheets” for volunteers to read from. If not then all youth should have a copy of all 4 “Role Sheets” to be informed and/or so volunteers can support youth in these roles.

Getting Ready

Overview

Youth learn about an organization by going on a site visit, or an ICT Professional visits the youth in program. Youth prepare questions based on the unit’s essential questions and develop an ICT professional snapshot for Family Tech Night. A picture or capture of the ICT professional snapshot can also be used to send as a thank you to the ICT professionals.

The Warm Up and Challenge are preparation sessions that should be done the week before or week of the site visit (or ICT visitor). The Main Activity and Discussion are for after the site visit. It is important to “bookend” the preparation, and reflection sessions around the fieldtrip so that youth can have a full experience. Complete the Main Activity and Discussion as soon as possible after the site visit. ICT4me Unit 4 has slightly shorter site visit curriculum. The main difference is that Unit 4 needs extra time for preparing the Networked

Classroom of the Future project. Facilitators can make choices about how to organize the site visit prep, site visit, and reflection based on the two site visit sessions written in the curriculum. The most important aspects of a site visit are that youth are intentionally engaged during the trip, meet ICT professionals, and process what they learned on the site visit.

Preparation:

1. Make site visit plans. See the ICT Site visit Packet for details.
2. Make sure it's ok for youth to take pictures at the organization you plan to visit. Learn what is permissible and where they won't be able to take photos.
3. Learn about the organization your youth will visit. Provide pointers appropriate URLs and resources for the Challenge section.
4. If possible, brief ICT professionals about the career-related questions that youth will be asking them. Provide them a list of questions youth may be asking and themes/points to aim to cover during the visit.
5. Make sure that the youth have been assigned defined roles of Gatherer, Interviewer, Photographer and Sketch Artist. Two youth per role, totaling eight youth on the trip.
6. Have two digital cameras.
7. Make sure you collect the digital cameras and the Design Notebooks/clipboards, drawings and interview Q & A directly AFTER the site visit.
8. Prior to the Challenge activity, create a Snapshots document. Go to http://www.engineergirl.org/Engineers/dayinthelife.aspx, the organization's website, and other online resources to prepare a list of snapshots and their URLs in a Word document for youth to explore. These links should be careers related to what they might see on the site visit. Put the list on youths' computers.

Gender Tips

Be sure to prep ICT professional around gendered language, stereotypes, etc. so that they share

Glossary

- **Field notes.** Scientists take notes during or after an observation of a specific event they are studying. These notes are usually very descriptive so other scientists who read the notes can easily recall details or information about the event.

Warm-Up

Time:
- 15 minutes

Purpose:
- Youth prepare for site visit, dividing roles and tasks.

Materials
- 2 Gathering Bags (recycled bags), for Gatherers
- 4 Clipboards, for Interviewers & Gatherers
- 2 Digital Recorders (optional), for Interviewers
- 2 Digital cameras that have filming capacity and 2G SD cards, for each Photographer
- 2 Sets of Colored pencils, for Sketch Artists
- 2 Vellum spiral bound drawing books (or other bound sketch book i.e. sketch/artist pads of paper that are 11”x8.5”), to use as “Innovation Notebooks” for Sketch Artists
- 8 (2 of each role) Site visit Planner “Role Sheets” for “Gatherer, Interviewer, Photographer & Sketch Artist”
- Optional: LCD projector projecting “Role Sheets” for volunteers to read from. If not then all youth should have a copy of all 4 “Role Sheets” to be informed and/or so volunteers can support youth in these roles.

To Do

1. Tell youth that one of their goals for this site visit is to learn about women in ICT careers and they will be sharing what they learned on their site visits with their friends and family at Family Tech Night.
2. Tell youth that to help us create a record of what we saw and learned, we will have roles to play while on the trip. Quickly list the roles to the youth (you will go over these roles in greater detail later on):
   - Gatherer
   - Interviewer
   - Photographer
   - Sketch Artist
3. Youth should interview and interact with 4 or 5 professionals. If there is an ICT professional visitor instead a site visit youth can still interview, but the interview will need to be conducted by the group rather than one or two youth. They should gather the following information through questions about the professionals who they meet:
   - Job title
   - What they do

- What they like about their job
- Their life outside of work
- Their hobbies and interests (current and during middle school, high school, college)
- Their educational background
- Their career path

4. Ask them to gather information or mementos (e.g., business card, brochures, key URLs) on their site visit, so they can create an ICT Professional Snapshot (see Activity Page "ICT Professional Snapshot Template". These ICT Professional Snapshots can be digital if resources and time allow.
5. Define roles and tasks by handing out or projecting specific "Role Sheets". Ask youth to volunteer to read a "Role Sheet." Be sure to ask youth open-ended questions to check for understanding and clarify what this role is asking.
6. It is important to print out "Role Sheets" in color to foster excitement and to meet youths' different learning styles.
7. Discuss the concept of taking "field notes" and why they may be important with any of these roles.
8. In your own words remind youth of the essential questions of the unit. Have them brainstorm questions they have related to these topics to add to the "Interviewer Role Sheet."
9. Pre-assign or ask for volunteers to fill each role, with at least two youth in each role. For the first site visit, pre-assign youth who have exhibited strong leadership, are inquisitive, and looking for an opportunity to learn more. Preselecting the first site visit's set of youth will provide models for youth to follow in future site visits.
10. Discuss with youth who do not have an assigned/volunteered role how they can best support their peers who are in specific roles.

Challenge

Time:
- 30 min

Purpose:
- Youth research organization they will visit
- Youth explore related careers.
- Youth review their questions.

Materials
- Computers with Internet access
- Snapshot document
- Projector connected to facilitator's computer

To Do

1. Show organization's website. Encourage youth to go on a virtual site visit with you to prepare for the real site visit. Show the website pages that feature what the organization does and its key products.
2. Ask youth a few questions about the organization:
   - Do they know the product produced or have they used the product?
   - Has anyone visited the location before?
   - If yes, ask youth what they learned. If not, ask youth what they think may happen at this place, site, and location.
3. Ask youth what professionals they think work at the organization and what they do on a daily basis in their work.
4. Record all participants' thoughts on the board or newsprint sheet to compare to the actual experience they have during the site visit. Save this for later use.
5. Have youth go to their Snapshots document on their computers. (You create the Snapshots documents in the Getting Ready time.) These links are careers related to what youth might see on the ICT professional visit.
6. Ask youth to go to the website on their computer and find a career they think they might learn more about
7. Ask youth to write three questions that they have now that they've learned something about the organization, its products, and the types of careers they might encounter.
8. Ten minutes before session is over make sure that the interviewers have these questions. Check in to see if specific youth want to ask their questions.

Gender Tip

In co-ed settings, foster a balance of both boys and girls sharing out and asking questions of the ICT professional.

Main Activity

Time:
- 45 minutes

Purpose:
- Youth create ICT Professional Snapshots. (This activity can happen if youth met ICT professionals during the site visit, or after an ICT professional visit)

Materials
- ICT Professional Snapshot template on flip chart paper
- Pens and markers
- Tape
- All materials collected during the site visit
- Notes from the Challenge that captured youths' thoughts about what they might see on the site visit
- Scissors
- Glue

To Do

1. Ask youth: Who did we meet on the site visit? ***Or*** who came to visit? Capture the names of the ICT professionals on a flip chart or board.
2. Ask youth: Of these people, who do we have pictures for? (Mark a "P" next to the name that youths say they have pictures for) Who did we interview? (Mark an "I" next to those people's name).
   - Everyone who has an "I" and a "P" should have an ICT professional Snapshot developed. There should be at least 4 or 5 professional snapshots that the youth can work in teams to develop. If needed, youth can use profiles they liked on http://www.engineergirl.org/ or other websites with relevant careers as well.
3. Have youth work in teams, with each team member having captured the same ICT professional and having different roles. Or there can be teams of interviewers, gatherers, sketch artists, and photographers who cycle through to each snapshot, putting up what they have for each person.
4. See the ICT Professional Snapshot template in the Activity Pages for all the elements and rough layout of directions for creating a large Snapshot on a flip chart page.

Discussion/Reflection

Time:	• 15 minutes
Purpose:	• Youth reflect on the essential questions in relationship to the careers and products that they encountered.
Materials	• None

To Do

1. In the products that you saw in the site visit [name a product], what did you learn about the relationship between the form and the function of this product?
2. Was there anything that surprised you about these tools?
3. What did you learn about the people who design and develop these tools?
4. From observing how these tools work, did you learn anything new about how information travels on the Internet?

Week 5: Cyberclub Creation!

Summary

Schedule

Warm-Up	• Explore how information travels on the Internet.	15 min
Challenge	• Youth are introduced to a social network site with an online group collaboration tool through a facilitator led walk-through • Youth are introduced to Cyberclub Space Design Requirements and begin brainstorming.	45 min
Main Activity	• Youth finish brainstorming and begin building their Cyberclubs	55 min
Discussion/Reflection	• Youth discuss the communication tools they used and how to protect against cyberbullying.	15 min
Total Time		**2 hr 10 min**

Essential Questions

- How does the form of a communication tool relate to its function?
- How does information travel on the Internet?
- How do your audience and the intent of the communication affect your technology choices?

Design Process Concepts Involved

- Research it.
- Define the problem.
- Brainstorm
- Sketch it.
- Develop designs.
- Build it.
-

Materials

- Design Notebooks
- Venn Diagram created during Week 1
- Computers with Internet access
- Cyberclub Design Requirements
- The Design Process Poster
- Chart Paper
- Markers
- Social network site with group capabilities
- Overhead projector connected to computer
- Activity Pages handouts

Getting Ready

Overview

During this session youth will refresh what they learned about how information travels on the Internet, be introduced to creating a Cyberclub and re-discuss the concepts of one-to-one, one-to-many, and many-to-many relationships (communication paradigms). The Warm-Up is challenging. For a successful Warm-Up, please make sure you are very comfortable with the goals, rules, and explaining to the youth how to maneuver in the game. Also be prepared to lead a discussion of how the activity relates to how web pages are accessed on the Internet.

In the Challenge youth are introduced to their Cyberclub Design Requirements and develop a design plan through brainstorming activities. In the Main Activity youth begin creating their cause-oriented Cyberclubs while paying attention to privacy. Youth will also upload pictures to their collaboration space. Note that you and/or youth need to place images on the computer in order to upload them to the collaboration space. Check the computers you are using beforehand. Remind the youth not to add pictures of themselves—they can add pictures of places they like, animals, etc., but nothing that would count as personal information that others could use to identify them. In the Discussion/Reflection youth

reflect on the communication paradigms and the communication tools they chose to include in their Cyberclubs.

Glossary

- Collaborate. To work together with others to achieve a common goal, such as develop an idea, create a product, or come to an agreement.
- Collaboration Space. Provide tools that allow people to communicate and work together. Online collaboration spaces can be as large as a social network site or as small as one online group.
- Copyright. A copyright is the right of an author, artist, publisher, and photographer to retain ownership of works and to produce or contract others to produce copies.
- Cyberbullying. "Cyberbullying" is when a child, preteen or teen is tormented, threatened, harassed, humiliated, embarrassed or otherwise targeted by another child, preteen or teen using the Internet, interactive and digital technologies or mobile phones. When an adult is bullied it is usually called harassment.
- Internet privacy. The ability to control what information one reveals about oneself over the Internet, and to control who can access that information.
- Online groups. Members of a club or organization are connected to each other via the Internet with a specific location where they communicate with each other and work together.
- Social network. The connections between people, such as how you are connected to people through friends of friends. People can use their social network connections to get in touch with things they need, for example if you ask a friend “Do you know a DJ I can hire for my party?” you are using your social network to find what you need.
- Social network site. A website that provides tools and technologies that make it possible for a community of people to interact and communicate online, e.g., people who share interests and/or activities. Social network sites are synonymous with the term online communities.
- Social network technology. A social network site usually has technology to help organize connections between people. Facebook is an example of a social network site that uses different technologies—like collections of user profiles, applications, and a variety of communication tools.
- Tagline. A short statement or motto that defines or represents an organization’s mission.

Background: Communication & Computing Paradigms

As you know from Week 3, one-to-one, one-to-many, and many-to-many are three major computing and communication paradigms for the Internet. In the discussion youth will reflect on their Cyberclub experience and discuss some communication tools. Display the Venn Diagram used in Weeks 1 & 3 so youth can refer to it, and be familiar with communication paradigms concepts to guide the discussion.

Cyberclubs & Online Collaboration

Social networking sites provide users with communication (chat, blog, wall post, activity update) and collaboration (groups, forum, events) tools. These tools enable people to post information about themselves (one-to-many) and to collaborate with others (many-to-many). For example, professionals can work on a presentation together and youth can create an online club to address a community issue.

There are several online social network site developed for anyone who wants to create a social network. At the time we wrote this curriculum, the following social network sites with group features are available: Ning (ning.com); Google Groups (groups.google.com); Mightybell (mightybell.com); and Yuku (yuku.com). Choose one of these or another that you find.

For youth to create their own Cyberclubs, facilitators need to select a social network site that has group features. In other words, the site needs to have features to create an online group space for invited people to work together. Please use the following guidelines for choosing a social networking site where youth can create a Cyberclub. The Cyberclubs that youth create need to have:

- Asynchronous features such as Discussion Forum, Wall posts, Notes and/or Messaging
- Synchronous features such as Chat
- File & Photo sharing
- Privacy options so that particpants' information and creations do not go public
- It's nice, but not necessary, to have customization features for the look and feel so that youth can make the spaces represent their personal style.

Youth will be able to customize these groups in order to create a Cyberclub for club members to work or play together for a common purpose. The Cyberclub Design Requirements provide guidelines for the youth to create their online Cyberclubs. The idea of creating clubs or Cyberclubs is to focus on the process of creating an online space to interact. This requires both technology familiarity and an understanding of social interactions. Exploring these online spaces gives youth experience using communication tools and an opportunity to understand their affordances, similarities, and differences.

The chat features on social networking sites can be very popular with youth. You will want to establish some ground rules about use of the chat—it could be useful to make "Chat Group Agreements" with the group. Specifically, youth may need a reminder to treat everyone with respect, including people who are a part of the chat or who may be mentioned in the chat. (See the list of sources on Privacy)

To confirm the participants' safety and privacy on a social network, check the following:

1. Participants' identification are kept private—meaning that there is no way for someone outside of your organization or club to personally identify or find youths' contact information from information listed on the website.

2. Youth cannot engage in chat with random people online. Chat features are limited to specified group spaces that facilitators can monitor.

Preparation for Cyberclub collaboration:

For the Challenge

- Have computers with Internet access for each group.
- Choose an online social network site and do any set up work you need to for the youth to explore the features.
- Create pairs for youth to work together as a group. Consider how best to pair youth. Consider group dynamics and working styles carefully when choosing how to pair the youth.
- Make sure youth have access to an email account. Youth can use the same accounts they created earlier in the unit.
- Have your site's space ready in the online social network site and viewable on your facilitator computer. Also have the projector ready to display the online social network site to the youth.
- Have youths' computers at each group's "station", but make sure the computer is turned off.
- Become comfortable enough with the online social network site to lead a demonstration to the youth.

Preparation for the Main Activity

- Have your site's space ready in the online social network site and viewable on your facilitator computer. Also have the projector ready to display the online social network site to the youth.
- Have the youths' stations set up. Make sure youth have their Design Notebooks with their notes and sketches and the Cyberclub Design Requirements in front of them for reference. They may also need their completed Designing Your Cyberclub handout.
- Have a list of the students' email accounts for facilitator reference. Or if you think youth have forgotten their email account information have usernames and passwords readily available on note cards.
- Become familiar with the idea of "copyright" and permission for image usage on the Internet. See, http://www.copyrightontheinternet.com/
- Create a group folder on each of the computers' desktops. Youth will use this folder to save their Cyberclub's images.

Additional Resources:

- Privacy Introduction: http://www.commonsensemedia.org/educators/lesson/privacy-rules-3-5
- Privacy for Teens: http://www.commonsensemedia.org/educators/lesson/whats-big-deal-about-internet-privacy-6-8
- Cyberbullying: See http://stopcyberbullying.org

- Gmail sub-account: See http://www.worldstart.com/tips/tips.php/3746
- Copyright: See http://www.copyrightontheinternet.com/

Warm-Up

Time:
- 15 minutes

Purpose:
- Hands-on experience with how a web page travels through the Internet.

Materials
- Two copies each of two simple pictures
- Cardboard to use as stepping-stones
- Four picture frames (to fit the pictures)

To Do

1. Begin by asking the youth if they know how the information on web pages arrives on their computers. Allow the youth to make some guesses.
2. Tell them you are going to play a game to learn about how web pages get from one location (sometimes all the way across the world!) to their computers at home and at school.
3. Tell them they are going to act like routers, which are machines that transfer data from one place to another. Two friends, each of whom has a blog, live far away from each other—one is in California and the other is in New Jersey. They want to read each other's blog to catch up. How will they get the information from one side of the country to the other?

Around the Corner

1. Set-up: For this activity, you'll need a large room, or a room and a hallway, or the like.
2. You will need to set up the picture frames and pictures ahead of time. One copy of each picture should go in a picture frame. The other should be cut into a puzzle with five to eight pieces. The puzzle should be laid on top of the matching framed picture.
3. Place a framed picture with the puzzle on top and an empty frame in each area, as far from the door as possible (i.e. two corners of the large room that are farthest from the door, if you have a room and a hallway have one team/frame start in the hallway and the other in the room). Place "stepping-stones" (pieces of cardboard), spaced a couple feet apart, on the floor in a path from the door to each puzzle. The two pathways will meet at the door.
4. Tell the youth that they will play a game in two teams.
5. The objective of the game is for each team to share their picture with the other. Teams will be moving their pictures simultaneously. In the game, the picture is something each of the youth has put on their blog and wants the other youth to see. They have already exchanged URLs, and now the "data" needs to travel to the other team's browser, represented by the empty picture frame.
6. Divide the group into two teams.

7. Tell each group that they are starting at a table that represents their computer. Their goals are:
    a. To get rid of all their own puzzle pieces by transferring it to the other team's computer
    b. To make sure they receive all the other team's puzzle pieces
    c. Go back to their computer to reassemble the other team's puzzle on the empty frame.
8. Gather both teams and explain the rules: One person can carry only one puzzle piece at a time. The only way to travel to the other browser (table with frame) is to step on the stepping-stones. Also, teammates cannot pass one another—meaning once one youth is ahead on a stepping-stone another youth on the same team cannot go forward and pass them—but they can pass youth on the other team. The only way for a puzzle piece to move is to be carried or passed between teammates from the same team that the puzzle started on. Once a puzzle piece moves forward, it may not move backward. If any of the rules are broken, everyone on both teams must start over.
9. The two teams must strategize with each other before starting if this activity is going to work, but they must figure this communication piece out for themselves!
10. Note for the facilitator: A successful game will look like the youth communicating on how to move on the stepping-stones. Youth should figure out that they have their initial teammate move several stones ahead and the rest of the team to follow (with their respective puzzle pieces). The youth will then continue to move forward stone by stone until they reach the door—the door is the halfway marker for the pathway. At the door the youth from opposite teams can maneuver around each other. Make sure youth from the same team do not pass their own teammates: youth can only pass other youth from the opposite team. Youth cannot share the same stepping-stones. Once youth place all of their image pieces on the other team's computer they can maneuver back to their computer. The game will take some time to figure out, so encourage the youth to use trial-and-error problem solve.
11. Once the youth have all the other team's puzzle pieces, they must reassemble them in their picture frame (representing the browser).
12. When finished with the game, lead a discussion on how a webpage travels. There are different ways to depict how a web page travels. The important points to cover with the youth are:
    - The code and materials of a web page exist on a server (a computer) where the user created it (the original framed picture is like the server in this game).
    - For most web pages, the person who is just viewing the web page in a browser cannot make changes—you have to have the original on your computer to make changes.
    - The page has an address: a URL (the location where the puzzle started).
    - A website is a collection of web pages (if they'd had to transport multiple puzzles, they might have made up a whole site).

- A browser (e.g., Google Chrome, Firefox) allows you to call up this address and view the web pages on your computer. (The empty picture frame is the browser—it's where the pieces of information get reassembled.)

Challenge

Time:
- 45 minutes

Purpose:
- Youth are introduced to an online social network site where they can create their Cyberclub through a Facilitator-led walk-through.
- Youth are introduced to Cyberclub Space Design Requirements and begin brainstorming.

Materials
- The Design Process Poster
- Computers with Internet access
- Designing Your Cyberclub handout
- Ideas for Possible Clubs
- Overhead project with computer
- ICT4me Notebooks
- Cyberclub Design Requirements

To Do

(25 mins) Intro to Online Social Network Space

1. Place youth into their Cyberclubs pairs and ask them to sit at their computer stations. Remind the youth to keep their computers off.
2. Tell the youth that this station and this partner will be the set up and groups they will work on for the remainder of the Unit.
3. Let youth know that they will be participating in an online community through a social network site. Introduce the concepts of Social Networks and online communities. Ask the youth who they think are in their social networks?
4. Let the youth know you will give them time to explore the website in-depth later in the session but for right now they should pay attention to what you will show them. Lead the youth through a short (less than five minute) introduction of the online collaboration space by showing them the general layout of the website, and quickly glancing over some of it's general features.
5. Then ask youth to turn on their computers and join as members. You will need to invite youth and add them as members.
6. Ask the youth to follow along:
   - Show youth your user page, and emphasize that your user page can be accessed by your friends in the network, but cannot be seen by others outside of the network. Describe Internet privacy.
   - Emphasize privacy by asking the youth "What do you NOT want strangers to know about you?" and "Why is it important to keep your information private?"
   - Next, explain one asynchronous and one synchronous communication tool (of your choice). Choose one asynchronous and one synchronous feature in the collaboration tool to show the youth.

- When going through the communication tools, emphasize responsible and respectful communication, for example by asking, “Think of how anyone can see wall comments, what kind of wall post would hurt your feelings or make you mad?” “What kind of things should you not say on a wall post that everyone could see?”

(20 mins) Cyberclub Design Requirements and Beginning Brainstorm

1. Show youth the Cyberclub Design Requirements. Go through the requirements together and answer questions. Note: Youth will host an online gathering later in the unit; design requirement #3 “From hosting a gathering” refers to when they will do this. Let youth know that they will host an online gathering and these requirements will be clearer to them later on. Having an enlarged version of these requirements at the front of the room may be helpful. Youth also can have a sheet that they keep in their Design Notebooks.
2. In their Cyberclub pairs, ask youth to think about the purpose of their club. Remind them that this is the “Defining the Problem” step in the design process (see the Design Process poster, found in the Intro to ICT4me website)—what problem will their club address? Why do people need their club?
3. Have the youth use the Designing Your Club handout to organize their ideas. If they go beyond the Designing Your Club handout, partners can sketch their plan.
4. Facilitators should check on groups individually, signing off if their brainstorm is complete. A complete brainstorm should include a cause that the club is addressing, and a name for their club.
5. Let youth know that they have to get facilitator approval before they can begin creating their own space. Walk around and check to see that youth have a plan before letting them back online to implement it. Tell youth that designers spend a lot of time thinking through the plan.
6. Youth may want to spend some more time researching example groups online or continue exploring the online social network space you’ve set up for them. Be sure to remind them of the safety policy and appropriate computer use.

Main Activity

Time:
- 55 minutes

Purpose:
- Youth finish brainstorming and begin building their Cyberclubs. Youth add pictures to their Cyberclubs. Youth choose communication tools to use in their clubs.

Materials
- The Design Process Poster
- Computers with Internet access
- Designing Your Cyberclub handout
- Possible clubs
- Overhead project with computer
- ICT4me Notebooks
- Cyberclub Design Requirements

To Do

Building Online Collaboration Space - Day 1

1. Have youth get into their Cyberclub pairs and ask them to sit at their computer stations. Remind the youth to keep their computers off.
2. Remind the youth about privacy, ask them to describe a scenario that can happen if a stranger found out their personal information.
3. Ask the youth about online collaboration spaces, what did they learn from the challenge? What did they learn about asynchronous and synchronous communication?
4. After short discussion have youth turn on their computers. Let youth know that they are working at their own pace and that you will clarify the goal/expectations at the beginning and then walk around and see groups individually, so if they have a question they should refer to groups around them or the “help” link on the social network site.
5. Let youth know that they will create their own Cyberclub online in the social network site. Let youth know that Cyberclub Design Requirements are their goals, have them refer to their Designing Your Cyberclub handout as checklist for adding features to their Cyberclub.
6. If some youth haven’t completed their brainstorm, have them at least fill out the question on their club’s purpose and figuring out a club name. Once youth have facilitator approval, have youth create their own group collaboration space.
7. Have youth think about the main ways they would like to communicate to their club members when people see their collaboration space page. You can go around to each group and ask them: How will members know what their group is about? How will members communicate to one another?
8. Refer youth to exploring “Help” links, or each other, if they have questions about the website.

9. Notice the youth who are learning how to make changes to their Cyberclub and have them demonstrate the next step—how to upload pictures to the larger group.

> **Gender Tip**
>
> If you have a co-ed group, make sure that you are having equal numbers of boys and girls demonstrating to the rest of the group.

10. Hold a discussion with youth about the importance of posting only images that give you permission to use them. It's important to use only images that you have created yourself or that are available to use. Discuss how you can tell if you have permission to use an image, such as clipart and images that an application like blogger.com makes available. Clipart is available on your computer or at different websites. You can also do an Internet search for clipart sites.
11. Ask youth if they know what "copyright" means. A copyright is the right of an author, artist, publisher, and photographer to retain ownership of works and to produce or contract others to produce copies. For copyrighted materials, including photos, you need to ask permission of the person who holds the copyright to use the image and you may have to pay for use. You'll need to include the copyright citation next to the photo.
12. Have youth go to clipart site and then save the image on their computer, in their own group folders.
13. Note that you need to place images on the computer in order to then upload them to your blog. Remind the youth not to add pictures of themselves—they can add pictures of places they like, animals, etc., but nothing that would count as personal information that others could use to identify them.
14. Allow time for Internet searching for two images related to the club's goals. Have youth add pictures to their group. Have youth spend time gathering the images and links they want to use in their Cyberclub (saving the images in their group folder).

Discussion/Reflection

Time:
- 15 minutes

Purpose:
- Youth discuss the communication tools they used and reflect on their form and function.

Materials
- Overhead and computer with Internet connectivity
- Design Process Poster

To Do

1. Ask youth if they are having any problems using the online social networking site. If they are, ask other youth to chime in to help solve the problem.
2. Demonstrate solutions on the overhead projector.
3. Have the youth discuss the "Chat" feature vs. "Message" feature. What can you do with Chat? Is it asynchronous or synchronous?
   - What can you do with Message? Is it asynchronous or synchronous?
   - If you had to plan a party with your friends but they lived in different cities, would you use Chat or Message?
   - If you wanted to give an in-depth explanation to your friends about a new computer that's coming out next year and show pictures, links, what feature would you use?
   - If you have time, also ask: How does information travel on the Internet? Where does your Cyberclub fit in the Internet? [Youth should understand that their collaboration spaces are part of the Internet, but a closed community (you need a username and password to log in to your Cyberclub).
4. Also discuss:
   - The form and function of a communication tool. Why did they decide to use the features they chose?
   - How does the design of a communication tool relate to its usefulness? [Have youth describe the different communication tools and how they work.]
5. Ask the youth to give one appreciation to their partner about how they worked well together.

Week 6: Getting to Graphs

Summary

Schedule

Warm-Up	• Creating family trees	20 min
Challenge	• Intro to Graph Theory representations; Hamilton Cycles; Traveling Salesperson Problem	50 min
Main Activity	• Draw your own map of Cyberclubs.	50 min
Discussion/Reflection	• Discuss relevance of Graph Theory to computer science. • Discuss math in school.	20 min
Total Time		**2 hr 20 min**

Essential Questions

- How does the form of a communication tool relate to its function?
- How does information travel on the Internet?
- How does your audience and the intent of the communication affect your technology choices?

Design Process Concepts Involved

- Develop designs.
- Build it.

Materials

- Chart paper
- Markers
- Post-its notes (two colors)
- Colored pens
- Computers with Internet access
- Graph Theory—a tool for software designers and engineers
- Original Use of Graph Theory
- Math in School—The Important Facts
- BART Subway System Map
- Washington, DC, Subway System Map
- Airplane Flight Routes
- Nina's travels
- Pilot's travels
- Cyberclub Connections (1)
- Cyberclub Connections (2)
- Cyberclub Connections (3)
- Bookmarks to Planarity.net and the Traveling Salesperson Problem game on all computers: http://www.tsp.gatech.edu/games/tspOnePlayer.html

Getting Ready

Overview

Youth experience graph theory as a mathematical concept to solve problems that require connecting things or places. Youth will first make a family tree to have a context for understanding networks. They then learn about the representations (nodes & links), and how they make understanding networks easier. For the more mathematical portion of the week, they try out three typical graph theory games. To apply what they learned, the youth create passageways among group rooms (i.e., Cyberclubs) and use graph theory drawings to represent the connections.

Glossary

- **Graph theory.** The math that describes connections (networks). In graph theory, we use simplified drawings (with dots and lines) to represent the connections among distinct objects, people, or locations. For example, subway maps are really simplified graphs that are good at showing the connections between stations but aren't really useful for determining the distance between stations. We want these drawings to be as simple as possible to see the routes and the transfer points. The basic building blocks for these simplified drawings are nodes (vertices) and edges (links, lines). Paths are shown with arrows or lines.

- **Euler Path/Circuit.** A path in a graph that visits each node exactly once. See, http://en.wikipedia.org/wiki/Eulerian_path

Background

To prepare the groups to connect with each other, you'll need to go into one group's Cyberclub. The creator of this club has to go to "Invite", and then "add" each new member. Each youth should add herself as a member of this Cyberclub, should also become friends with the creator, and add at least three other youth as a friend. Keep doing this process until all youth are members of the same Cyberclub. This process will establish passageways between all youth. In the graph theory activity below, the youth will need to describe the path (or graph) they are taking to go from one youth to another without repeating.

Graph Theory started as a way to solve a recreational problem (see the last activity sheet on Königsberg Bridges). It's only in higher-level college classes that computer science or math students learn the algorithms to solve Graph Theory problems. So it's not surprising that a lot of the activities that the youth may encounter at this age with graph theory are puzzles. We want to encourage them to play with such mathematical games as the Traveling Salesperson Problem or Planarity.net (see resources below). It will provide the seed for understanding math in the future, even if they don't know they are doing math in the process.

Youth will experience different kinds of Graph Theory problems/games, with different constraints: use all the links once (nodes can be visited several times), or visit all the nodes once (but all the links don't have to be used). Please review some of the graph theory sites below. These resources are the least mathematically "intimidating" sites available on the topic. Also, no description of the graph theory games will be sufficient, so **play** the planarity and the TSP games a few times before leading this session.

In the activity pages "Math in School: The Important Facts", youth are also provided information on math requirements in the education system. Please spend some time looking up your state's high school math requirements and fill them in the blank section provided. If you have time the activity page "Original Use of Graph Theory" can be used to explain graph theory with more depth.

Resources

- Plane Math Game
  http://infouse.com/planemath/activities/flightpath/flightpathhome.html
- Around the World
  http://edweb.sdsu.edu/Courses/EDTEC670/Cardboard/Board/A/aroundtheworld/
- Planarity (more Graph Theory puzzles)
  http://www.planarity.net/
- Math Night – Bridges of Königsberg

http://orion.math.iastate.edu/mathnight/activities/modules/koenigsberg/aboutmod.shtml

- TSP game
  http://www.tsp.gatech.edu/games/index.html
- Euler & Hamilton Paths (applets)
  http://www.cut-the-knot.org/Curriculum/Combinatorics/GraphPractice.shtml
- Algorithmic Graph Theory (explained)
  http://www.personal.kent.edu/~rmuhamma/GraphTheory/graphTheory.htm

Warm-Up

Time: 20 minutes

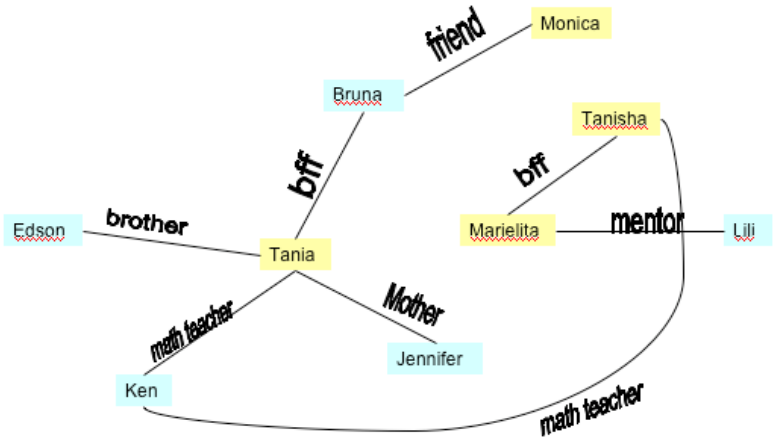
Purpose: Create social charts

Materials

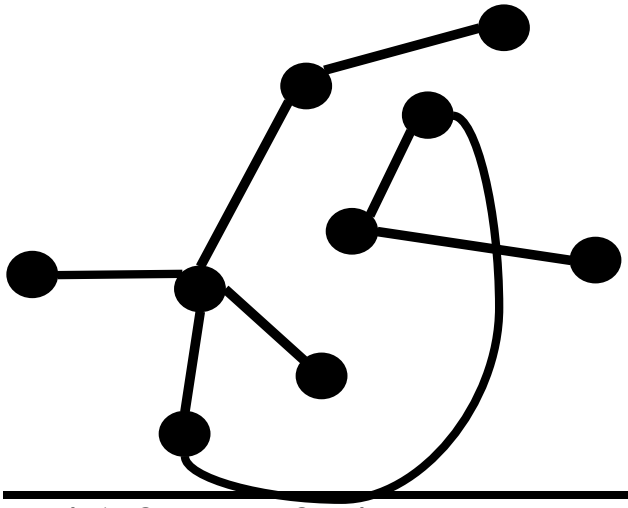
- Chart paper taped together to make a large working space
- Post-its (two different colors)
- Markers

To Do

1. Tell the youth they are going to learn about networks and representing networks. One of the networks they are most likely to know about is their friends and family.
2. Tell the youth that they will spend about 10 minutes creating one kind of social network tree with Post-it notes. All youth will use the same large chart-paper space to create this tree.
3. The rules of the social tree are that names are written on Post-its and relationships are demonstrated with lines. There can be only one Post-it with a person's name. (Duplicate names should be eliminated, and the connections with more people can be shown with new lines.)
4. Have the youth write down their names on a Post-it note (have youth use the same color) and place it on chart paper in a circle/oval, leaving enough room to draw lines between Post-its.
5. Ask them to write down the name of one or two family members on Post-its (have youth write their friends/family members in the other color) and place them near their names. Then, have them make a line between the two Post-its. On the line, they should write the relationship (mother, aunt, sister, cousin).
   - If two students share a family member, make sure there is one Post-it. The youth can draw the lines to their names to show the connection.
6. Now, have them write the name of one or two friends.
   - If the name is new, they should use a new Post-it and draw the connecting line.
   - If it is already on the chart, then they should draw a line between their Post-it and their friend's. On the line, they can write "friend" or "bff."
7. Ask them to add a few more people: teachers and acquaintances. Can they make Post-its for people only they know? (It's likely that other youth in the program will have met their friends, and maybe their family, so this will be a challenge.)
8. Here's an example of what the youth may create together.



9. Have youth continue to create and link relationships with their friends/family until time is up. When the 10 minutes are up, explain to the youth that this activity is based on the theory that every person on the planet can be connected with another with at most six-degrees of separation ("degrees" are people). Using the graph they created, demonstrate how they know their mothers or best friends with one degree of separation – which is equal to one jump, or the connection between them. Then, ask them to predict or tell you who they might know with two degrees of separation. In the example above, Tania would know Tanisha through her teacher Ken. See if there are any third-degree links. If not, add one. In the example above, Tania knows Lili with four degrees of separation.
10. Can they envision, for example, how many degrees separate them from Arnold Schwarzenegger? The President of the U.S. or the Canadian Prime Minister? A singer they like? [You may need to suggest people who may know someone in a higher position, such as the principal in their school knows the superintendent, who probably knows the person.]
11. To introduce graph theory drawings, take another piece of chart paper and put it next to the social network tree. Now, suggest that instead of writing out all the names and relations, they could instead use dots/circles for each person and show the connections with lines. For example, the graph drawing for the above representation is as follows:



12. Create a graph like the one above with the youth as a whole group effort.
    - Ask them if it's easier with this representation to see the degrees of separation. Have one or two youth demonstrate some of the connections you discussed previously with this new representation.
    - Explain that networks are represented this way—with nodes as circles and links as lines—to make complex analysis easier. Tell them that we are going to be working with this kind of representation for this week.

Challenge

Time: 50 minutes

Purpose: Review typical examples of graph drawings.

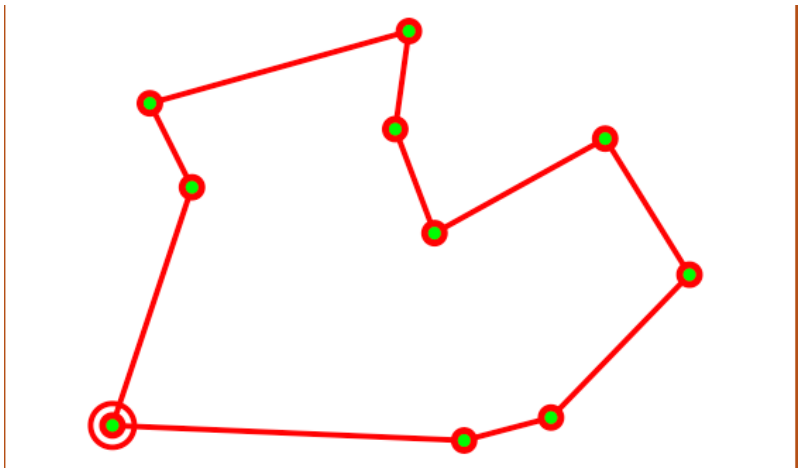
Work on three typical graph theory problems/games.

Materials

- Chart paper and colored pens
- Access to computers with Internet
- Bookmarks to Planarity.net and the Traveling Salesperson Problem game on all computers: http://www.tsp.gatech.edu/games/tspOnePlayer.html

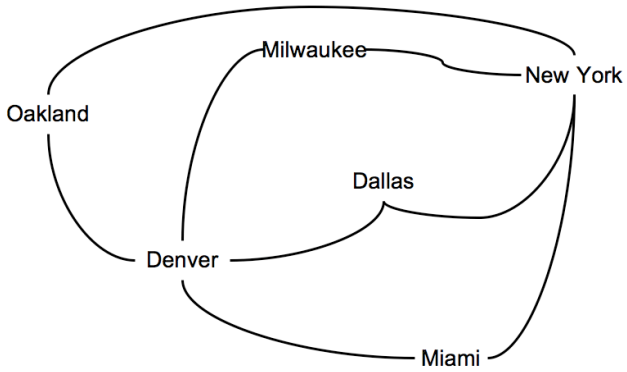
To Do

1. Show two examples of graph drawings:
   - Show youth the subway map examples (or provide your own). Discuss the nodes and connections in these maps. What are they good for? What don't they represent (e.g., distance, streets)?
   - Show youth flight routes. Tell youth: It is often important to find a certain kind of path around a graph. For example, cities and flights between them can be shown in a graph. A pilot needs to fly efficiently from one city to another and end up at home. A graph can show her route. Imagine all the cities in the world and all the flights! Instead of finding the routes, software engineers design an algorithm for the computer to do it. Discuss with youth what they see in the flight graph.
2. Hand out the Activity Page "Pilot's Travels" and read it with the youth.
   - Note: Figuring out the best possible route around a bunch of cities, without going back to the same city is found in the famous Traveling Salesperson Problem. The youth will solve a similar problem to understand this idea. Then they will use the computer to find the shortest routes (Hamiltonian circuits) for similar problems. These types of problems require visiting all the nodes at least once.
   - (From activity sheet☺ Ms. Willingham is a charter pilot. She has a small plane for special services. Right now, she has to deliver gifts for the children's hospitals at several cities around the country. She would like to take the shortest route and visit each city only once before returning home. Can you help her? Trace a route through all the green dots (each dot represents one of the cities on Ms. Willingham's routes).
   - [Answer: The goal of this problem is to begin to see the pattern for finding the shortest path. There is one best possible answer, but the youth may not find it and that is perfectly ok. Focus on whether they have lines that cross each other; the shortest route will resemble the perimeter of an irregular figure, with no lines crossing. Help the youth compare their drawings to see who has the shortest route.]



- Next, ask them to find the shortest path for Ms. Willingham on these computer-generated examples: http://www.tsp.gatech.edu/games/tspOnePlayer.html
- (When the youth arrive at the shortest path, they see a message that says: "You have the optimal tour." When they have chosen a longer path, the program states what percentage of error there is in their solution, such as: "You are within 15% of the optimum." In order to achieve the "optimal tour", have the youth erase some of the paths and try again. They will quickly see a pattern for the shortest paths. That is the goal of this activity.)

3. Pass out the Nina's Travels airplane problem and read with the youth. This problem requires that all links/edges be used once. Visiting the nodes several times is not a problem; that is how it differs from the previous activity. Ask the youth to do this on their own.
   - [From the Nina's Travels activity sheet:] Nina was planning to visit several of her relatives over break. She was departing from Oakland, CA, flying on an airline that requires her to change planes in New York and Denver so she can get to the other cities. She had to get to Milwaukee to see her Aunt Millie and to Dallas to see her Uncle Mweusi and to Miami to see her Uncle Luis. Here's a picture of the flight paths for this airline:



Can Nina fly on each flight path exactly once and end up back in her own city of Oakland? Can she do it if she skips the trip to Miami?

(Answer: Nina has to visit all the cities, including Miami to be able to take different paths/links to all the cities. If she omits Miami, she'll have to repeat one of the paths. The reason for the answer above is based on a mathematical theorem. The number of paths connecting to a node (city) matters in the solution. The goal of this activity is for youth to try out different paths and understand that the number connections matters. But you need to understand the math behind the answer because some youth will move faster, or will push for more explanations.)

(Deeper answer: Nodes are said to be even when there is an even number of paths that connect them. The graph above has even nodes. If we take out Miami, there will be an odd number of paths leaving both New York and Denver, making it impossible to complete a "Euler circuit" when starting in Oakland. Try it! If we enter Denver once, then we leave on the way to Milwaukee, then return via Dallas, there is no fourth path out (since there are only three paths when we take out Miami). If you would like to learn more about this, review resources on Krönigsberg's Bridges listed in the Getting Ready Section.)

4. Have youth go to http://www.planarity.net/. The graph problem the youth will encounter in this session is one where paths/links are not supposed to cross. This task will be especially good for those that do not have much patience for mathematical tasks.
   - Ask youth to try out a few levels. Then have them share strategies. Since there is no written solution to this game, encourage youth to share what they have tried. Then, ask the group to test a few of the strategies mentioned to see if they can make them work as well.
   - Planar graphs have certain restrictions. A graph is planar if the nodes can be re-arranged (without breaking or adding edges) so that none of the links/edges cross each other.
   - Note: Even though this activity is steeped in Graph Theory, the goal of this part of the game is to engage the youth in playing a math game without verbally saying this is math.

Main Activity

Time:
- 50 minutes

Purpose:
- Youth will map out their network within a Cyberclub with the new graphs they just learned.

Materials
- Chart paper and colored pencils/pens
- Participants' Email accounts
- Cyberclub Connections 2 activity sheet
- Access to computers with Internet capabilities
- Cyberclub Connections 1 activity sheet

To Do

1. Have youth connect with each other. Have one group go into their Cyberclub. The creators of this club should invite each youth to join their club. Each youth has to follow instructions to add herself as a member of this club.
2. Each youth should (1) add herself as a member of this Cyberclub, (2) become friends with the creator, and (3) add at least three other youth as a friend. (Facilitators should write these details down on the board.) Make sure to walk around to see if all youth are members of the same Cyberclub.
3. Distribute Cyberclub Connections 1 & 2 activity sheets. Youth can work in their Cyberclub groups. Have youth start with Cyberclub Connections (1), let youth know that they can try Cyberclub Connections (2) if time permits.
4. Have youth collaborate to create a joint graph of the Cyberclub space. Youth should use dots/circles and lines to show youth and passageways.
5. Youth can use trial and error to try to make a path from member to member (youth to youth), recording their tries in colored pencil on their Cyberclub network graphs. Remind them that there might not be a path that connects everyone. How can they be sure there is not a path that connects everyone?
6. You can initially point them to the following methods for connecting members:
   - Ask youth to think about how they are connected to each member.
   - Ask youth to make a graph charting how everyone is connected to one person through linking with other friends; links should be between one youth to another and not repeating the same youth.
7. If there is time, ask them to share other ways that they might connect (ask them to draw another pathway of how they are connected between members) and to draw the graph for that as well.

Discussion/Reflection

Time:
- 20 minutes

Purpose:
- Help youth understand the importance of math in their education leading to a career.
- Provide tips for math success.

Materials
- Graph Theory activity sheet
- Math in School activity sheet

To Do

1. Discuss some of the mathematics youth did during this week. Have they seen these kinds of graphs before? What other applications can they imagine? (Anything with relationships, networks, connections can be graphed: virtual or physical; for example, Facebook or MySpace friends can be graphed. You can read the Graph Theory activity sheet with the youth, or you can just do the discussion on your own.)
2. Explain that computer scientists and professionals use graphs on a daily basis to figure out how to write algorithms for programs or solve problems with their code. Graph theory helps computer scientists model relationships between objects in a network or system (for example, computers in a network, or the Intersounet).
3. Read the Math in School activity sheet together. Include information on your state/local school system requirements. Have youth role-play teachers and students, modeling ways to ask for help. Discuss ways they use math in life.

Week 7: Hosting A Gathering

Summary

Schedule

Mini Performance Task	Youth develop strategy for hosting a gathering using online communication tools.	70 min
Challenge	Host A Gathering: Youth host gatherings in their own Cyberclub and participate in other club gatherings. Youth provide constructive comments on each other's clubs.	50 min
Discussion/Reflection	Youth reflect on their club/group creation process.	20 min
Total Time		**2 hr 20 min**

Essential Questions

- How does the form of a communication tool relate to its function?
- How does information travel on the Internet?
- How does your audience and the intent of the communication affect your technology choices?

Design Process Concepts Involved

- Obtain user feedback.
- Build it.
- Test it.

Materials

- Computers with Internet access
- Pens
- Chart paper
- Online Social Network site set up (students' usernames, passwords, and groups)
- Cyberclub Design Requirements Checklist
- Flip chart or whiteboard

Getting Ready

Overview

Youth are encouraging others to participate in their clubs and reflecting on the designs of their clubs.

Glossary

- **Recruiting**. Encouraging people to participate in some activity, group, or organization's work.
- **Sustainable/ethical fashion**. A sustainable process meets the needs of the present without compromising the ability of future generations to meet their own needs. An approach to the design, sources and manufacture of clothing which is socially and environmentally sustainable.

Background

Spend some time thinking about strategies for how you would encourage people to join a club. You can use the expert advice (see the expert advice statements provided in the Engaging Members activity sheet) and the design requirements. Preparing some thoughts will enable you to help the youth with their ideas. Encourage youth to think of unconventional, but possible, ideas.

For example, check out the Ethical Fashion Network aka EFN (http://ethicalfashionforum.ning.com/). This network provides updates for members to see what's going on in the fashion world but with the twist that members all care about sustainability—making, buying, and selling fashion products that take the environment and production progress into consideration. On the EFN, members post the latest news on sustainable fashion, where to purchase clothing, and what trends are coming out.

Before session, brainstorm ideas that youth can use to host their own online event through their Cyberclub. Here's one example using the EFN context: There's a discussion topic asking members to find as many pictures of "sustainable" or "ethical" jeans. Members of EFN should post pictures on the jeans on the Photos page. Members should also reply to the discussion topic where they provide a link to find the jeans, and information on the

production of these jeans. Members should also post evidence answering “Why are they ethical? Or Why are they not ethical?”. After posting their discussion reply, each member should try to look at other posts/replies and comment on as many as possible.

Mini Performance Task: Hosting a Gathering

Time: 60-70 minutes

Purpose: Engage youth in reflection on what makes an online club interesting enough to go to and to keep coming back to.

Materials

- Pens
- Chart paper
- Computers with Internet access

To Do

(15 minutes max) Small Group Brainstorm

1. Ask youth to form three small groups, mix up these groups so that each youth goes to a group different from their Cyberclub group. Tell youth that each group will brainstorm on how to recruit members and keep them; each group will brainstorm on a set of strategies (that you will assign them from the "Engaging Members Prompts" activity page); then, youth will return to their Cyberclub creation groups to come up with strategies that might work for their club.
2. Each group will be given one of the prompts (see "Engaging Members Prompts" activity page), which includes (1) a set of statements (from experts on the topic), (2) a website to visit, and then (3) a couple of targeted questions to get their thinking going. Have each group write down their brainstorms (answers to the questions) on a piece of chart paper. Keep these charts and refer to them as the "Engaging Members Ideas"
3. Have one representative from each group share their questions and the answers.

(15 minutes max) Cyberclub Brainstorm

4. Once the youth have had a chance to reflect and answer the Engaging Members topics, ask them to return to their Cyberclub design groups. Tell youth that their next activity is to come up with a strategy for hosting a gathering in their Cyberclub.
5. Read aloud the example of the Ethical Fashion Network (in the "Background" section above). Ask youth to brainstorm for their own Cyberclubs.
6. Distribute the "Hosting a Gathering" handout. Encourage youth to come up with a finished plan by the end of 10 minutes. They should look at the "Engaging Members Ideas" (chart papers) for their "Hosting a Gathering" brainstorms.
7. Have the youth write their final ideas on the handout.

(15 minutes) Prepare Cyberclub for the Gathering

8. Next, ask the groups to spend 15 minutes to prepare for hosting their gathering. Ask youth to prepare the layout of their club—i.e. to make sure they have the communication tools they need, and post instructions for the gathering on a main area of their Cyberclub space. (I.e. the bulletin board, forum board, Main page text box).

9. Ask youth to think about:
   - Will there be a message on the Main page about the event?
   - How will you communicate the goals of the activity?

   Youth should think about posting messages, and prompting questions on their Cyberclub page. Youth can post their own examples.

10. Tell the youth that once they host a gathering they cannot talk out loud, so imagine the whole room has to be silent and that all communication has to happen on the Main Page of their club. How will you do this, what communication tools will you use?
11. Walk around groups to make sure all groups understand what it means to "host an online gathering" (using the EFN example as a guide on what hosting a gathering looks like). Find a group that understands the concept well and ask them if they'd like to host the first gathering.

(15-20 minutes for each group) Host an Online Gathering

12. Each Cyberclub will host a gathering. Choose the first Cyberclub and have all the youth join this club. Each youth has to follow instructions to add herself as a member of this club.
13. Ask the youth to not talk; they should only be communicating through the Cyberclub. Have the Cyberclub creators who are hosting the gathering explain what the youth should do out loud, but only ONCE.
14. Begin the cyber gathering and end after 5-10 minutes.
15. Have youth give verbal "glows and grows" about the Cyberclub gathering. "Glows" are comments about what they liked or went well, and "grows" are what they think didn't go so well about the gathering. Have the group that hosted the gathering write down the feedback in their Design notebooks. Facilitators should also note some feedback for each group, because groups will use this feedback to augment their Cyberclubs.
16. Repeat this sequence for hosting an online gathering until all groups have hosted a gathering. There will be time in the upcoming Challenge activity to host more gatherings. Make sure that all groups are able to host one gathering.

Challenge

Time:
- 50 minutes

Purpose:
- Cyberclub Gathering Wrap Up. Youth provide constructive comments on each other's Cyberclubs

Materials
- Computers with Internet access
- Access to Cyberclubs
- Cyberclub Design Requirements Checklist

To Do

1. If there wasn't enough time for all groups to host a gathering during the "Mini Performance Task", repeat the sequence for hosting a gathering until all groups have hosted one gathering.
2. After all groups have hosted a gathering, ask groups to reflect on the feedback they received, or new ideas they saw from other groups. Have groups write down their thoughts in their Design Notebooks.
3. Encourage each group of youth to go to their Cyberclub and make one change based on the feedback that was provided.

Discussion/Reflection

Time: 20 minutes

Purpose: Hosting a gathering reflection. Youth reflect on their experience hosting a gathering. What have they learned about hosting a gathering on the Internet?

Materials

- Flip chart or whiteboard to capture youths' reflections

To Do

1. Gather youth together—away from their computers so their full attention is on the discussion.

   Ask youth:

   - What did you like about hosting your cyber gathering?
   - What did you dislike about hosting your gathering?
   - What did you learn when you participated in someone else's cyber gathering?
     - What did you learn about communicating with other in your cyberclub?

Week 8: Final Touches on Your Cyberclub

Summary

Schedule

Warm-Up	• Youth create skits to demonstrate the difference between many-to-many and one-to many communication.	15 min
Challenge	• Cyberclub Wrap-Up. Youth make a plan to create final touches for their Cyberclub. • Youth will create final touches on their Cyberclub and post constructive comments on each other's clubs.	40 min
Discussion/Reflection	• Youth reflect on their club/group creation process.	15 min
	• Preparing for ICT Professional Visit	1 hr
Total Time		**2 hr 10 min**

Essential Questions

- How does the form of a communication tool relate to its function?
- How does information travel on the Internet?
- How does your audience and the intent of the communication affect your technology choices?

Design Process Concepts Involved

- Obtain user feedback.
- Test it.
- Build it.
- Build

Materials

- Computers with Internet access
- Pens
- Chart paper
- Online social network site set up (students' usernames, passwords, and groups)
- Cyberclub Design Requirements Checklist
- Flip chart or whiteboard
- Design Notebooks

Getting Ready

Overview

Youth are commenting on one another's clubs, reflecting on the designs of their clubs, and editing their Cyberclubs based on feedback that is given to them. This lesson also includes built-in time for an ICT professional to visit programming. This is a placeholder, the ICT professional visitor does not have to happen within this week of programming.

Glossary

- **Recruiting**. Encouraging people to participate in some activity, group, or organization's work.
- **Domain**. The space, or boundary, that some thing lives within.
- **Collaborate**. To work with others to achieve a common goal, such as develop an idea, create a product, and come to an agreement.

Background

In the Warm-Up, youth discuss revisit the differences between of one-to-one, one-to-many, and many-to-many relationships (called communication paradigms), and present a skit on the concepts. Be familiar with the communication paradigms enough so you can provide examples and guide discussion. The warm up activity in this week brings back the Venn Diagram that youth created together in Weeks 1 & 3 in order to give youth additional time with these concepts. Knowing these paradigms will aid youth in designing and using Internet-based tools.

In the Challenge, youth will provide feedback on each other's Cyberclubs. Spend some time thinking about strategies for how you would encourage youth to comment on one another's Cyberclubs. People join clubs based on the purpose of the club, and communication tools/features available to use. Prepare some thoughts on how to comment on the layout,

and communication tools' form and function to enable you to help youth with their own ideas. Encourage youth to think of unconventional, but possible, ideas.

Here are some questions to ask when assessing an online collaboration space:

- What is the purpose of the club? Is it apparent from the tagline and the description?
- Is the layout visually appealing?
- Are communication tools easy to understand? Does the placement make it easy to read?
- What is one reason why you would join this club?
- What is one thing on the Main Page that is confusing?

Warm-Up

Time:	• 15 minutes
Purpose:	• Youth are introduced to the concept of collaboration. • Youth revisit the concepts of one-to-one, one-to-many; and many-to-many and connect collaboration with many-to-many.
Materials	• Venn Diagram from Weeks 1 & 3

To Do

1. Show Venn Diagram from Weeks 1 & 3. Ask youth to describe what type of communication (category) they would use if they wanted to collaborate with other youth around the world to address a problem in the world, such as global warming, poverty, or name some topics of interest to youth.
2. Underline or write on the board the word 'collaborate.'
3. Have a discussion around the word 'collaborate'. For example: Let's first make sure everyone understands this word – collaborate – anyone have ideas? Let youth respond to define collaboration.
4. Once they have a definition of collaboration to describe what type of communication tools would you use to collaborate online? (Youth will identify a lot of tools, encourage them to name the category that the tool falls within, i.e. many-to-many, or one-to-many).
5. Ask youth: Why many-to-many?
6. Describe the scenario: "I just want to get a message out to everybody about a topic such as global warming, what type of communication would I use?" Encourage youth to name the one-to-many category.
7. Once youth come to the conclusion of "one-to-many", exclaim that they all seem to understand the difference between these two types of communication. Ask them, "Do you think you can demonstrate the difference for someone brand new to ICT4me?"
8. Tell youth that they are creating a 1-minute skit to demonstrate the difference and similarities, between one-to-many and many-to-many. If youth don't seem to understand communication categories very well, have a group that does understand put on a skit for everyone. Allow youth to give feedback on what they learned from the skit.
9. Place youth into groups of 4-5. Give youth 5 minutes to put together skit where they demonstrate the difference between many-to-many and one-to many communication.
10. Have each group present their 1-minute skit. Allow youth time at the end of each skit to give feedback on what they just saw.

Challenge

Time:
- 40 minutes

Purpose:
- Youth provide constructive comments on each other's Cyberclubs
- Youth finalize their collaboration spaces and reflect on their experience using the social network site. What have they learned about online social networks?

Materials
- Computers with Internet access
- Access to Cyberclubs
- Cyberclub Design Requirements Checklist
- Design Notebooks

To Do

1. Have youth go to one other Cyberclub (they can go to more if there is time) and respond to two questions (facilitator should write this on the board):
   - Does the Cyberclub meet the design criteria? If not, what could be improved? Have youth refer to their Cyberclub Design Requirements and choose two items to comment about.
   - Are you persuaded to join the Cyberclub? If not, what would you like to see that would get you interested in the club?
2. Youth should write their comments on two discussion board posts that they will create in the Cyberclub. Have one discussion post entitled: "Design Requirements" and the other "Joining the Club."
3. Once all youth have made their comments, gather everyone's attention and ask for volunteer groups to share their responses out loud.
4. Give youth five minutes to look at their Cyberclub's discussion board suggestions and think about what feedback they are going to use to finalize their Cyberclubs. Have youth note their plans in their Design Notebooks.
5. After youth have their plans to make changes, gather everyone's attention and have each group share the two changes they plan to make. Have someone record these changes on the board.
6. Allow youth time to finalize their spaces. Have the youth make sure all of the Cyberclub Design Requirements are met by going down the checklist.
7. Have youth visit other Cyberclubs and participate in those club communities by creating a group, or participate in the prompts from another Cyberclub's "Online Gathering" (from Week 7).
   - **Note the difference between the Cyberclub and the group:** The Cyberclub is the larger organization that houses groups. Groups are part of the Cyberclub, and function within the Cyberclub domain.

8. If youth feel that their Cyberclub is the best it can be, encourage them to recruit other youth to join their Cyberclub.

Discussion/Reflection

Time:	• 15 minutes
Purpose:	• Youth reflect on their experience creating Cyberclubs. What have they learned about groups on the Internet?
Materials	• Flip chart or whiteboard to capture youths' reflections

To Do

1. Gather youth together—away from their computers so their full attention is on the discussion.
2. Ask youth:
   - What did you like about creating your clubs/groups? Why?
   - What did you dislike about creating your clubs/groups?
   - Why?
   - What did you learn about social networking on the Internet when you created your Cyberclubs?
   - What did you learn about linking to other users?

ICT Professional Visit

Time: 1 hour or less

Purpose: Youth will meet and ask questions for the visiting ICT professional.

Materials
- Flip chart or whiteboard to capture youth' reflections

To Do

1. Gather youth together before the ICT Professional arrives.
2. Ask youth the following questions and capture their responses on the flip chart:
   - What do you want to know about the ICT professional?
   - What do you think their job is about?
   - How do you think they are connected to a future career path that you are interested in?
3. On a separate flip chart, ask youth to help you make a list of questions. Ask youth to name one question they want to ask the ICT professional. Remind youth that if someone gets excited and asks their question, think of a new question.

Week 9: Blog Creation

Summary

Schedule

Warm-Up	• Youth learn about self-expression and reputation online: Who they are in various online contexts and how to protect their reputation in the process.	25 min
Challenge	• Youth learn what a blog is. • Youth explore blogs online.	35 min
Main Activity	• Youth design and create blogs using the Design Process within their collaboration space.	70 min
Discussion/Reflection	• Youth discuss how the Design Process is working for blogs.	10 min
Total Time		**2 hr 20 min**

Essential Questions

- How does the form of a communication tool relate to its function?
- How does information travel on the Internet?
- How does your audience and the intent of the communication affect your technology choices?

Design Process Concepts Involved

- Define the problem.
- Research.
- Brainstorm.
- Sketch.
-
- Develop designs.
- Build it.

Materials

- Computers with Internet access
- Projector connected to a computer so the program facilitator can show blogs
- Large footprint silhouette drawn on chart paper (save this after the activity for Family Tech Night, see Activity Page "Footprint Silhouette Example")
- Common Sense Media's PDF file "Trillion Dollar Footprint". Note: Print 1 packet for each group, you only need to print pages 2-6.
- Example Blogs (Electronic Activity) page. Note: You will need to load this Activity Page to the students' computers before the session.
- Setting Up a Blog
- Two copies each of two simple pictures
- Four picture frames (to fit the pictures)
- Cardboard to use as stepping-stones. Note: Make sure they are safe for youth to walk on.
- Blog Design Requirements
- Design Notebooks
- Design Notebooks
- Designing Your Blog Activity Page
- Blog Design Requirements
- Possible Blog Themes (facilitator will create some examples of blog themes to suggest to youth, this does not have to be shown to youth)

Getting Ready

Overview

Youth are introduced to blogs: a tool to help them create their own weblogs or journals. Youth review a preselected set of example blogs that show a range of self-expressions from personal journals to business-focused offerings.

In teams, youth begin to create their own self-expression space using a blog tool. Program facilitators introduce the youth to blog tools. Program facilitators remind youth to think about the readers of their blogs as users, referring back to usability approaches they learned in Unit 1.

If you have 1 computer for every 2 youth or want youth to work in pairs, put them into pairs and develop one blog.

Glossary

- Blog. Short for weblog. A blog is software that supports online journaling, allowing people with no knowledge of HTML to create a web page. The activity of updating a blog is "blogging," and someone who keeps a blog is a "blogger." People link their blogs to one another's, becoming part of the "blogosphere"—it's a play on the word atmosphere and means all the blogs that are connected to each other on the Web.
- Software. Commands that tell the computer what to do.
- Username. A user, in a computer context, is a person who uses a computer system. Users identify themselves with usernames. Generally for e-mail or other computer activities (blogging, chatting, etc.), you need a username and a password.
- Password. A password is a form of secret authentication to control access to a resource. For example, you create a secret password for your e-mail account so that only you have access to your e-mail.

Background

In the Warm-up you will show "Student Intro Video - The Digital Footprint" and "Brittney's Story", videos from Common Sense Media. To access the videos you must sign up as a member of Common Sense Media (this is free), please sign up prior to instruction at: http://www.commonsensemedia.org. After signing up, download or make sure you can access "Student Intro Video - The Digital Footprint" and "Brittney's Story." Find the videos by going to the "Digital Citizenship" page for 6-8th grade Privacy information, on the Common Sense Media website: http://www.commonsensemedia.org/educators/lesson/oops-i-broadcast-it-internet-6-8.

You will also use a packet of information from a Common Sense Media PDF file called "Trillion Dollar Footprint". You can find the PDF posted on the ICT4me website. Note that you only have to use/print out pages 2-6 of this packet, page 1 is an introduction to the activity that you can give verbally.

In the Challenge and Main Activity you should be familiar with how blogs work, read this short article from HowStuffWorks entitled "How Blogs Work":

- http://computer.howstuffworks.com/blog1.htm

There's a lot of distracting information on these pages so make sure you find the "Next" button at the bottom of the page. You can also use the "Print" link to see all the pages on one page.

Look through the Example Blogs (Electronic Activity) page to make sure these blogs are still available (information online changes quickly!). Make sure the example blogs are appropriate for sharing with youth. If you need to add a blog, you can find more blogs at blogger.com or by going to Google's blog search. Look for blogs that have content of interest to the youth. Save the Example Blogs (Electronic Activity) page on the youths' computer so they can access the links.

Set up your own blog using the blogging tool the youth will use. You'll want to be familiar with the tool so that:

- You can use it as an example to show the youth
- You'll have a sense of how blogging works in case you haven't done it before
- You'll also want to see what elements of the youths' sites you control.

Here are the basic steps to setting up your own blog that most blog sites will walk you through:

- Creating an account
- Naming your blog
- Choosing a template for your blog
- Adding photos
- Posting to your blog

Make sure you have tried all these steps so that you can help the youth. As you are going through the steps, update the "Setting Up Your Blog" Activity Page to match the particular tool you are using in your program. You can fill out this Activity Page as you're creating your own blog. Show youth the Activity Page before they create their own blogs. We have included instructions that can be adapted to other tools such as blogger.com, LiveJournal.com, typepad.com, and many other blogging tools. Unless the youth in your program are very comfortable with computers, they are likely to need very detailed instructions on how to set up a blog.

Use the Blog Design Requirements checklist to design your blog.

Youth will be creating blogs in teams. Teams can be the same groups from when youth created Cyberclubs, or you can re-group youth. In grouping youth, be mindful of working dynamics and interests (i.e. try to pair a youth who is computer savvy with a youth who is less computer savvy, if you know who really enjoys sports you could pair them together).

Warm-Up

Time:
- 25 minutes

Purpose:
- Youth learn about self-expression and reputation online. Youth learn about how to represent themselves in various online contexts and how to protect your reputation in the process.

Materials
- Computer with speakers for facilitator to show an online vide
- Large footprint silhouette drawn on chart paper (or other large paper) that you will save after the activity (see activity sheet "Footprint Silhouette Example")
- Projector for the computer
- Print out packets of "CommonSenseMedia-Trillion Dollar Footprint" you should have 1 packet for each group.

To Do

(This Activity is written from excerpts of activities by Common Sense Media)

1. Watch Common Sense Media's "Student Intro Video - The Digital Footprint."
2. Ask youth what they think will show up on their digital footprints (i.e. Messages they write on Facebook or other social network sites, their blog posts, articles written with their names included in the text). Have youth go up to the large footprint silhouette and write their responses.
3. Then watch, "Brittney's Story," found on the same webpage.
4. Ask youth:
   - Brittney regrets posting the photos, but are there situations when you think it would be okay, even helpful to get comments from others online? What are those situations?
   - In what ways did Brittney's actions impact her later? Can you imagine how the posts may impact Brittney in the future, even beyond college?
5. Have youth get into teams of 3-4. Tell youth that they are casting directors hired to find a new host for the game show "Trillion Dollar Footprint". You have hired a private investigator aka "private-I" to find some information about the applicants. The private-I found some things on the Internet and compiled them into a file.
6. Tell youth that as the casting director you are looking for someone who works well with others and is honest. So for each applicant's file you should circle the information you think is most important to help make your decision.

7. Give each team one file and ask the team to make a casting decision based on the file information. Give teams 10 minutes (or less depending on how you feel the groups are progressing).
8. Share the casting decisions made by each group and have a short discussion about what they saw in these files. Encourage students to examine what assumptions they made about each candidate. Ask Youth:
   - Did you assume that Linda was dishonest because someone commented that a recipe she created was not her own? (Point out that we don't know who commented and if their statement is true.)
   - Did you assume Jason was a jerk because he indicated "single" on his profile but said that he was married in his personal statement? (Point out that maybe he forgot to change his status.)
   - Did you assume either Linda or Jason would not work well with others based on what they wrote in their personal statements?
9. Reflect on examining our assumptions when viewing information online. Ask youth:
   - Give an example about how a digital footprint can be out of your control (i.e. if others post information about you that is untrue or damaging).
   - Give an example of how your digital footprint can be in your control (i.e. because you can make decisions about what to post about yourself or what to send to others).

Challenge

Time: 35 min

Purpose: Youth learn what a blog is.

Youth explore several blogs.

Materials

- Computers with Internet access
- Example Blogs (Electronic Activity)
- Projector connected to computer so program facilitator can show blogs

Note: You will need to load this activity sheet to the students' computers before the session.

To Do

1. Lead a discussion with the youth on blogs, covering the following points:
   - A blog is a simple web page or set of pages. It is easy to set up, unlike a website that requires learning HTML to set it up and can have many pages, even thousands!
   - People use blogs to share their thoughts and ideas with the world—a blog is like an online journal. It could be compared to a diary or even the youths' Design Notebooks—it is a place for your thoughts.
   - Each blog, like all web pages, has a URL so that people can find it on the Internet.
   - Ask youth to tell you what a URL is. (See Week 2—URL stands for Uniform Resource Locator, and it is an address for a resource on the Internet.)
2. Divide youth into teams of two (or however it works best, given availability of computers) to look through blogs. Note: The youth will spend a lot of time working with their blog partner. Consider carefully how you want to pair them.
3. Direct youth to the Example Blogs (Electronic Activity). Youth should have about 15 minutes to look through the blogs. Walk around and make sure that youth are able to access the blog sites. Prompt them to switch from one blog to the next at regular intervals.
4. Bring the group back together. Spend about 5 to 10 minutes reflecting on Blogs with the following questions before moving on to the next activity:
   - What types of things are people writing about on their blogs?
   - Is it easy or difficult to read the blogs?
   - What do you like/dislike about any of the blogs you saw?
   - We talked about a blog being a web page. Some of you did models of how a web page is accessed on the Internet. Can anyone describe how a web page gets from one computer to another?

Main Activity

Time: 70 minutes

Purpose: Design and create a blog using the Design Process

Materials

- The Design Process poster
- Computers with Internet access
- Facilitator's computer with Internet access and projector
- Design Notebooks
- Designing Your Blog handout
- Blog Design Requirements handout
- Possible Themes (as a resource for the facilitator; does not need to be distributed to the youth)
- Setting Up a Blog

To Do

1. Tell youth they are going to design their own blogs.
2. In their blog pairs, ask youth to think about a problem that their blog is designed to address. This is a good time to talk about the design process, point to each of these elements on **The Design Process** poster as you present them:
   - Remind them that this is the **Define the problem** step in the design process—what problem will their blog address?
   - Then they can **Brainstorm** ideas with their partners and **Sketch** their plan, including a name for their blog.
3. Give youth a few minutes to come up with a name and a tagline. Most blogs have a name and the tagline is presented under the name. Have them use the Designing Your Blog handout to capture their ideas and their Design Notebooks to capture their sketches.
4. If youth have difficulty coming up with a theme for their blogs, consult the Activity Page "Possible Themes".
5. Introduce youth to the Blog Design Requirements. Give youth time to modify their sketches if necessary.
6. After youth have completed their sketches in their Design Notebooks and in their Designing Your Blog handout, use the projector to walk through the process of setting up blogs with the youth.
   - Note: You can use your blog as an example, or set up a new blog with a youth's idea as an example. If you are using a different blogging tool you should set up your own blog using the Setting Up Your Blog handout (try this prior to their logging into the blogging site). Then have youth follow along while you are exampling the process on a projector.
7. Have youth log into their blog site.

8. Go over the steps with the youth for posting to their blogs as necessary.
9. Remind youth about Internet safety. This would be a good time to remind youth about their "Online Safety Agreements" and the safety considerations they have identified (from Week 3). Ask youth to show any posts to you before they publish them—check for personal information.
10. Walk around the room, assisting youth and checking for safety considerations before publishing pages.
11. Using the overhead, show the youth how to add pictures to their blogs. Pictures should be related to their blog content.
12. Hold a discussion with youth about copyright—the importance of posting only images that give you permission to use them. It's important to use only images that you have created yourself or that are available to use.
    - Discuss how you can tell if you have permission to use an image, such as clipart and images that an application blogger.com makes available. Clipart is available on your computer or at different websites, You can do an Internet search for clipart sites.
13. Have youth go to clipart site and then save the image on their computer.
    - Note that you need to save images on the computer in order to upload them to your blog. Youth might want to create a "Blog Pictures" folder on their computers before searching for pictures. Remind the youth not to add pictures of themselves—they can add pictures of places they like, animals, etc., but nothing that would count as personal information that others could use to identify them.
14. Continue to encourage youth to post to their blogs. Give them ideas of what to post, such as:
    - Links to websites
    - Links to pictures
    - Movie or book reviews
    - Stories they invent
15. Remind youth to think about their users—people who read the Web, each other—while they are posting.
16. If youth are having trouble coming up with ideas for what to post, remind them to do the following:
    - Find ideas by viewing the Example Blogs (Electronic Activity) page they looked at last week, as well as other blogs they find online.
    - Use the Designing Your Blog Activity Page completed last week.
    - Look over the Possible Themes Activity Page.
    - Review the Blog Design Requirements.
17. As the youth are working, go around and check their blogs.
    - Are they meeting the Blog Design Requirements?

- Are they maintaining Internet Safety standards (e.g., not publishing their names, birthdates, addresses)?

Discussion/Reflection

Time:
- 10 minutes

Purpose:
- Reflect on the Design Process.

Materials
- Designing Your Blog Activity Pages
- Blog Design Requirements list
- Design Process poster

To Do

1. Lead a quick reflection with the youth about their blogs and how the **design process** is going. Some questions you might want to ask:
   - Are you having trouble with anything? Can other youth suggest hints that would help?
   - Are you following all the steps in the Design Process? What is involved in each step?
   - Why is it important to follow the design process in creating blogs?
2. Discuss Internet safety and privacy considerations with youth, remind them of the "Online Safety Agreements" they created. Ask youth:
   - Who can see your blog?
   - What do you have to be careful about when posting information on your blog?
   - What parts of your "Online Safety Agreements" do you really have to be careful about?

Week 10: Getting to Your Blog

Summary

Schedule

Warm-Up	Youth experience algorithmic thinking (step-by-step instructions to solve a problem) without math.	20 min
Main Activity	Youth practice algorithmic thinking with math activity.	60 min
Discussion/Reflection	Youth reflect on algorithmic thinking activity. Youth use free time to work on blogs.	60 min
Total Time		**2 hr 20 min**

Essential Questions

- How does the form of a communication tool relate to its function?
- How does information travel on the Internet?
- How does your audience and the intent of the communication affect your technology choices?

Design Process Concepts Involved

- Develop designs.
- Build it.


Materials

- Computers with Internet access
- Computer connected to overhead
- Activity sheets: Algorithmic Thinking 1, 2, 3, & 4
- Big chart paper
- Markers and pencils/pens
- Design Notebooks
- Gumdrops and toothpicks OR marshmallows and straws
- Toothpicks or straws
- Youths' blog account usernames and passwords
- Youths' solutions to the Math Activity

Getting Ready

Overview

In these two sessions, youth practice algorithmic thinking and continue working on their blogs.

Glossary

- **Algorithm.** A step-by-step problem-solving procedure, especially an established, computational procedure for solving a problem in a number of steps. An algorithm is somewhat similar to a recipe, although it is usually much more complex. A computer program is essentially an algorithm that tells the computer what steps to perform and in what order.

Background

An algorithm is an organized way to solve a problem. Think about a problem you were trying to solve recently that, at first, you had no idea about how you were going to solve it. You may have mentally gone through different options, even written down or drawn ways to solve it. The process for solving the problem, steps you could share with others and use again to solve the same or similar problem, is the algorithm. When you create a process for solving a problem, you are doing algorithmic thinking.

Many professionals use algorithms to solve problems in their work. ICT professionals often use algorithms to figure out how to design the technology to solve a problem. For example, in developing a search engine, an engineer would use algorithms to determine the order search results appear on a Web page to handle multiple queries by multiple users, and to manage many other situations that involve getting users the information they need. Sometimes engineers use algorithms created by other engineers and sometimes they create new algorithms that solve new problems or old problems more efficiently.

For this activity, youth are not yet ready to make algorithmic decisions in the design of technology—that will come later. Youth can use algorithms to determine which technology, in this case blogs, to use.

Warm-Up

Time:	• 20 minutes
Purpose:	• Youth determine the best path to take to the gym at school. Discuss alternative paths based on the "problem" to solve.
Materials	• None

To Do

1. Ask youth: What's the most direct path to get to the gym from here? (Substitute whatever popular location is furthest from the spot where you are.)
2. Let youth discuss the question, then ask how we could determine the best path. The best path is an algorithm.
3. Discuss the meaning of an algorithm.
4. What's the best path to the gym when all the hallways are filled with students?
5. This new path is an algorithm for the situation when the halls are filled.
6. Ask youth if they can think of another algorithm (step-by-step instructions for solving the problem within a specific context) for getting to the gym.

Main Activity

Time:
- 60 minutes

Purpose:
- Youth do algorithmic thinking to solve a problem.
- Youth hear how algorithmic thinking is used by ICT professionals to solve technological problems.

Materials
- Activity Sheets: Algorithmic Thinking 1, 2, 3, 4
- Large chart paper
- Toothpicks or straws
- Pens
- Gumdrops or marshmallows

To Do

1. Read the "Will ____ Come to Town?" activity page with the youth. Have them state the problem in their own words.
   - Note: Fill in a musical performer that the youth like before printing the activity pages. Have the youth work in pairs or on their own to complete the activity page.
2. Have youth read the "Your Great Idea" activity page on their own. Then discuss how blogs can be used to spread the word. It's really like a telephone tree, where one person tells some others, and they tell others, and so on.
3. Have youth work in groups to do the steps in the "What You Need to Figure Out" activity page. Pass out chart paper and gumdrops and toothpicks (or marshmallows and straws). Give them time to figure out what to do. Hints:
   - Youth can use a gumdrop to represent the blog writer, Polly or Arecela, and their readers. Then connect her with toothpicks to her readers.
   - Dots and lines on paper can do the same thing.
   - Have the youth check their drawings or models to make sure they counted all the people reached.
4. As a whole group, discuss the different methods each group used. Fill in the information about costs, or write it down on the board to find totals.
5. See the "How to Do the Math" answer key.
6. Read the "You Did the Math!" activity page with the youth. Discuss how they can describe the methods they used. Then have youth write down what they did. Reinforce that this simple activity involves mathematical thinking that information technology professionals use in their careers. Encourage a couple of youth to share what they wrote.

Discussion/Reflection

Time:
- 60 minutes

Purpose:
- Reflect on algorithmic thinking activity.
- Use the remaining time to work on the blogs.

Materials
- Computers with Internet access
- Youths' solutions to the Math Activity

To Do

1. Ask youth how they went about finding a solution to the algorithm problem. Let youth share their approaches, then their solutions.
2. Discuss what solutions youth came up with, whether they found more than one solution, and which one they think works best.
3. Once youth have discussed approaches and the solution, let them return to working on their blogs for the remaining time. Let them know that next time they'll share their blogs with the group and link to each other's blogs.

Week 11: Post Here!

Summary

Schedule

Warm-Up	Youth watch a video and discuss Cyberbullying	10 min
Mini Performance Task	Youth develop strategies for encouraging others to post to their blogs.	30 min
Blog Wrap-Up	Youth comment on each other's blogs.	70 min
Blog Reflection	Youth reflect on their blogging experience.	30 min
Total Time		**2 hr 20 min**

Essential Questions

- How does the form of a communication tool relate to its function?
- How does information travel on the Internet?
- How does your audience and the intent of the communication affect your technology choices?

Design Process Concepts Involved

- Develop designs.
- Test it.
- User feedback and implement changes.

Materials

- Computers with Internet access
- Youths' usernames and passwords for blogs
- Youths' blogs
- Markers and pencils/pens
- Design Requirements Checklist
- Design Notebooks
- Flip chart or whiteboard to capture youths' reflections
- Poster paper or something for youth to present their strategy and steps
- 8.5" x 11" pieces of paper

Getting Ready

Overview

Youth learn different methods for encouraging others to post to their blogs. Exploring readership recruitment is part of a mini performance task where youth demonstrate their understanding of different methods for communication on the Web.

At this point, youth will have designed their blogs in teams of two. Now as a group, they need to come up with a design for linking all of the other groups' blogs so each youth can, starting from their own blog, navigate through all of them.

Youth then add comments to one or two of the other youths' blogs.

Glossary

- **Hypertext.** The defining feature of the World Wide Web that allows users to move easily within a particular web page or between websites using URLs that can be clicked on to jump to the corresponding web page. These URLs are known as hyperlinks when they appear within a web page. The link can be the full address, such as http://www.google.com, or appear as a word that is hypertext (e.g., Google).

Background

In the Warm Up, you will show "Stacey's Story", a video on cyberbullying from Common Sense Media. You must sign up as a member of Common Sense Media (this is free). Please sign up prior to instruction at: http://www.commonsensemedia.org. Download or make sure you can access "Stacey's Story" a video located at Common Sense Media's section on "Digital Citizenship" in the 6-8th grade material: http://www.commonsensemedia.org/educators/lesson/cyberbullying-crossing-line-6-8

Facilitators should be familiar with Hypertext linking. Hypertext linking is a fundamental factor in making the Web useful to all of us; it allows people to navigate among web pages and websites. Hypertext links (aka “hyperlink” or “link”) allow you to link to other blogs or web pages.

Tech Tips

To add links, begin creating a post. Type the text you want to link. Highlight it, and then click on the Link button in the toolbar directly above the post. A pop-up will ask you to enter the URL you want to link to. For example, you could type Girls Inc. in the post, highlight it, then enter http://www.girlsinc.org in the pop-up, click OK, and in your post, the words Girls Inc. will appear as a hyperlink to the website.

Warm-Up

Time:
- 10 minutes

Purpose:
- Youth discuss cyberbullying.

Materials
- Overhead project with computer
- Access to "Stacy's Story" at: http://www.commonsensemedia.org/educators/lesson/cyberbullying-crossing-line-6-8

To Do

(This activity is written from excerpts of activities by Common Sense Media)

1. Watch "Stacey's Story" at: http://www.commonsensemedia.org/educators/lesson/cyberbullying-crossing-line-6-8
2. Ask youth to get into dyads (groups of two) to talk about what they felt from "Stacy's Story."
3. Ask youth about what they saw from "Stacy's Story":
    a. When do you think the youths' behavior "crossed the line"?
    b. In what ways might the online context make the situation worse than if the bully had harassed Stacey offline?
    c. Stacey's mom says that Stacey should call the school and report the incidents. Stacey responds that it would "just make it worse." Do you think this is true? Why or why not?
4. Assign one of the four scenarios for groups to prepare and act out short 1-minute skits:
    a. What would you do if you saw someone you knew being cyberbullied all over Facebook or Myspace page?
    b. What would you say to your best friend if you found out that they were a cyberbully?
    a. What would you do if you were cyberbullied?
5. Ask volunteers to share their 1-minute skit. All groups don't have to act out their skit, but try to have at least one of each scenario discussed.

Mini Performance Task

Time:
- 30 min

Purpose:
- Youth come up with different strategies and take specific actions to encourage other youth in the group to post to their blogs.

Materials
- Computers with Internet access
- Youths' blogs
- Design Notebooks

To Do

1. Invite youth to work in groups of three.
   - Ask them to come up with a computer-based strategy for encouraging as many of the other youth as possible to post to their blogs. Have youth write their ideas in their Design Notebooks. Some example strategies:
   - Sending an e-mail to everyone
   - Posting the URL for your blog in the room
   - Asking everyone to link to each other
   - Setting up an agreement such as "if you post to my blog, I'll post to yours."
   - The strategy could be a combination of any of these ideas or something else entirely.
2. Give groups 10 minutes for coming up with a list of steps for carrying out the strategy. The list should at a minimum include the use of electronic communication (such as e-mail or IM) as well as involve changing the settings to allow those being invited to post to contribute to their blogs. Asks youth to write their ideas in their Design Notebooks.
3. Ask the groups to present their ideas to the whole group, one group at a time.
4. As a whole group, discuss the following questions after everyone has had a chance to present:
   - Which of the strategies proposed would encourage you to post to their blogs? Why?
   - Would your response be the same if the invitation to post was from a group of people you didn't see everyday?
   - What are some of the steps that you have to take before someone else can post to your blog?
   - Why do you think people might like to post to others' blogs?
5. Ask youth: Is there any one of these strategies you'd like to try out in the group? (If so, youth can try them out in the next part of the session.)

Evidence that youth consider their audience

Any number of strategies might work here; there is no right answer, but you should listen for evidence that youth are considering how their audience might respond and are also examining multiple strategies—not just one. In the group discussion you should hear

examples of youth weighing the benefits of each. In addition, there are two critical steps that you should listen for as evidence that youth are considering the audience when implementing their strategies:

- The first step is enabling others to access their blog
- The second is communicating to others by some method the desire that they post to their blogs

Both of these steps are necessary. If the youth were actually carrying out the strategy, they might figure this out. Since this mini performance task, asks youth to generate a strategy and steps and write their ideas in their Design Notebooks. They may miss one of these two steps. Such explicit "thinking ahead of time" is a critical design skill; carefully specifying sequences of steps is something good designers do.

Given that the youth have also been thinking about Internet safety, their strategies may include some of this thinking. Give them feedback on when their strategies are logical and when they might need some more thought.

Challenge

Time: 70 minutes

Purpose: Youth implement the strategies that they developed in the previous activity to navigate to each other's blogs and write a design and content-related comment.

Materials

- Computers with Internet access
- Youths' blogs
- Blog Design Requirements Checklist

To Do

1. Encourage youth to read each other's blogs and respond with two comments:
   - A design-related comment. Does the blog meet the design criteria (see Design Criteria Checklist). If not, what could be improved?
   - A content-related comment. A comment about what youth are seeing/reading.
2. To comment on each other's blogs, youth will need to click on the comments link at the bottom of each post. A page with a space for commenting will appear. Youth should type their comments in the box and then click Login and publish. If they are not logged in at the time, they will also need to enter their usernames and passwords in order to post.
3. Once they have commented, youth can go to their own blogs and read the comments their friends have made.
4. Youth can also use this time to update their own blogs based on comments.
5. Encourage youth to find the URL for each others' blogs and experiment with creating hypertext links to each others' blogs. Let youth experiment and struggle a bit with figuring out how to insert a hypertext link. The purpose of letting the youth struggle and find their way is to build their confidence in using technology. If they need help, refer to the tech tip below.

Tech Tips

To add links, begin creating a post. Type the text you want to link. Highlight it, and then click on the Link button in the toolbar directly above the post. A pop-up will ask you to enter the URL you want to link to. For example, you could type Whitehouse in the post, highlight it, then enter http://www.whitehouse.gov in the pop-up, click OK, and in your post, the words Whitehouse will appear as a hyperlink to the website.

Discussion/Reflection

Time: 30 minutes

Purpose: Youth reflect on their experiences using blogs, and what they've learned about blogs and the Web.

Materials

- Flip chart or whiteboard to capture youths' reflections

To Do

1. Gather youth together—away from their computers so their full attention is on the discussion.
2. Create two sheets on the flip chart or whiteboard, each with two columns. Label one sheet "Blogs" with two columns: "I liked" and "I found challenging." Label the second sheet "What I learned" with two columns: "Blog" and "Web." Capture the youths' thoughts accordingly.
3. Ask youth:
   - What did you like about creating your blog or posting on other blogs?
   - What was challenging about creating your blog or posting on other blogs?
   - What did you learn about blogs or the Web when you created your blogs?
   - What did you learn about blogs or the Web by creating hypertext links in your blog or someone else's?
   - What did you learn about blogs or the Web by posting to someone else's blog?

Week 12: Site Visit and ICT Visitors

Summary

Schedule

Warm-Up	Youth prepare for site visit: they take on roles and tasks.	15 min
Challenge	Youth research the organization they will visit.	
	Youth explore related careers.	30 min
	Youth review their questions for the ICT professionals.	
Site visit occurs		2hrs
Main Activity	Youth create ICT professional snapshots.	30 min
Discussion/Reflection	Youth reflect on the essential questions and the careers they encountered	15 min
Total Time		**3 hr 30 min (or more)**

Essential Questions

- How does the form of a communication tool relate to its function?
- How does information travel on the Internet?
- How does your audience and the intent of the communication affect your technology choices?

Design Process Concepts Involved

- Research it.
- Brainstorm.
- Sketch it.
- Develop designs.
- 

Materials

- 2 Gathering Bags (recycled bags), for Gatherers
- 4 Clipboards, for Interviewers & Gatherers
- 2 Digital Recorders (optional), for Interviewers
- 2 Digital cameras that have filming capacity and 2G SD cards, for each Photographer
- 2 Sets of Colored pencils, for ***Sketch Artists***
- 2 Vellum spiral bound drawing books (or other bound sketch book i.e. sketch/artist pads of paper that are 11"x8.5"), to use as "Innovation Notebooks" for Sketch Artists
- 8 (2 of each role) Site visit Planner "Role Sheets" for "Gatherer, Interviewer, Photographer & Sketch Artist"
- Optional: LCD projector projecting "Role Sheets" for volunteers to read from. If not then all youth should have a copy of all 4 "Role Sheets" to be informed and/or so volunteers can support youth in these roles.

Getting Ready

Overview

Youth learn about an organization by going on a site visit, or an ICT Professional visits the youth in program. Youth prepare questions based on the unit's essential questions and develop an ICT professional snapshot for Family Tech Night. A picture or capture of the ICT professional snapshot can also be used to send as a thank you to the ICT professionals.

The Warm Up and Challenge are preparation sessions that should be done the week before or week of the site visit (or ICT visitor). The Main Activity and Discussion are for after the site visit. It is important to "bookend" the preparation, and reflection sessions around the fieldtrip so that youth can have a full experience. Complete the Main Activity and Discussion as soon as possible after the site visit. ICT4me Unit 4 has slightly shorter site visit curriculum. The main difference is that Unit 4 needs extra time for preparing the Networked Classroom of the Future project. Facilitators can make choices about how to organize the site visit prep, site visit, and reflection based on the two site visit sessions written in the curriculum. The most important aspects of a site visit are that youth are intentionally

engaged during the trip, meet ICT professionals, and process what they learned on the site visit.

Glossary

Field notes. Scientists take notes during or after an observation of a specific event they are studying. These notes are usually very descriptive so other scientists who read the notes can easily recall details or information about the event.

Preparation:

1. Make site visit plans. See the ICT Site visit Packet for details.
2. Make sure it's ok for youth to take pictures at the organization you plan to visit. Learn what is permissible and where they won't be able to take photos.
3. Learn about the organization your youth will visit. Provide pointers appropriate URLs and resources for the Challenge section.
4. If possible, brief ICT professionals about the career-related questions that youth will be asking them. Provide them a list of questions youth may be asking and themes/points to aim to cover during the visit.
5. Make sure that the youth have been assigned defined roles of Gatherer, Interviewer, Photographer and Sketch Artist. Two youth per role, totaling eight youth on the trip.
6. Have two digital cameras.
7. Make sure you collect the digital cameras and the Design Notebooks/clipboards, drawings and interview Q & A directly AFTER the site visit.
8. Prior to the Challenge activity, create a Snapshots document. Go to http://www.engineergirl.org/Engineers/dayinthelife.aspx, the organization's website, and other online resources to prepare a list of snapshots and their URLs in a Word document for youth to explore. These links should be careers related to what they might see on the site visit. Put the list on youths' computers.

Warm-Up

Time: 15 minutes

Purpose: Youth prepare for site visit, dividing roles and tasks.

Materials

- 2 Gathering Bags (recycled bags), for Gatherers
- 4 Clipboards, for Interviewers & Gatherers
- 2 Digital Recorders (optional), for Interviewers
- 2 Digital cameras that have filming capacity and 2G SD cards, for each Photographer
- 2 Sets of Colored pencils, for Sketch Artists
- 2 Vellum spiral bound drawing books (or other bound sketch book i.e. sketch/artist pads of paper that are 11”x8.5”), to use as “Innovation Notebooks” for Sketch Artists
- 8 (2 of each role) Site visit Planner “Role Sheets” for “Gatherer, Interviewer, Photographer & Sketch Artist”
- Optional: LCD projector projecting “Role Sheets” for volunteers to read from. If not then all youth should have a copy of all 4 “Role Sheets” to be informed and/or so volunteers can support youth in these roles.

To Do

1. Tell youth that one of their goals for this site visit is to learn about women in ICT careers and they will be sharing what they learned on their site visits with their friends and family at Family Tech Night.
2. Tell youth that to help us create a record of what we saw and learned, we will have roles to play while on the trip. Quickly list the roles to the youth (you will go over these roles in greater detail later on):
   - Gatherer
   - Interviewer
   - Photographer
   - Sketch Artist

3. Youth should interview and interact with 4 or 5 professionals. If there is an ICT professional visitor instead a site visit youth can still interview, but the interview will need to be conducted by the group rather than one or two youth. They should gather the following information through questions about the professionals who they meet:
   - Job title
   - What they do
   - What they like about their job
   - Their life outside of work
   - Their hobbies and interests (current and during middle school, high school, college)
   - Their educational background
   - Their career path
4. Ask them to gather information or mementos (e.g., business card, brochures, key URLs) on their site visit, so they can create an ICT Professional Snapshot (see Activity Page "ICT Professional Snapshot Template". These ICT Professional Snapshots can be digital if resources and time allow.
5. Define roles and tasks by handing out or projecting specific "Role Sheets". Ask youth to volunteer to read a "Role Sheet." Be sure to ask youth open-ended questions to check for understanding and clarify what this role is asking.
6. It is important to print out "Role Sheets" in color to foster excitement and to meet youths' different learning styles.
7. Discuss the concept of taking "field notes" and why they may be important with any of these roles.
8. In your own words remind youth of the essential questions of the unit. Have them brainstorm questions they have related to these topics to add to the "Interviewer Role Sheet."
9. Pre-assign or ask for volunteers to fill each role, with at least two youth in each role. For the first site visit, pre-assign youth who have exhibited strong leadership, are inquisitive, and looking for an opportunity to learn more. Preselecting the first site visit's set of youth will provide models for youth to follow in future site visits.
10. Discuss with youth who do not have an assigned/volunteered role how they can best support their peers who are in specific roles.

Challenge

Time: 30 min

Purpose: Youth research organization they will visit

Youth explore related careers.

Youth review their questions

Materials

- Computers with Internet access
- Projector connected to facilitator's computer

To Do

1. Show organization's website. Encourage youth to go on a virtual site visit with you to prepare for the real site visit. Show the website pages that feature what the organization does and its key products.
2. Ask youth a few questions about the organization:
    a. Do they know the product produced or have they used the product?
    b. Has anyone visited the location before?
    c. If yes, ask youth what they learned. If not, ask youth what they think may happen at this place, site, and location.
3. Ask youth what professionals they think work at the organization and what they do on a daily basis in their work.
4. Record all youths' thoughts on the board or newsprint sheet to compare to the actual experience they have during the site visit. Save this for later use.
5. Have youth go to their Snapshots document on their computers. (You create the Snapshots documents in the Getting Ready time.) These links are careers related to what youth might see on the ICT professional visit.
6. Ask youth to go to the website on their computer and find a career they think they might learn more about
7. Ask youth to write three questions that they have now that they've learned something about the organization, its products, and the types of careers they might encounter.
8. Ten minutes before session is over make sure that the interviewers have these questions. Check in to see if specific youth want to ask their questions.

Main Activity

Time: 45 minutes

Purpose: Youth create ICT Professional Snapshots. (This activity can happen if youth met ICT professionals during the site visit, or after an ICT professional visit)

Materials

- ICT Professional Snapshot template on flip chart paper
- Notes from the Challenge that captured students' thoughts about what they might see on the site visit
- Pens and markers
- Scissors
- Tape
- Glue
- All materials collected during the site visit
-

To Do

1. Ask youth: Who did we meet on the site visit? Or who came to visit? Capture the names of the ICT professionals on a flip chart or board.
2. Ask youth: Of these people, who do we have pictures for? (Mark a "P" next to the name that youths' say they have pictures for) Who did we interview? (Mark an "I" next to those people's name).
    a. Everyone who has an "I" and a "P" should have an ICT professional Snapshot developed. There should be at least 4 or 5 professional snapshots that the youth can work in teams to develop.
    b. If needed, youth can use profiles they liked on http://www.engineergirl.org/ or other websites with relevant careers as well.
3. Have youth work in teams, with each team member having captured the same ICT professional and having different roles. Or there can be teams of interviewers, gatherers, sketch artists, and photographers who cycle through to each snapshot, putting up what they have for each person.
4. See the ICT Professional Snapshot template in the Activity Pages for all the elements and rough layout of directions for creating a large Snapshot on a flip chart page.

Discussion/Reflection

Time: 15 minutes

Purpose: Youth reflect on the essential questions in relationship to the careers and products that they encountered.

Materials None

To Do

1. In the products that you saw in the site visit [name a product], what did you learn about the relationship between the form and the function of this product?
2. Was there anything that surprised you about these tools?
3. What did you learn about the people who design and develop these tools?
4. From observing how these tools work, did you learn anything new about how information travels on the Internet?

Week 13: Performance Task: Adding to Your Blog or Club

Summary

Schedule

Warm-Up	Youth play the Form-Function Game	15 min
Challenge	Youth identifying interesting things to do in a blog or group.	40 min
Main Activity	Deciding whether to use a blog or group for the task.	40 min
Discussion/Reflection	Youth reflect on the differences between blogs and groups.	30 min
Total Time		**2 hr 5 min**

Essential Questions

- How does the form of a communication tool relate to its function?
- How does information travel on the Internet?
- How does your audience and the intent of the communication affect your technology choices?

Design Process Concepts Involved

- Test it.
- User feedback
-

Materials

- Form-function Game card for each youth, or make cards (see instructions on Game card)
- Paper and pens
- Design Notebooks
- Facilitator Page: Rubric for Matching Form with Function
- Chart paper
- Computers with Internet connection
- " Starter" list of activities

Getting Ready

Overview

This performance task is designed to get youth thinking about the different communication technologies that they've used, specifically whether they would choose a Blog or a group (a.k.a. Cyberclub) to do certain online activities.

Glossary

- No glossary items this week.

Background

Prepare a form-function set of game cards for each youth, following the instructions on the "Forms and Functions Game Instructions" activity page.

For the warm-up, you will need to make up form-function game cards using the list of forms matched to functions. Each card should have a balance of "easy" items and "difficult" items. Easy items are items that are objects that youth will be familiar with, but difficult items relate to technology features the youth may have encountered in the curriculum.

For the challenge and main activity, you will need chart paper and pens. In addition, having a few computers connected to the Internet available would be useful, in case youth want to try out or explore certain tasks to see whether they think they are better for a blog or a group.

The basic similarities and differences for blogs and group tools are illustrated in the following Venn diagram chart. For some purposes, a case can be made for using either. In general, blogs are best for people writing their ideas down when they want periodic reactions to from others. Group tools are good for more interactive communication and collaborations.

Blogs	Both Blogs and Group Tools	Group Tools
Share a story or series of articles.	Respond to an idea or story.	Engage in a conversation with others (multiple responses).
Post an idea you want reactions to.		Work with others on a project (multiple interactions).

You may wish to use the rubric as a basis for the discussion and reflection, either to guide your own feedback to youth or as a guide to conversation with them about their work.

Warm-Up

Time: 15 minutes

Purpose: To refresh participants' understanding of the differences between form and function for a range of designed objects, including technologies.

Materials

- Game cards ("Forms and Functions Game Instructions" activity page)
- Pens or pencils

To Do

1. Hand out a set of game cards to each youth in the room.
2. Next, give youth 5 minutes to make as many "matches" of forms to function they can find. Provide them with an example to start with:
   - Suppose you had been given "Spout on a Teapot." You would want to find another youth who had something on their game card that describes the function of the Spout, like "Makes it easier to pour liquid into a cup." When you find a match, write down the form or function (the match that you do not have) and who has it on your card.
3. After time is up, ask the youth how many matches they found. If there are some forms or functions for which they do not have a match, ask the youth to say them out loud. Give youth the opportunity to help each other try and identify a match.
4. Tell youth that the rest of today's activities deal with form and function. You will use what you learned about how to match form with function in the next design activities.

Challenge

Time: 40 min

Purpose: Youth compile a list of tasks that they think will be interesting for others to do on their blog or group. Youth use feedback from the group to judge the "interestingness" of the tasks.

Materials

- Chart paper
- Pens
- Activity Card: "Starter" List of Blog/Group Activities

To Do

1. Post the "Starter list" of activities on chart paper or pass out handouts to the youth. Explain that this list includes activities that some youth might find fun to do online. These activities could be done in a group, by using a blog, or both.
2. Ask the youth to get into small groups of 2-3 youth.
3. Tell youth: You are going to create 4 more ideas of what you think might be interesting for youth to do on blogs or Cyberclub groups.
4. Give youth 10-15 minutes to come up with new ideas.
5. Ask the different groups to share their ideas, and record their ideas on the chart paper.
6. Next, explain that we want to get a sense of which of these activities might be most interesting by polling the group on how interesting they are.
7. To do this, make a diagonal line across the room. (Use masking tape or some other marker.) Tell the youth one end represents "really interesting," the other "totally boring," and the middle is "neutral, the idea is okay"
8. Next, read out one activity at a time, and ask the youth to go and stand along the line about how they feel about that activity. Is it really interesting to them? Is it totally boring? Is it somewhere in the middle?
9. Keep track of which are the eight or so most popular activities with youth, record this on the chart.

Main Activity

Time: 40 minutes

Purpose: Have youth demonstrate their understanding of form-function relationships by considering whether to implement the activity on their blog or Cyberclub.

Materials

- Chart paper
- Computers with Internet access
- Pens
- Activity Page: Starter List of Blog/Group Activities

To Do

1. Ask the youth to reform in the small groups from the previous activity.
2. Tell them that for each of the activities they listed from the Activity Page "Starter List of Blog/Group Activities", they need to decide whether it would be best to do these in a blog or in a group. Tell them that they will need to be prepared to explain to another group *why* they selected a blog or group by showing:
   - How the *form* of blogs or groups best support the *functions* that are needed to do the activities.
   - Have youth write their thoughts and explanations on chart paper. Tell youth to use a table or Venn Diagram to show their ideas.
3. After 10 minutes or so, ask each group to join with one other group (called a comparison group) and to compare their lists like so:
   - Mark which activities they agreed on with a star
   - Mark which activities they disagreed on with a question mark.
4. Groups should be prepared to talk with the whole group about why they made the choice they did, or why they disagreed.
5. As a whole group, discuss the differences between each of the comparison groups' findings. You might consider asking for comparison group volunteers to indicate what decisions they made for particular activities, and then compare their responses to groups who had different choices.
6. After discussion, ask youth to check on their blog or Cyberclub group and see if any of the activities fit with their creations. Have youth note these thoughts in their Design Notebooks. This task may cause youth to question their original communication tool/design choices, or it may confirm their opinions about the best form for activities.

Discussion/Reflection

Time: 30 minutes

Purpose: Make visible youths' thinking about the differences between blogs and groups and how youth would use these tools.

Materials
- Design Notebooks

To Do

1. Pose the following questions to the youth for group discussion. As you hear their answers, think about how you would rate their ideas on the attached rubric. The questions are matched to the rubric. In other words, each question relates to an aspect of students' thinking that will help reflect on their form and function skills.
2. Ask youth:
   - What did you find?
   - How would you implement the activity in the form (blog or group) you chose?
   - How would the activity work in the other form?
3. After completing this activity, what in general do you think is the difference between blogs and groups?

Weeks 14 & 15: Family Tech Night (FTN)

Summary

Schedule

Warm-Up - Brainstorming a plan for the FTN (Family Tech Night)	Youth brainstorm projects and examples they want to share.	20 min
Challenge - Creating a plan for FTN	Youth complete project and develop presentations.	80 min
Discussion/Reflection	Youth discuss enduring understandings and reflect on what they've learned.	20 min
FTN Presentations	Youth and facilitators host FTN, which may extend into the evening to accommodate adults' schedules.	2 hrs
Total Time		**4 hrs**

Essential Questions

- How does the form of a communication tool relate to its function?
- How does information travel on the Internet?
- How does your audience and the intent of the communication affect your technology choices?

Design Process Concepts Involved

- Test it.
- User feedback

Materials

- The work youth completed during the unit
- Design Notebooks
- Presentations and project materials
- Extension cords
- Computers with Internet access
- Welcome Signs
- Other Signs indicating: stations, food, to help people find location
- Tape
- Markers
- Display boards
- Rulers
- Dry erase board
- Pencils
- Paper (white/color)
- Scissors
- Note cards
- Cameras
- Food
- Table covers/cloths
- Utensils
- Cups
- Napkins
- Paper towels
- Plates

Getting Ready

Overview

This is a chance for the youth to showcase to their family, peers, staff, and school community the work that they completed during the unit.

Glossary

- Terms presented throughout the Unit.

Background

Refer back to the unit's lessons. Family Tech Night gives youth a chance to revisit lessons completed throughout the unit. Use the work youth created, and information they learned, when presenting youths' projects on Family Tech Night.

Consider the following when preparing for Family Tech Night:

- Gather youths' projects to give you an idea of what is complete and what needs to be finished. Use the Blog and Cyberclub Design Requirements to see what has been completed.

- Make sure youth take a "facilitatorship" role in the planning and hosting the night. (Examples: Have youth plan how ideas will be presented. Have youth lead a short lesson with their guests and families.)
- Secure a space for FTN that will accommodate the displays of work and guests seating.
- Make sure you plan for the use of technology, including checking that Internet access is available and computers are working.
- Have a backup low-tech version in case the technology does not work or is slow (i.e. screen shot or pint-outs of a webpage).
- Provide food that guests would enjoy. It's also a good idea to have separate tables for eating away from technology.
- Encourage visitors to circulate. Try to create an information gathering game, like a scavenger hunt or station question list.
- Make the night creative, interactive and fun for youth and guests!

Examples for Unit 2. Creating E-mails, Blogs, Cyberclubs, and How the Internet Works.

Layout 1. Assign each Cyberclub a station with a computer. Have youth represent their Cyberclub to visitors at their station. Ask visitors to go around visiting each station. Limit each station to three visitors (this way, you ensure that all stations have participants).

Layout 2. In Unit 2 all work is on a computer, so it may be simple to use a computer connected to a projector to present all group projects. Have each group present their blog/Cyberclub as a professional presentation to the audience.

Tech Tips

Have low-tech back up plan. For example, a visual display of each blog or Cyberclub that doesn't require Internet access. You can have the youth take screen shots and put them in a PowerPoint presentation.

- How to Screen Shot: On the Mac, select apple, shift, and 4, then select the screen area you want; On the PC, select the PrintScreen button, then open PowerPoint or any application that will allow you to paste the image and then save the file.

You will definitely want to have this option handy on a flash drive if the technology isn't working, and you may find that the PowerPoint works better logistically than accessing the Internet.

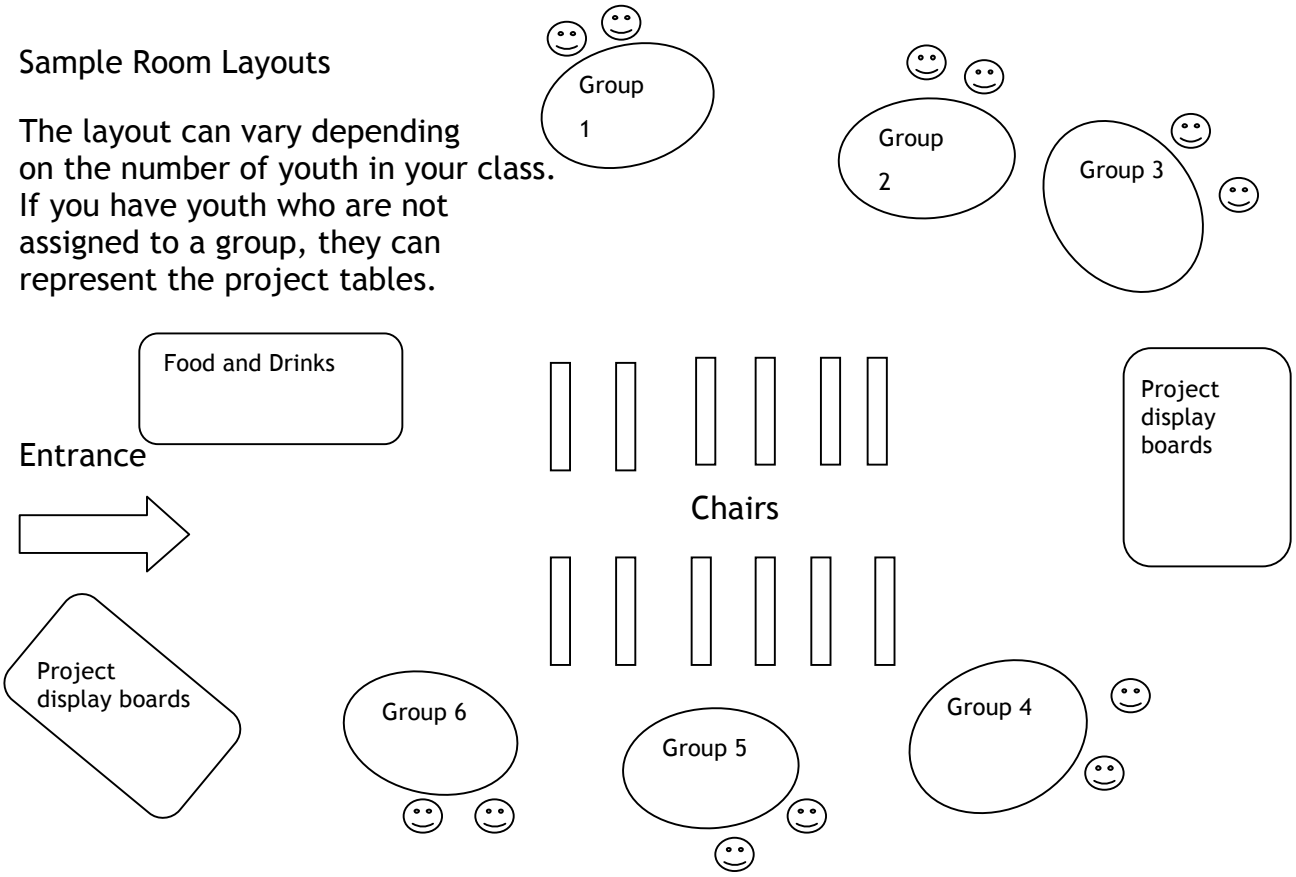
No matter which layout you choose:

- Let the youth show off the new skills they learned by setting up e-mails with parents.
- Have youth share their ICT Professional Profiles that they created.
- Have Design Notebooks out on display

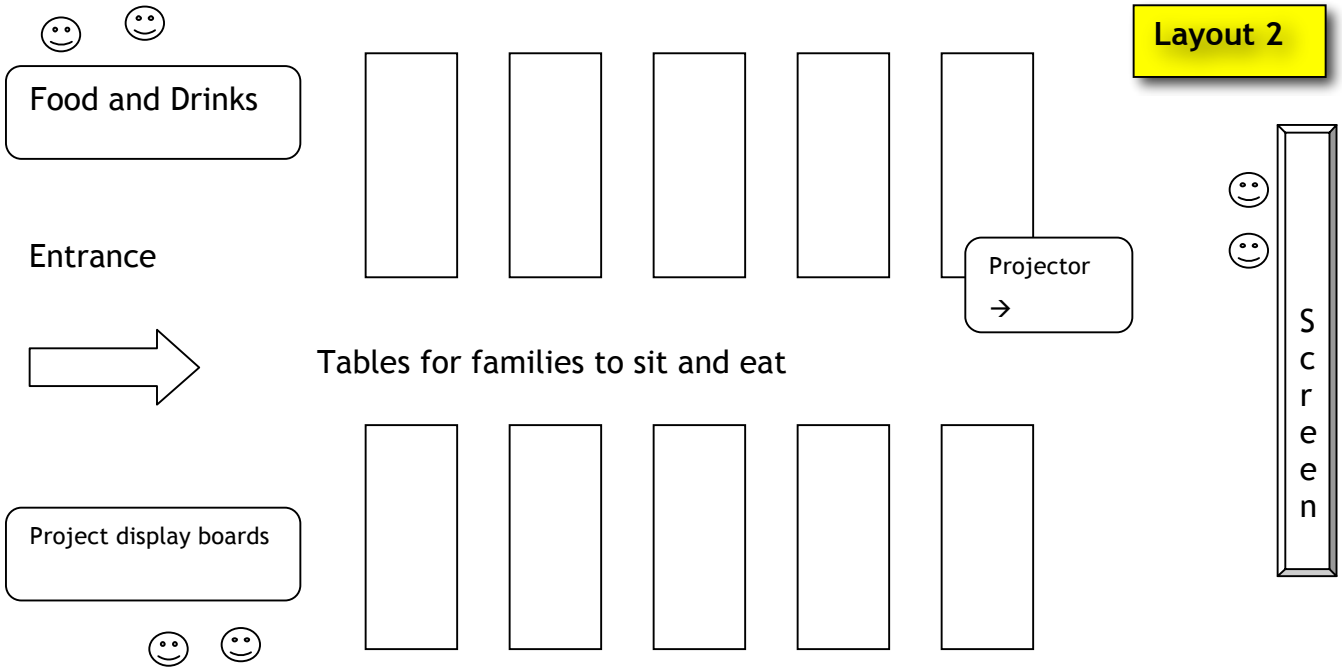
Layout 1

Sample Room Layouts

The layout can vary depending on the number of youth in your class. If you have youth who are not assigned to a group, they can represent the project tables.



Layout 2



Brainstorming a Plan for FTN

Time: 20 minutes

Purpose: Brainstorm projects that will be presented to parents/guardians/school staff on Family Tech Night.

Materials

- Large paper and markers
- Dry-erase board and markers

To Do

1. Before meeting with the youth, staff should have an idea of what projects have good examples of work to show.
2. Have youth come together in a large circle to brainstorm. A youth or facilitator can be the scribe.
3. Have youth think of the projects they want to show, facilitators can remind youth of what projects have good examples of work to show. Write down each one and tally how many times each one is stated.
4. Have youth choose what they want to work on in small groups of 3-4 youth. Make sure that each youth has a task to complete.
5. You can also focus on one project to show (i.e. youth Cyberclubs, blogs). Use brainstorming time to think of tasks, and project display boards that need to be completed for the event. Assign these tasks to youth. Make sure to emphasize that youth will show this project to their family, so they should work hard to present their best work!

Tips

- Keep in mind that you are facilitating the brainstorming session and you should already have some options youth can choose from.
- If only one project is highlighted during the night (i.e. the youths' Cyberclubs), it is important for youth to know that all ICT4me work is important. This is why all work is displayed on posters or boards.
- During the event, ask ICT4me staff to visit those stations that have fewer visitors.
- Remember to have food and beverages that the community you serve will enjoy!

Preparing for FTN

Time: 80 min

Purpose: For youth to make and create their displays to show off their projects for Family Tech Night.

Materials

- Markers
- Paper (white/color)
- Note cards
- Scissors
- Pencils
- Display boards

To Do

1. Once a list of tasks and responsibilities is created (from the previous brainstorming activity), share the list of roles with youth.
2. Ask for volunteers or assign roles to youth.
3. Have youth get into their preparation or presentation groups to determine what their stations will look like and how they will communicate knowledge of their project.
4. Facilitators should go around working with each group to ensure that their presentations use appropriate language, are well organized, and that their projects reflect the learning from the unit.
5. Allow time for youth to practice their presentations to the entire group. Have youth give "glows" and "grows". "Glows" are positive feedback—what youth liked. "Grows" are constructive feedback on what youth think could be improved.

Discussion/Reflection

Time: 20 minutes

Purpose: Youth reflect on what they've learned in the unit.

Materials
- Presentations and project materials that will be used at FTN.

To Do

1. Have youth gather in a circle and reflect on what they've learned during the unit.
2. Remind youth of the essential questions and ask them to respond to the questions now that they are at the end of the unit. The students' answers to these questions should be reflected in their presentations at FTN.

Essential questions for Unit 2

- How does the form of a communication tool relate to its function?
- How does information travel on the Internet?
- How does your audience and the intent of the communication affect your technology choices?

FTN Presentations

Time: 2 or more hours.

Purpose: Youth present what they've learned and designed

Materials

- Presentations and project materials
- Food – It's a celebration!
- Computers with Internet access

To Do

1. Set up the stations as planned. Make sure each youth has a role and responsibility.
2. Provide food. It's a good idea to have tables for eating separate from the technology.
3. Have a back up plan if technology is not working. For example, for Unit 2 you may want to have a PowerPoint capture of the participants' blogs and clubhouses so you are not relying on the Internet. Have copies of the PowerPoint on a pen drive or multiple computers.
4. Encourage visitors to circulate. Have visitors to go to every station and ask youth questions.
5. Have fun!

Activity Pages

Week 1

- Venn Diagram Cards
- Elements of a Web Page
- Facilitator Page: Answer Key for Elements of a Web Page
- Web Page Design (Electronic Activity)

Week 2

- How the Internet Works (Electronic Activity)
- Understanding URLs (Electronic Activity)
- Facilitator Page: Answer Key, E-mail and Website Paths on the Internet

Week 3

- Comparison Chart of Communication Tools
- Example Station Setup

Week 4

- Gatherer Role Sheet
- Interviewer Role Sheet
- Photographer Role Sheet
- Sketch Artist Role Sheet
- ICT Professional Snapshot Template

Week 5

- Cyberclub Design Requirements Checklist
- Designing Your Cyberclub
- Cyberclub Sketch
- Ideas for Possible Clubs

Week 6

- BART Subway System Map
- Washington, DC, Subway System Map
- Airplane Flight Routes
- Nina’s travels
- Pilot’s travels
- Cyberclub Connections (1)
- Cyberclub Connections (2)

- Graph Theory—a tool for software designers and engineers
- Original Use of Graph Theory
- Math in School—The Important Facts

Week 7

- Engaging Members Prompts
- Hosting A Gathering Plan
- Cyberclub Design Requirements Checklist

Week 8

- Cyberclub Design Requirements Checklist

Week 9

- Footprint Silhouette Example
- Example Blogs (Electronic Activity)
- Setting Up a Blog
- The Design Process poster
- Designing Your Blog
- Blog Design Requirements

Week 10

- Algorithmic Thinking Activity page 1
- Algorithmic Thinking Activity page 2
- Algorithmic Thinking Activity page 3
- Algorithmic Thinking Activity page 4
- Facilitator Pages: How to Do the Math Answer Key

Week 11

- Blog Design Requirements Checklist

Week 12

- Gatherer Role Sheet
- Interviewer Role Sheet
- Photographer Role Sheet
- Sketch Artist Role Sheet
- ICT Professional Snapshot Template

Week 13

- Starter List of Blog/Group Activities
- Form and Functions Game Card
- Facilitator Page: Rubric for Matching Form with Function

Venn Diagram Cards

There should be two sets of these cards, one for each team playing the “Communiputing Game”. Cards should be color coded for each team (i.e. Team 1 = Green, Team 2 = Violet).

Make 8 FTF cards. Each card should have one of the following phrases on it:

- whisper to a friend
- tell 4 people in a room that you are home
- make an announcement at an assembly of 100 people
- talk to your mom
- everyone talking at a party
- post a note on a bulletin board
- pass a note to a friend
- write a book

Make 8 Technology cards. Each card should have one of the following phrases on it:

- send email to 3 people
- send email to 1 person
- chat with 3 people
- post to your blog that 20 people read
- use an online group to work on an issue with10 people
- connect several blogs to address an issue
- join a social network
- use a discussion board for a class project

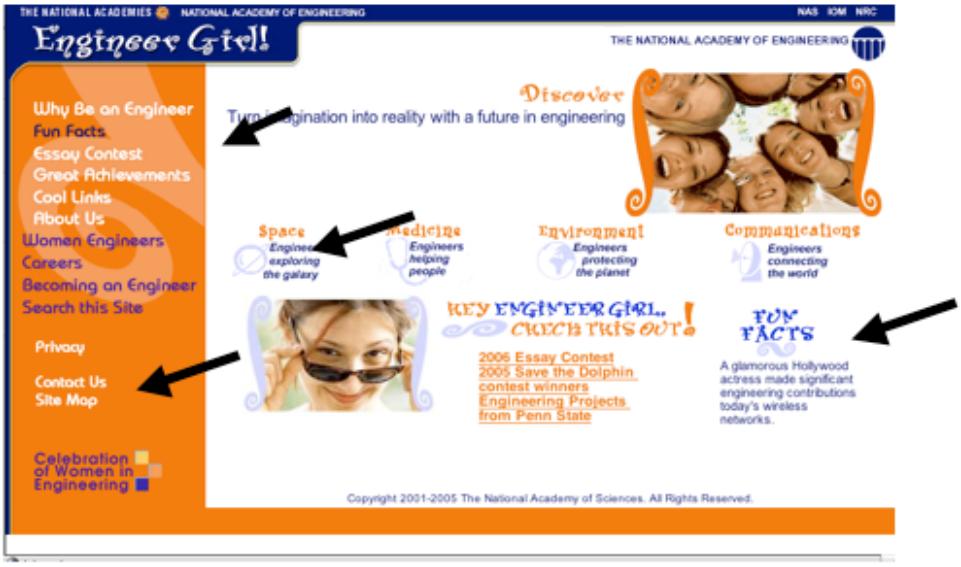
8 Blank cards, distribute two cards of each type to each team. On these cards, youth will write their unique communication ideas.

- 4 cards with the letters “FTF” in the corner
- 4 cards with the word “Technology” in the corner.

Elements of a Web Page

http://www.engineergirl.org

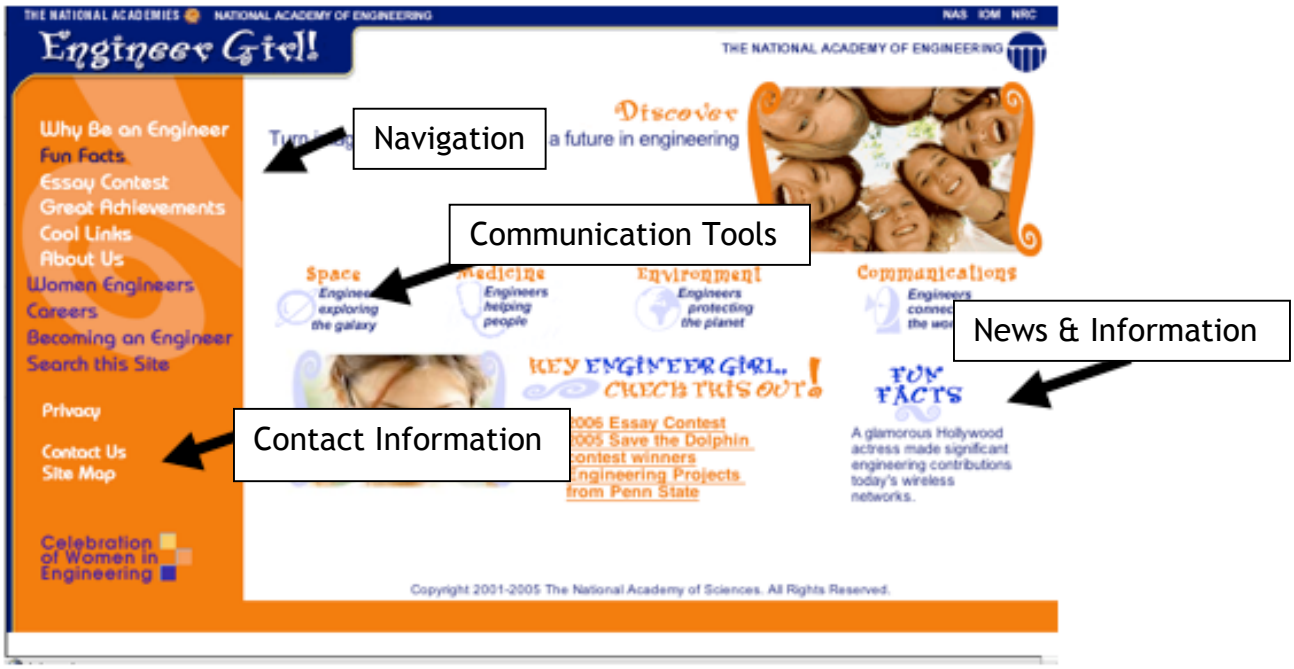
Label the elements of a web page, using the boxes of terms below:

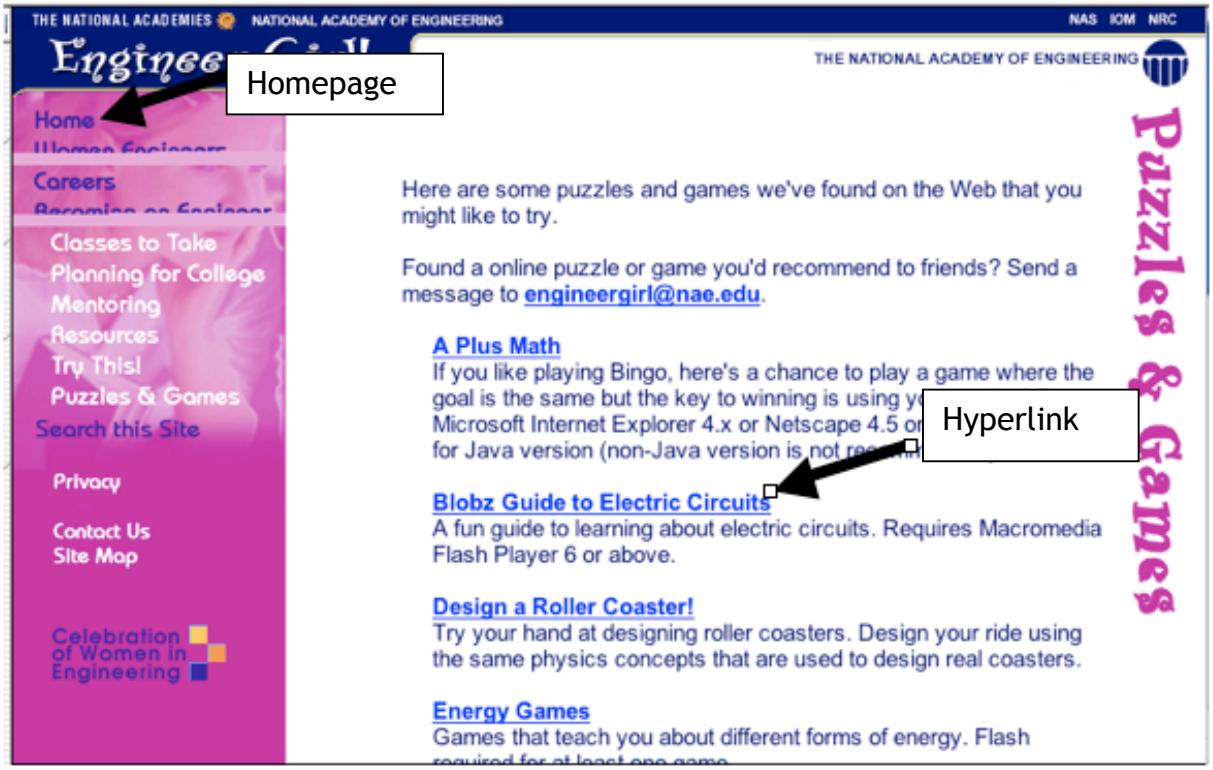


Navigation	is often on the left or at the top of the page. Navigation helps you find your way around a website.
Homepage	main page of the site, located at the domain name level (e.g. http://www.engineergirl.org)
Hyperlink	link to other pages on the website or to other websites
News & Information	web pages generally have information to share. Some of this information is updated on a regular basis (i.e. news)
Contact Information	way to contact the developer of the site via email address or other means
Communication Tools	facilitate communication among visitors to the site. The tools may also enable visitors to talk with developers. Tools may include discussion boards, polls, or chat.

Facilitator Page

Answer Key for Elements of a Web Page




THE NATIONAL ACADEMIES
NATIONAL ACADEMY OF ENGINEERING
NAS IOM NRC
Homepage
THE NATIONAL ACADEMY OF ENGINEERING
Home
Careers
Classes to Take
Planning for College
Mentoring
Resources
Try This!
Puzzles & Games
Search this Site
Privacy
Contact Us
Site Map
Celebration of Women in Engineering
Puzzles & Games
Here are some puzzles and games we've found on the Web that you might like to try.
Found a online puzzle or game you'd recommend to friends? Send a message to engineergirl@nae.edu.
A Plus Math
If you like playing Bingo, here's a chance to play a game where the goal is the same but the key to winning is using y
Microsoft Internet Explorer 4.x or Netscape 4.5 o
for Java version (non-Java version is not re
Hyperlink
Blobz Guide to Electric Circuits
A fun guide to learning about electric circuits. Requires Macromedia Flash Player 6 or above.
Design a Roller Coaster!
Try your hand at designing roller coasters. Design your ride using the same physics concepts that are used to design real coasters.
Energy Games
Games that teach you about different forms of energy. Flash

Web Page Design (Electronic Activity)

Choose two of the following websites to explore:

1. Discovery Kids at http://kids.discovery.com/
2. National Geographic Kids at http://www.nationalgeographic.com/kids/
3. Your favorite site—choose your own!

Website 1: Name and URL of the website _____

Where is the navigation on this site?

What is the main idea of this site?

Where is the contact information?

Click on one hyperlink. Where does it take you?

Is there a section for news and information? Click on it. What do you see?

What's one way that users of this site could communicate with each other?

Website 2: Name and URL of the website _____

Where is the navigation on this site?

What is the main idea of this site?

Where is the contact information?

Click on one hyperlink. Where does it take you?

Is there a section for news and information? Click on it.

What's one way that users of this site could communicate with each other?

How the Internet Works (Electronic Activity)

Go to the links and check out how the Internet works!

Learn the Net

Animations and graphics of how the Internet works

- Connecting to the Internet
  http://www.learnthenet.com/learn-the-basics/

- How Information Travels on the Internet
  http://www.learnthenet.com/learn-the-web/

- How e-mail works
  http://www.learnthenet.com/learn-email/
  http://www.wydea.com/topic?id=email

- Instant Messaging
  http://www.learnthenet.com/how-to/instant-message/index.php

Intel's *The Journey Inside*

- How Information Travels on the Internet
  http://educate.intel.com/en/TheJourneyInside/ExploreTheCurriculum/EC_TheInternet/ILesson3/

- Web Address: What is a URL?
  http://educate.intel.com/en/TheJourneyInside/ExploreTheCurriculum/EC_TheInternet/ILesson2/

- E-mail Address
  http://www.learnthenet.com/email-at-a-glance/addresses/index.php

Wikipedia's Text description of Instant Messaging

- Instant Messaging and IM address
  http://en.wikipedia.org/wiki/Instant_messaging

Understanding URLs (Electronic Activity)

Look at the following web addresses (URLs). Check out the websites. What do these addresses have in common? What is different?

Girls Inc.
http://www.girlsinc.org/

Engineer Girl
http://www.engineergirl.org/

San Francisco State University
http://www.sfsu.edu/

Oakland Unified School District
http://www.ousd.k12.ca.us

Google España
http://www.google.es/

Universidad Regiomontana
http://www.ur.mx/

White House Education
http://www.whitehouse.gov/issues/education

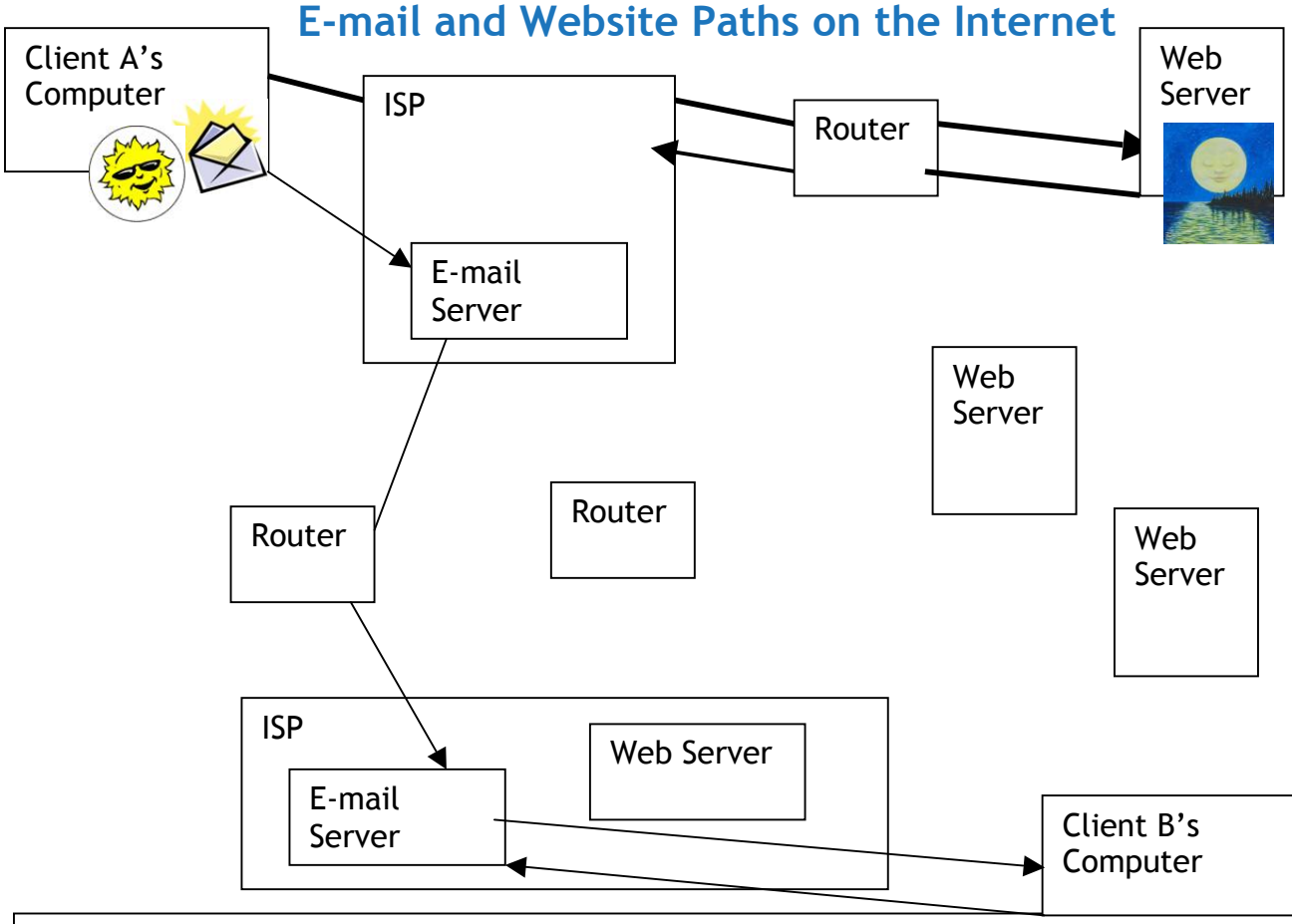
First Gov for Kids: Careers
http://www.kids.gov/k_careers.htm

National Geographic Kids
http://kids.nationalgeographic.com/

National Geographic
http://www.nationalgeographic.com/

Scholastic News
http://magazines.scholastic.com/

Facilitator Page: Answer Key
E-mail and Website Paths on the Internet



Key

E-mail path

E-mail  and image  start on client computer.

Requests occur when client A asks their e-mail server to send e-mail and when client B asks their e-mail server for their e-mail messages.

Web path

Image starts on server. Request is when Client A asks for image  from web server.

The requests, e-mail, and images are not part of the network infrastructure.

Shown here are just the main network lines needed for the e-mail message and web requests. More connections and more computers (i.e., clients, servers, and routers) could be made.

Comparison Chart of Communication Tools

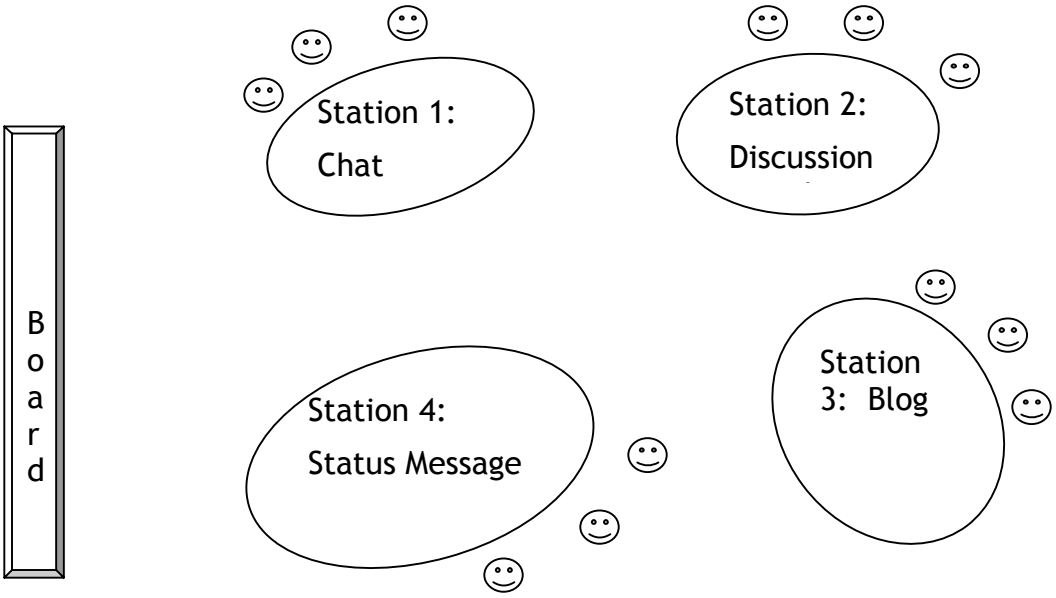
Complete a row for each communication tool. The last column allows you to rate the overall fit with your communication needs (i.e. your scenario). Rate the tool by 1 = not a good fit; 2 = it fits enough to do some things, 3 = fairly good fit, 4 = good fit, to 5 = the best fit.

Tool Used Discussion board, chat, blog, status messages, etc.	**How do you communicate using this tool?** Synchronous (online at the same time) or Asynchronous (not at the same time)	**Advantages** Try to think of at least 3	**Disadvantages** Try to think of at least 3.	**Overall fit** **with your communication needs**	**RATE**
					1 **2** **3** **4** **5**
					1 **2** **3** **4** **5**
					1 **2** **3** **4** **5**
					1 **2** **3** **4** **5**

Example Station Setup

Sample Room Layout

The layout can vary depending on the number of youth in your class.
You can have more than 1 type of each station if you have enough computers.

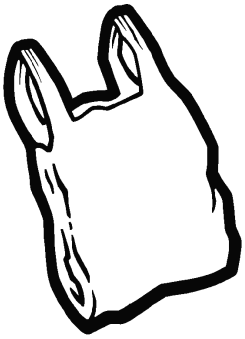


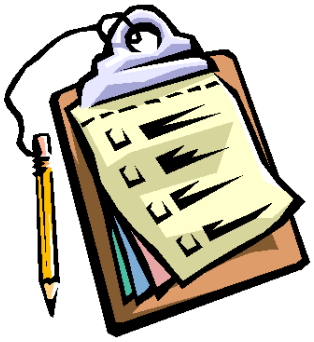
Gatherer Role Sheet

Your role is to work with your partner to collect "field data" from the place you are visiting tomorrow on your site visit and fill your bag! Open your eyes wider than they have ever been before! Look where others may not be looking. See yourself as a true investigator that has just arrived on the scene!

Things to consider for your investigation and "Gatherer Bag" of goodies:

1. Brochures
2. Business cards
3. Leaflets
4. One pagers for visitors
5. Samples, giveaways, or goodies!
6. Logo of the business or site
7. A leaf, small rock, some small natural memento from the walk up to or around the site
8. Write down any quotes, clues, key phrases or mottos that the business says a lot. Or slogans the organization believes in like Girls Inc's motto, "Strong, Smart & Bold"
9. Help direct your "Photographer" partners to scenes, processes, objects and people to consider photographing and filming.





Interviewer Role Sheet

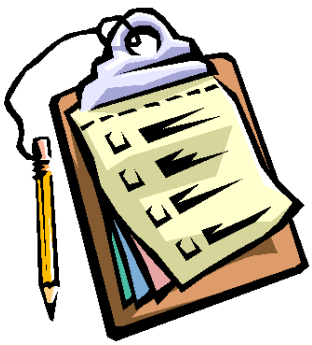
Your role is to work with your partner to collect information by interviewing the "ICT Professionals" at your site visit. You can use the questions below—but you don't have to use all of the questions. Practice asking questions with your partner before the trip. Get comfortable with introducing yourself, in making eye contact and thanking the person that you interviewed. Have fun with it! This is your chance to become a journalist and reporter! Imagine yourself in the bright lights on location on the evening news!

Questions to consider asking. Plan what questions you will ask and which ones your partner will ask, or one partner asks while another writes and uses the digital recorder:

1. What is your official job title?
2. How do you see women having an impact in this field?
3. How would you describe what you do here?
4. What do you like the least about your job?
5. What do you like about the most about your job?
6. Please describe your life outside of work.
7. What hobbies and interests did you have growing up related to this job? (current and during middle school, high school, college)
8. What is your educational background?
9. Please describe your career path and what lead you here today.

These are questions to ask of your fellow ICT4me youth that are on the trip:

10. What is something new you learned today?
11. What did you learn today that was different than what you before coming on this trip, a myth that was exposed today?
12. What do you want to know more about?
13. What should people know who did not go on this site visit?



Photographer Role Sheet

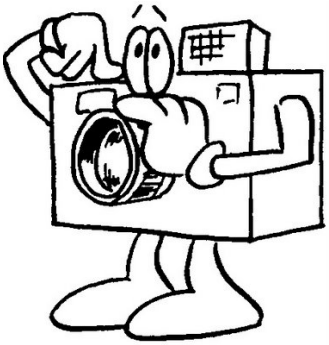
Your role is to work with your partner to capture pictures of your site visit experience. This is your shot of being a real camerawoman on the scene! You get to be the eyes of the day. Shoot with your perspective and find images maybe others will not see. Consider the background—is what you're seeing through the lens telling the story of what you want to share? You have a very important role.

Focus the organization that you are visiting and the professionals that you are meeting. Be careful of wearing down the batteries—limit the photos of youth just posing.

Plan with your partner who will take pictures of certain things so you don't have too many photos of the same things. Remember to ask for permission if you're taking pictures of people!

Here are some things to look for:

1. Special types of buildings
2. Equipment/Tools of the trade
3. Posters, Charts, Equations, etc.
4. The location/site
5. ICT Professionals who say it's ok to take their pictures (ask for permission)
6. People at work (if they say it's ok)
7. Other ICT4me youth learning, trying out tools, talking about what they like on trip, etc

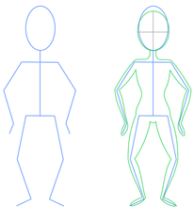


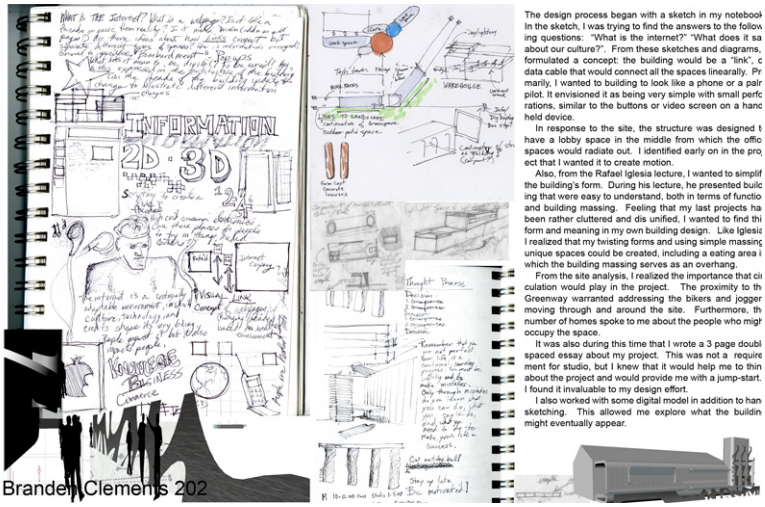
Sketch Artist Role Sheet

Your role is to work with your partner to sketch cool things you are witnessing on your site visit! This is your start as a "live artist." Just like the courtroom sketch artists that show the scene because cameras are not allowed! You get to capture in small sketches what others may not see! Remember sketches do not always have to be pictures it can be words on a board, one detailed part of a machine, a sign posted on site, someone's name tag, someone's hand using equipment…"stretch" or should I say "sketch" your mind!

Plan with your partner who will sketch images of certain things so you don't do double the work. Try to be original and sketch what your partner isn't seeing. What to look for photos:

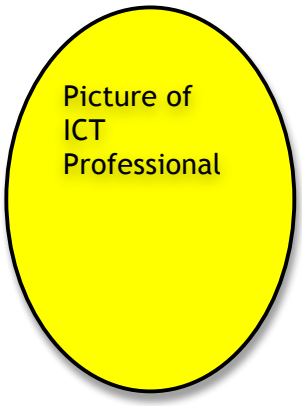
1. Interesting parts of buildings
2. Equipment/Tools of the trade
3. Posters, Charts, Equations, etc.
4. The location/site
5. Processes that you see people doing to get their work done. Can you make the process a flow chart?
6. Remember to be creative! A page of 5-10 small sketches that you can color in with colored pencils/markers at lunch time, on the bus or finish during the next ICT4me session is perfect planning!

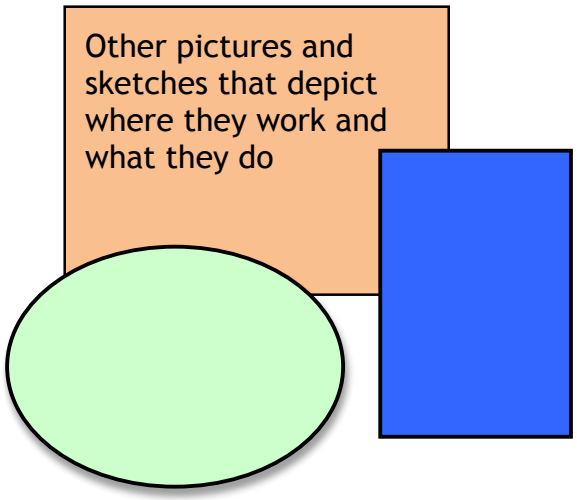




ICT Professional Snapshot Template

This is an example of how you can organize the information and images you gathered to create an "ICT Professional Snapshot." The snapshot is meant to give other people a good idea about what you learned in a visually interesting way, like a poster or trading card. Use your creativity and have fun!





Name

Job title

What they do

URL for their bio

Why is their job important?

Explain how their work helps other people.

About [Name of ICT Professional]

- What they like about their job
- Their life outside of work
- Their hobbies and interests

What do they create?

- Describe product or service
- URL for their products/organization

Education & Experience

- Their educational background
- Their career path

Cyberclub Design Requirements Checklist

Follow these requirements to complete your Cyberclub:

1. Develop **a clear goal:** Think of what the point of your club is and what you want your club to accomplish. That is your goal. Write it out in one or two sentences. (Use the Design Your Cyberclub handout to help you develop your goal.)
2. Your Cyberclub needs to have the following:
   - ☐ Create a **name** for your group's Cyberclub
   - ☐ Write down the URL for your Cyberclub:
     _____
   - ☐ **Edit** your **Information** to encourage people to become club members
   - ☐ **1st topic** on discussion forum related to Cyberclub's goal
   - ☐ **2nd topic** on discussion forum related to Cyberclub's goal
   - ☐ **Write a Text Box** message
   - ☐ **1st link** to a place on web related to Cyberclub's goal (links can be on the discussion forum)
   - ☐ **2nd link** to a place on web related to Cyberclub's goal
   - ☐ **3rd link** to a place on web related to Cyberclub's goal
   - ☐ **1st image** related to Cyberclub's goal (this can be in the discussion forum)
   - ☐ **2nd image** related to Cyberclub's goal
3. From hosting a gathering:
   - ☐ **1st activity** for club members to help accomplish Cyberclub's goal. Include one communication tool in this activity
   - ☐ **2nd activity** for club members to help accomplish Cyberclub's goal. Include a different communication tool in this activity from that in the 1st activity.
4. Make your Cyberclub interesting! You want to get people to visit your Cyberclub and to participate in the activities.

Designing Your Cyberclub

Group name _____

Define the problem

a) In one sentence, what is the main point of your club? (Use this as your Tagline)

_____

_____

_____

Brainstorm

a) Why will people want to join your club?

_____

_____

_____

b) How will club members work together using your Cyberclub? (Think of something club members can share that is related to the topic of your group.)

_____

_____

_____

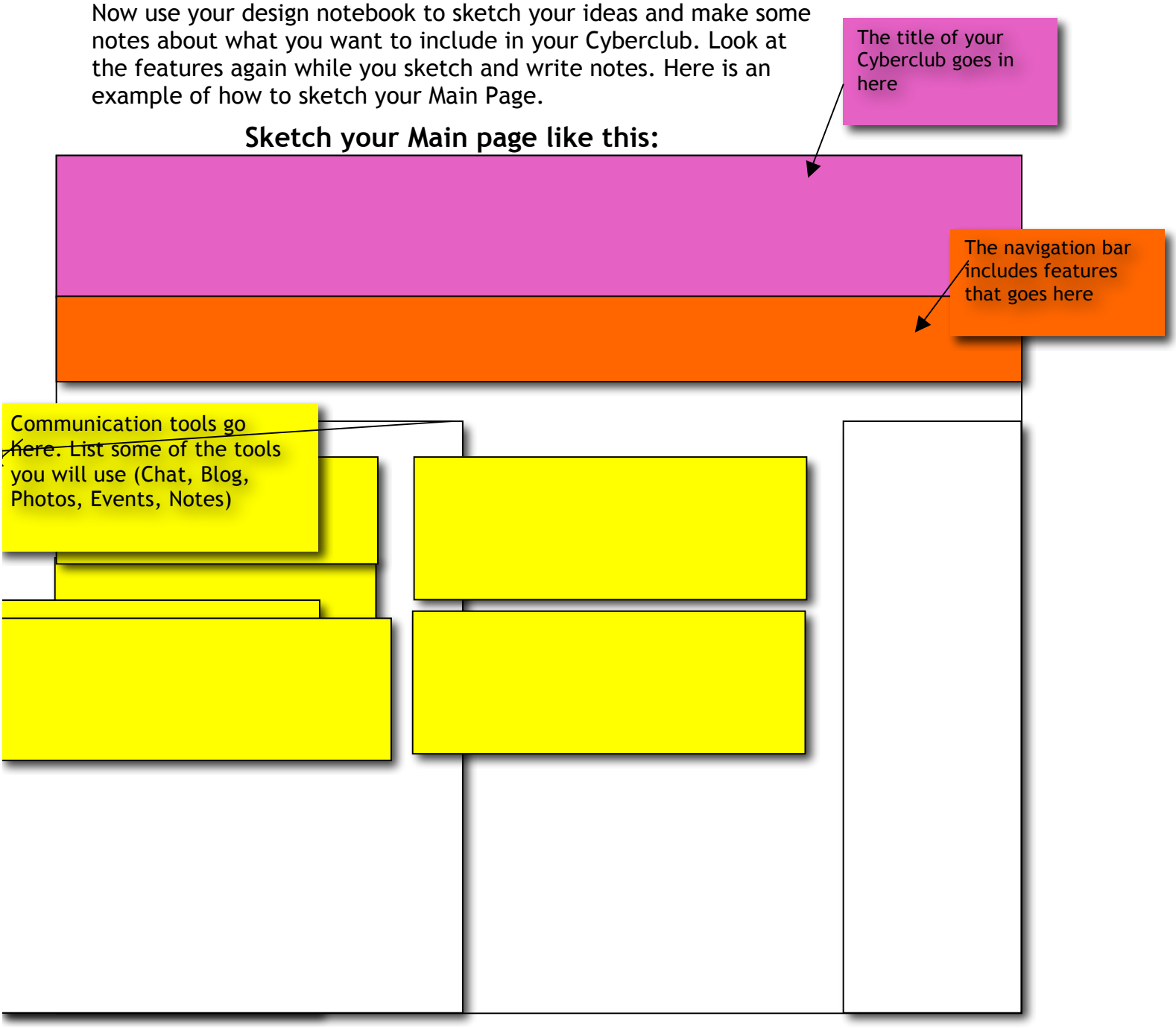
_____

c) What is your club's name? _____

Cyberclub Sketch

Now use your design notebook to sketch your ideas and make some notes about what you want to include in your Cyberclub. Look at the features again while you sketch and write notes. Here is an example of how to sketch your Main Page.

Sketch your Main page like this:



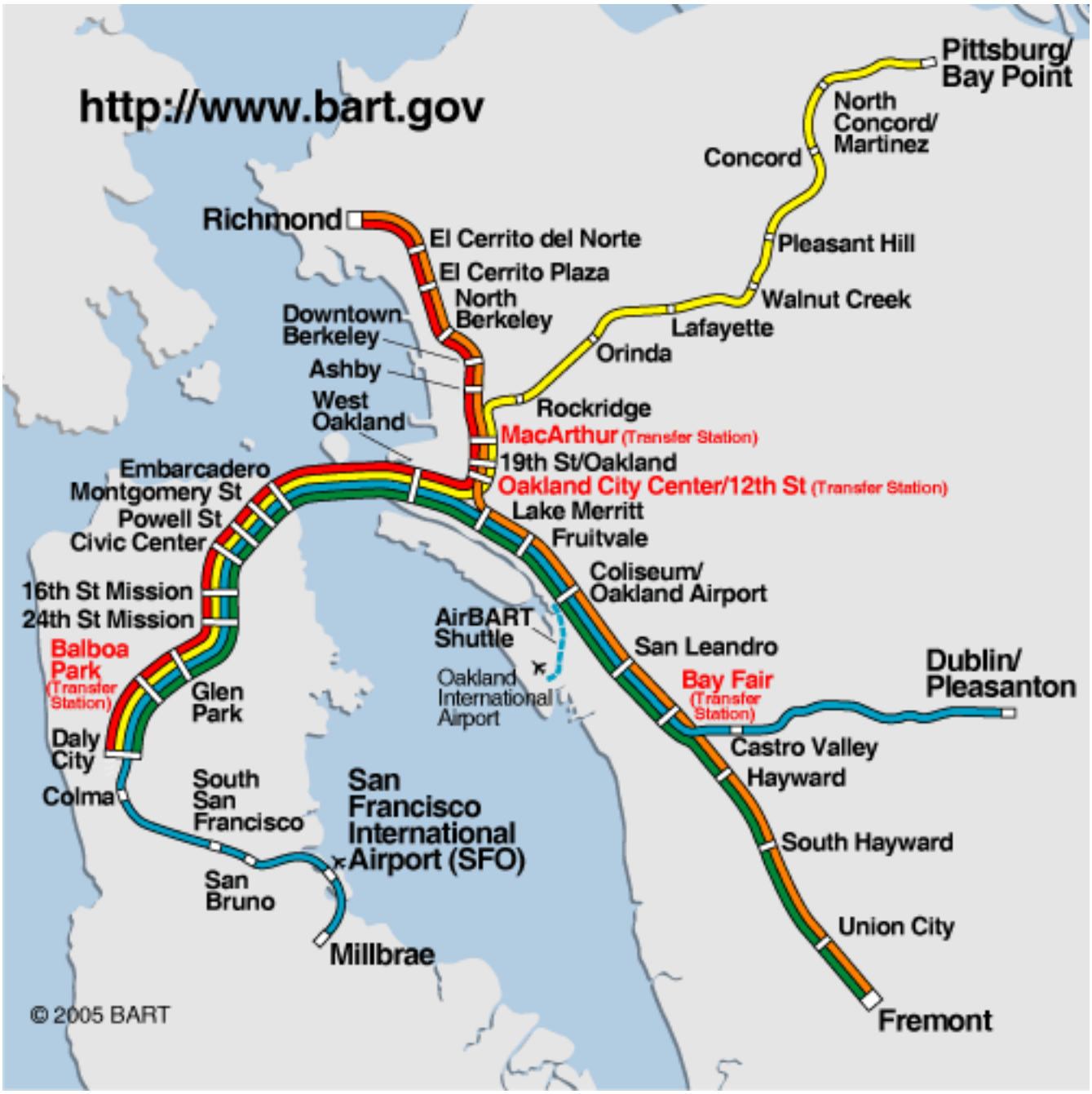
Ideas for Possible Clubs

If you have difficulty coming up with a mission for your club, here are some suggestions, you can reference the links to help get a few ideas. But come up with your own club goals if possible, avoid choosing a mission that you have no interest in creating a club for. Make sure the club theme is relevant to the youths' lives.

Here are a few theme ideas to help develop clubs:

- **GGG**. Girls Gone Geek. A site for Women and Girls who love technology and want to share latest information in the world of technology.
- **Kids Care Club**. Kids Care Club seeks to inspire, equip, and mobilize middle school and high school youth to take action that changes the world and themselves through service.
- **DID**. Dance into Dollars is a club that organizes dance contests to raise money for community projects.
- **SOY**. Soccer for Oakland Youth is a club for youth that live in Oakland and play soccer. Schedules and locations of games, team scores, strategies, and pick-up games are organized and discussed.
- **Musical Youth**. Musical Youth is a club to support youth interested in developing their musical talent into a music career.
- **Hockey Heroes.** The ultimate fan site for people who love hockey.

BART Subway System Map

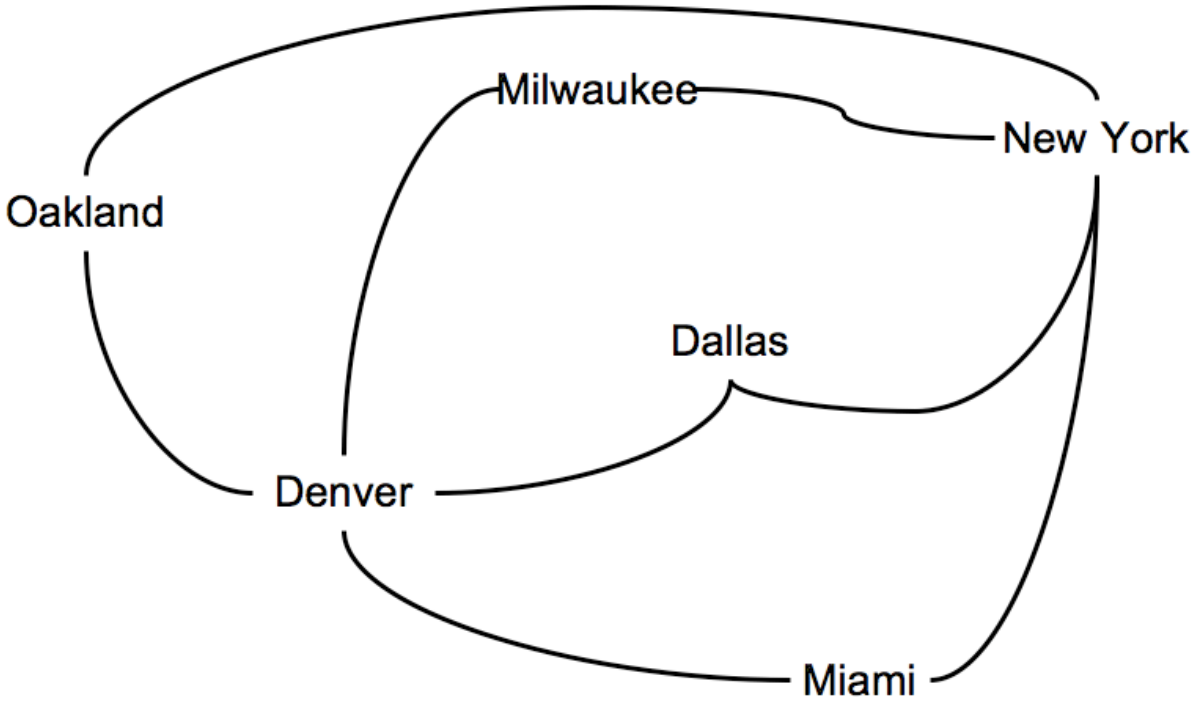


Washington, DC, Subway System Map

Airplane Flight Routes

Nina's Travels

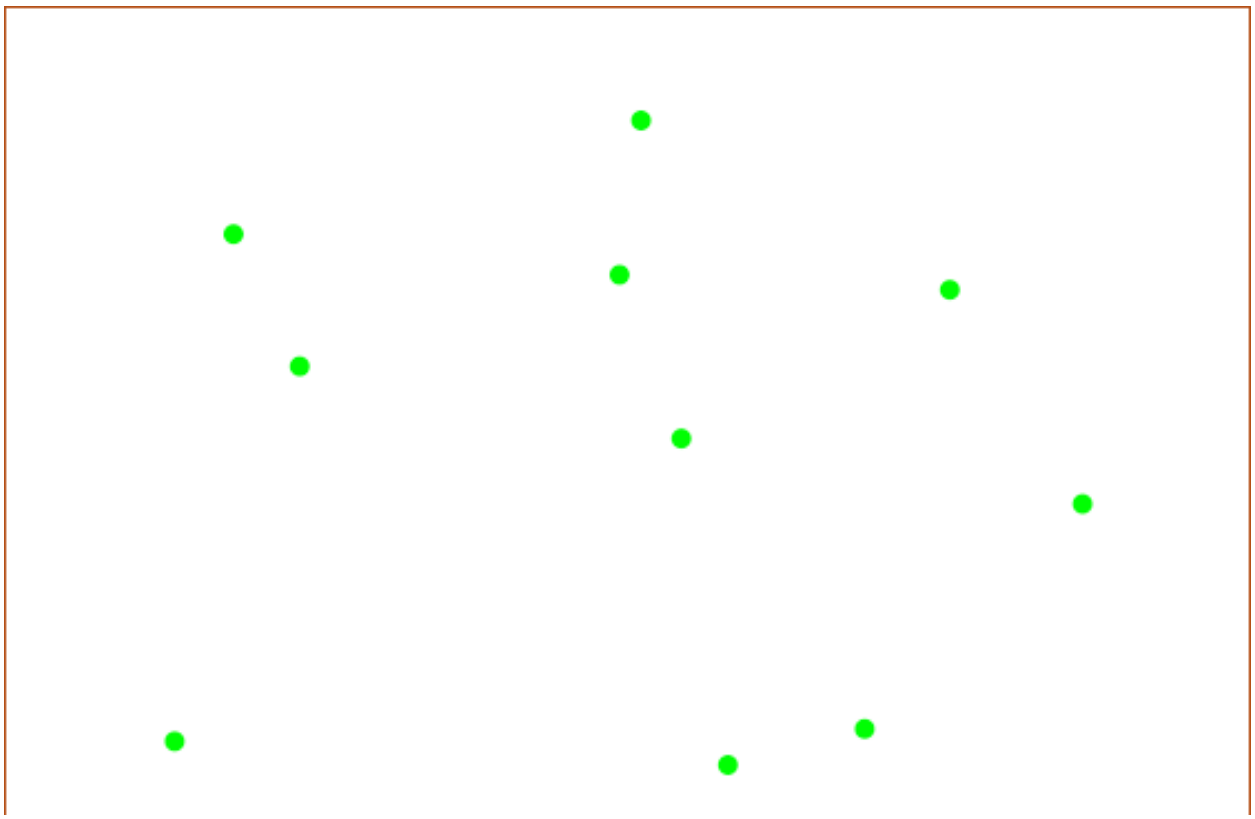
Nina was planning to visit several of her relatives over break. She was flying on an airline that requires her to change planes in New York and Denver so she can get to the other cities. She had to get to Milwaukee to see her Aunt Millie and to Dallas to see her Uncle Mweusi and to Miami to see her Uncle Luis. Here's a picture of the flight paths for this airline:



Can Nina fly on each flight path exactly once and end up back in her own city of Oakland? Can she do it if she skips the trip to Miami?

Pilot's Travels

Ms. Willingham is a charter pilot. She has a small plane for special services. Right now, she has to deliver gifts for the children's hospitals at several cities around the country. She would like to take the shortest route and visit each city only once before returning home. Can you help her? Trace a route through all the green dots (each dot represents one of the cities on Ms. Willingham's routes).



Compare your answers with those of others to see how you did. Did you find the shortest route? Did anyone else?

Cyberclub Connections (1)

Explore the connections among the members in a Cyberclub you have created using graph theory.

1. Think about all of the members in a Cyberclub and the passageways between them. This Cyberclub has many members and each member has at least three friends that they are linked with. Every member may or may not have passageways to you. Make a diagram to show the members in a Cyberclub and the passageways that they have to each other.
2. Remember to include arrows that show the passageway between members.

Congratulations! You just made a graph. It's just nodes and edges. Your Cyberclub member circles are the nodes. Your arrows showing passageways are the edges. We care about direction, so you have made a directed graph.

Cyberclub Connections (2)

Explore the connections among the members in a Cyberclub using graph theory.

1. Using links between friends, can you start from your member profile and visit every other member exactly once (no repeats), landing back in your own member profile? Use your diagram to help you. (Hint: Remember Ms. Willingham's trip?)
2. Test your idea in the online collaboration space. Draw your route in colored pencil. Then use your map to move from the last member you ended with to your own member profile.
3. If you cannot find a way to visit each Cyberclub member only once, add passageways to your diagram so that you can. Get Cyberclub members to add the passageways you drew in and then test your route.
4. Show the route in colored pencil on your diagram.

Graph Theory:
A Tool for Software Designers and Engineers

Read and discuss:

Software engineers and designers created the whole online social networking sites structure. They created a space that can be represented with the nodes and links we used in this session. For example, the connections between rooms and tools can get complicated and messy. Mathematical tools help organize the connections so we can analyze them and then write algorithms for dealing with them.

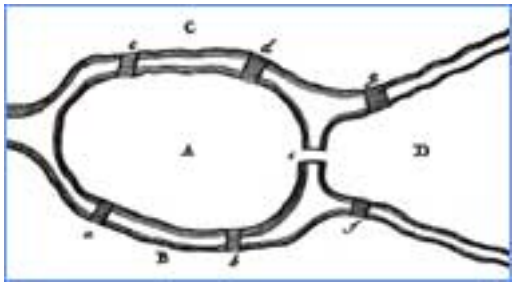
The previous activities were based on a branch of mathematics called graph theory. These are **not** the graphs we see in algebra class. These graphs are very simple but powerful mathematical tools. We used them to analyze our Cyberclub communication paths by hand. *But think about the ideas you use; those can be written into a computer program that can handle many, many Cyberclubs at a time*.

Graph theory is usually taught in second or third year college math courses, but you can understand and use them today. You can probably use them again, whenever you want to show how things are related. For example, family trees are a kind of graph. You can use graphs to show relationships and paths, like the best route to take on a walk or using public transportation.

Original Use of Graph Theory

“A problem was posed to me about an island in the city of Königsberg, surrounded by a river spanned by seven bridges, and I was asked whether someone could traverse the separate bridges in a connected walk in such a way that each bridge is crossed only once... This question is so banal, but seemed to be worthy of attention in that geometry, nor algebra, nor even the art of counting was sufficient to solve it. In view of this, it occurred to me to wonder whether it belonged to the geometry of position that Leibniz had once so much longed for. And so, after some deliberation, I obtained a simple, yet completely established, rule with whose help one can immediately decided for all examples of this kind, with any number of bridges in any arrangement whether such a roundtrip is possible or not…”

--Leonhard Euler to Giovanni Marinoni, March 13, 1736



The Graph Theory Route

Math in School: The Important Facts

Exercise your rights as a math student.

You have a right to understand the math taught in class. Find respectful ways to exercise that right. It's better to ask specific questions than to just say, "I don't understand."

Use these sentence starters:

I don't understand how to…

I don't understand why….

This is where I get stuck.

Could you say that again, in different words? I didn't quite get it.

For example:

I don't understand how to factor a polynomial. Here's what I have done so far.

I don't understand why you cross multiply to find the answer. Can you explain it to me, again, in different words?

It's a good thing to get extra help.

Homework time at your afterschool program is a great time to ask other youth who understand the math or an afterschool staff member for help.

Math teachers are often willing to spend extra time with you. Go to talk to your teacher after school.

Parents can help too! Sometimes it's a matter of finding the person who is able to explain the math well so that you understand.

Exchange phone numbers with a classmate so you can check in if you are stuck.

You have a right to be placed in the math class that will help you achieve your goals. If you are not in Algebra in 8th grade, you or your parents can question that. If it turns out you are ready for Algebra, go for it!

You need to take math now and in high school.

To graduate from high school in most states you must:

For example, in California:

Take two years of math, including algebra.

Pass the High School Exit Exam. The math includes algebra.

In _____:

Take _____
_____
_____
_____

To aim higher for college

For example, the University of California admission requirements are:

Mathematics – Three YEARS REQUIRED, Four YEARS RECOMMENDED Three years of college-preparatory mathematics that include the topics covered in elementary and advanced algebra and two- and three-dimensional geometry.

That's what you need for University of California admission. If you aim high, you'll look very good to colleges.

You can take some of these classes in middle school, and that counts! That's why it's good to try for Algebra in 8th grade.

To prepare for most jobs, in high-tech or not

You need high-level math for jobs that are rewarding and allow you to be creative. Calculating is NOT enough. Companies need problem solvers.

Math is exciting and everywhere!

When you do these things, you are doing math:

Jeans are on sale for 40% off. You have a rough idea how much you'll pay for the pair you like. You just estimated using percentage.

You figure out the best combination of buses to take to your friend's house. You just did problem solving for optimization.

There's more to math than just finishing 15 problems from the book each night. Try fun problems from *Figure This!*, a website for families http://www.figurethis.org/.

Engaging Members Prompts

Group 1: Communicating with Members

Expert Statements:

The people who join your club are not likely to be just anyone. Certain kinds of people are more likely to join your club than others. Knowing what your club is about is the first important step to getting members to join.

You need to make it easy for people to understand the purpose of your club. Make it easy by providing good information to people in the main areas of your club page, and places that members would go.

Website: http://teensforplanetearth.ning.com (T4PE is a social networking site for teens who want to protect the planet. Teens can choose a project, connect with others, and make a difference)

Questions:

- What kinds of information do you see on this site?
- What kinds of communication tools are used to inform others of what's going on in the site?

Group 2: Engaging Users

Expert Statements:

People like to go to websites where they can add their own content (such as pictures, video, music, or text). They also like to access good content that is useful to them and that are updated regularly.

People often go to websites for advice or suggestions, to find out where to buy certain things, or to plan events for a group that already exists.

Website: http://www.discoverygirls.com/ (This site has a lot of polls, discussion boards, and other communication tools that allow youth to create their own content as well as enjoy the content provided by the magazine.)

Question:

- What do you think is exciting for youth to do on this site?
- Why would it be exciting?

Engaging Members continued

Group 3: Keeping Interests High

Expert Statements:

People return to websites that have a clear purpose, and that, when they get there, don't surprise them with the topic on the website.

People return to sites where they can express their points of view and meet others who share their interests.

Website: http://members.agirlsworld.com/index.html (This site is the first "girls only" E-pal club, it is also part of a larger E-magazine called "A Girls World," an online magazine written and edited by girls and teens from around the world.)

Question:

- What would make youth come to this site more than once?
- What makes this site feel safe for youth to share their thoughts?

Hosting A Gathering Plan

Group name_____

Define the goals

What is the point of your gathering?

_____

_____

_____

Activity 1:

What will club members do? (Are they collecting items, blogging on topics, or making discussion topics?)

_____

_____

_____

What is one communication tool they will use for activity 1? _____

What instructions will you give for activity 1, where will you post it?_____

_____

_____

_____

Activity 2:

What will club members do after activity 1? (Are they collecting items, blogging on topics, or making discussion topics?)

_____

_____

_____

What is one communication tool they will use for activity 2? _____

What instructions will you give for activity 2, where will you post it?_____

_____

_____

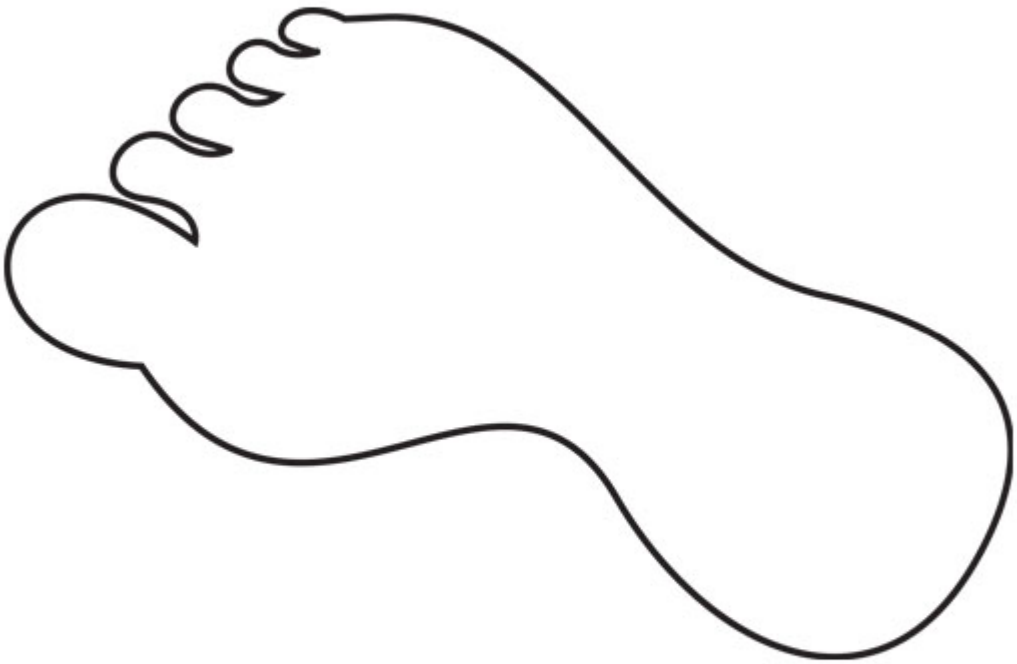
_____

Cyberclub Design Requirements Checklist

Follow these requirements to complete your Cyberclub:

1. Develop a clear goal: Think of what the point of your club is and what you want your club to accomplish. That is your goal. Write it out in one or two sentences. (Use the Design Your Cyberclub handout to help you develop your goal.)
2. Your Cyberclub needs to have the following:
   - ☐ Create a name for your group's Cyberclub
   - ☐ Write down the URL for your Cyberclub:
     _____
   - ☐ Edit your Information to encourage people to become club members
   - ☐ 1st topic on discussion forum related to Cyberclub's goal
   - ☐ 2nd topic on discussion forum related to Cyberclub's goal
   - ☐ Write a Text Box message
   - ☐ 1st link to a place on web related to Cyberclub's goal (links can be on the discussion forum)
   - ☐ 2nd link to a place on web related to Cyberclub's goal
   - ☐ 3rd link to a place on web related to Cyberclub's goal
   - ☐ 1st image related to Cyberclub's goal (this can be in the discussion forum)
   - ☐ 2nd image related to Cyberclub's goal
3. From hosting a gathering:
   - ☐ 1st activity for club members to help accomplish Cyberclub's goal. Include one communication tool in this activity
   - ☐ 2nd activity for club members to help accomplish Cyberclub's goal. Include a different communication tool in this activity from that in the 1st activity.
4. Make your Cyberclub interesting! You want to get people to visit your Cyberclub and to participate in the activities.

Footprint Silhouette Example



Example Blogs

Blogs of Note lists a variety of popular blogs: http://blogsofnote.blogspot.com

Personal Interests

Mehan shares her cooking treats and recipes too

http://mehanskitchen.blogspot.com/

Mandy is a puppy raiser for Guide Dogs with lots of experience

http://www.doyourbusiness.org/

Travel

Buster's travels with his dad:

http://pbskids.org/buster/blog/index.html

A college student travels the world and share her found wisdom:

http://jessicahdrw.blogspot.com/

Professional

Allegra Martin, an aspiring choral conductor:

http://currentconductor.blogspot.com/

Slinkachu, a street artist, shares his perspective:

http://little-people.blogspot.com/

Setting Up a Blog

Note: Update this page for whichever blog tool you plan to use. The directions below many need to change depending on the blog tool.

The page may look something like this one. Fill in this sheet first and show it to your youth before entering this information online.

Step 1: Create your blog

Choose a username		You'll use this to sign in for future visits.
Enter a password		Must be at least 6 characters long.
Retype password		Enter it again just to be sure.
Display name		The name used to sign your blog posts.
E-mail address		We will never share your address with third parties without your permission.
Acceptance of Terms	• I accept the Terms of Service	Indicate that you have read and understand Blogger's Terms of Service.

Click CONTINUE.

Step 2: Name your blog

Blog title	
Blog address	http://_____.blogger.com
Word Verification	Type the letters that appear on the screen here.

Click CONTINUE.

STOP HERE: Step 3 must be done online.

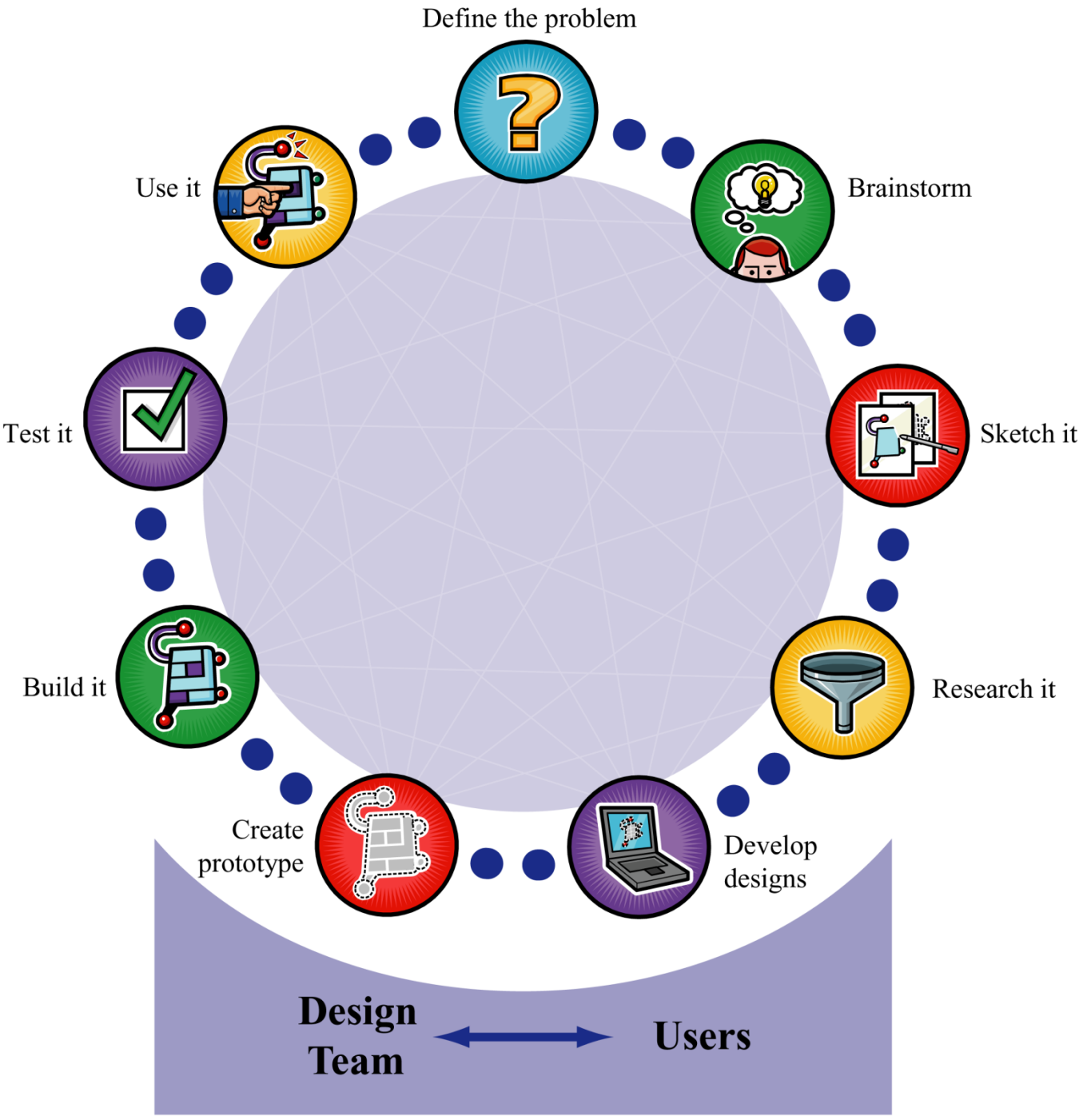
Step 3: Choose a template

Click on "preview template" to see a larger version.

Click on the picture of the template to choose it (it will get a darker outline when you do this).

Click CONTINUE.

The Design Process



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Designing Your Blog

Name _____

Define the problem:

Who is your audience?

_____

_____

_____

What are they looking for when they come to your blog?

_____

_____

_____

What do you want to say to them?

_____

_____

Brainstorm:

What theme do you think people reading your blog will like?

_____

_____

_____

Sketch:

Now use your Design Notebook to sketch your ideas and make some notes about what you want to include in your blog.

Possible Themes

If youth have difficulty coming up with a theme, here are some suggestions. Let the youth come up with their own themes if possible since they will have seen others' blogs and may have their own ideas. Avoid having youth just choose a theme that they have no interest in creating a blog for.

Here are a few theme ideas to help youth develop their blogs. Whichever theme youth choose, they should have at least three separate entries:

- **Our Journal** — write about your life over time.
- **Our Travel Journal** — write about a trip you took. Better yet, write as you travel.
- **Our Community or School** — write about events that are happening in your school or community.
- **Our World** — choose an issue that affects all of us that you want to research and write about. Be sure to include at least three entries.
- **Our [insert something you want to write about over several days].**

Blog Design Requirements

1. ☐ Develop **a clear theme**. Think of a theme for your blog that requires a journal-like feature. Use the Designing your Blog handout to help you develop your theme.
2. ☐ Write at least **three entries**. Your blog should have multiple entries about different days or experiences.
3. ☐ Include at least **four links** to external sources. These sources should be related to the theme of your site. They can be links to other students' blogs.
4. ☐ Include at least **four images**. Your blog must include at least four images that relate to your theme.
5. ☐ Make your blog **easy to navigate**. Users of your blog must be able to quickly understand how to navigate it. They must understand where they are on your blog.
6. ☐ Develop a **common look and feel** for all pages. All the pages (if you have multiple pages) must have a common look and feel. Users of your blog should be able to tell that all the pages belong together.
7. ☐ Have a page or entry about you so that readers know who the author of the blog is
8. ☐ Add an interesting and relevant tool, such as voting or status message, to your blog that enables further sharing about your theme.

Algorithmic Thinking Activity page 1

Will _____ Come to Town?

_____(fill in artist's name here and above) has agreed to give a free surprise concert in the local park in one week. The school music committee is in charge of getting the word out. You are on the committee.

We have some problems:

1. It's Spring Break, and nobody knows about the concert.
2. We have to sell at least 60 tickets from a special ticketing website before the concert in the next week or the concert will be cancelled.
3. You are on the school trip exploring Mayan ruins in Mexico. You can't use your cell phone from Mexico and it's too late to advertise in the newspaper or on radio.

BUT…

We know a lot of students are able to access a special website and they would buy tickets if they knew about the concert.

What is required to get _____ to do the spring concert? Write the answer in your own words.

Algorithmic Thinking Activity page 2

Your Great Idea

You and the school music committee come up with a great idea: Spread the word by using blogs. You know of two students who write popular blogs. Here's information about them.

Polly's Blog (commercial posts - $10)

Polly is new to the school—she doesn't know many people yet. But for those who have gotten to know her, she seems like she'd be a good friend.

Only 3 students read Polly's blog and do what Polly says.

Each of these 3 readers has two best friends. They also take Polly's advice.

Of course, Polly also follows her own advice.

If you pay Polly $10 she will do a "commercial post" telling people to go to the concert.

Arcela's Blog (commercial posts - $50)

Arcela is a senior and better known than Polly.

Ten students read her blog every day.

Each of these 10 readers spreads the word to their 5 friends.

Of course, Arcela also follows her own advice.

If you pay Arecela $50 she will do a "commercial post" telling people to go to the concert.

Algorithmic Thinking Activity page 3

What You Need to Figure Out

How much money do you need to spend to make sure that _____ comes to town. Remember, we have to sell 60 tickets right away!

Try these steps

1. Find out how many people you can get to buy tickets using each blog.

   On big paper, draw out a diagram OR use your supplies to find out how many people you can reach through each blog.
2. Decide if you want to use Polly's blog, Arcela's blog, or both. Explain your decision.
3. Explain how much it will cost to use the blog or blogs.

We need $_____ to buy commercial posts on _____.

Here's why:

Algorithmic Thinking Activity page 4

You Did the Math!

What you did with your diagram or supplies was *mathematics*!

Why is it mathematics?

You analyzed the blog situation to solve a problem.

It was hard to just count all the people who would buy tickets through the blog, so you came up with an organized way to show them all.

That is algorithmic thinking. The kind of math you are doing is called *combinatorics*. People use combinatorics to answer "how many" questions without actually having to count. You can imagine that combinatorics might come in handy if the numbers you are trying to count are in the thousands or billions!

Why is it important?

People use mathematics to solve problems. ICT professionals often use algorithms and combinatorics to figure out how to design the technology to solve a problem. For example, in developing a search engine, an engineer uses algorithms to determine what ads display on specific search results, to handle multiple queries by multiple users, and to solve many other situations that involve getting users the information they need.

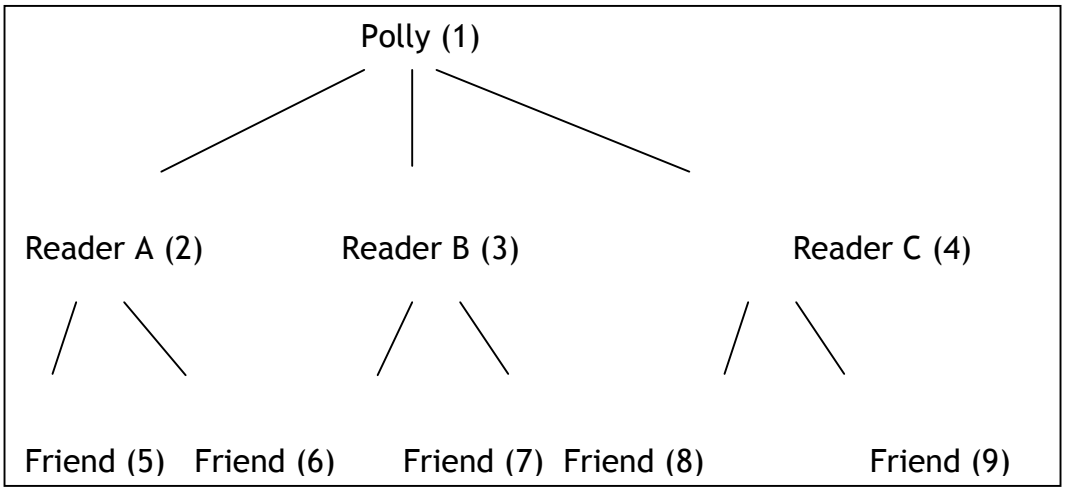
It can be a lot of fun to solve these problems well. Many ICT professionals don't even realize they are using mathematics. They've learned mathematics so well, they just focus on solving the problem!

Explain in words and numbers what you did to find the number of people for each blog.

Facilitator Page: How to Do the Math Answer Key

This is a diagram that shows Polly, her readers and the readers' friends. Each person in the tree is counted.

The youth may come up with many different ways to count people, but each method will have something in common with this diagram.



Arecela reaches more people than Polly so the process and illustration can get more complicated. Let the youth choose how they want to illustrate the number of people (e.g., using pictures, gumdrops, or words) the following for Arecela, then encourage them to write their solution in a simple format (such as the following) in What You Need to Figure Out:

Arecela	1
Readers	10 (1 times 10)
Friends	50 (5 times 10)
Total	61

Blog Design Requirements Checklist

- ☐ A clear theme
- ☐ At least 3 entries about three different days or experiences
- ☐ At least 4 links to external sources (related to the theme or links to other students' blogs)
- ☐ At least 4 images related to the theme
- ☐ Ease of navigation
- ☐ A common look and feel for all pages

Starter List of Blog/Group Activities

Here are some interesting things to do on your blog or group. Add to the list of activities. Then decide if the activity is better suited for a blog or a group.

- Keep track of how your favorite contestants on American Idol are doing on the show.
- Make a “travelogue” that tells others about your favorite vacation.
- Have a conversation with other youth about your favorite musical artist.
- Seek advice on the best places to buy jeans.
- Decide on the best designs for a new hangout space.
- Conduct an interview with a designer from MySpace.
- Judge and rate lunch items in the cafeteria.

Forms and Functions Game Card Instructions & Key

Goal of the activity: For youth to match form with function by talking to their peers in the room.

Instructions:

1. Make up note cards for each form and function. Be sure to label the card appropriately "Form" on one side and "Function" on the other so youth aren't struggling to remember what they have.
2. Distribute note cards for each player—the best way to make the game fair is to give every youth the same number of forms and functions (two or four is a good number).
3. Tell youth to talk to their peers in the room to look for a match for their form and functions.
4. Once youth find a match, have a place that they can post the two note cards. (i.e. chart paper on the wall)

Note: the following forms and functions are aligned. You'll want to put forms on separate note cards than functions so that youth can match cards with other youth.

Forms	Functions
Green lighting in an "EXIT" sign	Makes the exits in rooms stand out
General labels such as "A3" in a snack machine	Makes it easy to choose the snacks people purchase from time to time
Hair extensions	Allows people to change the length of their hair quickly
Stools with steps	Allows people to get things they can't reach
Universal Resource Locator (URL)	Makes it possible to locate anything on the World Wide Web
Log-in for Online Groups	To make sure a user on a website is who they says they
"Leave a sticking" button in a Blog	To enable visitors to the site to add content to it
Use of color and underlining of text on a website	To show where there are links to other pages or websites

Facilitator Page: Rubric for Matching Form to Function

Level	Description
Fluent and Flexible	• Students' explanations refer both to specific forms of blogs or groups and the functions. • The functions/activities they have selected can be implemented in the form they chose. • Youth can express when more than one form will support an activity.
Logical but Rigid	• Students' explanations refer both to specific forms of groups or blogs and the functions. • The functions/activities they have selected can be implemented in the form they chose. • Youth have difficulty seeing how other youth could disagree with them, and they cannot see when an activity could be implemented using either a blog or group.
Still Learning	• Students' explanations refer to forms or functions, but not both at the same time. • Some of the functions/activities they have selected may not be able to be implemented in the form they chose. • Youth have difficulty seeing how other youth could disagree with them, and they cannot see when an activity could be implemented using either a blog or group.