

Game Programming Year-Long Curriculum

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Table of Contents

Overview of the Game Programming Year-Long Curriculum 1

 Introduction 1

 About the Curriculum and the Girl Game Company Project 1

 Important Links and Contacts for More Information 3

Lesson Plans

 Session 1 5

 Session 2 8

 Session 3 13

 Session 4 16

 Session 5 20

 Session 6 23

 Session 7 27

 Session 8 29

 Session 9 33

 Session 10 36

 Session 11 40

 Session 12 42

 Session 13 44

 Session 14 47

 Session 15 50

 Session 16 53

 Session 17 55

 Session 18 57

 Session 19 59

Session 20	63
Session 21	65
Session 22	68
Session 23	70
Session 24	72
Session 25	76
Session 26	80
Session 27	82
Session 28	84
Session 29	87
Session 30	90
Session 31	93
Session 32	97
Session 33	99
Session 34	101
Session 35	104
Session 36	106
Session 37	108
Session 38	110
Session 39	113
Session 40	115
Session 41	118
Session 42	120
Session 43	122
Session 44	125
Session 45	127

Session 46	130
Session 47	133
Session 48	135
Session 49	137
Session 50	139
Session 51	142
Session 52	145
Session 53	148

Overview of the Game Programming Year-Long Curriculum

In this overview, you will find the following information:

- Introduction
- About the Curriculum and the Girl Game Company Project
 - How to Use this Curriculum
 - Modifying the Curriculum
- Important Links and Contacts for More Information

Introduction

This curriculum consists of lesson plans and accompanying materials for 53 90-minute sessions that teach computer game programming to middle school students over the course of a school year. This material was developed as part of a three-year project funded by the National Science Foundation – grant ESI-0624549. The aim of this project was to increase middle school girls’ interest, ability, and motivation to pursue courses and careers in science and information technology. The project was designed as an afterschool and summer program for middle school girls – particularly Latinas, and was developed based on research on how to engage girls in IT. The curriculum can be used with both girls and boys, however.

Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.

About the Curriculum and the Girl Game Company Project

The project consisted of two afterschool and summer programs lasting approximately a year and a-half each at several middle schools in an agricultural-based community on the central coast of California. The first group of girls began in April 2007 and graduated in July 2008. The second group began in February 2008 and graduated the summer of the following year. The project consisted of the following content areas:

- Hands-on IT-based Learning – teaching girls how to design and program their own computer games in Stagecast *Creator* and to a lesser extent in a 3D programming environment called *Storytelling Alice*. (See the materials on *Creator* and *Storytelling Alice* in the Teachers’ Lounge filing cabinet for more information about how to teach these units.) This content area also included instruction and practice in other computer-based programs such as a custom learning management system and Microsoft PowerPoint.

- Group Cohesion – activities such as games and recreational activities that promote positive support between peers and between students and adults, especially near the beginning of the program.
- IT-based Personal Enrichment – time spent on Whyville.net, an educational virtual reality site for elementary and middle school youth, where girls had the opportunity to present their games to peers around the world in the project-funded Girl Game Company clubhouse.
- Pair Programming – a specific collaborative learning structure for guiding two individuals to work together on the computer.
- Career and Identity Exploration – exposing girls to career possibilities through field trips to local universities and Silicon Valley companies and mentoring partnerships with women in IT fields.

All of the sessions begin with time to introduce the session, go over the agenda, make announcements and handle any logistical issues. There is also a break approximately halfway through each session and time at the end for a wrap up or whole group activity, often one that allows students to share their day's work with the rest of the class. We have found that students this age need a break after an hour and a change in activities after about 35 minutes, even when they are interested and highly engaged in an activity. Therefore, there is usually a new type of activity after the break.

How to Use this Curriculum

Using the Materials. This curriculum is divided into 53 90-minute sessions, and most sessions include handouts that are numbered according to the session in which they are first used. (All of the handouts are in one pdf document.) This material is designed to be as practical as possible and to be used “out of the box” with little or no modification. It’s important to note, however, that because the program was designed for a predominately Latina audience, many of the handouts are in both English and Spanish.

Using Pair Programming. All of the girls in the Girl Game Company program built their games in pairs using pair programming, and pair programming was used as a model for the demonstration activities. Pair programming is a structured process in which one person acts as the “driver” and operates the computer while the other works as “navigator” and reads and communicates directions. Although the curriculum can be used without pair programming, we recommend it. Having students work in pairs not only saves computer and work space, but enhances the programming process. For more information about pair programming, see “Using Pair Programming” in the Teachers’ Lounge resource cabinet.

Modifying the Curriculum. If you want to break the 90-minute sessions into two 45-minute sessions, you should add in time to review what was covered in the previous session.

Because we wanted to fit our year and a-half program into one school year, we have eliminated and/or pared down on elements that would be more difficult or expensive to replicate. These include time spent on Whyville and field trips to universities and Silicon Valley companies like Google and Electronic Arts. We recognize that it is not feasible to build your own sites on Whyville and not everyone has the luxury of being close to premiere IT companies. However, we recommend adding modified, less expensive versions of these activities, if possible. These include:

- **Budgeting Free Time on a Social Networking Site.** Not only did Whyville provide a mechanism for students to share their work, but it was also very popular with the middle school girls in our program as a place to go and hang out with their friends. Promising students time on Whyville proved to be an effective incentive for them to complete required tasks.
- **Forming Partnerships with Local Colleges and Universities.** A partnership with a local college or university’s IT teachers and staff can be fruitful in a variety of ways:
 - The college students can serve as teaching assistants in the classroom as well as role models and mentors for your students.
 - Both students and teachers can be guest speakers at a “Career Day” activity.
 - Instead of (or in addition to) having an open house at the end of the program, you could stage a game competition and use the college “experts” as the judges. We did just that in our program, and it proved to be a valuable incentive for our students to enhance and finish their games.
- **Linking with Local IT Businesses.** No matter where you are, chances are good that your community has IT-based businesses like internet service providers or computing consultants, These businesses may not only be interested in providing incentives such as t-shirts, but their staff can offer valuable career education in the form of mentorships, job shadowing, field trips, and speaking engagements.

If you do not have the time for the entire 53 sessions, consider teaching students one type of game programming software only – either *Creator* or *Storytelling Alice*, not both. We do not recommend eliminating the group cohesion activities and the pair programming activities, however; they are important elements of the curriculum that helped to improve the curriculum’s effectiveness.

Important Links and Contacts for More Information

Important Links

- To purchase and download Stagecast *Creator*, go to: <http://www.stagecast.com/>
- To access student’s *Creator* games, go to: <http://www.whyville.net/>
- To download *Storytelling Alice*, go to: <http://www.alice.org/kelleher/storytelling/download.html>
- For more information about pair programming, see “Using Pair Programming” in the Teachers’ Lounge resource cabinet.
- For more information about the Girls Creating Games program (a precursor to the Girl Game Company project in which girls created games using Flash), go to: <http://psweb.etr.org/gcgweb/public/games/index.html>

Contacts for More Information

If you have any questions about this curriculum or the Girl Game Company project, contact:

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Computer Game Programming Year-Long Curriculum Lesson Plans

Session 1

Objective:

- To introduce students to the program and each other
- To familiarize students with Stagecast Creator in general and the types of games that can be played in Creator.

Instruction Time: 90 min

Materials/Equipment:

- Materials needed for ice breakers (name tags, pencils and paper, colored markers)
- Access to Stagecast Creator on every computer
- Access to sample Creator games
- Demo Computer and LCD Projector

Procedure:

Welcome/Introductions (10 min)

1. Welcome students to the program.
2. Explain that over the course of the school year they will be learning how to design and program computer games. They will also learn more about educational and job opportunities in the field of computer technology.
3. Explain that the class will be set up as a company to help them understand how jobs in computer technology work. To model a company structure, introduce yourself as the CEO and any other staff, parent or peer assistants as managers.
4. Tell students that they will be making their games in pairs using a structural process called pair programming.
5. Project or pass out day's agenda and briefly discuss.
6. Check for understanding and answer any questions.
7. Take care of any necessary logistics and announcements.

Group Cohesion Activity: Name Switching Icebreaker¹ (15 min)

1. Pass out name tags and ask students to write their first and last names on them.
2. Ask participants to pair up people that they do not know and spend approximately two minutes telling each other about themselves – as much as each person can share in one minute.
3. When time is up, tell the people in each pair to exchange name tags and to choose different partners. This time, they should introduce themselves as the people whose name tags they are wearing, using all the information that was told to them by their previous partners.
4. Once again, allow one minute for each person in a pair to share and when time is up, ask the group to again switch partners. Repeat the process twice.
5. At the conclusion of the fourth sharing, instruct participants to find the person whose name tag they are wearing and introduce themselves as if they were that person. Find out how much of the information was accurate and how much was lost in the sharing. Some people may have to wait while others are sharing.
6. Introductions can be made by the fourth name tag holder, introducing to the entire group the person whose name is being worn.

Group Cohesion Activity: My Name is Special Because... Icebreaker² (10 min)

1. Instruct students to use one piece of paper and to write his/her name on that paper in large letters. Tell them that they may decorate, outline, draw pictures around, or do anything that highlights any unusual characteristics or interesting quality related to their name.
2. Tell students to write things that they like about their names, why their names are special to them, how they got their names, any nicknames that have come from those names, other things that they are called, and anything that they would like to add about their names on the bottom or back of the paper.
3. Place people in groups of 4 or 5 and invite them to share information about their names.
4. Tell students they should be active listeners, supportive of information that is important to others.

Break (10 min)

Introduction to Creator Demo (5 min)

¹ Foster, E.S. (1989). Energizers and Icebreakers for All Ages and Stages. Minneapolis, MN: Educational Media Corp, p. 5.

² Foster, p. 25.

1. Introduce Creator by explaining that it is software they will be learning to use to make games.
2. Open Creator to opening screen. Explain that “sim” is short for “simulation,” a common name for a virtual reality world or something that imitates the real world.
3. Click on “open a sim” and select “Alien Abduction” in the sample sim folder. Briefly show students how to start and play this game. (Hit space bar to beam up cows, and use arrow keys to move space ship.) To make it more interesting, ask students to race against each other.

Game Playing Hands-on Practice (35 min)

1. Have volunteers play some project games at stagecast.net or in the Girl Game Company Clubhouse on Whyville at www.whyville.net. (Note: in order to enter the clubhouse, you must first join Whyville, which is free.)
2. Have all students play sample games.
3. Maintain whole group focus and participation by circulating and encouraging casual game competition.

Closing/Wrap up (5 min)

1. Ask for volunteers to share what they think about Creator and the games they played.
2. Tell students that they will start learning how to use Creator in the next session. They will also learn about pair programming.
3. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 2

Objectives:

- To continue to promote group cohesion
- To provide an overview of Creator by going through Quick Start and Tutorial #1: Getting Started.
- To introduce the concept of pair programming and provide students with a rationale for why they will work in pair programming partnerships

Instruction Time: 90 min

Materials/Equipment:

- Material needed for icebreaker (ball for suggested activity)
- Access to StageCast Creator on every computer
- Demo Computer and LCD Projector
- Materials needed for pair programming activity:
 - Video (available at programservices.etr.org/gcgweb) or Handout #2.1: Role Play scripts
 - Blank chart paper labeled “Driver’s Job”
 - Blank chart paper labeled “Navigator’s Job”
 - Blank chart paper labeled “Rules for Good Pair Programming”
 - Handout 2.2: Jobs and Rules for Pair Programming
 - Role play props: computer monitor, mouse, keyboard, one binder with flowcharts (available at programservices.etr.org/gcgweb)

Procedure:

Introduction to the Session (5 min)

1. Welcome students back.
2. Project or pass out day’s agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Creator Tutorials (35 min)

1. Tell class that now that they’ve played some games, they will begin learning how to make their own games in Creator. In other words, they will learn how to be “programmers.” They will start by going through the Quick Start tutorial, which will give them a quick overview of how to program in Creator.
2. With each student at his/her own computer, tell them to launch StageCast and select “Learn Creator” and then “Quick Start.” Monitor their individual progress as they go through the tutorial and assist as needed. After all students are finished or a

maximum of 15 minutes, tell the group it's time to move on. Transition to the next tutorial by briefly polling the group on what they've learned so far. Stress that by learning how to create rules – i.e., telling the computer what to do – they are learning how to program.

3. Ask students to select “1- Getting Started” from the Learn Creator menu and go through the tutorial. Monitor individual progress as they go through the tutorial and assist as needed. After all students are finished or 15 minutes, ask them to close the tutorial (top left-hand menu) and return to the StageCast main menu by clicking on the back button.

Group Cohesion Activity: Group Juggling Name Game (15 min)

1. Ask the participants to stand, push back any furniture or move to a clear space, and form a circle. When everyone is in a circle, explain the activity.
2. Explain that juggling is a difficult skill that can be made easier if done with a group. Tell the students that the group is going to use group juggling as a way to learn each others' names. The game will start with one ball. The person who has the ball says his or her name then tosses the ball to someone else. After that ball has gone around for a little while, you will add a second and then a third ball. As each ball is tossed to another person, the tosser says his or her own name. Once the group has three balls moving without dropping them, they are juggling!
3. When the group has had some time to juggle this way, switch it around so that the person tossing the ball now has to say the name of the person that the ball is being thrown to.

Introduction to Pair Programming (30 min)

1. If your students have been using informal pair programming, remind them of this paired work they've been doing on the computers. Also remind them that they will be working in pairs throughout the program. Explain that these pairs will rotate for a few sessions, so that program leaders can observe them working with different people. Finally, explain that soon they will get a permanent partner with whom they will design and build IT project.
2. Explain to students that the way they work together in pairs on the computer in your program is special, and is different from how they might share a computer in a class at school. Explain that in your program, working on the computer with a partner is called Pair Programming. Point out that in pair programming, both partners have important jobs to do. Explain to them that in pair programming, both partners need to be actively engaged and both need to use good teamwork.
3. Present students with a rhetorical question. “Why do we use pair programming when there are plenty of computers for everyone?” Tell students the reasons why we use pair programming:
 - Having a partner gives you a built-in helper.

- Many people find computers more fun and less lonely/isolating if they get to work with someone else.
- Learning to work with computers is like learning a foreign language; there are lots of new words and special codes that computers understand, called programming languages. It is easier to learn these new words and codes if you have someone to talk to about them, just like it is easier to learn a foreign language if you have somebody to converse with.
- Working with a partner helps you develop good teamwork skills, which are good things to have for school, future jobs and careers (Being able to work with others is one of the top things employers look for) and for life in general.

4. Use either video or role play scripts:

If using video:

- Explain to students that the purpose of today’s activity is for them to learn more about how to be good pair programming partners. Explain that, rather than lecturing them on the jobs of the driver and navigator, or on the rules to follow when pair programming, you want them to come up with these things.
- Tell students that you are going to show them a short video. In the video they will see two different pairs of young women practicing pair programming. Tell students that you want them to watch the videos and look for the things that happen in it that they think are examples of good things to do when pair programming, and also look for things that they think are examples of bad things, or things not to do when pair programming. Tell students that they can use their scratch paper to write down what they see.
- Show the video.
- Move among the students and help them record observations on their scratch paper.
- Follow next part of plan below titled “Establishing Roles & Rules.”

If using role plays: If you are unable to use the digital video for some reason, you can do the activity as a skit using the role play script. It is not necessary for the role-plays to be rehearsed and polished. Deliberately emphasizing certain behaviors, even if it comes across as “corny” is effective.

- Tell students that you and another program leader are going to do two skits. In the skits, the two of you will be pair programming partners. Tell students that you want them to watch the two skits and look for the things that happen that they think are examples of good things to do when pair programming, and also look for things that they think are examples of bad things, or things not to do when pair programming. Tell students that they can use their scratch paper to write down what they see.

- Perform the first role play which models “bad teamwork/bad pair programming/things not to do.”
- Perform the second role play which models “good teamwork/good pair programming/things to do.”
- Follow next part of plan below titled “Establishing Roles & Rules.”

5. Establish roles and rules:

- Once students have viewed the video/role plays, explain that their observations are going to be recorded on the chart paper on the wall. Explain to them that their ideas will become the set of rules they should follow when working with their pair programming partners.
- Get students to volunteer to be “recorders” who will write comments on the wall charts.
- Ask them to tell you what the job or assigned tasks should be for the Driver and for the Navigator based on what they saw in the video/role plays. Have recorders write responses under corresponding wall charts.
- Facilitate a discussion of what students observed. If possible, check students’ ideas for rules and new assigned tasks or jobs against your copy of Handout 2.2: Jobs & Rules for Pair Programming. If students are missing important rules or jobs, use strategic questioning to try to get them to articulate similar rules or jobs. Don’t change the wording of what students say. Using students’ own words will maximize students buy-in, and ownership of the practices presented on the list.
- If students are too focused on what the young women in the video or adults role playing were “not” doing, or “negative” aspects of pair programming, help them translate their criticisms into statements of what pair programming partners should do to avoid these bad practices, or what the good practice would be to replace the bad practice.
- Close the activity by explaining to students that the program leaders will take their ideas and create an official wall chart of the “Jobs & Rules for Pair Programming” that students came up with. Explain that in the meantime, you are going to hang the existing charts in the computer lab so they will be able to refer to it when working with their partners. Emphasize that each time they are at the computer with a partner they need to choose roles at the beginning, switch so that each get equal time in each role, and remember to practice the rules just learned.

Group Review/Wrap Up (5 min)

1. Reconvene group and go around the room asking for volunteers to name something they learned from the Creator tutorials.
2. Review the pair programming activity by asking the group the following questions:
 - What does the navigator do?
 - What does the driver do?

- What are some reasons why it's good to use pair programming?
3. Take care of necessary closing tasks such as computer shutdown and clean up.

Session 3

Objectives:

- To continue to promote group cohesion
- To provide an overview of Creator’s basic tools and buttons.
- To introduce the concept of programming and other basic computer terms such as “menu” and “sim.”
- To learn basic rules such as how to move and change the appearance of a character, copy and delete.
- To begin the pair programming partnership process by asking students to choose their partners.

Instruction Time: 90 min

Materials/Equipment:

- Access to StageCast Creator on every computer
- Access to two versions of Monty Mole sim (one with and one without rules on every computer
- Demo Computer and LCD Projector
- Nerf ball or any ball that bounces for Nerf Ball activity
- Handout 3.1 : People Bingo Cards
- Small prizes for People Bingo winner(s)

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day’s agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Group Cohesion Activity: Nerf Ball³ (15 min)

1. Ask students to sit in a circle in chairs, and then ask for a volunteer to serve as the leader by sitting in the center of the group and holding the ball.
2. Explain the following directions to the group:
 - The leader bounces the ball to someone in the circle.
 - Whoever receives the ball asks a question that would provide information about another member in the group and then bounces the ball back to the leader.

³ Foster, p. 32.

- The leader then bounces the ball to someone else in the circle, who answers the question.
 - The person holding the ball repeats the process by asking another question and bouncing the ball back to the leader, who, in turn, bounces it to someone else in the circle.
3. Play the game until everyone in the group has either asked or answered a question.

Group Cohesion Activity: People Bingo (10 min)

1. Conduct People Bingo:
 - a. Hand out a People Bingo card to each student.
 - b. Students circulate around room trying to fill up card in 10 minutes.
 - c. Award small prizes to those who finish first.

Review/Demo (10 min)

1. On a computer connected to an LCD projector, select “open a sim” from the Stagecast main menu and choose “Montymole.sim.” (This is the example version with rules. This and other sims should be placed in an easily accessible place — such as a class folder in the “sims” folder.)
2. Point out the buttons at the bottom and ask students to tell you what the ones they’ve learned about do (i.e., the rule button, and copy and delete tools).
3. Tell them that the star and rainbow circle are used to create and add new characters. They will learn more about that later.
4. Show them how the stop, play, one-step back and one-step forward button work. Press play and change the speed.
5. Press stop and tell them that if everything is motionless on the stage (including the time bar), then we know we can program. To illustrate that point, press play and try to click on Monty to set him free. Then press stop, click and drag Monty to the other side of the rock fall and press play.
6. Show them the character drawer in the sidelines and demonstrate how to drag more characters into the stage.

Hands on practice (25 min)

1. Have students launch Montymole.sim on their computers and give them time to play with it. Ask them to drag a worm into the tunnel and see what happens. Then ask them to make more worms using the copy tool and press play until Monty eats them

all. When he does, they should drag more out of the sideline drawer. Give them several minutes to experiment with new characters (oil, seed, more moles and key).

2. Ask students to close sim, choose “open sim” from the main menu, and select “Montymoleexample.sim” (the same game without the rules). Tell them that this Monty Mole can’t move at all. It’s their job to “program” him so he knows how to move in all directions and be able to turn. Monitor students’ individual progress and assist as needed.

Pair Programming Choices (10 min)

1. Remind students about the driver and navigator roles used in pair programming that they learned in the last session. Tell them that they will be paired up in the next session and they will keep their partners until they start working on their second game. Tell them that you will try to match them with one of their choices, but it may not necessarily be their first choice.
2. Ask each student to write their name at the top of a blank piece of paper and then write their top three choices for partners in the following way:
#1:
#2:
#3:
3. Collect students’ papers and after class, assign pairs based on students’ choices and what you consider the best working relationships.

Group Review/Wrap Up (10 min)

1. Ask for a volunteer to demonstrate what he/she did during hands on practice.
2. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 4

Objectives:

- To establish pair programming partners
- To improve students' collaboration with their programming partners and their pair programming practice
- To continue to promote group cohesion
- To help students develop collaborative skills

Instruction Time: 90 min

Materials/Equipment:

- Handout 4.1: Pair Programming Matching Activity Sheet (1 per student)
- Handout 4.2: Pair Programming Poster
- Materials for Draw What I Say activity:
 - Handout 4.3: Model Drawings (1 of each model per pair)
 - Role responsibilities on chart paper
 - Debrief questions on chart paper

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Pair Programming Partners (10 min)

1. Tell students you have looked at their choices for pair programming partners and have paired them up based on their choices and other factors. Tell students that these pairings are not "set in stone." They will change partners after they make their first games. You may also change pairs if you think another partnership would work better.
2. Pass out partnership assignments.

Pair Programming Poster and Matching (5 min)

1. Have students sit next to someone who is not their pair programming partner.

2. Explain to students that you have posted the jobs and rules for good pair programming. (See Handout 4.2). Tell them you expect them to use this poster as a guide for learning to be good pair programmers.
3. Ask volunteers to read each rule and job for driver and navigators from the poster. Remind students that they will switch driver/navigator roles at specific times and that you, or a designated signal, will tell everyone when to switch.

Pair Programming Matching Activity (15 min)

1. Explain that the purpose of this activity is to remind ourselves of the different jobs and tasks performed by each of the two pair programming roles.
2. Explain the activity steps:
 - Tell students that each of them will complete an activity sheet – helping each other as needed. Read the directions at the top of the sheet. (See Handout 4.1: Pair Programming Matching Activity Sheet.)
 - Explain that when everyone is finished, they should sit next to their partner, check their answers against each others' sheets, and discuss any differences and come to an agreement so that their sheets match.
3. Check for understanding and answer any questions.
4. Hand out activity sheet and pencils and have them begin. Circulate among pairs and assist as needed.

Break (10 min)

Draw What I Say Activity (30 min)

1. Introduce the activity and give instructions (5 min)
 - Tell students that they are going to do an activity where they get to problem-solve and practice teamwork to build communication skills with their partner. Reinforce the idea that teamwork is very important to their goal of co-creating a project on the computer.
 - Have students sit with their partner at their assigned workspace. Have them use their binder as a screen to create a “blocked off”/“secret” area.
 - Tell them the name of the activity is “Draw What I Say.”
 - Explain that in their pairs or partnerships there will be two roles. 1 person who is the “Describer” and the other person who is the “Drawer.” Refer to posted roles on chart paper and explain the roles:

Describer's role:

- To select one of the pre-made drawings.
- After selecting a drawing you will have approximately 12 minutes to describe to your partner how to draw an exact copy of the structure that you have in your “secret area.” Your partner might also ask you questions that you need to answer.
- Describer cannot do any hands-on drawing.
 - No pointing to, or touching, the paper or pencil.

- Can only use words to describe or give instructions.
- Is allowed to look at what the drawer is drawing to help describe and correct.

Drawer's role:

- To try to draw an exact copy of the model that your partner chose in his/her “secret area” by:
 - Using pencil and paper.
 - Listening to your partner.
 - Asking clarifying questions.
- Ask students: “*What other roles does this remind you of?*” (Answer: Navigator = Describer; Driver = Drawer).
- When the Describer is finished giving directions, and the Drawer feels that he or she is finished drawing take down the binder barrier and compare the master design with the one just built. Switch roles and try designing and duplicating another pattern.
- Remind students:
 - Get as far as you can; it’s okay if you don’t finish.
 - This is a team project – both roles are very important. The goal is for the Drawer to copy the Describer’s model as closely as possible by following directions and asking questions.
 - The Describer can begin choosing a model as soon as he or she receives the photocopies.
- Ask if there are any questions before they begin activity. Briefly answer any questions that arise. If a few students are especially confused and need extra help, get the remainder of the group started and help those students individually.

2. Conduct Activity (15 min)

- Have each pair get a set of model drawings, find their workspace and begin.
 - When all the pairs have selected a model, begin timing.
 - Circulate to monitor and help as needed. Prompt pairs to communicate as necessary to complete at least one drawing.
 - After 5 minutes, have pairs switch roles and do another round of the activity using another model drawing. Describers can choose an easier model if the pair started with something too difficult or a more difficult model to increase the challenge.

3. Debrief the Activity (10 min)

- Bring the group back together and pass out more scrap paper and pencils as needed. If you have a large class and more than one assistant, split up class into smaller groups of 6-8 students.
- Ask pairs to, as a team, take 2 *minutes* to write down answers to the following questions that are posted on chart paper:
 - What things did you do that helped you create exact copies of the model drawings?

- What kinds of words or terms did you come up with to draw the right shapes in the right places?
- After two minutes, ask all pairs to report their answers to the first question and then the second question.
- Summarize activity by saying the following: It is important for you to develop a language for precisely describing things you do in Creator and other software you are working with. This way you and your partner can understand one another and be successful in pair programming and completing your project. You also need to use good teamwork skills like being patient with one another, respecting each others' efforts while each of you are learning new skills and roles. Help each other by being a good navigator.

Group Review/Wrap Up (10 min)

1. Go around the room and ask for students to explain at least one thing they learned that day.
2. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 5

Objectives:

- To increase students' understanding of good and bad pair programming
- To review how to make rules in Creator
- To learn and practice how to create stages in three ways – with a plain colored background, with a background from Creator, and with a background from the Internet

Instruction Time: 90 min

Materials/Equipment:

- Access to StageCast Creator on every computer
- Handout 5.1: Pair Programming Checklist (1 per student)
- Handout 5.2: Stages
- Demo Computer and LCD Projector

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Good and Bad Pair Programming Demo and Analysis (15 min)

1. Tell students that the instruction today is going to be done using pair programming. Explain that one student will be selected to be the driver during instruction.
2. Distribute Handout 5.1: Pair Programming Checklist and pencils – one to each Driver. Explain that the checklist is the list of skills for successful pair programming that are on the Pair Programming poster.
3. Tell students that the driver in their partnership is going to make observations of what they see happening between the driver in the demonstration (student) and the adult (you or an assistant), who will be acting as the navigator. The students with the checklist should focus on the pair programming in the demonstration and mark down the good practices that they observe. The navigator should focus on the skill instruction so that they can help the driver practice the skill later.
4. Explain that the purpose of this demonstration and their observations/ evaluation is to help them become better pair programmers. Add that when the instruction is done, the group will discuss their observations.

5. Ask students to read through the list before getting started. Give them a few minutes to read the checklist silently or lead them in a read-aloud.
6. Bring up the pre-selected student to pair program with you or an assistant.
7. After the skill instruction is finished, give students a few minutes to complete the checklist, and remind them to only check off what they DID see happening.
8. Lead a brief discussion of the demonstration. Ask students:
 - What did you notice that the demonstrators did well as pair programming partners?
 - What did you check off?
 - What is something you think the demonstrators could do to improve their pair programming

General Creator Review (5 min)

1. Informally quiz students on the Creator points previously covered, or for the “how-to” questions, ask for volunteers to show on the computer connected to the LCD projector:
 - How do you make a character move in Creator? (use the rule tool)
 - How do you create more characters? (use the copy tool or pull from the sidelines drawer)
 - How do you move an object (character) on the stage? (click and drag when the game is stopped)
 - What do we call the activity that changes the way computer programs work? (programming)
 - How do we delete a character? (click on the delete tool and then the character)
 - Any questions?

Review of making rules: Direct Instruction and Demo (10 min)

1. On a projected computer, review the rule tool and show how to put the tool onto a character.
2. Demonstrate making a “move right” rule, and explain what is shown on Creator when doing so. Stress that one picture is the “before” picture or “When the character is in a certain spot...”, and the other is the “after” picture or “what should happen.” Show a couple examples.
3. Showing a scene with a character and a rock, ask group: “ So if I want to make a rule that he jumps when he gets to the rock, where does he need to be when I click on the rule tool and click on him?” (By the rock). “And what should the rule be?” Guide students to create the rule.
4. It’s very important to stress – and remind students often – that the rule now needs to be named (i.e.: jumping”) and demonstrate.
5. Take questions.

Break (10 min)

Stages Step 1: Color and Creator Backgrounds Demo and Practice (30 min)

1. Introduce the first game the students will be building, the maze game, by telling them that they will be using what they're working on from now on as part of their first game.
2. Pass out handouts on bringing in background colors and backgrounds for stages (Handout 5.2) and ask students to follow along as you briefly demonstrate each step on the handouts.
3. Briefly discuss and demonstrate how to change sizes of screens.
4. Ask students to follow the handouts and create two types of stages and put them in the stage drawer – one with a plain colored background and another with a background from Creator.

Group Review/Wrap Up (10 min)

1. Ask for a volunteer to demonstrate what he/she did with stages.
2. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 6

Objectives:

- To continue to help students develop their collaborative skills
- To learn and practice bringing a character on the stage
- To complete Creator Tutorial 10, on drawing characters using Creator's Paint tool
- To learn and practice how to revise a character and draw an original character using the Creator paint program

Instruction Time: 90 min

Materials/Equipment:

- Access to StageCast Creator on every computer
- Material for Pattern Blocks activity:
 - Ziploc bags of pattern blocks – 2 identical sets with approx. pieces each per pair (We used plastic math manipulative pattern blocks/pieces in different geometric shapes and colors – red trapezoids, Yellow hexagons, orange squares, etc.)
 - Timer
 - Role responsibilities on chart paper
 - Debrief questions on chart paper
- Handout 6.1: Bringing Character onto Stage
- Handout 6.2: Drawing Characters
- Demo Computer and LCD Projector

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Pattern Block activity (30 min)

1. Tell students that they are going to do an activity called "Pattern Blocks" where they get to problem-solve and practice teamwork to build communication skills with their partner. Reinforce the idea that teamwork is very important to their goal of making a game together.
2. Have students sit with their partners at their assigned workspace. Have them use their binder as a screen to create a "blocked off"/"secret" area.
3. Explain that in their pairs or partnerships there will be two roles. one person who is the "Designer" and the other person who is the "Builder." Refer to posted roles on chart paper and explain the roles:

Designer's role:

- To design and build a mosaic in two minutes using the pieces in their Ziploc bag according to the following instructions:
 - The mosaic should not be seen by your partner – it must remain in the “secret design area”
 - There is no “right” design – it’s your own creation
 - You don’t have to make your design flat on the table – you stack them or stand them up
 - Use ALL THE PIECES
- After designing and making the mosaic, you will have approximately 10 minutes to describe to your partner how to build an exact copy of the mosaic that you have in your “secret design area.” Your partner has a Ziploc bag with the exact same pieces in it. He/she might also ask you questions that you need to answer.
- The Designer cannot do any hands-on construction of the Builder’s mosaic.
 - No pointing to or touching the pieces.
 - Words only to explain which pieces to use and how to put them together.
 - It’s okay to look at what the Builder is making to help describe and correct.
- No changing of the mosaic in the “secret design area” once you begin describing the mosaic to your partner.

Builder's role:

- To make an exact copy of the mosaic that your partner designed and built at the “secret design site” by:
 - Using a bag of identical pieces.
 - Listening to your partner.
 - Asking clarifying questions.
4. Ask students: “*What other roles does this remind you of?*” (Answer: Navigator = Designer; Driver = Builder).
 5. When the Designer is finished giving directions, and the Builder agrees that she/he is finished building, take down the screen and compare the master design with the one just built. *Switch roles* and try designing and duplicating another pattern
 6. Tell students:
 - Get as far as you can; it doesn’t matter if you finish.
 - It is a team project – both roles are very important. The goal is for the Builder to copy the Designer’s design as closely as possible by following directions from the Designer and asking questions.
 - Designers can begin making their mosaics as soon as they receive the pieces.

7. Ask students if they have any questions before they begin. Briefly answer any questions that arise. If a few students are especially confused and need extra help, get the remainder of the group started and help those students individually.
8. Have each pair get a set of bags with blocks, find their workspace and begin. When all the pairs have started set the timer for one minute.
9. When timer goes off, give Designers one more minute to finish making their patterns and then tell them to start describing their pattern to their Builders. Set the timer for 10 minutes.
10. Circulate to monitor progress and assist as needed. Prompt pairs to communicate as necessary to achieve success in duplicating the pattern.
11. When timer goes off, have pairs *switch roles* and start the activity of designing and duplicating a new pattern.
12. Debrief the activity:
 - Bring the group back together and pass out scrap paper and pencils. If you have a large class and more than one assistant, split up class into smaller groups of 6-8 students.
 - Ask pairs to, as a team, take *2 minutes* to write down answers to the following questions that are posted on chart paper:
 - What things did you do that helped you create exact copies of the model drawings?
 - What kinds of words or terms did you come up with to draw the right shapes in the right place?
 - After two minutes, ask all pairs to report their answers to the first questions and then to the second question.
 - Summarize activity by saying the following: It is important for you to develop a language for precisely describing things you do in Creator or other software you are working with. This way you and your partner can understand one another and be successful in pair programming and completing your project. You also need to use good teamwork skills like being patient with one another, respecting each others' efforts while each of you are learning new skills and roles. Help each other by being a good navigator.

Creator Review and Bringing in Characters Demo and Practice (10 min)

1. Informally quiz students on the points covered in last session, or ask for volunteers to show on the computer connected to the LCD projector:
 - What are the different ways to make new stages? (use blank color, get Creator background, import art from the Internet)
 - How do you add characters to your stage? (pull from the character drawer or another sim)
 - Any questions?
2. Demonstrate each step in the process of bringing in characters onto the stage as outlined in Handout 6.1.

3. Ask students to follow the handout directions and put a character on each of their three stages. Tell them the character they will using will be the main character/player in their maze game.

Tutorial 10: Drawing Characters with Creator's Paint Tool (10 min)

1. Ask students to go through Creator Tutorial 10.
2. Circulate to monitor progress. Warn students when there are two minutes left.

Drawing and Modifying Characters Demo and Practice (20 min)

1. Briefly demonstrate, on projected computer, a review of parts of the tutorial. Demonstrate putting the drawing tool onto a character, then modifying the character, and clearing the character and drawing it from scratch. (5 min)
2. Ask students to open the sims they last worked on, and then to either modify one character or draw one from scratch. (15 min)

Group Review/Wrap Up (10 min)

1. Ask for a volunteer to demonstrate what he/she did with drawing and modifying characters.
2. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 7

Objectives:

- To learn about and practice using mouse and arrow keys to move character
- To introduce and start building the maze game
- To learn about making a villain move around the stage at random

Instruction Time: 90 min

Materials/Equipment:

- Access to StageCast Creator on every computer
- Handout 7.1: How to Make a Maze
- Handout 7.2: Making Characters Move with Arrow Keys
- Handout 7.3: Making a Villain Move Around Your Maze
- Demo Computer and LCD Projector

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Review of Last Creator Lesson (10 min)

1. Ask for volunteers to show the characters they have created during the last session.
2. Take questions.

Making a Maze, Moving Player Character with Arrow Keys Demonstration (10 min)

1. Explain that now the students are going to learn how to program their first user interactions, or the actions players take when they are playing a computer game. They will use these skills to start making their first game – a maze game.
2. Choose a volunteer driver (the one who operates the computer), and as the navigator (the one who reads directions and explains what to do), take the driver through each step of Handout 7.1: How to Make a Maze.

3. One of the steps on the handout is to try to have just one object in each square, i.e., if the maze is made of rocks, be careful when copying the rocks and try not to put only 1 rock per square. Stress this step.
4. As the navigator, take the volunteer driver through the steps of Handout 7.2: Making Characters Move With Arrow Keys.
5. Demonstrate how to name the rules for moving up, down, etc. and stress the importance of doing so.

Making a Maze, Moving Player Character with Arrow Keys Hands-on Practice (25 min)

1. Ask students to make a maze, add a character, and make that character move in all directions with the arrow keys. Remind them that they'll also need a background, and that "Adding a Background" handouts are available for those who need them.
2. Post the assignment named in the above bullet so students can refer to it as they work.
3. Circulate and answer questions as the students work.

Break (10 min)

Making a Character Move Around a Stage with "Do Random" Setting and Making End Point Demo (15 min)

1. Introduce the lesson by saying, "You have just learned how to create rules to make characters move around the stage on their own and by using keys. But sometimes it's useful to have characters – especially villains – move at random – in no particular order. You're going to learn how to do that now." Stress the difference between the villain who is moving without arrow keys and the main player character.
2. Distribute Handout 7.3: Making a Villain Move Around Your Maze.
3. In the role of navigator, help a volunteer student make rules for a villain to move in all four directions and then to put those rules in a "do random" box.
4. Demonstrate how to make an end point for the player character to reach by putting player character at beginning of maze and adding a new character (leave as star) at the end. Move the villain to the end of maze and then save and play.

Group Review/Wrap Up (10 min)

1. Ask for a volunteer to demonstrate what he/she did to move the player character around with the arrow keys.
2. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 8

Objectives:

- To practice making a villain move around the stage at random
- To learn how to create an end point to a game
- To continue building a maze game
- To improve students' pair programming practices

Instruction Time: 90 min

Materials/Equipment:

- Access to StageCast Creator on every computer
- Material for Pair Programming Activity:
 - Handout 8.1: Pair Programming Partner Check-in Activity Sheets for Driver and Navigator
 - Small stickers (10 per student)
 - Handout 8.2: Laminated Goal Cards (6 copies of each card)
 - Handout 8.3: Goal Check Activity Sheet (1 per student)
- Demo Computer and LCD Projector

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Review of Last Creator Lessons (15 min)

1. Ask for volunteers to come up and demonstrate each of the following ways for a player to move a character. Narrate their steps as they work:
 - Making a character move right or left with the arrow keys
 - Making a character move up or down with the arrow keys
 - Making a character move up when it is clicked on
2. Ask volunteers to demonstrate how to make a character move at random around the stage and make an end point for the player to reach.

Making a Character Move Around a Stage with "Do Random" Setting and Making End Point Hands-on Practice (15 min)

1. Have students make a villain move around their mazes using the “do random” feature and add an end point to their maze.
2. Circulate, coach, praise, and ask open ended questions (i.e. “How’d you decide to use that alien?”)

Break (10 min)

Introduction to Pair Programming Partner Check-in and Goal Check Activity (5 min)

1. Remind students that they have been working with their pair programming partners for a couple of sessions now.
2. Explain that part of good teamwork is giving feedback. Tell students: “Giving feedback means telling partners what they are doing well and also telling them if there are things they could do differently that would make the team work better. Starting today, you are going to do a regular activity to give feedback to your pair programming partner.”
3. Tell students that the feedback activity is called the Pair Programming Partner Check-in.
4. Show Handout 8.1: the Pair Programming Partner Check-in activity sheets.
5. Using instruction steps on chart paper as a guide, review how to complete forms:
 - Get a check-in sheet that matches the job your partner did most today. That is, if he or she was mostly the driver, choose the sheet with “Driver” in the upper left-hand corner of the chart, and if he or she was mostly the navigator, choose the sheet with “Navigator” in the upper left-hand corner.
 - Get a sheet of 10 stickers.
 - Write your partner’s name in the space provided in the upper right-hand corner of the sheet.
 - Place one sticker in each row to rate how well your partner did on that job when he or she was acting as the driver or navigator. Acknowledge a very good performance using the “Did this a lot” column. Acknowledge okay work that could use more effort with “Did this, but I would like you to do it more.”
 - If there is something your partner is doing as a pair programming partner not listed on this sheet, you can write it on the chart where it says “Other” and evaluate your partner on it.
 - Write your partner a personal message at the bottom. It can be a compliment, encouragement, a request for improvement or anything else you want to tell them.
 - When you are both finished, exchange sheets.
 - Read the sheet your partner filled out about you.

- Choose one of the jobs/tasks for which you DID NOT get a “Did this a lot” rating to try to improve over the next few sessions. Indicate your choice by placing a sticker or making a mark in the box for this job/task in the “Will try to improve” column.
- In the box at the bottom of the sheet, write a sentence that explains what you are going to do to try to improve on the job/task you chose.

Note: Because students often experience difficulty describing specific changes in their behavior that would lead to improved performance, it’s helpful to review what students write about how to work towards their goal and assist them in understanding the difference between “setting” a goal and “describing what they were going to do” to reach that goal.

- When both you and your partner have completed the sheet, read the goal statements you wrote in the gray box at the bottom of your sheet out loud to each other.
- Find the goal card (Handout 8.2) that matches the job/task you have chosen to try to improve. Tape it to the computer where you are working each session to help remind you of the goal you’re working on. Write your name or initials on goal cards with an erasable marker.

Pair Programming Partner Check-in (15 min)

1. Warn students that there will probably be at least one, if not more, areas where both partners have ratings of “Did this, but I would like you to do it more.” This is okay and does not mean that either person did a bad job. They are new to pair programming and are learning how to do it as they go. It’s important to be honest with their partners about what they need to improve as pair programmers so they can work on getting better. Honest feedback will help them become the best pair programming teams they can be.
2. Have students start activity and circulate to assist as needed.
3. Halfway through (about eight minutes), inform students that they should finish their writing and exchange sheets.
4. When there are about two minutes remaining, inform students that they should have chosen a goal and written something at the bottom saying how they are going to try to achieve the goal. They should wrap up the activity by getting a laminated goal card that matches the pair programming job/task that they’ve chosen to try to improve.
5. Give students a couple of minutes more to finish up and then close by telling them to keep this feedback and their goal of improvement in mind when they work on the computers together. Tell them that their goal cards will be a visible reminder of the pair programming job that they’re trying to improve.
6. Have them store these activity sheets in their notebooks.

Pair Programming Goal Check (10 min)

1. Have students refer to the goal card they selected and displayed.
2. Hand out one pencil and Handout 8.3: Goal Check Activity Sheet to each student.
3. Review the sheet with students.
4. Tell them that if they think they should set a new goal, they will have an opportunity to do that the next time they do pair programming check-in again.
5. Remind students that learning how to be a good pair programmer is an on-going process.
6. Have students complete the sheets, asking for suggestions from their partners, and then put them in their personal folders.

Group Review/Wrap Up (10 min)

1. Have students play each other's basic games.
2. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 9

Objectives:

- To make rules so that villain causes at least one type of harm to main character
- To continue building a maze game
- To promote group cohesion and exercise with an outdoor activity

Instruction Time: 90 min

Materials/Equipment:

- Access to StageCast Creator on every computer
- Handout 9.1: Making Villain Hurt Your Main Character
- One water balloon for each pair of students plus (optional) one extra water balloon for each student
- Small prizes for winners of water balloon toss
- Demo Computer and LCD Projector

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Review of last Creator Lessons (5 min)

1. Briefly review the information covered in the last session by asking the group to explain the differences in how a villain and the player character move.

Making the Villain Hurt Characters Demo (15 min)

1. Choose a volunteer driver, and navigate him/her through the steps of the Handout 9.1: Making the Villain Hurt Your Main Character.
2. While going through this handout, stress some information about making rules. Point out that when making a rule, a box appears showing a picture of the conditions for the beginning of the rule, and the conditions for how things should end up after the rule. For example, say, "Creator knows that I want my character to move using the arrow keys when it's in a regular square, not next to anything. If I want Creator to know what to do when my character runs into the villain, where does the character have to be when I start making my rule?" (Next to the villain.) Put the character next to the villain, click on the rule tool, put it on the main character and stretch it to

include the villain. Point out the box showing the beginning of the rule. “You see here that we’re saying to Creator, ‘When my character is next to the villain, I want a certain thing to happen.’”

3. Point out that it’s important to be careful when constructing a maze that there is only one object per square. If, for example, the villain is supposed to move in the other direction when it gets to a certain obstacle and that obstacle is actually one rock on top of another, then the villain will only turn around when there are two rocks instead of one in the space.
4. Now ask the group: “What types of harm could a villain cause a player in a game?” (The character could disappear, lie on its back and die, turn upside down, return to the beginning of the game. Any other suggestions?)
5. Take one idea from the group – like having the character die or get eaten, and ask, “How could we make that rule?” If a volunteer has an idea, ask her/him to come up and try to make it happen. If no one can figure it out, talk through the thought process involved in making that rule.

Ways to Do Harm Practice (20 min)

1. Ask students to practice making their villain cause harm to their main character so that the player loses the game.
2. Circulate, coach and praise students as they work.
3. Tell students that if they finish before the rest of the group, they should look at the “Reset Button” handout (Handout 10.1) and try to add a reset button to their game.

Break (10 min)

Group Review/Sharing (10 min)

1. Ask students for ideas on how to make a game more challenging (i.e., add more villains).
2. Ask for volunteers who have found a way for the villain to cause a different kind of harm from sending the player back to the beginning of the maze to come up in front of class and show the class what they came up with. If there are no volunteers, poll the group as a whole and ask them to tell the group what they came up with.

Group Cohesion Activity: Water Balloon Toss (20 min)

1. Take the group outside for this activity and arrange as follows:
 - Have partners facing each other (NOT pair programming partners) in two lines. The lines should be close together.
2. Give each person in one line of people a water balloon and ask them to toss the balloons to their partners and then take a step back when you cue them.

3. Continue this process there is only one pair left with an unbroken balloon.
4. Optional: Give an extra water balloon to each person to throw at will at whomever or whatever they like, including you.

Group Wrap Up (5 min)

1. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 10

Objectives:

- To learn about and practice making a reset button
- To learn about and practice adding a “You Win” message to game
- To continue building a maze game
- To increase students’ confidence and positive attitudes towards IT through practice giving and receiving affirmations

Instruction Time: 90 min

Materials/Equipment:

- Access to StageCast Creator on every computer
- Handout 10.1: Reset Button
- Handout 10.2: Adding “You Win”
- Material for Affirmation activity:
 - Handout 10.3: Blank Affirmation slips (1 per student; 5 copies on handout)
 - Basket
- Demo Computer and LCD Projector

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day’s agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Reset Button Demo (5 min)

1. Tell students: “If your character gets eaten or dies, the person playing your game won’t know how to drag your character out of the character drawer, so you’ll need a reset button.”
2. Ask for a volunteer and using Handout 10.1: Reset Button, navigate that student to create a reset button.

Caution: When demonstrating how the reset button works, explain that the reset button opens up the last saved version of the game. That’s why it’s important to set up the stage exactly the way it should look at the beginning of the game before saving and testing the reset button.

3. Tell students that if they are still working on their villains or other parts of the game, they should continue. But if they are ready, they should go ahead and create a reset button now.

4. Tell students that if they have moved ahead and have already made a reset button, they should help other students make theirs.

Reset Button Hands-on Practice (15 min)

1. Using the “Reset Button” handout as a guide, ask students to add a reset button to their maze games.
2. Circulate, coach and praise students as they work.

Break (10 min)

Adding a “You Win” Message Demo (5 min)

1. Show a teacher example or a student’s game, and ask the group for a suggestion for what should be the way to win the game.
2. As the students follow along on the “Adding You Win” handout, demonstrate making a “you win” character.
3. Ask the group, “How could we make a rule that a “You Win” message comes up under the conditions of winning?”
4. Use suggestions to guide a volunteer driver to make a rule for a “you win” message.
5. Tell students: “Maybe you want to have a ‘You Lose’ message somewhere in your game too. If so, go ahead and try it!”

Adding a “You Win” Message Hands-on Practice (15 min)

1. Using the “Adding You Win” handout (Handout 10.2) as a guide, students add a “You win” message to their maze games.
2. Circulate, coach and praise students as they work.
3. Students who finish early should get a “Doors” handout and practice making an introductory/credits page for their game.

Affirmations (20 min)

1. Provide instructions for the activity (10 min):
 - Explain that the last activity of the day is called “affirmations.” Tell students that an “affirmation” is when you tell someone, out loud or in writing, something you noticed that they did really well.

- Tell students that they are going to choose one other student who they are going to write an affirmation about. Explain that the affirmation should describe something that the person did really well today. It should be something related to the program (i.e., not what they are wearing or a note about who they like in school).
 - Show and read the question on the affirmation slip (Handout 10.3): “What is something you noticed that someone did especially well today?”
 - Model how to write an affirmation (e.g., “I noticed Brenda helping her partner figure out how to draw a person on the computer”). Use another adult educator as the subject of your affirmation. If you are the only adult educator, try to use another adult with whom your students are familiar. If this isn’t possible and you have to select a student, choose one who is unlikely to receive many affirmations from his or her peers.
 - Model folding the slips into quarters and writing the recipient’s name on the outside of the slip.
 - Explain that once everyone is done writing affirmations, volunteers will pick an affirmation at random and read it to the group. After a volunteer reads an affirmation, he or she should give it to the person for whom it was written.
 - Tell students where you are going to put the unread affirmations so students can read them between sessions or during the next program session.
 - Check for understanding and answer any questions.
2. Give students 2 to 3 minutes to write their affirmations and put them in the basket. Assign the task of collecting the folded affirmations slips to one of the students who finishes first.
 3. When all the slips have been collected, ask for volunteers to pick out affirmations at random, read them to the group and then give them to the students for whom they were written. If volunteers pick affirmations that are written for them, they should choose again.
 4. As time runs out, congratulate ALL students on their excellent work. Remind students where they will be able to find their affirmations if they were not read. Instruct students who received affirmations that were read aloud to store them in an appropriate place.

Note: After the first couple implementations of this activity, we recommend writing in “kidspeak” affirmations for students who do not receive any from their peers. Students will probably know that you wrote them, but it is still important to make sure they are acknowledged for the positive things they are doing in the program.

Group Review/Wrap Up (10 min)

1. Ask for volunteers to show what they created during the hands-on Creator practice.

2. Tell students that they will be “beta testing” their games during the next session. That means they will play each others’ games and give each other constructive feedback, which includes what they like about the game, information on any problems they encountered while playing, and/or suggestions for improvement.
3. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 11

Objectives:

- To finish beta version of maze game
- To problem solve and debug

Instruction Time: 90 min

Materials/Equipment:

- Access to StageCast Creator on every computer
- Handout 11.1: Elements of a Game
- Handout 11.2: Adding Sound (optional)
- Handout 11.3: Adding Special Objects (optional)
- Handout 11.4: Beta Test Evaluation Sheet
- To share and evaluate (beta test) each others' games
- Demo Computer and LCD Projector

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Elements of Finished Game Instruction (10 min)

1. Pass out Handout 11.1: Elements of Finished Game and ask students to use it to decide what more they have to do on their maze games.
2. Circulate and assist as needed.

Finalizing Beta Version of Maze Game Hands-on Practice (30 min)

1. Tell students they will have the rest of this session to get their maze games ready to show to other students and have them beta tested.
2. Students who are ahead of the others have three options:
 - Adding sound to their games using Handout 11.2: Adding Sound
 - Add a special object using Handout 11.3: Special Objects

- Helping other students finalize the beta version of their games
3. Students finalize the beta version of their games.
 4. Circulate, coach and praise students as they work.

Break (10 min)

Beta Testing Maze Games (20 min)

1. Pass out at least two copies of Handout 11.4: Beta Test Evaluation Sheet to each student.
2. Remind students that the goal is to help each other improve their games. It's important to make positive, constructive comments.
3. As students are playing each other's games, circulate and monitor the process, making sure that each game is being tested by at least three people and is getting equal attention and that students are not spending all their time on any one game.

Group Review/Wrap Up (10 min)

1. Ask for volunteers to name something they learned from the beta testing process.
2. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 12

Objectives:

- To debug and finalize maze games based on feedback
- To share final maze games

Instruction Time: 90 min

Materials/Equipment:

- Access to StageCast Creator on every computer

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Review of Last Session (5 minutes)

1. Ask group for their thoughts on the beta testing process, including the types of problems they encountered and possible ways to fix these problems

Note: A common problem is that a game will be impossible to win because the only available route is blocked by a villain. In these cases, the developer needs to add alternative pathways.

2. Emphasize as necessary that this is standard procedure that programming and game development teams use all of the time to debug and improve their products.

Debugging and Finalizing Maze Games (20 min)

1. Students respond to feedback and fix any problems noted in their maze games.
2. Give students who are finished with their games the option of adding special features (see handouts for Session 11) or helping other students.

Break (10 min)

Finalizing Maze Games (15 min)

1. Students finalize their maze games.
2. Students who are finished assist other students.

Group Sharing (20 min)

1. Students demonstrate their finished games to entire group or students rotate around room playing other students' games in the same process used for the beta testing.
2. Praise the students for what they have accomplished.

Group Wrap Up (10 min)

1. Introduce the next game by telling students that they will begin building a new game in the next session – an action or “arcade” game.
2. Tell students they will also be choosing new partners for work on this new game.
3. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 13

Objectives:

- To introduce the next game students will be making – an action game
- To discuss the elements of an action game
- To select new pair programming partners for the next game
- To introduce the concept of a back story and the information to include on an introductory page
- To begin designing the action game’s back story

Instruction Time: 90 min

Materials/Equipment:

- Access to StageCast Creator on every computer
- Handout 13.1: Action Game Rubric
- Access to the game “Flight Club” on the Stagecast website
- Handout 13.2: Back Story Design Worksheet (1 per student)

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day’s agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Game Genre Discussion (15 min)

1. Open up “Flight Club” on the Stagecast website (<http://www.stagecast.com/cgi-bin/templator.cgi?PAGE=Cool/worlds/users/FlightClub.html>) and have a volunteer student play it. Tell students that this is an example of an action game made in Creator.
2. Ask students to describe the elements of an action game. If not mentioned, include the following definition:
“An **action game** is a game that challenges a player's speed, dexterity, and reaction time. Action games often include tactical conflict, exploration challenges, and puzzle-solving, but these are not defining elements. Action games are the broadest and most inclusive genre in gaming, encompassing many diverse sub-genres such as fighting games, first-person shooters, beat 'em ups, and platform games.” (definition taken from Wikipedia.org.)
3. Ask for volunteers to share what they like and don’t like about this genre.
4. Distribute Handout 13.1: Action Game Rubric and explain each element that is required.

5. Check for understanding and answer any questions.

Back Story Discussion (10 min)

1. Explain to the class that a back story is a narrative prior to the beginning of a game that explains what the game is going to be about. To be able to play the game, the player must know this “back story.” In other words, the game maker must create an introductory page that explains what the game is about.
2. To help generate ideas, pass out Handout 13.2: Back Story Design Worksheet and go around the room asking each student to explain to the rest of the class how they might answer the first question on the handout – Who is the main character and why are they in the situation? Tell them they may make up a story about anything they would like.
 - **For example:** The main character of my story is an alien named Fred. Fred is asked to protect his planet from a meteor shower approaching his planet.

Pair Programming Choices (10 min)

1. Tell students that before they start working on their back stories, you want to give them a chance to write down their choices for new pair programming partners. You will look at their choices during the break and assign them new partners when they return. Remind them that you will try to match them with one of their choices, but it may not necessarily be their first choice.
2. Ask each student to do what they did the first time they made partner choices – write their name at the top of a blank piece of paper and then write their top three choices for partners in the following way:
 - #1:
 - #2:
 - #3:
3. Collect students’ papers and during the break, assign pairs based on students’ choices and what you consider the best working relationships.

Break (10 min)

Pair Programming Partners (10 min)

1. Tell students you have looked at their choices for pair programming partners and have paired them up based on their choices and other factors. Tell students that these pairings are not “set in stone.” They will change partners again when they move on to their next game. You may also change pairs if you think another partnership would work better.

2. Pass out partnership assignments.

Back Story Design (20 min)

1. Ask students to work in their new pairs to answer the questions on the worksheet in as much detail as possible.
2. Circulate while students are working, assisting and requesting more detail as needed and if necessary, helping pairs negotiate whose back story they use for their game.

Group Wrap Up (5 min)

1. Ask for volunteers to briefly describe the back stories they have come up with.
2. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 14

Objectives:

- To improve students' collaboration with their new pair programming partners
- To finalize pairs' back stories
- To introduce and practice building an introductory page/adding text

Instruction Time: 90 min

Materials/Equipment:

- Access to StageCast Creator on every computer
- Handout 14.1: Adding Text
- Materials for Draw What I Say activity:
 - Handout 4.3: Model Drawings (from Session 4) (1 of each model per pair)
 - Role responsibilities on chart paper
 - Debrief questions on chart paper

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Draw What I Say Activity (25 min)

1. Remind students about the Draw What I Say Activity that they did with their first pair programming partners, and tell them they are going to do it again now with their new partners.
2. Give instructions:
 - Have students sit with their new partners at their assigned workspace. Have them use their binders as a screen to create a "blocked off"/"secret" area.
 - Remind students of the two roles: one person is the "Describer" and the other person is the "Drawer." Refer to posted roles on chart paper and briefly go over them as a reminder:

Describer's role:

- To select one of the pre-made drawings.

- After selecting a drawing you will have approximately 12 minutes to describe to your partner how to draw an exact copy of the structure that you have in your “secret area.” Your partner might also ask you questions that you need to answer.
- The Describer cannot do any hands-on drawing.
 - No pointing to, or touching, the paper or pencil.
 - Can only use words to describe or give instructions.
 - Is allowed to look at what the drawer is drawing to help describe and correct.

Drawer’s role:

- To try to draw an exact copy of the model that your partner chose in his/her “secret area” by:
 - Using pencil and paper.
 - Listening to your partner.
 - Asking clarifying questions.
- When the Describer is finished giving directions, and the Drawer feels that he or she is finished drawing, take down the binder barrier and compare the master design with the one just built. Switch roles and try designing and duplicating another pattern.
- Remind students:
 - Get as far as you can; it’s okay if you don’t finish.
 - This is a team project – both roles are very important. The goal is for the Drawer to copy the Describer’s model as closely as possible by following directions and asking questions.
 - The Describer can begin choosing a model as soon as he or she receives the photocopies.
- Ask if there are any questions before they begin activity. Briefly answer any questions that arise.

3. Conduct Activity (15 min)

- Have each pair get a set of model drawings, find their workspace and begin.
 - When all the pairs have selected a model, begin timing.
 - Circulate to monitor and help as needed. Prompt pairs to communicate as necessary to complete at least one drawing.
 - After five minutes, have pairs switch roles and do another round of the activity using another model drawing. Describers can choose an easier model if the pair started with something too difficult or a more difficult model to increase the challenge.

4. Debrief the Activity

- Bring the group back together and pass out more scrap paper and pencils as needed. If you have a large class and more than one assistant, split up class into smaller groups of 6-8 students.
- Ask pairs to, as a team, take 2 *minutes* to write down answers to the following questions that are posted on chart paper:

- What things did you do that helped you create exact copies of the model drawings?
- What kinds of words or terms did you come up with to draw the right shapes in the right places?
- Now that they have practiced pair programming, was it easier to do this activity this time than it was the first time? Why or why not?
- After two minutes, ask all pairs to report their answers to these questions.

Break (10 min)

Review of Last Session (5 min)

1. Ask for volunteers to explain the purpose of a back story and introductory page.
2. Tell students you will first demonstrate one way to make an introductory page and then give them time to build one for their game.

Introductory Page/Adding Text Overview and Demonstration (15 min)

1. Acting as navigator with a volunteer driver, use Handout 14.1 to demonstrate one way to add text to an introductory page.
2. Demonstrate changing the text size and color of the text.
3. Tell the students that they need to input the details from their game design worksheet into the game.
4. Encourage student to play with the text editing tools after they type their text in the box.

Introductory Page Build (20 min)

1. Ask students to finalize their back stories and begin to build their introductory pages.
2. Circulate among students and assist as needed.

Group Wrap Up (5 min)

1. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 15

Objectives:

- To understand the elements of an action game
- To practice building characters and first play stage of an action game
- To share student work and generate ideas/motivation
- To learn how to shoot or drop projectiles

Instruction Time: 90 min

Materials/Equipment:

- Access to StageCast Creator on every computer
- Handout 15.1: Making an Action Games, Parts 1 and 2
- Handout 15.2: Character and 1st Play Stage Design Sheet
- Handout 15.3: Shooting or Dropping Bombs

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.

Take care of any necessary logistics and announcements.

Elements of Action Game Discussion (5 min)

1. Distribute Handout 15.1: Making an Action Game and explain to students that they will use it to help them determine what elements to include in their games.
2. Explain to students that they will have some time to work on their introductory pages today if needed; those who are finished with their introductory pages may begin to design their characters and the first play stage of their action game.
3. Distribute Handout 15.2: on adding characters and building the 1st play stage.

Finalizing Introductory Page and Designing 1st Play Stage (30 min)

1. Students finish building introductory page of action game or if finished, begin designing the characters and the first play stage.

2. Circulate among students and assist as needed. Encourage those who are still working on their introductory pages to finish.
3. While circulating, identify two games that you think would motivate the other students with their game design and ask those students if they would be willing to formally present their games after the break.

Break (10 min)

Review and Group Sharing (15 min)

1. Ask the students who have agreed to show their games to present them to the class.
2. While each game is projected, ask their creator(s) to describe its back story and how the play stages will work.
3. Open the floor to questions or positive feedback. If necessary, role model the questions (e.g., How did you come up with the idea for that type of character (or story)? What parts of the game do you think will be the most difficult to make?)

Shooting or Dropping Bombs or Projectiles Demo (10 min)

1. Acting as navigator with a volunteer driver, use Handout 15.3: Shooting or Dropping Bombs to demonstrate how to shoot or drop bombs or projectiles.

Preview of Next Session/Group Wrap Up (10 min)

1. Explain to students that next time they will have a chance to do some more work on their action games and then they are going to participate in an activity called a “Gallery Walk.” Explain that the name “gallery walk” comes from visiting museums and art galleries, where people walk around to look at different exhibits and pieces of art. Tell students that this activity is going to be similar to visiting a gallery or museum except that instead of looking at art or exhibits, they are going to look at each others’ games.
2. Emphasize that their games are “works in progress” and that they should all be proud of their accomplishments at any stage of completion. Finally, express confidence that every single one of them has at least one thing in their project that they should be proud of. Be sure to include this step because many students may feel uneasy showing their work. Some youth feel like their work isn’t very good and are reluctant to show it for fear of being embarrassed or feeling like they are going to be judged or unfavorably compared to other work by their peers.

3. Explain to students that they will each have a few minutes to showcase their game. After each game is shown, other students will give feedback using a feedback form. This information is will help them make their games better.
4. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 16

Objectives:

- To continue building characters and first play stage of an action game
- To share students' work in progress and get feedback from other students in the form of a "gallery walk," thereby promoting a learning environment where peer consultation and idea-sharing is the norm

Instruction Time: 90 min

Materials/Equipment:

- Access to StageCast Creator on every computer
- Handout 16.1: Plus Delta Feedback Form

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Review of last Creator Lessons (5 min)

1. Briefly review the information covered in the last session by asking for a volunteer to demonstrate how to shoot or drop bombs.

Action Game Build Continued (20 min)

1. Explain to students that if they do not know or need help using the Creator Paint tool or creating a new stage, they can use the handouts.
2. Students continue to work on building their first play stage and use Handout 15.3 to make projectiles.
3. Circulate and assist students as needed.

Break (10 min)

Introduction to Gallery Walk (5 min)

1. Remind students of what you discussed at the end of the last session. The purpose of the gallery walk is to give each other positive and constructive feedback, e.g., information about what is good and what could be improved.
2. Remind students that they all have something to be proud of yet there is always room for improvement.
3. Pick the students (or ask for volunteers) who will be the ones to present their games in each of three 10-minute rounds – divided so that everyone can present in one of the rounds – and divide the rest of the class into the same number of small groups.

Note: The number of presenters and rounds will vary depending on the size of the class and if students are working in pairs. If the class is very large, you may have to break this activity into two sessions.

Gallery Walk (35 min)

1. Ask the Round One presenters to visually walk through an appropriate portion of their games and explain what part is their favorite and what part they are most proud of. Each game maker should have an equal amount of time to showcase his/her game.
2. Watch the time to make sure that everyone gets close to equal time and enforce ground rules around respect and “no put downs.”
3. After 5 to 8 minutes, pass out the feedback form (Handout 16.1: Plus Delta Feedback Form) and briefly explain it:
 - The “+” area is where they write compliments about the game.
 - The middle “Δ” (delta) area is where they write suggestions for improvements.
 - The “light bulb” area is where they write ideas they have for new things that a pair can do in their game.
4. Ask students to fill out the forms and give them to the presenters to refer to when they return to their work.
5. Repeat the evaluation process until all rounds are completed and all students have had an opportunity to showcase their work.

Whole Group Reflection (5 min)

1. Reconvene large group and ask one or two groups to share what they saw in someone else’s games. Did they get any new ideas? Was there anything that impressed them?
2. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 17

Objectives:

- To continue building the first play stage of an action game
- To learn how to make doors between stages and move characters through them

Instruction Time: 90 min

Materials/Equipment:

- Access to StageCast Creator on every computer
- Handout 17.1: Doors

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Review (10 min)

1. Review the last session by asking students what they will change or add to their action games as a result of the feedback they got from the gallery walk.

Making Doors and Moving Characters through Them Demo (10 min)

1. Acting as navigator with a volunteer driver, use Handout 17.1: Doors to demonstrate how to make a door between two stages and move a character through it.

Break (10 min)

Building First Play Stage Continued (40 min)

1. Students continue building their first play stage and the door between it and their introductory page and respond to feedback received during the gallery walk.

2. Students who finish early have the option of helping other students or using Handout 18.1: Making a Character Eat Something to add that feature to their game.

Group Wrap Up (10 min)

1. Ask for volunteers who have added doors during the session to share their work with the group.
2. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 18

Objectives:

- To learn how to make a character eat something before moving to another stage
- To continue building the first play stage of an action game

Instruction Time: 90 min

Materials/Equipment:

- Access to StageCast Creator on every computer
- Handout 18.1: Making a Character Eat Something

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Review of Previous Creator Lesson (5 min)

1. Review the information covered during the last session by asking a volunteer to come up and demonstrate how to make a door and move a character through it to the next stage.

Making a Character Eat Something before Moving to Another Stage Demo (15 min)

1. Acting as navigator with a volunteer driver, use Handout 18.1 to demonstrate how to make a character eat something before moving to another stage.

Break (10 min)

Building First Play Stage Continued (40 min)

1. Students continue building their first play stage and the connection between it and their introductory page and if desired, adding the "eating" feature just demonstrated.
2. Tell students that they need to be finished with their first play stage and have started on their second play stage by the end of the next session.

3. Students who are finished have the option of helping other students or begin building their second play stage using Handout 19.1: 2nd Play Stage Design Worksheet.
4. Circulate and assist students as needed.

Group Review/Wrap Up (10 min)

1. Ask for volunteers who have added doors during the session to share their work with the group.
2. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 19

Objectives:

- To finish building the first play stage of an action game
- To begin designing and building their 2nd play stage
- To improve students' pair programming practices with most recent partner

Instruction Time: 45 min

Materials/Equipment:

- Access to StageCast Creator on every computer
- Handout 19.1: 2nd Play Stage Design Worksheet
- Material for Pair Programming Activity:
 - Handout 8.1: Pair Programming Partner Check-in Activity Sheets for Driver and Navigator
 - Small stickers (10 per student)
 - Handout 8.2: Laminated Goal Cards (6 copies of each card)
 - Handout 8.3: Goal Check Activity Sheet (1 per student)

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Finalizing First Play Stage (15 min)

1. Students finalize their first play stage and fix any problems they find. Students who are finished have the option of helping other students or working on their second play stage.
2. Circulate and assist students as needed.

Designing and Building Second Play Stage (20 min)

1. Distribute Handout 19.1: 2nd Play Stage Design Worksheet and ask students to use it to design their second stage.
2. Tell students they can begin building their second stage as soon as the worksheet is filled out. Remind them that they may change their design later.

3. Circulate and assist students as needed.

Break (10 min)

Introduction to Pair Programming Partner Check-in and Goal Check Activity (5 min)

1. Tell students that they have been working with their new pair programming partners for several sessions now, so it's a good time to do the Pair Programming Partner Check-in and Goal Check Activity that they did with their first partners.
2. Remind them that part of good teamwork is giving feedback.
3. Using instruction steps on chart paper as a guide, review how to complete the Pair Programming Partner Check-in Activity Sheets:
 - Get a check-in sheet that matches the job your partner did most today. That is, if he or she was mostly the driver, choose the sheet with "Driver" in the upper left-hand corner of the chart, and if he or she was mostly the navigator, choose the sheet with "Navigator" in the upper left-hand corner.
 - Get a sheet of 10 stickers.
 - Write your partner's name in the space provided in the upper right-hand corner of the sheet.
 - Place one sticker in each row to rate how well your partner did on that job when he or she was acting as the driver or navigator. Acknowledge a very good performance using the "Did this a lot" column. Acknowledge okay work that could use more effort with "Did this, but I would like you to do it more."
 - If there is something your partner is doing as a pair programming partner not listed on this sheet, you can write it on the chart where it says "Other" and evaluate your partner on it.
 - Write your partner a personal message at the bottom. It can be a compliment, encouragement, a request for improvement or anything else you want to tell them.
 - When you are both finished, exchange sheets.
 - Read the sheet your partner filled out about you.
 - Choose one of the jobs/tasks for which you DID NOT get a "Did this a lot" rating to try to improve over the next few sessions. Indicate your choice by placing a sticker or making a mark in the box for this job/task in the "Will try to improve" column.
 - In the box at the bottom of the sheet, write a sentence that explains what you are going to do to try to improve on the job/task you chose.

- When both you and your partner have completed the sheet, read the goal statements you wrote in the gray box at the bottom of your sheet out loud to each other.
- Find the goal card (Handout 8.2) that matches the job/task you have chosen to try to improve. Tape it to the computer where you are working each session to help remind you of the goal you're working on. Write your name or initials on goal cards with an erasable marker.

Pair Programming Partner Check-in (15 min)

1. Remind students that there will probably be at least one, if not more, areas where both partners have ratings of "Did this, but I would like you to do it more." This is okay and does not mean that either person did a bad job. It's important to be honest with their partners about what they need to improve as pair programmers so they can work on getting better. Honest feedback will help them become the best pair programming teams they can be.
2. Have students start activity and circulate to assist as needed.
3. Halfway through (about eight minutes), inform students that they should finish their writing and exchange sheets.
4. When there are about two minutes remaining, inform students that they should have chosen a goal and written something at the bottom saying how they are going to try to achieve the goal. They should wrap up the activity by getting a laminated goal card that matches the pair programming job/task that they've chosen to try to improve.
5. Give students a couple of minutes more to finish up and then close by telling them to keep this feedback and their goal of improvement in mind when they work on the computers together. Tell them that their goal cards will be a visible reminder of the pair programming job that they're trying to improve.
6. Have them store these activity sheets in their notebooks.

Pair Programming Goal Check (10 min)

7. Have students refer to the goal card they selected and displayed.
8. Hand out one pencil and Handout 8.3: Goal Check Activity Sheet to each student.
9. Review the sheet with students.
10. Tell them that if they think they should set a new goal, they will have an opportunity to do that the next time they do pair programming check-in again.
11. Remind students that learning how to be a good pair programmer is an on-going process.

12. Have students complete the sheets, asking for suggestions from their partners, and then put them in their personal folders.

Group Wrap Up (5 min)

1. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 20

Objectives:

- To emphasize the importance of naming characters and rules and keeping list of rule organized
- To continue building the 2nd play stage
- To introduce the concept of a counter (optional)

Instruction Time: 90 min

Materials/Equipment:

- Access to StageCast Creator on every computer
- Handout 20.1: Renaming a Character
- Handout 20.2: Clean and Dirty List
- Handout 20.3: Bombing an Object to Get Points (optional)

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Review of Previous Creator Lesson (10 min)

1. Do a quick review of recently learned skills (e.g., making doors, using "follow me," making a character eat something, dropping bombs) by asking for volunteers to demonstrate some aspect of each skill.
2. Ask students to identify any problems they have encountered and discuss solutions.

Organizing and Naming Demo and Discussion (20 min)

1. Comment on the fact that many of the games they are making have a long list of rules. Ask students if they are having problems keeping them all straight. Explain that this is a common problem. That's why it's important to name your characters and rules and keep them organized and why you are going to do a quick review of naming before they continue to work on their games.

2. Acting as navigator with a volunteer driver, using Handout 20.1 to demonstrate how to rename a character (either a new one you have drawn or one in the character drawer).
3. Now make a simple rule for this newly named character to move one square to the right. Then demonstrate how to name this rule “move right.”
4. Distribute Handout 20.2 which gives examples of “clean” and “dirty” lists of rules. Ask the class how having a clean list might help them and how a dirty list will make it difficult. If not mentioned, explain that a clean list will help them manage their rules and not have duplicates.
5. Ask students to make sure that all their rules and characters are properly named.

Break (10 min)

Designing and Building Second Play Stage Continued (30 min)

1. Students continue building their second play stage.
2. Students who are finished have the option of helping other students or trying to add a counter using Handout 20.3: Bombing an Object to Get Points.

Note: building a counter is difficult and is recommended for advanced students only.

3. Circulate and assist students as needed.

Group Review/Wrap Up (10 min)

1. Ask for volunteers to share their day’s work with the group.
2. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 21

Objectives:

- To finish building the 2nd play stage and other parts of their action game they have been working on
- To build a credits page
- To increase students' confidence and positive attitudes towards IT through practice giving and receiving affirmations

Instruction Time: 90 min

Materials/Equipment:

- Access to StageCast Creator on every computer
- Handout 10.2: Adding You Win
- Handout 14.1: Adding Text
- Handout 10.3: Affirmation Slip

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Review of Creator Lessons (10 min)

1. Tell students that they are almost done with their action games. They will have time today to finish the game itself. Then all they need to do is make a credits page.
2. Ask students if they remember the two ways to add text. If anyone does, ask them to demonstrate. If not, briefly demo the steps for adding text outlined on Handouts 10.2 and 14.1.

Finalizing Action Game and Building Credits Page (35 min)

1. Students finish games and build a credits page.
2. Students who are finished should help other students.
3. Circulate and assist as needed.

Break (10 min)

Affirmations (20 min)

1. Provide instructions for the activity (10 min):

- Remind students of the “Affirmations” activity that they did in an earlier session. – when they told someone something they noticed that they did really well.
- Remind students of the procedure: They are going to choose one other student who they are going to write an affirmation about. The affirmation should describe something that the person did really well today. It should be something related to the program.
- Show and read the question on the affirmation slip (Handout 10.3): “What is something you noticed that someone did especially well today?”
- Model how to write an affirmation (e.g., “I noticed Brenda helping her partner figure out how to draw a person on the computer”). Use another adult educator as the subject of your affirmation. If you are the only adult educator, try to use another adult with whom your students are familiar. If this isn’t possible and you have to select a student, choose one who is unlikely to receive many affirmations from his or her peers.
- Model folding the slips into quarters and writing the recipient’s name on the outside of the slip.
- Explain that once everyone is done writing affirmations, volunteers will pick an affirmation at random and read it to the group. After a volunteer reads an affirmation, he or she should give it to the person for whom it was written.
- Tell students where you are going to put the unread affirmations so students can read them between sessions or during the next program session.
- Check for understanding and answer any questions.

2. Give students 2 to 3 minutes to write their affirmations and put them in the basket. Assign the task of collecting the folded affirmations slips to one of the students who finishes first.

3. When all the slips have been collected, ask for volunteers to pick out affirmations at random, read them to the group and then give them to the students for whom they were written. If volunteers pick affirmations that are written for them, they should choose again.

4. As time runs out, congratulate ALL students on their excellent work. Remind students where they will be able to find their affirmations if they were not read. Instruct students who received affirmations that were read aloud to store them in an appropriate place.

Note: As mentioned earlier, we recommend writing in “kidspeak” affirmations for students who do not receive any from their peers. Students will probably know that you wrote them, but it is still important to make sure they are acknowledged for the positive things they are doing in the program.

Group Wrap Up (5 min)

1. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 22

Objectives:

- To share action games with peers
- To introduce and begin thinking about next game – the trivia game

Instruction Time: 90 min

Materials/Equipment:

- Access to StageCast Creator on every computer
- Handout 22.1: Trivia Game Rubric
- Trivia game demo (a Creator sim)

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics or announcements.

Group Sharing (30 min)

1. Students demonstrate their finished games to entire group.
2. Praise the students for what they have accomplished.

Break (10 min)

Trivia Game Genre Discussion (15 min)

1. Ask the class if anyone knows what a trivia game is or if they can give examples. Some board game examples include Trivial Pursuit and Scene It. A trivia game consists of a set of questions designed to test the knowledge of the player.
2. Explain that they will have an option to make a game about any topic that they want. They may also make a game about a topic that they are currently learning in class. If they decide to make a trivia game about a current topic that they are learning, it may help their fellow classmates get ready for a test or review important material.

3. Distribute Handout 22.1: Trivia Game Rubric and go through each section with them.

Trivia Game Research and Discussion (20 min)

1. Have students play the trivia game demo.
2. Reconvene whole group and ask for volunteers to explain what they liked and didn't like about the sample game.
3. Ask students if they have any ideas about their own trivia games. If they do not volunteer ideas, mention the following:
 - Subjects they are covering in school.
 - Issues in their community (fitness, violence, etc.)
 - Extracurricular activities they are interested in (music, sports, etc.)
 - Any subjects that they think other people would be interested in.

Group Wrap Up (5 min)

1. Tell students they will be picking new pair programming partners at the beginning of the next session, and then they will be working on ideas for their trivia games with their new partners.
2. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 23

Objectives:

- To select new pair programming partners for the next game
- To brainstorm ideas for trivia game with partner

Instruction Time: 90 minutes

Materials/Equipment:

- Access to Stagecast Creator on every computer
- Trivia game demo (a Creator sim)
- Handout 23.1: Trivia Game Topic Ideas

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics or announcements.

Pair Programming Choices (10 min)

1. Tell students that before they start working on their trivia games, you want to give them a chance to write down their choices for new pair programming partners. As you did last time they changed partners, you will look at their choices during the break and assign them new partners when they return. Remind them that you will try to match them with one of their choices, but it may not necessarily be their first choice.
2. Ask each student to do what they did the last time they made partner choices – write their name at the top of a blank piece of paper and then write their top three choices for partners in the following way:
#1:
#2:
#3:
3. Collect students' papers and during the break, assign pairs based on students' choices and what you consider the best working relationships.

Break (10 min)

Pair Programming Partners (10 min)

1. Tell students you have looked at their choices for pair programming partners and have paired them up based on their choices and other factors. Remind students that these pairings are not “set in stone.” They will change partners again when they move on to their next game. You may also change pairs if you think another partnership would work better.
2. Pass out partnership assignments.

Review of Last Session (10 min)

1. Review last session’s discussion of a trivia game by asking for volunteers to define a trivia game and name the elements required per Handout 22.1 Trivia Game Rubric.
2. Ask for volunteers to share any new ideas for trivia games that they thought of since the last session.

Trivia Game Idea Brainstorming (30 min)

1. Arrange students in their new pairs and distribute Handout 23.1: Trivia Game Topic Ideas to each pair.
2. Explain that they will now think of different ideas for trivia games with their partner. After they are done, they will share their ideas with another pair and get feedback on their ideas, which will help them decide on what topics to choose for their games.
3. Have each pair write down at least three different ideas for trivia games.
4. Halfway through the remaining time, ask them to share their ideas with the pair next to them.
5. Circulate and facilitate discussion between pairs as needed.
6. Wrap up by telling students that if they will be starting to build their trivia games during the next class session, so they need to decide on a topic by then.

Group Wrap Up (10 min)

1. Ask for volunteers to share some brainstorming ideas with the group.
2. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 24

Objectives:

- To begin building trivia game by making questions and answers
- To help students develop their collaborative skills with their new pair programming partners

Instruction Time: 90 minutes

Materials/Equipment:

- Access to Stagecast Creator on every computer
- Handout 24.1: Trivia Game Question and Answer Sheet
- Material for Pattern Blocks activity:
 - Ziploc bags of pattern blocks – 2 identical sets with approx. pieces each per pair (We used plastic math manipulative pattern blocks/pieces in different geometric shapes and colors – red trapezoids, Yellow hexagons, orange squares, etc.)
 - Timer
 - Role responsibilities on chart paper
 - Debrief questions on chart paper

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics or announcements.

Making Trivia Game Questions and Answers (30 min)

1. Distribute Handout 24.1: Trivia Game Question and Answer Sheet to each student and explain the following:
 - They will need to complete this sheet before they may build the game in Creator.
 - They should write down each question they want to ask, along with the correct answer and some incorrect answers.
 - They may use the internet to help look for questions and answers, but they must record where they found the answer in the space provided.
 - When they complete the handout, they should raise a hand to get it checked.

- Once approved, they may begin to build the introduction page with the title and directions on how to play the game.
2. Circulate and assist as needed while students work on the questions and answers to their trivia game.

Break (10 min)

Pattern Block activity (30 min)

1. Remind students about the “Pattern Blocks” activity they did in an earlier session.
2. Have students use their binders as a screen to create a “blocked off”/“secret” area.
3. Explain that in their pairs or partnerships there will be two roles. one person who is the “Designer” and the other person who is the “Builder.” Refer to posted roles on chart paper and remind students about the roles:

Designer’s role:

- To design and build a mosaic in two minutes using the pieces in their Ziploc bag according to the following instructions:
 - The mosaic should not be seen by your partner – it must remain in the “secret design area”
 - There is no “right” design – it’s your own creation
 - You don’t have to make your design flat on the table – you stack them or stand them up
 - Use ALL THE PIECES
- After designing and making the mosaic, you will have approximately 10 minutes to describe to your partner how to build an exact copy of the mosaic that you have in your “secret design area.” Your partner has a Ziploc bag with the exact same pieces in it. He/she might also ask you questions that you need to answer.
- The Designer cannot do any hands-on construction of the Builder’s mosaic.
 - No pointing to or touching the pieces.
 - Words only to explain which pieces to use and how to put them together.
 - It’s okay to look at what the Builder is making to help describe and correct.
- No changing of the mosaic in the “secret design area” once you begin describing the mosaic to your partner.

Builder’s role:

- To make an exact copy of the mosaic that your partner designed and built at the “secret design site” by:
 - Using a bag of identical pieces.
 - Listening to your partner.

- Asking clarifying questions.
4. When the Designer is finished giving directions, and the Builder agrees that she/he is finished building, take down the screen and compare the master design with the one just built. *Switch roles* and try designing and duplicating another pattern
 5. Tell students:
 - Get as far as you can; it doesn't matter if you finish.
 - It is a team project – both roles are very important. The goal is for the Builder to copy the Designer's design as closely as possible by following directions from the Designer and asking questions.
 - Designers can begin making their mosaics as soon as they receive the pieces.
 6. Ask students if they have any questions before they begin. Briefly answer any questions that arise. If a few students are especially confused and need extra help, get the remainder of the group started and help those students individually.
 7. Have each pair get a set of bags with blocks, find their workspace and begin. When all the pairs have started set the timer for one minute.
 8. When timer goes off, give Designers one more minute to finish making their patterns and then tell them to start describing their pattern to their Builders. Set the timer for 10 minutes.
 9. Circulate to monitor progress and assist as needed. Prompt pairs to communicate as necessary to achieve success in duplicating the pattern.
 10. When timer goes off, have pairs *switch roles* and start the activity of designing and duplicating a new pattern.
 11. Debrief the activity:
 - a. Bring the group back together and pass out scrap paper and pencils. If you have a large class and more than one assistant, split up class into smaller groups of 6-8 students.
 - b. Ask pairs to, as a team, take *two minutes* to write down answers to the following questions that are posted on chart paper:
 - What things did you do that helped you create exact copies of the model drawings?
 - What kinds of words or terms did you come up with to draw the right shapes in the right place?
 - After two minutes, ask all pairs to report their answers to the first questions and then to the second question.
 - Remind students of the importance of using good teamwork skills like being patient with one another and respecting each others' efforts while learning new skills and roles.

Group Wrap Up/Sharing (10 min)

-
1. Ask for volunteers to share their ideas for topics and questions and answers for the trivia game with the rest of the class.
 2. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 25

Objectives:

- To continue building Trivia Game by making introductory page and question stages
- To improve students' pair programming practices with most recent partner

Instruction Time: 90 minutes

Materials/Equipment:

- Access to Stagecast Creator on every computer
- Material for Pair Programming Activity:
 - Handout 8.1: Pair Programming Partner Check-in Activity Sheets for Driver and Navigator
 - Small stickers (10 per student)
 - Handout 8.2: Laminated Goal Cards (6 copies of each card)
 - Handout 8.3: Goal Check Activity Sheet (1 per student)

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics or announcements.

Introduction Creator Hands-on Practice (5 min)

1. Announce to class that they must finish their introductory pages and be started on their question stages by the end of the session. Remind class that they should have a title and a description of their game on their introductory page.
2. Remind students to look at the Trivia Game Rubric (Handout 22.1), and the sample game if they need some ideas on how to construct their game. Assure students that the question stages should not take too long to make because they can use the same design for each stage and simply change the words.

Building Trivia Game Continued (30 min)

1. Circulate and assist as needed while students work.
2. Students who finish with their introductory should start on building the question stages.

Break (10 min)

Introduction to Pair Programming Partner Check-in and Goal Check Activity (5 min)

1. Tell students that they have been working with their new pair programming partners for several sessions now, so it's a good time to do the Pair Programming Partner Check-in and Goal Check Activity.
2. Remind them that part of good teamwork is giving feedback.
3. Using instruction steps on chart paper as a guide, review how to complete the Pair Programming Partner Check-in Activity Sheets:
 - Get a check-in sheet that matches the job your partner did most today. That is, if he or she was mostly the driver, choose the sheet with "Driver" in the upper left-hand corner of the chart, and if he or she was mostly the navigator, choose the sheet with "Navigator" in the upper left-hand corner.
 - Get a sheet of 10 stickers.
 - Write your partner's name in the space provided in the upper right-hand corner of the sheet.
 - Place one sticker in each row to rate how well your partner did on that job when he or she was acting as the driver or navigator. Acknowledge a very good performance using the "Did this a lot" column. Acknowledge okay work that could use more effort with "Did this, but I would like you to do it more."
 - If there is something your partner is doing as a pair programming partner not listed on this sheet, you can write it on the chart where it says "Other" and evaluate your partner on it.
 - Write your partner a personal message at the bottom. It can be a compliment, encouragement, a request for improvement or anything else you want to tell them.
 - When you are both finished, exchange sheets.
 - Read the sheet your partner filled out about you.
 - Choose one of the jobs/tasks for which you DID NOT get a "Did this a lot" rating to try to improve over the next few sessions. Indicate your choice by placing a sticker or making a mark in the box for this job/task in the "Will try to improve" column.
 - In the box at the bottom of the sheet, write a sentence that explains what you are going to do to try to improve on the job/task you chose.
 - When both you and your partner have completed the sheet, read the goal statements you wrote in the gray box at the bottom of your sheet out loud to each other.

- Find the goal card (Handout 8.2) that matches the job/task you have chosen to try to improve. Tape it to the computer where you are working each session to help remind you of the goal you're working on. Write your name or initials on goal cards with an erasable marker.

Pair Programming Partner Check-in (15 min)

1. Remind students that there will probably be at least one, if not more, areas where both partners have ratings of "Did this, but I would like you to do it more." This is okay and does not mean that either person did a bad job. It's important to be honest with their partners about what they need to improve as pair programmers so they can work on getting better. Honest feedback will help them become the best pair programming teams they can be.
2. Have students start activity and circulate to assist as needed.
3. Halfway through (about eight minutes), inform students that they should finish their writing and exchange sheets.
4. When there are about two minutes remaining, inform students that they should have chosen a goal and written something at the bottom saying how they are going to try to achieve the goal. They should wrap up the activity by getting a laminated goal card that matches the pair programming job/task that they've chosen to try to improve.
5. Give students a couple of minutes more to finish up and then close by telling them to keep this feedback and their goal of improvement in mind when they work on the computers together. Tell them that their goal cards will be a visible reminder of the pair programming job that they're trying to improve.
6. Have them store these activity sheets in their notebooks.

Pair Programming Goal Check (10 min)

1. Have students refer to the goal card they selected and displayed.
2. Hand out one pencil and Handout 8.3: Goal Check Activity Sheet to each student.
3. Review the sheet with students.
4. Tell them that if they think they should set a new goal, they will have an opportunity to do that the next time they do pair programming check-in again.
5. Remind students that learning how to be a good pair programmer is an on-going process.
6. Have students complete the sheets, asking for suggestions from their partners, and then put them in their personal folders.

Group Wrap Up (5 min)

1. Tell students that they will need to finish their games by the end of the next session.
2. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 26

Objectives:

- To finish building Trivia Game

Instruction Time: 90 minutes

Materials/Equipment:

- Access to Stagecast Creator on every computer

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics or announcements.

Building Trivia Game Continued (30 min)

1. Circulate and assist as needed while students work.
2. Make sure that students are finishing their introductory pages and beginning to build their question stages .

Break (10 min)

Group Wrap Up (5 min)

1. Take care of any necessary closing tasks such as computer shutdown and clean up.

Building Trivia Game Continued (35 min)

1. Students work on finishing their trivia games.
2. Students who finish early have the option of helping other students or evaluating and helping to debug the games of other students who are finished.

3. Circulate and assist as needed.

Group Wrap Up (5 min)

1. Wrap up by telling students that they will be evaluating each other's games during the next session as they did with the action games and then debugging their own games.
2. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 27

Objectives:

- To evaluate and debug Trivia Game
- To share students' work in progress and get feedback from other students in the form of a "gallery walk"

Instruction Time: 90 minutes

Materials/Equipment:

- Access to Stagecast Creator on every computer
- Handout 16.1: Plus Delta Feedback Form

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics or announcements.

Introduction to Gallery Walk (5 min)

1. Remind students about the purpose of the gallery walk, which is to give each other positive and constructive feedback, e.g., information about what is good and what could be improved.
2. Remind students that they all have something to be proud of yet there is always room for improvement.
3. Pick the students (or ask for volunteers) who will be the ones to present their games in each of three 10-minute rounds – divided so that everyone can present in one of the rounds – and divide the rest of the class into the same number of small groups.

Note: The number of presenters and rounds will vary depending on the size of the class and if students are working in pairs. If the class is very large, you may have to break this activity into two sessions.

Gallery Walk (35 min)

1. Ask the Round One presenters to visually walk through an appropriate portion of their games and explain what part is their favorite and what part they are most proud of. Each game maker should have an equal amount of time to showcase his/her game.
2. Watch the time to make sure that everyone gets close to equal time and enforce ground rules around respect and “no put downs.”
3. After 5 to 8 minutes, pass out the feedback form (Handout 16.1: Plus Delta Feedback Form) and remind students how to fill it out:
 - a. The left-hand “+” column is where they write compliments about the game.
 - b. The middle “ Δ ” (delta) column is where they write suggestions for improvements.
 - c. The right-hand “light bulb” column is where they write ideas they have for new things that a pair can do in their game.
4. Ask students to fill out the forms and give them to the presenters to refer to when they return to their work.
5. Repeat the evaluation process until all rounds are completed and all students have had an opportunity to showcase their work.

Break (10 min)

Finalizing Trivia Game (20 min)

1. Ask students to return to their games and read the feedback from the evaluators.
2. Announce that they will have 20 minutes to use the feedback to improve their games.
3. Circulate to assist as needed and make sure each pair is using the feedback.

Group Wrap Up (10 min)

1. Lead a discussion about the experience of building a trivia game, asking the students what they learned from it, what they liked and disliked, etc.
2. Discuss the debugging process, asking students what kinds of problems they found.
3. Congratulate students on a job well done.
4. Tell students that they will share their finished games with each other during the next session and then begin work on a new game – an adventure game.
5. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 28

Objectives:

- To share trivia games with peers
- To increase students' confidence and positive attitudes towards IT through practice giving and receiving affirmations
- To introduce the next game – the adventure game

Instruction Time: 90 min

Materials/Equipment:

- Access to StageCast Creator on every computer
- Cardstock, tape and markers for group affirmation activity
- Handout 28.1: Adventure Game Rubric

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics or announcements.

Group Sharing (25 min)

1. Students rotate and play each other's trivia games.
2. Praise the students for what they have accomplished.

Break (10 min)

Group Affirmations (20 min)

1. Provide instructions for the activity (5 min):
 - Remind students of the "Affirmations" activity that they have done in a couple of earlier sessions. Tell them that this activity gives them a chance to give everyone in the class an anonymous affirmation or recognition. If needed, define what an affirmation is (i.e., when you tell someone, out loud or in writing, something you noticed that he or she did really well.)

- Demonstrate by writing your name on a piece of cardstock and asking someone to tape it to your back, so that people can write affirmations on the cardstock. Have another adult (or ask a student) to do the same and write on each other's cardstock as an example.
 - Model and encourage students to write things about others' skills or accomplishments rather than their appearance or personality.
 - Check for understanding and answer any questions.
2. Ask everyone (including any adults and/or peer leaders) to get a piece of cardstock, a piece of tape, and a pen, write their names on the paper, have someone next to them tape it on their backs, and start writing on others' backs when they have their paper taped.
 3. Monitor to make sure everyone is receiving affirmations, and add to those who are not.
 4. When the group seems finished with writing or time is up, have everyone remove their cards to look at the positive comments they received.
 5. Have each student read aloud their favorite comment as time allows.

Introduction to Adventure Game (15 min)

1. Explain to the class that during the next session, they get new partners and begin to create their next game – an adventure game.
2. Ask if anyone can describe what an adventure game is.
 - Definition: “An **adventure game** is a video game in which the player assumes the role of protagonist in an interactive story that is driven by exploration and puzzle-solving instead of physical challenges such as combat.”
3. If not mentioned in the discussion, include the following:
 - Usually involves a “quest” (e.g., character is searching for something)
 - Character must often complete a task, or series of tasks, before moving on or winning)
 - Does not usually involve speed or reaction time – unlike an action game
 - There are multiple levels/stages, which are usually increasingly difficult
 - Often the character must get information from other characters
 - Often, the player must make choices
4. Explain that they will build their game on a topic that they are studying in school. That way, others will be able to play their games and learn from them.

5. Distribute Handout 28.1: Adventure Game Rubric and have students follow along as you go through the requirements.
6. Ask the class if they have any questions.

Group Wrap Up (5 min)

1. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 29

Objectives:

- To select new pair programming partners for the next game
- To share ideas for adventure game
- To begin designing and building the adventure game

Instruction Time: 90 min

Materials/Equipment:

- Access to StageCast Creator on every computer
- adventuregamesample.sim
- Handout 29.1: Back Story Design Worksheet

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics or announcements.

Pair Programming Choices (10 min)

1. Tell students that before they start working on their adventure games, you want to give them a chance to write down their choices for new pair programming partners. As you did last time they changed partners, you will look at their choices during the break and assign them new partners when they return. Remind them that you will try to match them with one of their choices, but it may not necessarily be their first choice.
2. Ask each student to do what they did the last time they made partner choices – write their name at the top of a blank piece of paper and then write their top three choices for partners in the following way:
#1:
#2:
#3:
3. Collect students' papers. While students are playing the sample adventure game and during the break, assign pairs based on students' choices and what you consider the best working relationships.

Review of Adventure Game (5 min)

1. Ask for volunteers to quickly give you elements of an adventure game.

Playing and Evaluating Sample Adventure Game (20 min)

1. Announce to the class that they will now use the rubric they received last time (Handout 28.1) to score a sample game. They should also write notes about what they liked and didn't like.
2. Ask students to individually open and play the adventure game sample file "adventuregamesample.sim"
3. Circulate and make sure students aren't having problems playing the game.
4. Once everyone has played the game, ask students to total up their points and ask for volunteers to give their scores.
5. Ask volunteers to tell the class what they liked and didn't like about the game. Ask for volunteers to tell the class what they learned from the game.

Break (10 min)

Pair Programming Partners (10 min)

1. Tell students you have looked at their choices for pair programming partners and have paired them up based on their choices and other factors. Remind students that these pairings are not "set in stone." They will change partners again when they move on to their next game. You may also change pairs if you think another partnership would work better.
2. Pass out partnership assignments and ask students to join with their new partners for the next activity.

Beginning Design of Adventure Game/Elements of Story (20 min)

1. Remind students that the adventure games they will be making must be on a topic that they have studied or will study. Point out the topics on the rubric.

Note: Substitute topics being taught in your school.

6th grade

ancient Egypt

ancient China

Pangaea & plate tectonics

8th grade

Industrial Revolution

7th grade

medieval China

medieval Japan

medieval Europe

Any grade

multiplication & division
decimals, fractions & percents
reading comprehension
nonviolent social change

2. Explain to the class that every story has a beginning, middle, end, exposition, conflict/climax, resolution, and moral.
3. Explain to the class that we will now create a story as a class.
4. Ask for a volunteer to choose the topic.
5. Ask for a volunteer to choose a main character. Explain to the class that the story could be fictional that takes place during a time period that they are learning about. Complete the section by describing the main character in words or by drawing what the main character will look like.
6. Ask for another volunteer to describe the beginning (exposition), middle (conflict), and end (resolution). Remind the girls that they can write a description, draw it or use a combination of both.
7. Ask for questions.
8. Distribute Handout 29.1: Back Story Design Worksheet. Tell the class that during the next session, they will now begin to design their adventure game by completing this design document.
9. As students work on their design sheets, circulate and assist as needed.

Group Wrap Up (5 min)

1. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 30

Objectives:

- To improve students' collaboration with their new pair programming partners
- To share ideas for adventure games
- To continue designing and building adventure game

Instruction Time: 90 min

Materials/Equipment:

- Access to StageCast Creator on every computer
- Materials for Draw What I Say activity:
 - Handout 4.3: Model Drawings (1 of each model per pair)
 - Role responsibilities on chart paper
 - Debrief questions on chart paper

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Draw What I Say Activity (25 min)

1. Remind students about the Draw What I Say Activity that they did with their other pair programming partners, and tell them they are going to do it again now with their new partners.
2. Give instructions:
 - Have students sit with their new partners at their assigned workspace. Have them use their binders as a screen to create a "blocked off"/"secret" area.
 - Remind students of the two roles: one person is the "Describer" and the other person is the "Drawer." Refer to posted roles on chart paper and briefly go over them as a reminder:

Describer's role:

- To select one of the pre-made drawings.
- After selecting a drawing you will have approximately 12 minutes to describe to your partner how to draw an exact copy of the structure that you have in your "secret area." Your partner might also ask you questions that you need to answer.

- The Describer cannot do any hands-on drawing.
 - No pointing to, or touching, the paper or pencil.
 - Can only use words to describe or give instructions.
 - Is allowed to look at what the drawer is drawing to help describe and correct.

Drawer's role:

- To try to draw an exact copy of the model that your partner chose in his/her "secret area" by:
 - Using pencil and paper.
 - Listening to your partner.
 - Asking clarifying questions.
- When the Describer is finished giving directions, and the Drawer feels that he or she is finished drawing, take down the binder barrier and compare the master design with the one just built. Switch roles and try designing and duplicating another pattern.
- Remind students:
 - Get as far as you can; it's okay if you don't finish.
 - This is a team project – both roles are very important. The goal is for the Drawer to copy the Describer's model as closely as possible by following directions and asking questions.
 - The Describer can begin choosing a model as soon as he or she receives the photocopies.
- Ask if there are any questions before they begin activity. Briefly answer any questions that arise.

3. Conduct Activity (15 min)

- Have each pair get a set of model drawings, find their workspace and begin.
 - When all the pairs have selected a model, begin timing.
 - Circulate to monitor and help as needed. Prompt pairs to communicate as necessary to complete at least one drawing.
 - After five minutes, have pairs switch roles and do another round of the activity using another model drawing. Describers can choose an easier model if the pair started with something too difficult or a more difficult model to increase the challenge.

4. Debrief the Activity

- Bring the group back together and pass out more scrap paper and pencils as needed. If you have a large class and more than one assistant, split up class into smaller groups of 6-8 students.
- Ask pairs to, as a team, take *2 minutes* to write down answers to the following questions that are posted on chart paper:
 - What things did you do that helped you create exact copies of the model drawings?
 - What kinds of words or terms did you come up with to draw the right shapes in the right places?

- Now that they have practiced pair programming, was it easier to do this activity this time than it was the first time? Why or why not?
- After two minutes, ask all pairs to report their answers to these questions.

Break (10 min)

Review of Adventure Game/Group Sharing (10 min)

1. Ask for volunteers to briefly share their ideas for their adventure games with the rest of the class.

Building and Designing Introductory Page for Adventure Game (30 min)

1. Explain to the class that they will now begin to build the introductory page to their adventure game. Remind the class that this page is used to tell the player about the game they will play and how to play it. They may take the first 10 minutes to finish their back story worksheets (Handout 29.1) if they are not already finished.
2. Explain to the class that they must have a title and a description about what their game is about by the end of the session. They should include as much information about the story so the player knows what their goal is.
3. Ask students to take out the rubric (Handout 28.1) and use it to make sure that they include all of the necessary elements.
4. Circulate and assist as needed while students finish their back story and work on their introductory page.
5. Students who finish early have the option of beginning to build their first play stage or helping other students.

Group Wrap Up (5 min)

1. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 31

Objectives:

- To continue building adventure game
- To improve students' pair programming practices with most recent partner

Instruction Time: 90 min

Materials/Equipment:

- Access to StageCast Creator on every computer
- Handout 31.1: Character and 1st Play Stage Design
- Material for Pair Programming Activity:
 - Handout 8.1: Pair Programming Partner Check-in Activity Sheets for Driver and Navigator
 - Small stickers (10 per student)
 - Handout 8.2: Laminated Goal Cards (6 copies of each card)
 - Handout 8.3: Goal Check Activity Sheet (1 per student)

Procedure:

Introduction to the Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Building and Designing Adventure Game Continued (40 min)

1. Explain to students that they are now going to build their player character and 1st play stage. If they were not here the previous day they should first build their introduction page.
2. Distribute Handout 31.1: Character and 1st Play Stage Design. Tell students that they can use it to design their player character and their 1st play stage but may simply begin building if they want to.
3. Explain that they must have their player character created, start on their first play stage, and a door connecting the introduction page to their 1st play stage.
4. Explain to students that if they do not know how or need help using the Creator Paint tool or creating a new stage, they should look at the handouts on these topics.

5. Circulate and assist as needed as students begin to build their player character and 1st play stage.

Break (10 min)

Introduction to Pair Programming Partner Check-in and Goal Check Activity (5 min)

1. Tell students that it's once again time to do the Pair Programming Partner Check-in and Goal Check Activity.
2. Remind them that part of good teamwork is giving feedback.
3. Using instruction steps on chart paper as a guide, review how to complete the Pair Programming Partner Check-in Activity Sheets:
 - Get a check-in sheet that matches the job your partner did most today. That is, if he or she was mostly the driver, choose the sheet with "Driver" in the upper left-hand corner of the chart, and if he or she was mostly the navigator, choose the sheet with "Navigator" in the upper left-hand corner.
 - Get a sheet of 10 stickers.
 - Write your partner's name in the space provided in the upper right-hand corner of the sheet.
 - Place one sticker in each row to rate how well your partner did on that job when he or she was acting as the driver or navigator. Acknowledge a very good performance using the "Did this a lot" column. Acknowledge okay work that could use more effort with "Did this, but I would like you to do it more."
 - If there is something your partner is doing as a pair programming partner not listed on this sheet, you can write it on the chart where it says "Other" and evaluate your partner on it.
 - Write your partner a personal message at the bottom. It can be a compliment, encouragement, a request for improvement or anything else you want to tell them.
 - When you are both finished, exchange sheets.
 - Read the sheet your partner filled out about you.
 - Choose one of the jobs/tasks for which you DID NOT get a "Did this a lot" rating to try to improve over the next few sessions. Indicate your choice by placing a sticker or making a mark in the box for this job/task in the "Will try to improve" column.
 - In the box at the bottom of the sheet, write a sentence that explains what you are going to do to try to improve on the job/task you chose.

- When both you and your partner have completed the sheet, read the goal statements you wrote in the gray box at the bottom of your sheet out loud to each other.
- Find the goal card (Handout 8.2) that matches the job/task you have chosen to try to improve. Tape it to the computer where you are working each session to help remind you of the goal you're working on. Write your name or initials on goal cards with an erasable marker.

Pair Programming Partner Check-in (10 min)

1. Remind students that there will probably be at least one, if not more, areas where both partners have ratings of "Did this, but I would like you to do it more." This is okay and does not mean that either person did a bad job. It's important to be honest with their partners about what they need to improve as pair programmers so they can work on getting better. Honest feedback will help them become the best pair programming teams they can be.
2. Have students start activity and circulate to assist as needed.
3. Halfway through (about eight minutes), inform students that they should finish their writing and exchange sheets.
4. When there are about two minutes remaining, inform students that they should have chosen a goal and written something at the bottom saying how they are going to try to achieve the goal. They should wrap up the activity by getting a laminated goal card that matches the pair programming job/task that they've chosen to try to improve.
5. Give students a couple of minutes more to finish up and then close by telling them to keep this feedback and their goal of improvement in mind when they work on the computers together. Tell them that their goal cards will be a visible reminder of the pair programming job that they're trying to improve.
6. Have them store these activity sheets in their notebooks.

Pair Programming Goal Check (10 min)

1. Have students refer to the goal card they selected and displayed.
2. Hand out one pencil and Handout 8.3: Goal Check Activity Sheet to each student.
3. Review the sheet with students.
4. Tell them that if they think they should set a new goal, they will have an opportunity to do that the next time they do pair programming check-in again.
5. Remind students that learning how to be a good pair programmer is an on-going process.

6. Have students complete the sheets, asking for suggestions from their partners, and then put them in their personal folders.

Group Wrap Up (5 min)

1. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 32

Objectives:

- To finish building 1st play stage and if time, begin building 2nd play stage
- To learn how to make characters talk to each other

Instruction Time: 90 minutes

Materials/Equipment:

- Access to Stagecast Creator on every computer
- Handout 32.1: Creating Text Between Two Characters

Procedure:

Introduction to Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Building Adventure Game Continued (40 min)

1. Explain to the class that they will continue to build their player character and 1st play stage. They may also begin to build other characters. After the break, they will learn how to make characters speak to each other.
2. Tell the class that they should be finished or almost done with their 1st play stage and have a door between it and the introductory page by the end of the session.
3. Circulate and assist as needed as students continue to work on their games.
4. Students who finish early have the option of assisting other students or beginning work on their 2nd play stage.

Break (10 min)

Making Characters Talk to Each Other Demo (15 min)

1. Remind students that a common element of an adventure game is for the player character to get clues from other characters during the journey. Tell them that you are now going to demo how to make text between two characters.
2. Distribute Handout 32.1: Creating Text Between Two Characters and ask students to follow it as you demonstrate.
3. Acting as navigator to a volunteer driver, go through the steps outlined on the handout.

Group Sharing/Wrap Up (15 min)

1. Ask for volunteers to share what they have done on their adventure games so far.
2. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 33

Objectives:

- To continue building adventure game

Instruction Time: 90 minutes

Materials/Equipment:

- Access to Stagecast Creator on every computer
- Handout 33.1: 2nd Play Stage Design

Procedure:

Introduction to Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Review of Last Creator Lesson (10 min)

1. Briefly review the last Creator lesson by asking for a volunteer pair to demonstrate how to make characters talk to each other.

Finishing 1st Play Stage and Building 2nd Play Stage (30 min)

1. Tell students that they will have the rest of the session to work on their adventure games. They need to be finished with their 1st play stage and at least beginning to work on their 2nd play stage.
2. Distribute Handout 33.1: 2nd Play Stage Design and tell students that they may use it to design their 2nd play stage but are not required to do so.
3. Students spend the rest of the session working on their adventure games. Those who are finished with their 2nd stage may start on their 3rd play stage.
4. Circulate and assist as needed.

Break (10 min)

Building Adventure Game Continued (20 min)

1. Students spend the rest of the session working on their adventure games. Tell them they should be finished or almost finished with their 2nd stages by the end of the session. Encourage them to incorporate characters who talk to each other.
2. Circulate and assist as needed.

Group Sharing/Wrap Up (10 min)

1. Ask for volunteers to share their day's work with the group.
2. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 34

Objectives:

- To increase students' confidence and positive attitudes towards IT through practice giving and receiving affirmations
- To continue building adventure games
- To share work with the rest of the class

Instruction Time: 90 minutes

Materials/Equipment:

- Access to Stagecast Creator on every computer
- Handout 10.3: Affirmation Slips

Procedure:

Introduction to Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Affirmations (20 min)

1. Provide instructions for the activity (10 min):
 - Remind students of the "Affirmations" activity that they have done in earlier sessions.
 - Remind students of the procedure: They are going to choose one other student who they are going to write an affirmation about. The affirmation should describe something that the person did really well today. It should be something related to the program.
 - Show and read the question on the affirmation slip (Handout 10.3): "What is something you noticed that someone did especially well today?"
 - Model how to write an affirmation (e.g., "I noticed Brenda helping her partner figure out how to draw a person on the computer"). Use another adult educator as the subject of your affirmation. If you are the only adult educator, try to use another adult with whom your students are familiar. If this isn't possible and you have to select a student, choose one who is unlikely to receive many affirmations from his or her peers.

- Model folding the slips into quarters and writing the recipient’s name on the outside of the slip.
 - Explain that once everyone is done writing affirmations, volunteers will pick an affirmation at random and read it to the group. After a volunteer reads an affirmation, he or she should give it to the person for whom it was written.
 - Tell students where you are going to put the unread affirmations so students can read them between sessions or during the next program session.
 - Check for understanding and answer any questions.
2. Give students 2 to 3 minutes to write their affirmations and put them in the basket. Assign the task of collecting the folded affirmations slips to one of the students who finishes first.
 3. When all the slips have been collected, ask for volunteers to pick out affirmations at random, read them to the group and then give them to the students for whom they were written. If volunteers pick affirmations that are written for them, they should choose again.
 4. As time runs out, congratulate ALL students on their excellent work. Remind students where they will be able to find their affirmations if they were not read. Instruct students who received affirmations that were read aloud to store them in an appropriate place.

Note: As mentioned earlier, we recommend writing in “kidspeak” affirmations for students who do not receive any from their peers. Students will probably know that you wrote them, but it is still important to make sure they are acknowledged for the positive things they are doing in the program.

Break (10 min)

Building Adventure Game Continued (30 min)

1. Tell students that they will have the next half hour to work on their games and then they will share what they have done with the rest of the class.
2. Circulate and assist as needed as students work.

Group Sharing (15 min)

1. Ask for volunteers to present their games to the class. They should give the title and a brief description of their game and show the player character and any other work they have done.
2. Ask the class for questions after each presentation.

3. Tell class that they need to be finished or near completion of their adventure games by the end of the next session.

Group Wrap Up (5 min)

1. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 35

Objectives:

- To finish building adventure games
- To evaluate each others' game

Instruction Time: 90 minutes

Materials/Equipment:

- Access to Stagecast Creator on every computer
- Handout 35.1: Next Steps
- Handout 35.2: Debugging Sheet

Procedure:

Introduction to Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Building Adventure Game Continued (40 min)

1. Distribute Handout 35.1: Next Steps and remind the class that these steps will help them complete their games on time. Also remind students to check their rubric (Handout 28.1) to make sure they are including all the necessary elements.
2. Circulate and assist as needed while students finish their adventure games.
3. Students who are finished have the option of assisting other students or evaluating the games of other students who are finished using Handout 35.2: Debugging Sheet.
4. Tell students that they will be helping each other "debug" their games after the break. They will have time to fix any problems and finalize their games the next session.

Break (10 min)

Adventure Game Peer Evaluation (25 min)

1. Explain to the class that they will now evaluate each other's games and give feedback to help them improve it. Explain that they should score the game carefully to help the creators make the best game possible.
2. Distribute Handout 35.2: Adventure Game Debugging Sheet to each creator and have them put their name on it and leave it by the computer with their game.
3. Rearrange class so each student is sitting at a new game to evaluate. Try to arrange students so that they are not evaluating their friend's game.
4. Circulate and help students to provide constructive feedback.
5. After about 20 minutes, ask students to return to their games and read the feedback from the evaluators.
6. Collect all feedback forms and tell students you will hand them back out at the beginning of the next session so they can use them to debug and improve their games.

Group Wrap Up (5 min)

1. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 36

Objectives:

- To debug and finalize adventure games
- To introduce the new software they will be learning – Storytelling Alice
- To select new pair programming partners for work in Storytelling Alice

Instruction Time: 90 minutes

Materials/Equipment:

- Access to Stagecast Creator on every computer
- Access to Storytelling Alice on main computer
- One or two examples of games made in Storytelling Alice (games created by students are available at <http://psweb.etr.org/alice/>)

Procedure:

Introduction to Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Finalizing Adventure Game (30 min)

1. Pass out the feedback forms that students filled out during the last session.
2. Announce that they will have 30 minutes to use the feedback to improve their games.
3. Circulate to assist as needed and make sure each student is using the feedback.

Break (10 min)

Adventure Game Wrap Up (10 min)

1. Lead a discussion about the experience of building an adventure game, asking the students what they learned from it, what they liked and disliked, etc.
2. Discuss the debugging process, asking students what kinds of problems they found.

3. Congratulate students on a job well done.

Preview of Storytelling Alice (15 min)

1. Tell students that now they will learn how to make games using software called Storytelling Alice. Unlike Creator, Storytelling Alice is 3D. Ask someone to explain what 3D means. If not mentioned, explain that 3D refers to drawings that are made in three dimensions – width, height and depth, as in many modern video games and movies like Shrek.
2. Explain that Storytelling Alice is a version of Alice, which is used primarily by high school and college students whereas Storytelling Alice was designed specifically for middle school students. It includes many interesting characters who already do interesting things – like ninjas who kick and cheerleaders who cheer.
3. Generate excitement by adding that Storytelling Alice is relatively new and has not been widely used to make games. They will be some of the first to use it for that purpose.
4. Open a sample game in Storytelling Alice and invite one or two students to play it.
5. Answer any questions.

Pair Programming Choices (10 min)

1. Tell students that before they start working on their games in Storytelling Alice, you want to give them a chance to write down their choices for new pair programming partners. You will look at their choices after class and assign them new partners when they return for the next session. Remind them that you will try to match them with one of their choices, but it may not necessarily be their first choice.
2. Ask each student to do what they did the last time they made partner choices – write their name at the top of a blank piece of paper and then write their top three choices for partners in the following way:
#1:
#2:
#3:
3. Collect students' papers. After class, assign pairs based on students' choices and what you consider the best working relationships.

Group Wrap Up (5 min)

1. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 37

Objectives:

- To pair students with their new pair programming partners
- To begin Storytelling Alice tutorials

Instruction Time: 90 minutes

Materials/Equipment:

- Access to Storytelling Alice and tutorials on all computers
- A Storytelling Alice world with two characters

Procedure:

Introduction to Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Pair Programming Partners (10 min)

1. Tell students you have looked at their choices for pair programming partners and have paired them up based on their choices and other factors.
2. Pass out partnership assignments and ask students to join with their new partners for the next activity.

Learning Storytelling Alice (45 min)

1. Introduce the lesson by reminding students about the information covered on Storytelling Alice and the sample games they played during the last session.
2. Explain that before they can begin making games, they first need to learn how to use the software. They will start by going through three tutorials that come with the software. They will do that with their new pair programming partners.
3. Tell students that each pair will sit at a computer and take turns completing all three tutorials. Each student in the pair should do the tutorial before the pair moves on to the next tutorial.

4. Once all pairs are at their computers, demonstrate opening Storytelling Alice and finding the tutorials.
5. Circulate as students work assisting as needed and making sure students are making progress.

Break (10 min)

Group Review of Storytelling Alice Tutorials (10 min)

1. Review the information covered in the Storytelling Alice tutorials by opening up a world you have created that contains two characters and asking for volunteers to come up and demonstrate:
 - Where the editor area is located
 - Where the object tree is located
 - How to make one of the characters walk to the other character
 - How to make one character talk to the other character
 - How to create and name a new method
 - How to slow down what a character is saying
 - How to move a character and the scene view with the blue arrow keys
 - How to undo the last action
 - How to make a new “grass” world and add a character to it
 - How to make copies of a character
 - How to rotate a characters

Group Wrap Up (5 min)

1. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 38

Objectives:

- To learn Storytelling Alice through completion of challenges
- To increase group cohesion

Instruction Time: 90 minutes

Materials/Equipment:

- Access to Storytelling Alice on all computers
- Flipchart Paper to list the differences and similarities between Creator and Storytelling Alice
- Handout 38.1: Storytelling Alice Challenge Directions (in individual binders or accessible from a central location)
- Handout 38.2: Storytelling Alice Challenge Code
- Access to Starter and Complete Storytelling Alice Challenge Worlds
- Material for the “My Brochure” activity:
 - Markers
 - Paperclips
 - List of categories on flipchart paper or the board

Procedure:

Introduction to Session (10 min)

1. Welcome students.
2. Project or pass out day’s agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Review of Previous Storytelling Alice Session (10 min)

1. Briefly review the information about Storytelling Alice that was covered in the last session by asking for volunteers to explain what the object tree and the editor area are and where they are located, what a method is, how you create a new world and how you add objects.
2. Ask students to name some differences and similarities between Creator and Storytelling Alice (SA) and write their responses on flipchart paper or the board. Possible responses include:
 - Similarities:
 - Both involve “programming”
 - Both can be used to make games

- Both have characters/objects and stages/backgrounds
 - Differences:
 - Creator is two-dimensional; SA is three-dimensional
 - Can't make your own characters in SA
 - SA uses "tiles" that you drag and drop to make things happen; in Creator, you create "rules"
3. Explain that they will discover more differences between the two software programs as they learn more about Storytelling Alice. Wrap up this discussion by asking a few students to say what they think about Storytelling Alice so far.

Storytelling Alice Challenges (30 min)

1. Tell students that today, they will start on a series of challenges that will teach them more about Storytelling Alice and give them a chance to make their own Storytelling Alice worlds and games. They will work in pairs on the challenges as they did in Creator and proceed at their own pace.
2. Pass out the directions to Challenge 1: Tami's World. Explain that their job is to follow the directions and make a world that looks like the one in the sample or complete world.
3. Demonstrate how to open the sample world for this challenge – "1TamisWorldComplete.a2w" and explain there will usually be a sample or "complete" world like this for them to download and open so they can see what their finished challenge is supposed to look like. In many cases, especially for the earlier challenges, there will also be "start" worlds that they will open and add to.
4. Point out that the challenges are meant to build on what they have already learned, so they should do them in numerical order. However, there are bonus challenges which are numbered 3.1, 3.2, 5.1, etc. These bonuses provide more practice or teach a "fun" skill but they are not necessary for making a game so they are optional. Tell students that if they are moving through the challenges very quickly, they should do the bonuses in order as they go, but if they need more time on the main challenges, it's perfectly fine to skip the bonuses or go back to them later.

Note: Monitor students' progress as they proceed through the challenges. Encourage the slower pairs to skip the bonuses and the faster pairs to do them as well as assist those who need help.

5. Circulate and assist as needed as students work on the first challenge. Students who finish early may move on to the next challenge or assist other students.
6. Midway through the activity or after 15 minutes, ask the students to switch pair programming roles.

Break (10 min)

Group Cohesion Activity – My Brochure (25 min)

1. Pass out a blank piece of paper (8.5 x 11) and a paper clip to each student.
2. Demonstrate folding the paper in threes like a tri-fold brochure and ask each student to do the same.
3. Ask them to decorate the front flap with their name in any manner they want.
4. Read out the following categories listed on flipchart paper or on the board:
 - My best feature
 - My proudest moment
 - My favorite activity
 - Something I'm good at
 - One thing I like about this class
 - One thing I enjoy doing on the computer
 - My favorite type of music
 - My favorite thing about this past school year
 - I am a good friend because _____
5. Tell students they have 10 minutes to choose at least four of these items and write the answers on the inside of their brochures. Tell them that no one will see what they wrote.
6. After 10 minutes or when everyone is done, ask students to close their brochures, paperclip them shut, and then pass them to the person on their right. When they receive a brochure from their neighbor, they should notice who it belongs to, turn it over (never opening it) and write a comment about them on the back.
7. Tell them that if they don't know the person well, it can be a simple thing like "I like your haircut," or it could be a very personal note to someone they know well. These can be anonymous or signed. When finished, the brochure should be passed to the next person until all the brochures are signed by everyone and students get their own brochures back.
8. Allow about five minutes for students to quietly read what other students said about them.

Group Wrap Up (5 min)

1. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 39

Objectives:

- To continue learning about Storytelling Alice by doing challenges
- To assess career and college options

Instruction Time: 90 minutes

Materials/Equipment:

- Access to Storytelling Alice on all computers
- Handout 38.1: Storytelling Alice Challenge Directions
- Handout 38.2: Storytelling Alice Challenge Code
- Access to Starter and Complete Storytelling Alice Challenge Worlds
- Handout 39.1: Career and Educational Pathway Assessment

Procedure:

Introduction to Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Storytelling Alice Challenges Continued (40 min)

1. Briefly review the previous lesson by asking volunteers to share one thing they learned from the first challenge.
2. Allow students to continue working on challenges at their own paces.
3. Circulate and assist as needed and after about 20 minutes, ask pairs to switch pair programming roles.

Break (10 min)

Career and College Assessment (25 min)

1. Introduce the activity by explaining to students that they are going to complete a handout asking them questions about careers and education. They should complete the handout by

themselves. There are no right or wrong answers, and it's okay if they don't know the answer to a question. They should write, "I don't know."

2. Pass out Handout 39.1: Career and Educational Pathway Assessment and give students the time remaining to complete it.
3. Circulate as students work, answering questions or clarifying vocabulary.

Group Wrap Up (5 min)

1. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 40

Objectives:

- To improve students' pair programming practices with most recent partner
- To continue learning about Storytelling Alice by doing challenges

Instruction Time: 90 minutes

Materials/Equipment:

- Access to Storytelling Alice on all computers
- Material for Pair Programming Activity:
 - Handout 8.1: Pair Programming Partner Check-in Activity Sheets for Driver and Navigator
 - Small stickers (10 per student)
 - Handout 8.2: Laminated Goal Cards (6 copies of each card)
- Handout 8.3: Goal Check Activity Sheet (1 per student)
- Handout 38.1: Storytelling Alice Challenge Directions
- Handout 38.2: Storytelling Alice Challenge Code
- Access to Starter and Complete Storytelling Alice Challenge Worlds

Procedure:

Introduction to Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Introduction to Pair Programming Partner Check-in and Goal Check Activity (5 min)

1. Tell students that it's once again time to do the Pair Programming Partner Check-in and Goal Check Activity.
2. Remind them that part of good teamwork is giving feedback.
3. Using instruction steps on chart paper as a guide, review how to complete the Pair Programming Partner Check-in Activity Sheets:
 - Get a check-in sheet that matches the job your partner did most today. That is, if he or she was mostly the driver, choose the sheet with "Driver" in the upper left-hand corner of the chart, and if he or she was mostly the navigator, choose the sheet with "Navigator" in the upper left-hand corner.

- Get a sheet of 10 stickers.
- Write your partner's name in the space provided in the upper right-hand corner of the sheet.
- Place one sticker in each row to rate how well your partner did on that job when he or she was acting as the driver or navigator. Acknowledge a very good performance using the "Did this a lot" column. Acknowledge okay work that could use more effort with "Did this, but I would like you to do it more."
- If there is something your partner is doing as a pair programming partner not listed on this sheet, you can write it on the chart where it says "Other" and evaluate your partner on it.
- Write your partner a personal message at the bottom. It can be a compliment, encouragement, a request for improvement or anything else you want to tell them.
- When you are both finished, exchange sheets.
- Read the sheet your partner filled out about you.
- Choose one of the jobs/tasks for which you DID NOT get a "Did this a lot" rating to try to improve over the next few sessions. Indicate your choice by placing a sticker or making a mark in the box for this job/task in the "Will try to improve" column.
- In the box at the bottom of the sheet, write a sentence that explains what you are going to do to try to improve on the job/task you chose.
- When both you and your partner have completed the sheet, read the goal statements you wrote in the gray box at the bottom of your sheet out loud to each other.
- Find the goal card (Handout 8.2) that matches the job/task you have chosen to try to improve. Tape it to the computer where you are working each session to help remind you of the goal you're working on. Write your name or initials on goal cards with an erasable marker.

Pair Programming Partner Check-in (10 min)

1. Remind students that there will probably be at least one, if not more, areas where both partners have ratings of "Did this, but I would like you to do it more." This is okay and does not mean that either person did a bad job. It's important to be honest with their partners about what they need to improve as pair programmers so they can work on getting better. Honest feedback will help them become the best pair programming teams they can be.
2. Have students start activity and circulate to assist as needed.
3. Halfway through (about eight minutes), inform students that they should finish their writing and exchange sheets.

4. When there are about two minutes remaining, inform students that they should have chosen a goal and written something at the bottom saying how they are going to try to achieve the goal. They should wrap up the activity by getting a laminated goal card that matches the pair programming job/task that they've chosen to try to improve.
5. Give students a couple of minutes more to finish up and then close by telling them to keep this feedback and their goal of improvement in mind when they work on the computers together. Tell them that their goal cards will be a visible reminder of the pair programming job that they're trying to improve.
6. Have them store these activity sheets in their notebooks.

Pair Programming Goal Check (10 min)

1. Have students refer to the goal card they selected and displayed.
2. Hand out one pencil and Handout 8.3: Goal Check Activity Sheet to each student.
3. Review the sheet with students.
4. Tell them that if they think they should set a new goal, they will have an opportunity to do that the next time they do pair programming check-in again.
5. Remind students that learning how to be a good pair programmer is an on-going process.
6. Have students complete the sheets, asking for suggestions from their partners, and then put them in their personal folders.

Break (10 min)

Storytelling Alice Challenges Continued (40 min)

1. Briefly review the previous lesson by asking volunteers to share one thing they learned from the challenges they did during the last session.
2. Allow students to continue working on challenges at their own paces.
3. Circulate and assist as needed and after about 20 minutes, ask pairs to switch pair programming roles.

Group Wrap Up (5 min)

1. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 41

Objectives:

- To continue learning about Storytelling Alice by doing challenges
- To improve group cohesion

Instruction Time: 90 minutes

Materials/Equipment:

- Access to Storytelling Alice on all computers
- Handout 38.1: Storytelling Alice Challenge Directions
- Handout 38.2: Storytelling Alice Challenge Code
- Access to Starter and Complete Storytelling Alice Challenge Worlds
- Name Tags for All My Neighbors Activity

Procedure:

Introduction to Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Storytelling Alice Challenges Continued (30 min)

1. Briefly review the previous lesson by asking volunteers to share one thing they learned from the challenges they did during the last session.
2. Allow students to continue working on challenges at their own paces, but most should have completed the first six or seven non-bonus challenges. Encourage those who are slower than average to skip the bonus challenges and utilize the pairs who are progressing faster than the other pairs as assistants.
3. Circulate and assist as needed and after about 15 minutes, ask pairs to switch pair programming roles.

Break (10 min)

Group Cohesion All My Neighbors Activity (35 min)

1. Ask each student to fill out a name tag and then take the class outside.
2. Ask students to form a shoulder-to-shoulder standing circle and then have everyone take a step back, take their name tags off and place them at their feet.
3. Stand in the middle of the circle and say: ““This activity is similar to the game of musical chairs. As you’ll notice, there is one less place than people in the group. That’s why I’m in the center of the circle. So, I’ll begin in the center of the circle, but my task is to try and find a place on the outside of the circle and have someone else end up without a place. The way I’m going to do that is to make a statement that is TRUE for me. For example, if I am wearing tennis shoes, I might say ‘All my neighbors who are wearing tennis shoes.’ If that statement is also true for you, then you must come off your place and find another spot in the circle. I could also say something like ‘All my neighbors who love to swim,’ and if that’s true for you on the outside of the circle, you must move and find a new place. You may not move immediately to your right or left, but you may not move off your space and return to it in the same round. Let’s do this safely. No running. No body-checking, kicking or pinching. OK. I’ll start.”
4. When you think people have had enough, simply say “OK, this is the last round.” Give a round of applause to the last person who ends up in the center.

Group Wrap Up (5 min)

1. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 42

Objectives:

- To review Storytelling Alice concepts
- To continue learning about Storytelling Alice by doing challenges

Instruction Time: 90 minutes

Materials/Equipment:

- Access to Storytelling Alice on all computers
- Handout 38.1: Storytelling Alice Challenge Directions
- Handout 38.2: Storytelling Alice Challenge Code
- Access to Starter and Complete Storytelling Alice Challenge Worlds
- Handout 42.1: Storytelling Alice Scavenger Hunt
- Handout 42.2: Storytelling Alice Scavenger Hunt Answer Sheet
- Small prizes for Scavenger Hunt

Procedure:

Introduction to Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Review: Storytelling Alice Scavenger Hunt (25 min)

1. Explain to students that they are going to see how much they have learned about Storytelling Alice by doing a scavenger hunt.
2. Pass out one copy of Handout 42.1: Storytelling Alice Scavenger Hunt to each pair, and tell them they will have about 15 minutes to look at Storytelling Alice and find the answers. The pair who finishes fastest with the most correct answer will receive a prize.
3. When time is up or all pairs are finished, reconvene whole group and go over the answers. Award prizes to the winners.

Break (10 min)

Storytelling Alice Challenges Continued (30 min)

1. Briefly review the previous lesson by asking volunteers to share one thing they learned from the challenges they did during the last session.
2. Allow students to continue working on challenges at their own paces, but most should be midway by now (Challenges 7-9).
3. Circulate and assist as needed and after about 15 minutes, ask pairs to switch pair programming roles.
4. While circulating, ask one or two pairs who have built Storytelling Alice worlds from scratch to share their work with the rest of the class.

Group Sharing/Wrap Up (15 min)

1. Ask the pairs you have previously identified to show their work to the rest of the class.
2. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 43

Objectives:

- To help students think about career goals and provide a safe environment that allows each student to express their opinions.
- To explore the concept of a story versus a game

Instruction Time: 90 minutes

Materials/Equipment:

- Access to Storytelling Alice on all computers
- Access to the Internet on all computers
- Handout 38.1: Storytelling Alice Challenge Directions
- Handout 38.2: Storytelling Alice Challenge Code
- Access to Starter and Complete Storytelling Alice Challenge Worlds

Procedure:

Introduction to Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Career and Educational Choices⁴ (30 min)

1. Introduce the topic by saying, "Today you are going to begin exploring your futures. We will talk about what you want to be when you grow up and then explore what type of education you need to reach that goal."
2. Go around the room and ask each student to name a job/career, such as teacher, lawyer, chef, pizza delivery person, baker, wait person, doctor, scientist.
3. Allow all answers. Remember, there are NO right/wrong answers.
4. Write all answers on blank flip chart paper or on the board.

⁴ Adapted from materials by the Bridging Multiple Worlds Alliance (BMW), www.bridgingworlds.org/home.html
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5. Ask students what type of education is needed in order to get each type of job (e.g., teacher – four-year college; baker – 2-year culinary school; pizza delivery person – no school required; fashion designer – fashion & design school).
6. Explain that not everyone attends four-year colleges and universities. Ask student to name the different types of schools and diplomas a person can obtain and write their responses on flip chart paper or the board. Include the following if not mentioned:

Type of School	Diploma/Degree
High school	High school diploma
Trade school	Diploma or certification for specific trade (hair stylist, dental assistant, etc.)
Two-year college/community or junior college	Associate’s degree (AA, AE, etc.)
Four-year college or university	Bachelor’s degree (BA, BS, etc.)
Graduate school (2 years)	Master’s degree (MA, MS, MBA, etc.)
Graduate school (4 years)	Doctorate (doctor of medicine – MD; doctor of philosophy – PhD; doctor of education – EdD, etc.)

7. Ask students to think about the careers they want when they grow up and then have them go online and research what types of diplomas/degrees they need to achieve their career choices. If there are a limited number of computers available, students may do this activity in pairs.
8. Circulate and assist as needed. If students are working in pairs, remind them to switch to the other person halfway through.
9. After 15 – 20 minutes, reconvene large group and ask for volunteers to share what they found out about their career choices.

Break (10 min)

Story versus Game Discussion (25 min)

1. Remind students that Storytelling Alice is a version of Alice. It’s called “Storytelling” Alice because it was designed particularly for students their age to create stories. When they get to Challenge 9 – if they haven’t gotten there already – they will start to learn “events,” which can

be used to turn their Storytelling Alice worlds into games. So now is a good time to discuss the difference between stories and games.

2. Ask for a show of hands of pairs who have done Bonus Challenge 7.1, in which students brainstorm ways to turn a story into a game. Ask one or two of those pairs to describe their stories and name some ideas they had to make them into games. Write their responses on flipchart paper or the board, and invite other students to add to the list.
3. When students are finished contributing ideas, ask the group to look at the list and decide what makes one a game and the other a story. Write their responses on another piece of flipchart paper or the board. If not mentioned, add the following:

Elements of a Game:

- Player has to do something/interactive
- Player has something to win or lose
- There is a goal
- There are rules
- The outcome is uncertain
- There is emotional appeal – it's fun; challenging

Group Sharing/Wrap Up (15 min)

1. Ask for volunteers to share their work on challenges, particularly those who have worked on Challenge 7.1 and turned a story into a game.
2. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 44

Objectives:

- To continue learning about Storytelling Alice by doing challenges
- To give students ideas for games by showing them examples of games made by other students

Instruction Time: 90 minutes

Materials/Equipment:

- Access to Storytelling Alice on all computers
- Handout 38.1: Storytelling Alice Challenge Directions
- Handout 38.2: Storytelling Alice Challenge Code
- Access to Starter and Complete Storytelling Alice Challenge Worlds
- Sample Storytelling Alice games made by students (downloaded from <http://psweb.etr.org/alice/>) accessible on all computers
- Handout 44.1: List of Storytelling Alice Challenges
(option: enlarge handout to poster size and display)

Procedure:

Introduction to Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Storytelling Alice Challenges Continued (30 min)

1. Briefly review the previous lesson by asking volunteers to share one thing they learned from the challenges they did during the last session.
2. Allow students to continue working on challenges at their own paces, but most should be working on challenges involving events (starting with Challenge 9) at this point.
3. Circulate and assist as needed and after about 15 minutes, ask pairs to switch pair programming roles.
4. While circulating, ask one or two pairs who have built Storytelling Alice worlds from scratch to share their work with the rest of the class.

Break (10 min)

Sample Student Games (25 min)

1. Remind students that as discussed last time, an essential element in a game is user interaction. Now that most of them are learning about events which control user interaction, they are almost ready to start making their own games in Storytelling Alice. To show them what kinds of games are possible and give them some ideas, they're now going to look at and play games made by other students their age.
2. Open one or two student games downloaded from <http://psweb.etr.org/alice/> (preferably ones with an advanced game element like a counter or timer) and invite a student up to play them.
3. Ask students if they know enough about Storytelling Alice to be able to build a similar type of game. If not, ask them what they would have to learn first. Point them to the right challenge for that skill on Handout 44.1: List of Storytelling Alice Challenges (either enlarged to poster-size and displayed or distributed as a handout).
4. After answering any questions, give students the time remaining to play the sample student games.

Group Sharing/Wrap Up (15 min)

1. Lead a brief group discussion about the sample games. Ask students if the games gave them any ideas for their own games, if they have any questions, etc.
2. Ask previously identified students to share their day's work with the group.
3. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 45

Objectives:

- To increase students' confidence and positive attitudes towards IT through practice giving and receiving affirmations
- To continue learning about Storytelling Alice by doing challenges and beginning work on own games

Instruction Time: 90 minutes

Materials/Equipment:

- Access to Storytelling Alice on all computers
- Handout 38.1: Storytelling Alice Challenge Directions
- Handout 38.2: Storytelling Alice Challenge Code
- Access to Starter and Complete Storytelling Alice Challenge Worlds
- Handout 44.1: List of Storytelling Alice Challenges (poster or handout)

Procedure:

Introduction to Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Affirmations (20 min)

1. Provide instructions for the activity (10 min):
 - Remind students of the "Affirmations" activity that they have done in earlier sessions.
 - Remind students of the procedure: They are going to choose one other student who they are going to write an affirmation about. The affirmation should describe something that the person did really well today. It should be something related to the program.
 - Show and read the question on the affirmation slip (Handout 10.3): "What is something you noticed that someone did especially well today?"
 - Model how to write an affirmation (e.g., "I noticed Brenda helping her partner figure out how to draw a person on the computer"). Use another adult educator as the subject of your

affirmation. If you are the only adult educator, try to use another adult with whom your students are familiar. If this isn't possible and you have to select a student, choose one who is unlikely to receive many affirmations from his or her peers.

- Model folding the slips into quarters and writing the recipient's name on the outside of the slip.
 - Explain that once everyone is done writing affirmations, volunteers will pick an affirmation at random and read it to the group. After a volunteer reads an affirmation, he or she should give it to the person for whom it was written.
 - Tell students where you are going to put the unread affirmations so students can read them between sessions or during the next program session.
 - Check for understanding and answer any questions.
2. Give students 2 to 3 minutes to write their affirmations and put them in the basket. Assign the task of collecting the folded affirmations slips to one of the students who finishes first.
 3. When all the slips have been collected, ask for volunteers to pick out affirmations at random, read them to the group and then give them to the students for whom they were written. If volunteers pick affirmations that are written for them, they should choose again.
 4. As time runs out, congratulate ALL students on their excellent work. Remind students where they will be able to find their affirmations if they were not read. Instruct students who received affirmations that were read aloud to store them in an appropriate place.

Note: As mentioned earlier, we recommend writing in "kidspeak" affirmations for students who do not receive any from their peers. Students will probably know that you wrote them, but it is still important to make sure they are acknowledged for the positive things they are doing in the program.

Review of Storytelling Alice (10 min)

1. Open Storytelling Alice on main computer and ask for student volunteers to come up and demonstrate how to do things learned in recent challenges, including:
 - Making a new scene
 - Fading in and out of a scene
 - Moving things together with the vehicle property
 - Changing the method that starts when the world plays
 - Resizing a character
 - Adding a stage light (if anyone has gotten to Challenge 9.2)

Break (10 min)

Storytelling Alice Challenges and Game Building (30 min)

1. Tell students they have the option of continuing to work on the challenges or beginning to work on their games. If there are some skills they still need to learn, they should refer to the Storytelling Alice Challenges poster (or handout) to see which challenges they need to do in order to learn those skills. If they want to first practice making a simple game, they can do Challenge 14: the Eskimo Matching Game.
2. Check for understanding and answer any questions.
3. Allow students to continue working on challenges or their own games at their own paces. Encourage slower pairs to skip the bonuses.
4. Circulate and assist as needed and after about 15 minutes, ask pairs to switch pair programming roles.
5. While circulating, ask one or two pairs who have built Storytelling Alice worlds from scratch to share their work with the rest of the class.

Group Sharing/Wrap Up (10 min)

1. Ask previously identified students to share their day's work with the group.
2. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 46

Objectives:

- To give students the opportunity to think about their future academic and career goals, the obstacles they might face, and the resources that might help them achieve their goals
- To continue learning about Storytelling Alice by doing challenges and working on own games

Instruction Time: 90 minutes

Materials/Equipment:

- Access to Storytelling Alice on all computers
- Handout 38.1: Storytelling Alice Challenge Directions
- Handout 38.2: Storytelling Alice Challenge Code
- Access to Starter and Complete Storytelling Alice Challenge Worlds
- Handout 44.1: List of Storytelling Alice Challenges (poster or handout)
- Handout 46.1: Career Pyramid

Procedure:

Introduction to Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Career Pyramid⁵ (30 min)

1. Remind about the session when they thought about they wanted to be when they grew up. Tell them that today, they are going to do more thinking about their futures and exploring what they need to do to reach their future goals.
2. Go around the room and ask each student to state his/her career goal. Allow all answers, including multiple careers and "I don't know." Remind students that there are NO right or wrong answers. If a student does not have a goal, say, "That's ok, after today you might get a better idea of what you want to become." Write all answers on blank flipchart paper or the board.

⁵ Adapted from materials by the Bridging Multiple Worlds Alliance (BMWA), www.bridgingworlds.org/home.html
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Note: One approach that engages students is to imagine the group as members of a town and as each student states a career, encourage the group to affirm that a town would need such a person.

3. Tell students that there are many more careers they can choose from, and it is a perfect time for them to begin exploring what they like and don't like and what they want to be and don't want to be.
4. Distribute Handout 46.1: Career Pyramid and ask students to use to write down their goals in the following order:
 - Tell students to write their END GOAL (what they just stated) at the top of the pyramid.
 - Next, ask students to go to the bottom of the page and write their PAST GOAL while in elementary school, if they had a goal then. (Optional: Provide your own example, such as, "I remember the very first day of kindergarten. I was so excited because I was going to have so many new friends. I didn't know it, but my goal was to make friends." If students hear your goals, they will often feel safer expressing their own.)
 - Next, ask students to think about their IMMEDIATE GOAL now that they are in middle school and to write it down in the next space up. Provide time for the students to think and write.
 - Then ask them to think about high school and their NEAR FUTURE GOAL and to write that down in the next space up.
 - Finally, ask students to think about their LONG-TERM GOAL, i.e., what they want to do when they graduate from high school.
5. Once they have finished all sections of the pyramid, ask students to put their pencils or pens down to listen. Go around the room and ask students to read their goals, beginning from the bottom.
6. Ask: "What kinds of things or people *might* prevent you from reaching your END GOAL?" Tell them to write their challenges in the space provided on the side of the pyramid.
7. Tell the students: "Now you're going to look at what can *help* you reach your END GOAL. What kinds of things or people help us reach our goal? Ask students to write those things in the space for resources.
8. If time, discuss challenges and resources they might encounter while trying to reach their goals.

Break (10 min)

Storytelling Alice Challenges and Game Building (30 min)

1. Allow students to continue working on challenges or their own games at their own paces. Encourage slower pairs to begin working on their games.

2. Circulate and assist as needed and after about 15 minutes, ask pairs to switch pair programming roles.
3. While circulating, ask one or two pairs who are working on their games to share their work with the rest of the class.

Group Sharing/Wrap Up (10 min)

1. Ask previously identified students to share their day's work with the group.
2. Tell students that they all need to be working on their games during the next session.
3. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 47

Objectives:

- To continue working on own games

Instruction Time: 90 minutes

Materials/Equipment:

- Access to Storytelling Alice on all computers
- Handout 44.1: List of Storytelling Alice Challenges (poster or handout)

Procedure:

Introduction to Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Storytelling Alice Game Building Continued (30 min)

1. Tell students they will have the entire session to work on their Storytelling Alice games and any challenges they need to complete to learn game-making skills. If any pairs have already completed one or more games, they may start working on other games or help other students.
2. Allow students to work at their own pace.
3. Circulate and assist as needed and after about 15 minutes, ask pairs to switch pair programming roles.

Break (10 min)

Storytelling Alice Game Building Continued (30 min)

1. Continue previous activity.
2. Circulate and assist as needed.

3. While circulating, ask one or two pairs to share their work with the rest of the class.

Group Sharing/Wrap Up (10 min)

1. Ask previously identified students to share their day's work with the group.
2. Tell students they will be finishing and testing their games during the next session.
3. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 48

Objectives:

- To finalize beta test version of games
- To test and provide feedback on each others' games

Instruction Time: 90 minutes

Materials/Equipment:

- Access to Storytelling Alice on all computers
- Handout 16.1: Plus Delta Feedback Form

Procedure:

Introduction to Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Storytelling Alice Game Building Continued (40 min)

1. Tell students they will have the until break time to work on their Storytelling Alice games. After the break, they will test and give feedback on each others' games. If anyone has made more than one game, they should decide which one they want to test.
2. Circulate and assist students as needed as they work on finalizing their games.

Break (10 min)

Beta Testing Storytelling Alice Games (20 min)

1. Pass out at least two copies of Handout 16.1: Plus Delta Feedback Form to each student.
2. Remind students that the goal is to help each other improve their games. It's important to make positive, constructive comments.
3. As students are playing each other's games, circulate and monitor the process, making sure that each game is being tested by at least three people and is getting equal attention and that

students are not spending all their time on any one game.

Group Sharing/Wrap Up (10 min)

1. Ask students to name one thing they learned from the beta testing process.
2. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 49

Objectives:

- To finalize Storytelling Alice games based on feedback
- To choose which games to showcase during the Open House
- To begin preparing for the Open House

Instruction Time: 90 minutes

Materials/Equipment:

- Access to Storytelling Alice on all computers

Procedure:

Introduction to Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Debugging and Finalizing Games (40 minutes)

1. Ask group for their thoughts on the beta testing process, including the types of problems they encountered and possible ways to fix these problems.
2. Emphasize as necessary that this is standard procedure that programming and game development teams use all of the time to debug and improve their products.
3. Pass out completed evaluation sheets and give students time to respond to feedback and fix any problems noted in their games.
3. Give students who are finished with their games the option of adding to their games or helping other students.

Break (10 min)

Open House Game Selection (15 min)

1. Tell students that they will spend the next session preparing for an open house where they will share their Creator and Storytelling Alice games with each other and other students. Ask them

to spend the next 15 minutes thinking about the games they have created and deciding which ones they want to showcase.

2. Ask each student to pick their top three choices for games to showcase in the same way they have chosen their pair programming partners – by writing their names at the top of blank piece of papers and then writing their top three choices for games in the following way:
#1: (title and partner)
#2: (title and partner)
#3: (title and partner)
3. Collect students' papers. After class, pick the games to showcase based on students' choices. Make sure that the students are evenly represented.

Note: You might prefer to set up a competition instead of an open house, using students from other classes or students from a local college or university as judges. For many students, the chance of winning a prize or recognition is an important motivating factor.

Group Sharing/Wrap Up (15 min)

1. Ask students to think about what they learned and made in both Creator and Storytelling Alice. Ask them to explain what they liked and disliked about each program and why.
2. Tell students that next time they will be working on posters that advertise the Open House and explain what the class is about. They may work on the posters individually or in pairs. Ask them to be thinking about what they want to do.
3. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 50

Objectives:

- To create information cards about the games being showcased
- To create posters advertising the Open House

Instruction Time: 90 minutes

Materials/Equipment:

- Handout 50.1: Game Information Card (duplicated on cardstock and cut)
- Markers, tape, poster-sized paper and other material for advertising Open House or (optional) software like Microsoft PowerPoint to create posters digitally
- List of items to include on posters projected or posted on flipchart paper or the board

Procedure:

Introduction to Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Open House Game Information Card Preparation (20 min)

1. Tell students you have looked at their choices for games to showcase and have picked the games based on their choices and other factors.
2. Pass out or post the list of games.
3. Ask students to get together with their partners for the games being showcased.
4. Pass out Handout 50.1: Game Information Card. Ask students to work with their partners to fill out the card and answer the following questions:
 - What is the Name of the Game?
 - What Kind of Game is It?
 - Who Made the Game?
 - What Do You Need to Do to Win the Game?
 - How Do You Play the Game?

5. Circulate and assist as needed while students fill out the cards.
6. When time is up, collect the cards. Explain to students that during the Open House, each card will be displayed next to the computer that's showing the game it refers to. Visitors will walk around randomly and play the showcased games, and the games' creators will be there to provide information and answer any questions.
7. Before the Open House, post the cards in their proper places.

Break (10 min)

Open House Poster Preparation (45 min)

1. Tell students that they will now be making posters to advertise the Open House. For this activity, they have the option of continuing to work with the partners they had for the showcased games or working by themselves.
2. Explain that their posters will have to be approved and then they will be displayed around the school to advertise the Open House.
3. Pass out markers, poster paper and any other material you want and ask students to use it to make posters advertising the Open House and promoting the class.

Note: If students are knowledgeable about a program such as PowerPoint, you can ask them to use that software to create their posters. If so, it's helpful to prepare files in advance that contain several design templates and libraries of graphics and text for them to choose from.

4. Go over the following items to include on their posters as projected or printed on flipchart paper or the board:
 - Title (e.g., Computer Game Design Open House)
 - Date and time
 - Location
 - One-sentence description (e.g., "Play games made by your classmates" etc.)
 - Graphics (e.g., drawing from a game)
5. Ask for suggestions of other one-sentence descriptions and other items to include on the poster.
6. Check for understanding and answer any questions.
7. Circulate and assist as needed while students work on their posters in pairs or individually and to approve their posters.
8. Keep time and tell students when they have 10 minutes left.

9. When students are finished or time is up, collect the posters. After class, speak to school administration about where and when to display them, and make two copies of each one. Post one set around the school and the other set in the classroom.

Group Wrap Up (5 min)

1. Ask students to invite their friends and schoolmates to the Open House.
2. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 51

Objectives:

- Identify what they would like to represent about their participation in the program.
- Gain familiarity with Microsoft PowerPoint
- Identify messages and images that will:
 - inspire students to join the program and/or
 - inspire students to pursue a career in computer technology and/or
 - inform people about engineering and creating computer games.

Instruction Time: 90 minutes

Materials/Equipment:

- Handout 51.1: 10 Steps for Designing and Creating Your Poster
- Handout 51.2: Three Poster Themes
- Handout 51.3: Choosing your Poster Design
- Handout 51.4: Sample Poster
- Access to Microsoft PowerPoint on all computers
- Three PowerPoint Design Templates loaded as templates in the Microsoft PowerPoint folder of all computers:
 - 51.5: Borders Template
 - 51.6: Bubbles Template
 - 51.7: Flower Template

Procedure:

Introduction to Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Overview of the poster project (15 min)

1. Explain to the students that this activity is to create a poster about something they experienced in the program. Tell them that they will choose one poster topic (out of three possible choices) and then they will design and create a poster. Explain that they will be given models or templates and step-by-step instructions to help them.
2. Tell the students that one goal of this activity is to create posters that will effectively show the school what they have done and will inspire other students to consider joining the program

and/or choosing a career in computer technology. Show them the sample poster (Handout 51.4).

3. Explain the learning objectives to the students.
4. Review and answer questions about Handout 51.1: 10 Steps for Designing and Creating Your Poster.

Choose the Poster Theme (15 min)

1. Review Handout 51.2: Three Poster Themes with the students:

Theme One: What I learned in the program

Theme Two: Women, girls and computer science

Theme Three: What I want you to know about engineering or creating computer games

Note: You may want to modify one or more of these themes to make them more relevant to your student population.

2. Explain the goal of each poster and identifying the differences between them. Ask the students if they have any questions and respond to those.
3. Ask the students to read over the three themes and choose the one that is most appealing to them. Have them write down the theme on a piece of paper.
4. Ask the students to indicate which theme they have chosen by raising their hands as you read out each of the three themes.
5. Tell the students that in the next activity, they will have an opportunity to meet and talk with other students who are doing a poster on the same theme.

Break (10 min)

Poster Theme and Quote Activity (20 min)

1. Ask the students to sit with the other students who have chosen the same poster theme. Then have them divide into groups of three to do this activity.
2. Review the instructions for the activity with the group and answer any questions the students may have. Explain that they will have about 15 minutes to talk about their theme and brainstorm quotes for their poster. If necessary, provide some examples of quotes to stimulate ideas. Explain to them that this activity will help them choose the quotes that they will have on their posters.
3. Tell the students that once they have completed this activity, they will begin to design their posters.

4. Keep time and tell the students when five and 10 minutes have elapsed. Circulate through the class to assist the students with the activity.

Choose a PowerPoint Design Template (15 min)

1. Explain to the students that there are 3 poster design templates that they can choose from and that they can choose either a portrait or landscape view/orientation.
2. Give Handout 51.3: Choosing your Poster Design to each student and review the instructions with the class.
3. Tell the students that they will have about 12 minutes to choose their poster design.
4. Keep time and tell the students when 5 minutes and 10 minutes have elapsed. Circulate through the class to assist the students with the activity.

Group Wrap Up (5 min)

3. Ask students if they would like to share any ideas about what their poster may look like.
4. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 52

Objectives:

- Design a poster with inspirational material that illustrates their chosen topic.
- Create the poster using the PowerPoint computer program.

Instruction Time: 90 minutes

Materials/Equipment:

- Access to Microsoft PowerPoint on all computers
- Three PowerPoint Design Templates loaded as templates in the Microsoft PowerPoint folder of all computers:
 - 51.5: Borders Template
 - 51.6: Bubbles Template
 - 51.7: Flower Template
- Handout 52.1 Gallery Walk Feedback Form
- Material such as tape or tacks for posting posters on the wall

Procedure:

Introduction to Session (10 min)

1. Welcome students.
2. Project or pass out day's agenda and briefly discuss.
3. Check for understanding and answer any questions.
4. Take care of any necessary logistics and announcements.

Create a Poster in PowerPoint (30 min)

1. Explain to the students that they will now have 30 minutes to create their posters by choosing a title and placing quotes and images on the poster design template that they have chosen.
2. Explain to the students that they will need to get approval of the completed poster. Ask them to indicate when they have finished so that you can come by to see the final product.
3. Keep time and tell the students when 15 minutes and 30 minutes have elapsed. Circulate through the class to assist the students as needed and to approve their posters.
4. After approving a poster, ask the student to post it on the wall.

Poster Gallery Walk (25 min)

Introduction (5 minutes)

1. Remind students about the gallery walks they have done for the games they have created. Tell them they are now going to do the same type of activity for the posters they are creating.
2. Emphasize that their posters are “works-in-progress” and that they should all be proud of their accomplishments at this stage of completion.
3. Explain to students that the class will be divided into eight groups and that each group will look at four posters (three made by other students and one made by each of the students in the group.) Each student will have use Handout 52.1: Gallery Walk Feedback Form to make comments on the three posters made by other students. They will comment on:
 - Things they like about the poster which will be written under the plus sign (+)
 - Questions or ideas/suggestions which will be written under the Delta sign (Δ)
4. Tell the students that they will have about three minutes to review and comment on each of the three posters made by the other girls, and that you will tell them when half the total time is up and when they have just 2 minutes left.
5. Tell the students that while they are reviewing and writing comments, they will also be available to answer questions others may have about their own poster.

Reviewing the Posters (15 minutes)

1. Divide the class into eight groups of four students.
2. Direct each group to the four posters that they will be reviewing. Explain that they can discuss what they see with other students in their group or do it completely on their own.
3. Tell the students to tape their comments to the bottom of the posters.
4. Circulate as the students are viewing the posters and assist as needed.
5. Keep time and indicate when half of the total time is left and when there are two minutes remaining.
6. When time is up, have the students go to their own posters.

Reviewing the Feedback (5 minutes)

1. Tell the students to take their posters off the wall and return to their seats.
2. Have the students review the comments on their posters.
3. Invite students to ask for clarification about the comments if they need it and facilitate this clarification process as necessary.
4. Thank the students for their participation in the process and acknowledge them for helping each other create effective posters.

Break (10 min)

Revise the Poster (20 min)

1. Tell the students that they will have 20 minutes to make changes to their posters. Changes can be based on their classmates' suggestions or on other ideas that they may have from seeing the other posters.
2. Ask students to indicate when they have finished so you can come by to see and approve the final product.
3. Keep time and tell the students when 10 minutes and 15 minutes have elapsed. Circulate through the class to assist the students as needed and to approve their posters.

Group Wrap Up (5 min)

1. Congratulate students on having successfully completed their posters.
2. Take care of any necessary closing tasks such as computer shutdown and clean up.

Session 53

Objectives:

- To showcase the games students created
- To celebrate the end of program

Instruction Time: 90 minutes

Materials/Equipment:

- Access to Stagecast Creator and Storytelling Alice on every computer
- Students' posters displayed around the room
- Game Information Cards posted next to computers
- Certificates of Completion
- Refreshments for Open House (optional)

Procedure:

Open House and Acknowledgements (90 min)

1. Students demonstrate their games to each other and visitors and answer questions as others play their games.
2. Students receive certificates of completion and acknowledgement.