

Frogger Sample Lesson Plan
Day 5 – 50 minutes
Scalable Game Design summer workshop
June 2009



Note: **Red** links take you to portions of the tutorial. **Blue** links provide background information to aid in teaching.

1. Learning Objectives:

In this unit, students will create a simple but complete version of Frogger game while learning Agentsheets software program. Students will apply design process to identify objects “agents” and interactions “operations”. Throughout this unit, students will be introduced to basic [computational thinking](#), including basic object interaction, stacks, creating object instances, rule based programming, and message sending.

In this lesson, students will be finishing and publishing their Frogger game. Students will add turtles, and turtle generators and the grotto to the game and will be using the transport, absorb and generate computational thinking patterns to program agent behaviors.

2. Standards:

ISTE (International Society for Technology in Education) NETS (National Educational Technology Standards)

- #1a apply existing knowledge to generate new products
- #1b create original works as a means of personal or group expression.
- #4b plan and manage activities to develop a solution or complete a project.
- #4d use multiple processes and diverse perspectives to explore alternative solutions.
- #6c troubleshoot systems and applications.
- #2a interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.
- #2d contribute to project teams to produce original works

ISTE NETS are referred to by CDE Performance Standards for Teachers #7- Technology
Please check with your district’s technology department to see if there are additional standards at the district or school level.

3. Anticipatory Set / Modeling: 5 minutes

Student work showcase: Select one of the student’s worksheets from the last lesson and project it on an overhead screen. Demonstrate what can be done so far on her/his worksheet. Compare this to a completed version of Frogger so students can see where they are headed (still missing turtles, and the grotto ending place). Inform students that today they will be finishing and uploading their games to a central site. If time permits, students will be able to try each others games.

4. Teaching: 3 minutes

Input – Overview of project and Agentsheets

Review components of Agentsheets:

- Gallery- where agents are
- Worksheet – where game is created
- Behavior – how to tell each agent what to do

And four computational thinking patterns in Frogger: Today we will be using absorb, generate, and transport.

- [Absorb](#): Trucks, turtles, and logs will need to be absorbed (erased) with truck absorber, log absorber, and turtle absorber agents.
- [Collision](#): Trucks collide with frogs. We will use a simple form of collision to deal with trucks colliding with frogs.
- [Generate](#): Trucks, turtles, and logs will need to be generated with truck maker, log maker and turtle maker agents.
- [Transport](#): Logs and turtles transport the frog. This slightly more advanced pattern will be used in part II of the Frogger tutorial.

5. Guided Practice / Monitoring: 25 minutes

Demonstrate how to open Agentsheets program and have students open saved versions of Frogger from last lesson. Check understanding of each student.

Inform students that the activities today will be similar to the ones yesterday.

[Turtle and Turtle Maker is Similar to The Log and the Log Maker](#)

Demonstrate how to create turtle agent and the palm tree agent. Have students create turtle and palm tree agents and [The Turtle Maker Agent](#) and [The Turtle Maker Agent](#)

Demonstrate how to program turtle behavior (move from right to left) and turtle generation. Turtles should be generated on the right and absorbed on the left

[Behaviors for the Turtle Maker Agent and Turtle Agent](#)

Allow students time to program behaviors and play test the game and to answer the following questions:

[Play Test: Testing the Turtle and Turtle Maker](#)

Test your program to see how if the Turtle Agent works. In the Worksheet window, place two Turtle Maker Agents across from each other on each side of the river. Hit play

- Do Turtles get created?
- Do the Turtles Move and disappear when they reach the Turtle Maker Agent?
- Control the frog and try to jump on a turtle, Does the Frog Move with the Turtle?

If one of these doesn't work, go back through the Turtle Agent and Turtle Maker Agent Behaviors and see where you might have made a mistake. Otherwise, Awesome Work!

Demonstrate creating the grotto agent. Allow students time to create agent and place with pencil tool on worksheet.

[The Grotto](#)

Assist students in play testing programs to check for correct programming.

Final Play Test

Allow students time to answer the following questions:

Now let's test our program one final time

- Does a message get played or appear when the frog reaches the Grotto?
- Does everything else work like you expect it to?

Great Job! You have just completed a full computer game! Feel free to go back through and make any improvements to your game or experiment with any ideas/agents/behaviors you may have. You can even add another level. Awesome work!

Students should save the worksheet periodically and check with the reset button to verify that it worked. IMPORTANT: Saving the Worksheet

6. Assessment: 12 minutes

To allow for assessment of the student's final project, students will upload game to central location. Grade student work based on Rubric discussed at the beginning of the week.

SEE HANDOUT FOR DIRECTIONS AND SITE LOCATION FOR UPLOADING GAMES

7. Closure: 5 minutes

Restate the scope of the project. Provide information for students about accessing programs from remote locations (at home, the library, etc.) so they can share their program with family and friends.

8. Extension/ Remediation – students can play classmate's Frogger programs and/or those published by students from other middle schools and/or the University of Colorado.