

## Creating Java Programs with Greenfoot Project Planning Worksheet

### Instructions

Now that you have learned how to use Greenfoot, use this guide to plan your classroom project. See the examples below that you can refer to as a guideline – while not required, you may modify them as needed to meet your projects' objectives.

### Learning Objectives

The animation should demonstrate the knowledge and skills students have learned in Greenfoot, as well as other curricular topics you may cover as part of this project. Refer to your school's curriculum and standards as a guide as you select the learning objectives for this project.

In the example below, a Language Arts teacher is using Greenfoot to have students create an animation that demonstrates the parts of a haiku poem, a traditional Japanese poem, at the end of a curricular unit on poetry. The teacher has identified four key Greenfoot learning objectives that students should master, as well as two key learning objectives that must be covered during the curricular unit on poetry.

Example Learning Objectives:

1. Greenfoot Learning Objectives:
  - a. Write a visual and textual storyboard for an animation
  - b. Correlate storyboard statements with program execution tasks
  - c. Write Java programming procedures, and demonstrate how to alter them
  - d. Complete and test an animation
2. Language Arts Learning Objectives:
  - a. Identify the parts of a haiku poem
  - b. Create an original haiku poem in the correct format

### Student Grouping Strategy and Roles

Describe the criteria that will be used to form student teams. You may group students by their skill level with Greenfoot, by random assignment, etc. List the roles team members will fulfill in the project. You may want to add a description for each role. Note that students may have multiple roles. See the grouping strategies and student roles tables for ideas.

For example, a teacher may strategically group students into teams of 4-6 each, putting equal numbers of students skilled at programming in Greenfoot, and those who are less skilled, so that teams are balanced and the highly-skilled students teach the less-skilled students. Each student must program some portion of the animation, as well as perform two additional roles. This ensures that all students contribute equally to the project work.

### Grouping Strategies

Grouping Strategy	Description
Random	Randomly assign students to teams.
Skill level	Assign equal numbers of skilled and non-skilled students to teams. For example, skill level may be based on knowledge of Greenfoot, the curricular subject, writing, and team leadership.
Student-assigned teams	Allow students to select their own teams.

### **Student Roles**

<b>Role</b>	<b>Description</b>
Project manager	Manages the project and ensures the team stays on-task and on-time, and that all team members are contributing equally to the project.
Programmer	Codes the animation.
Researcher	Researches the curricular subject for the animation scenario and storyboard. Researches how to use the tools in Greenfoot if the team cannot figure out how to do something.
Writer/editor	Writes and edits the storyboards and presentation. Writes the content for the credits portion of the animation.
Quality assurance tester	Tests the animation and debugs as necessary. Ensures that all coding and writing is the original work of the team.
Presenter	Presents the animation to the class.

### **Task Schedule**

Note start and end dates for the project. Include expected dates to start specific tasks. Include how students will be assessed (graded) for each product due.

Give these dates to students so they can plan their work accordingly. The example below is based on 90-minute class periods. Adjust the schedule as necessary for other types of class periods. This does not include additional time students may need to spend outside of class as homework, especially for those less-skilled at using Greenfoot.

<b>Project Task</b>	<b>Start and End Dates</b>	<b>Number of Class Periods</b>	<b>Product and Due Date</b>	<b>Assessment (Grade) for Each Product</b>
Learn how to use Greenfoot	DD/MM/YY – DD/MM/YY	X	Quiz on DD/MM/YY	10 points
Define scenario and draft storyboards	DD/MM/YY – DD/MM/YY	1	Scenario, textual storyboard, and visual storyboard due on DD/MM/YY	10 points
Produce first draft of animation	DD/MM/YY – DD/MM/YY	2	First draft due on DD/MM/YY	10 points
Peer reviews of animations	DD/MM/YY	1	Completed peer review worksheet due on DD/MM/YY	10 points
Produce final version of animation and produce presentation	DD/MM/YY	2	Final version of animation and presentation due on DD/MM/YY	20 points
Student presentations	DD/MM/YY	1	DD/MM/YY	40 points

## **Project Requirements**

Below are suggested guidelines for the animation and presentation products. Reduce or expand these guidelines to fit your class needs.

<b>Content Area</b>	<b>Guidelines</b>
Planning Documents	The following planning documents must be submitted to your teacher before you can begin work on your animation. This includes: <ul style="list-style-type: none"><li>• Scenario: The scenario for your animation that states the purpose of the animation.</li><li>• Textual storyboard: A complete textual storyboard that lists the complete algorithm for the animation. It should be in digital document format (e.g., Microsoft Word, OpenOffice).</li><li>• Visual storyboard: A complete visual storyboard that shows the main scenes of the animation. Not all scenes are required, just enough to show the main scenes of the animation. This can be in a physical document format or digital format, using any type of media.</li></ul>
Animation Duration	1-2 minutes
Original content	All work, including all code and written content, must be the original work of the team. Any sources used in research must be cited. All team members must contribute to the animation's development.
Learning objectives	Animation must demonstrate comprehension of the stated learning objectives stated by the teacher at the start of the project.
Code	The animation's code should include: <ol style="list-style-type: none"><li>1. At least three different control statements such as count, if, do together, etc. (Do In Order does not count towards this total).</li><li>2. Precise movements controlled by functions and math expressions.</li><li>3. Use of at least six different procedures.</li><li>4. Credits at the end of the animation that show who worked on the project, what their roles were, as well as any references used from your research.</li></ol>
Extra credit*	If one or more of the following advanced programming techniques are included in the animation's code, the team will receive additional points. Features include: <ol style="list-style-type: none"><li>1. Random motion</li><li>2. Keyboard controls</li></ol>
Presentation	The presentation should include: <ol style="list-style-type: none"><li>1. Introduction and agenda of what will be presented</li><li>2. Overview of the animation</li><li>3. Demonstration of the animation and code</li><li>4. Summary of what students learned – include what each team member contributed to the project</li><li>5. Questions and Answers from the class</li><li>6. Format: Digital, such as Microsoft Powerpoint or OpenOffice.</li></ol>

*\*This may be assigned as extra credit for early Greenfoot animation projects when students are beginners to the tool. For advanced projects, this may be assigned as part of the regular assignment and not as extra credit.*

## Greenfoot Project Planning Worksheet

Project Name:	
Start and End Date:	
Class Name and Period(s):	
Learning Objectives: <i>List what students will learn as a result of participating in this project. Refer to your school's curriculum and standards.</i>	
Student Grouping Strategy and Role Definitions <i>List the strategy for grouping students and what types of roles will be assigned.</i>	

### Task Schedule

Project Task	Start and End Dates	Number of Class Periods	Product and Due Date	Assessment (Grade) for Each Product

## Project Requirements

Content Area	Guidelines
Planning Documents <i>Include guidelines for the scenario and storyboards.</i>	
Animation Duration	
Original content <i>Include guidelines for creating original content.</i>	
Learning objectives <i>List the learning objectives students should demonstrate in the animation.</i>	
Animation Code <i>List the guidelines for what should be included in the animation code.</i>	
Extra credit <i>List any extra credit opportunities.</i>	
Presentation Guidelines <i>List the presentation guidelines.</i>	
Other <i>Add other requirements.</i>	