

1 Intro to Coding with GRASSHOPPER APP

2 Overview of Unit/Lesson

Pre-Activity Discussion

- Ask students to describe some of the actions that we use computers to do.
- Ask students how they think the computer performs these complicated tasks.

Game Play

- Students will play use the Grasshopper application on classroom PC's to complete various coding challenges.

Lesson

- "Drawing Flags; Using drawbox function"

Reflection

- Student's will answer 2 reflection questions with a 3-5 sentence answer

Post Assessment

- Students will be given a coding objective and access to the Grasshopper application. To be successful students will need to create the correct code.

3 ISTE Standards for Students

1. CREATIVITY AND INNOVATION

1.a - Apply existing knowledge to generate new ideas, products, or processes.

1.c - Use models and simulations to explore complex systems and issues.

4. CRITICAL THINKING, PROBLEM SOLVING, AND DECISION MAKING

4.b - Plan and manage activities to develop a solution or complete a project.

6. TECHNOLOGY OPERATIONS AND CONCEPTS

6.a - Understand and use technology systems.

6.c - Troubleshoot systems and applications.

6.d - Transfer current knowledge to learning of new technologies.

4 Pre-assessment

5 Objectives

Help students make the connection between programming logic and the process of completing a daily task.

Introduce the concepts of algorithms, functions, and loops.

Determine what students already know about computer programming.

6 Materials of Pre-assessment

1 For the Student

Graphic Organizer

2 For the Class

Graphic Organizer

Computer Programming Video

7 **Preparation for Pre-assessment**

Make copies of graphic organizer for students

Set up screencast for video viewing.

8 **Pre-assessment Activities**

- Have students completed graphic organizers with a classmate and attempt to follow the directions exactly as they are written. Instruct students not to make any inferences at all.
- Draw students' attention to the directions that read, "If they can't follow it, you'll need to iterate." What does the word "iterate" mean in this context?
- Play the Computer Programming movie for the class and have students share in their own words what it means to create computer code.
- Encourage students to relate the warm-up activity to computer programming. What happens when there is an error in an algorithm provided for a computer?

Lesson Plan adapted from [Computer Coding Lesson Plan: Blockly Maze Game](#)

9 **Play****10** **Grasshopper: Draw the Flag****11** **12** **Game Overview**

The app uses short programming puzzles that break programming tasks into manageable mini projects.

13 **Materials of Pre-assessment**

For Students

- PC running Windows 10 OR iOS or Android
- Internet Access

14 **Preparation for Play**

- Make sure all PC's are in working order
- Download Grasshopper from Apple or Google Play. Alternatively, game can be played on PC or MAC via web browser. (It's free)
- Make sure the overhead media projector is in working order and that it is properly connected to your PC

- Make sure students understand the rules and concepts of Grasshopper.
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- 15 **Lesson 1:**
Step by Step: What is Code and how it works.
- 16 **Objective(s) of Lesson 1 Play Activities**
 - Students will discuss the shoelace exercise and share what should have been added, changed, or deleted to get the desired results.
 - The class will work together to rework the shoelace "algorithm" together to build a more logical "program".
- 17 **Preparation for Lesson 1 Play Activities**
The teacher will use a projection of the Graphic Organizer on a whiteboard to create a template for the class to complete together.
- 18 **Materials of Pre-assessment**
For Students
 - Complete Graphic Organizers
 - Writing Materials
- 19 **Lesson 1 Activities:**
 - Working in pairs, students will write what they think the word means and will write a sentence using the vocabulary word correctly according to its definition.
 - After reading and examining the text and/or using appropriate resources as necessary, the students will write the accurate correct definition of the word and another sentence, using the word correctly.
 - As a follow up, the groups will share their predictions and any corrections they may have made.
- 20 **Modifications/Accommodations:**
 - Use of a peer helper
 - Assist/monitor with defining the words
 - Require less amount of words
- 21 **Reflection**
- 22 **Objective(s) of Reflection**
 - The objective of the reflection is to have students reflect on how playing Classic Words Crush is connected to the "Communicating My Ideas" assignment and the ways it helped them with learning and/or the reinforcement of correct spelling and understanding of the definitions
- 23 **Materials of Reflection**
For all Students
 - Writing materials
 - List of reflection questions

24 **Preparation for Reflection**

- Prepare and hand out copies of the questions to students
- Make sure students are clear about the expectations for the reflection questions

25 **Reflection Activities**

- Ask students to answer the following questions with a 3 to 5 sentence answer:
 - How do you think Classic Words Crush helped you with reinforcing the spelling and definitions of the vocabulary words?
 - While playing the game, did you think about the meanings of the words as you were playing? Why or why not?

26 **Post-Assessment**27 **Objective(s) of Assessment**

- To assess the students progress in comparison to the Pre-Assessment test.

28 **Materials of Assessment**

For all Students

- ❖ Writing materials
- ❖ Printed quiz

29 **Preparation of Assessment**

- Make sure quiz materials are ready
 - List the definitions in a different order from the pre-test and call the words out in a different order from the pre-test as well

30 **Post-Assessment Activities**

- Inform students they will be taking a quiz
- Students are to define and correctly spell the words as they are randomly READ ALOUD
- Take up the quiz
- Grade the quiz
- Compare these results with pre-assessment scores