Lesson 2: Nodes and Scenes

In this lesson, students will be introduced to the concept of nodes and scenes in the Godot Engine, a game development platform. They will learn about the importance of nodes in organizing and structuring game elements, as well as how scenes are used to create different levels or screens in a game. Through direct instruction, guided practice, and independent practice, students will gain hands-on experience creating and modifying nodes, arranging them in hierarchies, and understanding the interaction between parent and child nodes. The lesson will culminate with an exit ticket to assess students' understanding and a brief review of the main points covered.

Objectives:

1. Understand the concept of nodes in Godot and their importance in game development.

2. Learn how to create and modify nodes in the Godot Engine.

3. Understand the concept of scenes and how they are used in Godot.

4. Learn how to create and use scenes in the Godot Engine.

5. Understand how to duplicate nodes and change their properties.

6. Learn how to save nodes as scenes and use them in other scenes.

7. Understand how to add child nodes to a scene and modify their properties.

Materials:

- Computers with Godot Engine installed

- Projector or smart board for demonstrations

- Handouts with step-by-step instructions (optional)

Bell-Ringer Activity (5 minutes):

- Display a simple game scene on the projector or smart board.

- Ask the students to identify different elements in the scene and explain how they might be implemented using nodes.

- Allow a few students to share their answers with the class.

Introduction (10 minutes):

- Explain to the students that nodes are the building blocks of a game in Godot Engine.

- Discuss the importance of nodes in organizing and structuring game elements.

- Introduce the concept of scenes and explain how they are used to create different levels or screens in a game.

- Provide examples of different types of nodes and their functions in game development.

Direct Instruction (20 minutes):

- Demonstrate how to create and modify nodes in the Godot Engine.

- Show the students how to add nodes to a scene, change their properties, and arrange them in a hierarchy.

- Explain the concept of parent and child nodes and how they interact with each other.

- Discuss the importance of naming nodes and organizing them in a logical manner.

Guided Practice (20 minutes):

- Divide the students into pairs or small groups.

- Provide a simple game scene template or ask the students to create a new scene from scratch.

- Instruct the students to add different types of nodes to the scene and modify their properties.

- Encourage the students to experiment with different node configurations and hierarchies.

- Circulate around the classroom to provide assistance and answer any questions.

Independent Practice (20 minutes):

- Ask the students to create a new scene that includes multiple nodes and demonstrates their understanding of the concepts covered in the lesson.

- Encourage the students to be creative and think about how nodes can be used to create different game elements.

- Remind the students to save their scenes for future use.

Exit Ticket (10 minutes):

- Distribute an exit ticket to each student.

- Ask the students to write a brief summary of what they have learned about nodes and scenes in Godot Engine.

- Collect the exit tickets before the end of the class.

Closure (5 minutes):

- Review the main points covered in the lesson, emphasizing the importance of nodes and scenes in game development.

- Encourage the students to continue exploring and experimenting with nodes in their own game projects.

- Preview the next lesson, which will focus on scripting and interactivity in Godot Engine.

Common Core Standards:

CCSS.ELA-LITERACY.RST.9-10.3

Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.

CCSS.ELA-LITERACY.RST.9-10.4

Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9-10 texts and topics.