Lesson 3 - Node Tools

In this lesson, students will learn how to manipulate nodes in Godot, a game engine, by using different tools for moving, rotating, and scaling nodes. They will also understand the concept of parenting nodes and how to create and add child nodes to a parent node. Students will explore how properties are inherited by child nodes from their parent nodes. Through hands-on activities and independent practice, students will develop their skills in node manipulation and understand the importance of these concepts in creating interactive and visually appealing games or applications in Godot.

Objectives:

- Students will be able to identify and use the different tools for moving, rotating, and scaling nodes in Godot.

- Students will understand the concept of parenting nodes and be able to create and add child nodes to a parent node.

- Students will recognize how properties are inherited by child nodes from their parent nodes.

Materials:

- Computers with Godot game engine installed

- Projector or smart board for demonstration

- Handouts with keyboard shortcuts for each mode

Bell-Ringer Activity (5 minutes):

- Display an image on the board that contains various nodes.

- Ask students to identify the different tools they would use to move, rotate, and scale the nodes in Godot.

Introduction (10 minutes):

- Explain to students that in order to create interactive games or applications in Godot, it is important to understand how to manipulate nodes.

- Discuss the importance of being able to move, rotate, and scale nodes to create desired effects in a game or application.

Direct Instruction (20 minutes):

- Introduce the different tools for moving, rotating, and scaling nodes in Godot: Select Mode, Move Mode, Rotate Mode, and Scale Mode.

- Explain the purpose and functionality of each mode.

- Provide keyboard shortcuts for selecting each mode and demonstrate how to switch between them.

Guided Practice (20 minutes):

- Divide students into pairs or small groups.

- Provide each group with a handout containing an image.

- Instruct students to use Godot to create nodes and manipulate them to match the given image using the different tools and modes.

- Circulate the classroom to provide assistance and guidance as needed.

Independent Practice (20 minutes):

- Assign each student a different image.

- Instruct students to individually create nodes and manipulate them to match their assigned image using the different tools and modes.

- Encourage students to experiment and be creative with their designs.

- Monitor students' progress and provide individual feedback as needed.

Exit Ticket (10 minutes):

- Ask students to write a short paragraph explaining the concept of parenting nodes in Godot and how it can be useful in game development.

- Collect the exit tickets to assess students' understanding of the topic.

Closure (5 minutes):

- Review the main concepts covered in the lesson: different tools for moving, rotating, and scaling nodes, parenting nodes, and inheritance of properties.

- Emphasize the importance of understanding these concepts in order to create interactive and visually appealing games or applications in Godot.

- Encourage students to continue exploring and experimenting with Godot to further enhance their skills in game development.