

Y9 Robotics Lesson Plan - Ilia Vialykh



Thursday, March 21, 2024

Time / Subject	Lesson Progression	Differentiation	Resources
Thursday Y9 pm 1.35-2.30	3D Printing Inquiry: Exploration of 3D modeling principles and 3D printing techniques to design a calibration cat model. What do you need to do to become the best cali cat designer? LO: All students will understand the interface and basic tools of TinkerCAD. Most students will be able to design a basic 3D model of a cali cat using geometric shapes. Some students will be able to refine their design to closely replicate the Cali Cat model and prepare it for 3D printing. Review: Introduce the principle of "Divide and Conquer" in 3D modeling. Discuss how complex objects can be broken down into simpler geometric shapes for easier design. (5 minutes) - Ask students to list 3d shapes they can identify in a sample object. real time formative assessment Teacher demonstration: Demonstrate the TinkerCAD interface and basic functions such as grouping, aligning, and using the workplane. Highlight tools that are key for designing the Cali Cat. (5 minutes) Engage: Discuss the importance of calibration in 3D printing. Show examples of 3D printed objects and their uses in robotics. Discuss the features of the Cali Cat model. (10 minutes) - using class discussion as another method of formative assessment Explore: Students work in groups or individually to begin designing their Cali Cat model in TinkerCAD. Encourage them to start with basic shapes and gradually add detail.	Group work Lower: Provide step-by-step guides and additional support in using TinkerCAD tools. Encourage collaboration with peers who can assist with design techniques. Higher: Challenge students to add unique features or modifications to their cali cat models, enhancing creativity and technical skills.	Computers with internet access TinkerCAD accounts 3D printer Projector Example models for reference

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(15 minutes) - group work observation, formative assessment Walk around the classroom to provide guidance and feedback, noting progress and any challenges.

Elaborate: Students refine their models, focusing on achieving a close replica of the original Cali Cat. They will prepare their designs for 3D printing by ensuring all parts are properly grouped and aligned.

Assessment

Students will submit their designs for a class vote on the best model, considering design accuracy, creativity, and overall presentation. - peer assessment

– summative assessment: Quick quiz

Reflection:

Students will reflect on their design process and identify skills they have developed during the lesson. They will consider what went well and what they would improve next time.