

**CODE/MOE/UOIT Makerspaces Project**

**Lesson Plan: Grade 2 Science:**

**Parade Float (Using Goldieblox)**

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| **BIG IDEAS:**   * Movement is a change in position of an object * Simple machines help objects to move * Mechanisms are made up of one or more simple machines * Simple machines and mechanisms make life easier and/or more enjoyable for humans   **Science and Technology Overall Curriculum Expectations:**   * investigate mechanisms that include simple machines and enable movement; * demonstrate an understanding of movement and ways in which simple machines help to objects move   **Science and Technology Specific Curriculum Expectations:**  **2.3** investigate the structure and function of simple machines ***(e.g., by building a wheel and axle for a toy car; by exploring the effects of changing the slope of a ramp)***  **2.4** use technological problem-solving skills (see page 16), and knowledge and skills acquired from previous investigations, to design, build, and test a mechanism that includes one or more simple machines  **3.3** identify the six basic types of simple machines – lever; inclined plane; pulley; wheel and axle, including gear; screw; and wedge – and give examples of ways in which each is used in daily life to make tasks easier  **3.5** identify simple machines used in devices that move people | | |
| **Learning Goals:**  “We are learning to create floats and investigate how simple machines are moving the float components.” | | **Success Criteria:**  “We will be successful when we can create our floats and be able to explain how the simple machines are helping them move” |
| **Lesson Overview:**  Students will create a parade float using Goldieblox kits to explore how simple machine move | | |
| **Materials and Technology:**   * Goldieblox Kits Parade Float Kits * Goldieblox and the Parade Float Instruction Booklets * Book “Goldieblox and the Parade Float” * Pliers * Assorted box of Goldieblox | | |
| **Student Accommodations/Modifications:**   * Partner students * Have EA available to assist student(s) * Have more difficult part pre-assembled for students * Have students only create the base of the float | **Lesson will be differentiated by:**   * **Content, specifically:** Provide students with the option of following video instructions step by step on a tablet * **Process, specifically:** Partners can direct and explain the instructions and/or construct the float * **Product, specifically:** have partners work on different part of the float and then combine them * **Environment, specifically:** Allow students to work on tables, on the floor or the carpet area | |
| **MINDS ON: Getting Started** | | |
| During this phase, the teacher may:  • activate students’ prior knowledge;  • engage students by posing thought-provoking questions;  • gather diagnostic and/or formative assessment data through observation and questioning;  • discuss and clarify the task(s). | | During this phase, students may:  • participate in discussions;  • propose strategies;  • question the teacher and their classmates;  • make connections to and reflect on prior learning. |
| Describe how you will introduce the learning activity to your students. What key questions will you ask? How will you gather diagnostic or formative data about the students’ current levels of understanding? How will students be grouped? How will materials be distributed?   * Discuss parades (What is in parade, how do the floats move etc..) * Read the following book if available ( it was included in the Goldieblox Kit). “Goldieblox and the Parade Float” * Have a checklist to assess student understanding of the simple machines on their floats and how they move * Students will be grouped in partners * Goldieblox kits will be set up with instruction booklets along with tablets that with video step by step instructions. Additional assorted Goldieblox pieces and pliers will be located in a central area where the teacher can help to remove piece or supply extra parts for floats | | |
| **ACTION: Working on it** | | |
| During this phase, the teacher may:  • ask probing questions;  • clarify misconceptions, as needed, by redirecting students through questioning;  • answer students’ questions (but avoid providing a solution to the problem);  • observe and assess;  • encourage students to represent their thinking concretely and/or pictorially;  • encourage students to clarify ideas and to pose questions to other students. | | During this phase, students may:  • represent their thinking (using numbers, pictures, words, manipulatives, actions, etc.);  • participate actively in whole group, small group, or independent settings;  • explain their thinking to the teacher and their classmates;  • explore and develop strategies and concepts. |
| Describe the task(s) in which your students will be engaged. What misconceptions or difficulties do you think they might experience? How will they demonstrate their understanding of the concept? How will you gather your assessment data (e.g., checklist, anecdotal records)? What extension activities will you provide?   * Students will follow the instructions from the kits and construct the parade float * Students may have difficulties with removing tight pieces and plier should be available to the teacher and/or students to use * Anecdotal records and interview question will be posed to student to help assess if the students can identify and explain the simple machines on their floats * Choose another float to construct from the instruction booklet | | |
| **CONSOLIDATION: Reflecting and Connecting** | | |
| During this phase, the teacher may:  • bring students back together to share and analyse strategies;  • encourage students to explain a variety of learning strategies;  • ask students to defend their procedures and justify their answers;  • clarify misunderstandings;  • relate strategies and solutions to similar types of problems in order to help students generalize concepts;  • summarize the discussion and emphasize key points or concepts. | | During this phase, students may:  • share their findings;  • use a variety of concrete, pictorial, and numerical representations to demonstrate their understandings;  • justify and explain their thinking;  • reflect on their learning. |
| How will you select the individual students or groups of students who are to share their work with the class (i.e., to demonstrate a variety of strategies, to show different types of representations, to illustrate a key concept)? What key questions will you ask during the debriefing?  • In partners students will explain how they constructed their floats, what simple machines are present and how they move, and any problem that arose and how they overcame them.  • What is a simple machine? How do the simple machines move? | | |