

**CODE/MOE/UOIT Makerspaces Project--Lesson Planning**

**School Board: Grand Erie District School Board**

**Grade(s): FDK (could be extended to primary grades)**

**Subject(s): LilyPad Design**

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| **BIG IDEAS:**  **Students will develop an understanding of how to make a circuit.**  **Curriculum Expectations:**  **OVERALL:**  **2. demonstrate independence, self-regulation, and a willingness to take responsibility in learning and other endeavours**  **4. demonstrate an ability to use problem-solving skills in a variety of contexts, including social contexts**  **13. use the processes and skills of an inquiry stance (i.e., questioning, planning, predicting, observing, and communicating)**  **SPECIFIC:**   |  | | --- | | 2.1 demonstrate self-reliance and a sense of responsibility | | 2.2 demonstrate a willingness to try new experiences | | 2.3 demonstrate self-motivation, initiative, and confidence in their approach to learning by selecting and completing learning tasks |   4.1 use a variety of strategies to solve problems, including problems arising in social situations   |  | | --- | | 13.1 state problems and pose questions in different contexts and for different reasons | | 13.2 make predictions and observations before and during investigations | | 13.3 select and use materials to carry out their own explorations | | 13.4 communicate results and findings from individual and group investigations | | |
| **Learning Goals:**  “We are learning to…”  …identify new vocabulary words such as battery, wires, lights  …begin to understand that batteries have a positive side and a negative side  …explore using a battery to make a light light up | **Success Criteria:**  “We will be successful when…”  …we can make a light light up |
| **Lesson Overview:**  **Introduce the students to a battery. The little ones from the Lily pads work very well. Watch video:** [**https://www.youtube.com/watch?v=RWWLfUIiMAw**](https://www.youtube.com/watch?v=RWWLfUIiMAw)  **Go over precautions with the battery. Go over precautions with the wires and light bulbs.** | |
| **Materials and Technology:**   * **Wires** * **Batteries** * **Light bulbs** * **tape** | |
| **Student Accommodations/Modifications:**   * **1:1 support** * **Extra time for those that need it** * **Cue cards showing directionality for those that need it** | **Lesson will be differentiated by:**  **Content, specifically:**  **Process, specifically:**  **- allow time for practice/review/repetition - rewording/rephrasing of instructions**  **Product, specifically:**  **Environment, specifically:**  **If students need, quieter work area will be provided.** |
| **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.**  **\*Watch the video**  **\*Go over some precautions**  **\*Explain that the tape can be used to help keep the wires in place**  **What key questions will you ask?**  **\*How can we make the light bulb light up?**  **How will you gather diagnostic or formative data about the students’ current levels of understanding?**  **\*Observations, video recording**  **How will students be grouped? How will materials be distributed?**  **The activity will be left out as a centre. Encourage students who figure it out to share their learning either verbally or taking a video.** | |
| **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.**  **\*Batteries, light bulbs and wire will be left out at a centre**  **\*Have them explore ways to get the light bulb to light up.**  **\*Discuss how the batteries have a positive and negative side.**  **\*Have them explore taping the wires to each side of the battery and then to the light bulbs.**  **What misconceptions or difficulties do you think they might experience?**  \*understanding positive and negative sides to the battery will be difficult  \*coordinating putting the wires on the battery  **How will they demonstrate their understanding of the concept?**  \*the light bulb will light up  **How will you gather your assessment data (e.g., checklist, anecdotal records)?**   * Video recording/ pictures   **What extension activities will you provide?**   * Teaching them how to make a bracelet | |
| **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)?**   * **I would have them all discuss their findings**   **What key questions will you ask during the debriefing?**   * **What worked, what didn’t , how else could we do it (more lights)?** | |