

**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:**

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| 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

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| 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 |

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| **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**
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| **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
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| **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)?**
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