

**CODE/MOE/UOIT Makerspaces Project**

**Lesson Plan: Grade 1 Science:**

**Energy in our Lives**

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| **BIG IDEAS:**  Energy is something that is needed to make things happen, and the sun is the principal source of energy for the earth.  **Curriculum Expectations:**  2.4 Investigate and compare seasonal differences in the ways we use energy and the types of energy we use (e.g., we keep warm in winter by wearing a sweater and using furnaces and woodstoves; we stay cool in summer by sitting in the shade or going to places that are air conditioned; we adjust the amount of light we need by opening or closing the curtains and turning lights on or off)  2.8 Use a variety of forms (e.g., oral, written, graphic, multimedia) to communicate with different audiences and for a variety of purposes (e.g., use labelled diagrams to show what happened when plants were grown in varying light conditions) | |
| **Learning Goals:**  “We are learning to…”  Using Scratch Jr. students will learn about seasonal differences (cold in winter, warm in summer, etc.) in the way that energy is used. | **Success Criteria:**  “We will be successful when…”  Students will create a multimedia display or video using Scratch Jr. to demonstrate these seasonal differences in the way that energy is used. |
| **Lesson Overview:**  Students will create a multimedia video demonstrating their understanding of the seasonal differences in how energy is used. | |
| **Materials and Technology:**  iPads- Could be done in groups, pairs, or individually (depending on iPads)  Scratch Jr. app (free download) | |
| **Student Accommodations/Modifications:**   * One to one support * Quiet space * Extra time * Small group instruction * Modelling | **Lesson will be differentiated by:**   * **Content, specifically:** * **Process, specifically:** * **Product, specifically:** * **Environment, specifically:** |
| **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?  (Approx. 5-10 minutes)  Students will have prior introductory lesson to coding. Diagnostic data collected by anecdotal records.  APK (whole group instruction).  For this lesson, students will be working in table groups of four. Each table will have:  One or two iPads | |
| **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?  (Approx. 20 minutes)  Explain to the students that they will be creating a multimedia demonstration that shows the seasonal differences in the types of energy we use and how we use it. Example: You wear jackets and ski pants in the winter, use air-conditioning in summer and heating in winter.  They might have difficulties with coding. I will circulate and assist where needed. They will also be able to work together as a group to problem solve.  The final product will be assessed using a checklist or rubric based on the information and effectiveness of the communication as outlined in the specific expectations. | |
| **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?  (Approx. 5-10 minutes)  Meet on the carpet (whole group instruction). Students share their findings and can show to the class if they choose. Ask students to justify and explain their thinking.  Clarify any misunderstandings.  Then, reflect on their learning by summarizing the discussions. | |