

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

**School Board: GECDSB**

**Grade(s): Early Years**

**Subject(s): Phys Ed (SRWB, DLMB, PSI)**

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| **BIG IDEAS:** Introduce the concept of block coding through large motor movement.  **Curriculum Expectations:**  **OVERALL:**  **7**. participate actively and regularly in a variety of activities that require the application of movement concepts (SRWB)  **19**. collect, organize, display, and interpret data to solve problems and to communicate information, and explore the concept of probability in everyday contexts (DLMB)  **24**. use technological problem-solving skills, on their own and with others, in the process of creating and designing (i.e.,questioning, planning, constructing, analysing, redesigning, and communicating) (PSI)  **SPECIFIC:**  **7.1** participate actively in creative movement and other daily physical activities *(e.g., dance, games, outdoor play, fitness breaks)*  **7.2** demonstrate persistence while engaged in activities that require the use of both large and small muscles *(e.g., tossing and catching beanbags, skipping, lacing, drawing)*  **19.3** respond to and pose questions about data collection and graphs  **24.2** state problems and pose questions as part of the process of creating and designing  **24.3** make predictions and observations as part of the process of creating and designing | |
| **Learning Goals:**  “We are learning to…”   * read block coding * predict where the code sends us * design code that meets a specific challenge | **Success Criteria:**  “We will be successful when we…”   * move our bodies along the path shown in the block code * guess where we will come out of the grid * can pick a spot on the grid that we want to get to and make a code to do it |
| **Lesson Overview:**  During Phys Ed in the gym the students will be introduced to the basics of block coding using large arrows and a grid made of hula hoops. | |
| **Materials and Technology:**   * Large open space * A number of hula hoops of different colours * Large arrow cards (straight, right, left) | |
| **Student Accommodations/Modifications:**   * students move at their own pace and abilities (if they cannot hop on one foot, then use two or simply step through the grid). * arrows will be large on card stock so they are easy for EY students to manipulate/see. * limit the length of the codes the students design so that they are not too complicated to follow (3-5 cards). | **Lesson will be differentiated by:**   * lesson will be open enough to allow multiple entry points to making a simple code. * use of arrows allows students with limited language and ELLs to participate. * students will be supported in designing code and moving through the grid. |
| **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.**   * follow regular warm up for gym class * play a **Robot Freeze Tag**: Most of students will be running around the gym to avoid 2-3 taggers. If tagger gets you, they have given you a “computer virus” and you must stay on one spot and march like a robot. “Robots” continue to march on the spot until a “programmer” (2 students) comes and “enters” a new code into them (push “buttons” on the “robot’s” back). Now the “robot” is free to move around again. * call students back to the circle and ask them how robots know what to do. Lead the conversation to the idea of telling or programming instructions for the robots through code. * show the students the arrow cards and explain what each one means (forward/backward, turn right, turn left). Put 3 forwards in a row and ask for a volunteer to show how to follow it by hopping in a straight line 3 times. Try a few more times with different volunteers each time adding or changing a card. Observe their movements and ask students on the circle to give a “thumbs up” if the volunteer has it. If there are some “thumbs down” have an open discussion on how to fix their moves-- what do they need to do to follow the arrows? Once it is clear they understand, move to the basketball key and have them sit on the edge. | |
| **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.**   * as they sit, put hula hoops within the key so that they form a grid (3x4, 4x4, 5x5, any combo of rows/columns that is appropriate for your students/space). Begin by placing 3-4 of the arrow cards in hoops and walking along the “path” moving in the direction the cards show. As the teacher walks through the grid they should be reading the arrow code by saying the words “forward, backward, turn right, turn left” out loud. Invite students to try walking the “path”. Now have them sit along the wall and place the cards in the same order next to the grid. Teacher picks the same hoop we started in and demonstrates walking the arrows. (again saying each card out loud. “Did I stop in the same hoop?”) Have the students try it. * Invite students to design a code for the class. They can line up 3-6 cards next to our grid. Have them demo their code and ask the class to give a “thumbs up” if the “programmer” followed it well. If needed make adjustments until the class has read the code accurately. Line the students up. “When the music comes on you can follow the line through the code. When you get to the end hop out of the grid and head back to the start. Once the music stops sit along the wall and we will program a new code to follow”. Repeat with different students making codes. Teacher can vary the way the class moves through the grid (walk, hop, robot steps, etc). Teacher can also add challenges to finish the code so we land in a specific coloured hoop or exit out of a specific part of the grid. Teacher can also have students predict which hoop the code will end in.   **What misconceptions or difficulties do you think they might experience?**   * students might just move through the grid randomly. If this is happening, have the class sit and have students that were successful model moving through for their peers.   **How will they demonstrate their understanding of the concept?**   * they can create a simple code with the large arrows and then move through the hula hoop grid by reading it.   **How will you gather your assessment data (e.g., checklist, anecdotal records)?**   * take photos and add anecdotal comments later.   **What extension activities will you provide?**   * students will be using the BeeBots the next day in class. | |
| **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. |
| * Cool down stretches * finish at the circle and ask what was easy/what was challenging about following the codes. * tell the students that the next day in class we will have a chance to tell real robots what to do and how to move like we did today. | |

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