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| Instructions for Using Remote Learning Projects |
| These materials were developed with the intention of easing the transition between in-class and temporary remote learning. Learning experiences are aligned with curricular outcomes and assessment tools have been included with each project. Note:  * 1. The teacher either sends a link to the appropriate project or sends the document itself.   2. The teacher ensures that parents/caregivers receive any required school supplies (bin with pencils, markers, paper, etc.).   3. The teacher reassures parents/caregivers that communication will be maintained between home and school.   4. The parents/caregivers may access additional resources at:      + My Learning at Home ([www.edu.gov.mb.ca/k12/mylearning](http://www.edu.gov.mb.ca/k12/mylearning))      + My Child in School ([www.edu.gov.mb.ca/k12/mychild/index.html](http://www.edu.gov.mb.ca/k12/mychild/index.html)) |

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| PROJECT OVERVIEW | |
| Grade : | 2 |
| Main Subject : | Science |
| Big Idea : | Problem solving and communicating through coding |
| Title : | HOW TO CODE A … |
| Cluster : | Position and Motion |
| Duration : | 2 weeks |
| Materials : | Paper, pencil, pencil crayons/markers/crayons, various materials/recyclables and supplies around the home for creating |
| Short description : | Through unplugged coding project-based experiences students will explore how to describe and classify objects and how to communicate instructions. This learning experience could be completed mostly asynchronously, but would be greatly enhanced with synchronous discussions to share students’ experiences with the problem-solving process throughout the experience. |
| LeaRNING OUTCOMES | |
| Science: [www.edu.gov.mb.ca/k12/cur/science/scicurr.html](http://www.edu.gov.mb.ca/k12/cur/science/scicurr.htm) 2-3-01, 2-3-02, 2-3-03, 2-3-04, 2-3-05, 2-0-3a, 2-0-3b, 2-0-3d, 2-0-4b, 2-0-4c, 2-0-7b, 2-0-7c  Mathematics: [www.edu.gov.mb.ca/k12/cur/essentials/docs/glance\_kto9\_math.pdf](http://www.edu.gov.mb.ca/k12/cur/essentials/docs/glance_kto9_math.pdf) 2.SS.6, 2.SS.7, 2.SS.8  English Language Arts: [www.edu.gov.mb.ca/k12/cur/ela/index.html](http://www.edu.gov.mb.ca/k12/cur/ela/index.html) Practices: Language as Sense Making, System, Power and Agency, and Exploration and Design Lens: Environmental and Technological | |

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| Assessment | | | | | | | | | | | | | |
| LANGUAGE ARTS | | | | | MATHEMATICS | | | SCIENCE | | | SOCIAL STUDIES | | |
| COMP.  Listening &  Viewing | COMP.  Reading | COMM. Speaking & Represent. | COMM. Writing | Critical Thinking | Knowledge  and  Understanding | Mental Math &  Estimation | Problem Solving | Knowledge  and Understanding | Scientific Inquiry Process | Design Process &  Problem Solving | Knowledge  and Understanding | Research  and Communication | Critical Thinking and  Citizenship |
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| Original concept created by: | Denise Smith and Iain Brodie |

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| Learning Experiences and Assessment |
| Question: How precise does our language need to be to describe objects and their movement, to classify objects, and to communicate instructions? |
| Teacher’s instructions:  This learning experience is designed so it could be completed asynchronously. However, the experience would be enhanced with opportunities for students to share their learning and experiences with the problem-solving process from the various tasks in small- or whole-group synchronous sessions. This will provide some scaffolding for those who need support and a prompt for others to go deeper when they attempt the task and provide accountability for students.  It is recommended that students complete all tasks in this experience. However, if a student can demonstrate their understanding of the concepts without completing all tasks they should not be penalized. Students could suggest alternate assignments if desired. Work on these activities should allow students to develop their thinking and to move to the second and third column on the assessment rubric. As students apply their learning in the final challenge, students further develop their understanding of the concepts and should move to the third or fourth columns on the rubric.  **Special Notes**  1. Rosie’s Walk—A synchronous discussion following slide 6 to consolidate the use of language to describe movement and after the reflection on slide 8 with an emphasis on the problem-solving process to improve their descriptions would be recommended.  2. A Stone Sat Still—A synchronous discussion around the last question on slide 11 would be beneficial here.  3. Ruby’s Dance—Instead of having a family member follow their dance code, students could be put into breakout rooms to share and follow each others’ dance codes (slide 17). This could then be followed up with a whole-class discussion about their reflections on slide 18.  4. Moving in a Shape—Students should be encouraged to code with someone. Rather than having students work independently through this section, you might consider forming student pairs to work in breakout rooms through the tasks with whole class reflection at the reflection points (slides 21, 23, and 25) or at the end of the section to support students with examining what worked in the code and what changes they needed to make. |
| 5. How to Code A…—A synchronous discussion after viewing/reading the text *How to Code a Sandcastle* by Josh Funk to review the coding ideas presented (slide 28) would help to set the stage for the upcoming challenge.  Again, students should be encouraged to code with someone, so you might want to consider having students work in pairs, if possible, for the final challenge.  (Slide 34) Ideally students would have another student follow their code to build their device and provide feedback. You will need to provide students with how to share their feedback with each other. If it is not possible to have students use each others’ code, a family member could be asked to do this.  6. Essential Question Dashboard—(Slide 36) This could be used to centre a final discussion and celebration of student learning during this learning experience.  **Assessment**  Assessment of student thinking should include products, observations, and conversations as much as possible. Some of this may take place during individual meetings with students. These will encourage students to develop their critical and creative thinking skills and prepare them for the final stage of the unit.  **How to Use the Assessment Rubric**  1. The rubric is to be used throughout the learning experiences. There is no need for individual criteria or rubrics for each task. Students will use each task to further their understanding of the essential understandings. Students will be demonstrating this through a variety of modalities.  2. As you collect evidence of students’ level of understanding, highlight or check off their progress on the rubric. You should notice your students move across the rows as their understanding develops throughout the experiences. Do not average your check marks or highlights. Students obtain their highest level of understanding. It does not matter where they start.  Step-by-step instructions for students:  See How To Code a … PowerPoint Presentation. |

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| APPENDIX (Printable Support Materials Including Assessment) |
| Grade 2: How To Code a ….pptxGrade 2: How To Code a… Rubric.docx Learning Challenge Checklists.docx |

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|  | Essential Understanding | Limited | Basic | | Good | | | Very Good to Excellent |
| Mathematics  Knowledge and Understanding | **2-D objects can be described, classified, and analyzed by their attributes.** | Uses code and names 2-D shapes. | | Uses or edits others’ code to describes 2-D shapes. | | Examines code to compare and contrast 2-D shapes. | Uses, edits, or develops code to construct 2-D shapes. | |
| Mathematics Problem Solving | **We can make sense of problems and persevere in solving them.** | Describes a problem to be solved using coding. | | Identifies a possible solution pathway using coding. | | Considers several possible strategies before choosing a solution pathway using coding. | Evaluates their progress in solving problems and adapts plans if necessary using coding. | |
| Science  Knowledge and Understanding | The position of an object can be described using a variety of reference points. | Identifies words/symbols used to describe position and motion. | | Describes the position of stationary objects to various references. | | Compares and describes changes in position in relation to an object’s original position. | Predicts the effect position and movement of objects and/or viewers has on reference points. | |
| Science  Design Process and Problem Solving | Technology challenges are solved through the process of problem-solving. | Reproduces provided technology design and/or code. | | Predicts the solution to a design challenge involving technology design and/or code. | | Suggests revisions to design plans based on evidence of function and/or outcome of code. | Evaluates and modifies revisions in the design of technology and/or code to meet established success criteria. | |
| English Language Arts COMMUNICATION  Writing | Code is a form of language used to communicate instructions. | Attempts to experiment with coding language. | | Describes attempts made to write code language. | | Analyzes code errors to debug code language. | Defends how experimenting with code language adds to code language knowledge. | |