

Ontario Math Curriculum Expectations 2020
Coding Strand .. Grade 2

Ontario Mathematics April 2022, EXPECTATIONS for CODING

Resource - "First Steps in Coding to Learn" (2022 Neufeld Learning Systems Inc.)

RS are Reproducible Sheets

Grade 2 Coding Expectations

- 2.C3.1 Coding Skills** .. Solve problems and create computational representations of mathematical situations by writing and executing code including code that involves sequential and concurrent events.
- 2.C3.2 Coding Skills** .. Read and alter existing code, including code that involves sequential and concurrent events, concurrent events, and describe how changes to the code affect the outcomes.

In Preparation for Upcoming Lessons, discuss following from Resource with Students/Teachers/Parents.

- 1. FORWARD** - An opportunity to set up a special learning environment for all.
- 2. PREFACE - The Role of Robots** to facilitate a special learning environment - learn by teaching.
- 3. PREFACE - The Role of Journaling** is an essential way to express understanding.

Chapter 1 of Resource, " - First Steps in Coding to Learn" Neufeld - First Steps to Coding

- Goal:** Provide screen free, interactive experiences where students learn the importance of providing understandable, sequential directions -- the foundation of coding.
- Overview:** We will consider the role of and the coding of robots.
Exercises will have students organize events sequentially.
Communication skills will be emphasized.
Exercises will introduce concepts in distance and turning.
- Concepts:** Communication, cooperative learning and sequencing
Decomposition - breaking down problems into steps
Accurate measurements of distances and turns

SPECIFIC ACTIVITIES: SEQUENTIAL EVENTS

Part A: Coding - First Steps

Appropriate Selections from Activities #1 to #10 as in Gr 1		pg 2 to 12
	Duplicate 1RS.1 to 1RS.5	
Activity #4: Robots on an Assembly Line	Duplicate 1RS.1	pg 5
Activity #5: End of the Day ... An Algorithm	Duplicate 1RS.2	pg 7
Activity #6: My Breakfast ... An Algorithm	Duplicate 1RS.3	pg 8
Activity #7: Jam Sandwich ... An Algorithm	Duplicate 1RS.4	pg 9

Part B: Code For a Clock Turn

Appropriate Selections from Activities #1 to #4 as in Gr 1.		pg 13 to 20
Activity #1: Introduce the Code		pg 13
Activity #2: Clock Turn - Exercise 1		pg 15
Activity #3: Clock Compass for a Clock Turn	Duplicate 1RS.6	pg 17
Activity #4: Clock Turn Code results in a Path	Duplicate 1RS.7	pg 20
Navigation: The Town Maze	Duplicate 1RS.10	pg 29

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Coding Strand .. Grade 2**

Grade 2 Coding Expectations continued

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Chapter 2 of Resource - "First Steps in Coding to Learn" - Code a Floor Robot ... the Blue-Bot

Goal: Blue-Bot brings STEM - Science, Technology, Engineering, Math as well as Communication and Foundational Skills.

Overview: Apply the robot's keys to enter code into Blue-Bot.
Apply estimation to determine distances & turns

Concepts: Investigate results of code.
Given code, predict results or outcomes.
Given results, an action or outcome, one can predict code.
Sequencing, directionality, problem-solving, counting, estimation

Materials Needed: The Blue-Bot Robot and a Terrapin Logo License pg 35

SPECIFIC ACTIVITIES: SEQUENTIAL EVENTS

Part A: Code Blue-Bot with Blue-Bot's Keys

Investigation Activity **Duplicate 2RS.1** pg 37

Activity #1a: Investigate Code with Blue-Bot Keys **Duplicate 2RS.2** pg 38

Activity #1b: Investigate Code with a Person Robot **Duplicate 2RS.3** pg 39

Activity #2: Investigate Order in Code Sequence **Duplicate 2RS.4** pg 40

Activity #3: Measure and Estimate One Unit pg 41

Activity #4: CODE - PREDICT - TEST **Duplicate 2RS.5** pg 42

Activity #5: CODE - PREDICT - TEST **Duplicate 2RS.6** pg 43

Activity #6: Challenges **Duplicate 2RS.7** pg 44

Activity #7: CODE IT to CREATE IT **Duplicate 2RS.8** pg 45

Activity #8: CREATE IT then CODE IT **Duplicate 2RS.9** pg 46

Activity #9: THERE from HERE pg 47

Part B: The Blue-Bot within Curriculum

Activity #1: Add and Subtract pg 48
Part A
Part B pg 48

Activity #2: A Community Trip pg 50

Activity #3: A First Nations Community pg 52