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ADST RESOURCES---K to 5+

(Collection started in April & May 2017)

Canada Learning Code Week-June 1 to 8, 2017

Teacher's Guide

Resource Link: <http://www.canadalearningcode.ca/week/teach.html>

Discover tips and tricks to get started, familiarize yourself with code, and follow along with beginner-friendly coding activities - on or off the computer.

This guide is your starting point. We encourage you to use as much or as little of the guide as you like, to remix the lessons we've created or create new ones and share them with our community.

Canada Learning Code is hosting weekly training sessions in French & English that can be viewed online anywhere across Canada live or on-demand! Join CLC for one or all of the training sessions as they dive into what coding is all about, how to deliver their lesson to your students and answer any questions you might have.

K to 5+ (April 4, 2017)

Creative Computing --- SCRATCH Resources

Resource Link: <http://scratched.gse.harvard.edu/guide/download.html>

This SCRATCH guide package was developed by members of the ScratchEd research team at the Harvard Graduate School of Education. Use as much or as little of the guides as you like, to design new activities, and to remix the activities listed below. The guides have been released under a Creative Commons Attribution-ShareALike license, which means that they are completely free to use, change and share, as long as you provide appropriate attribution and give others access to any derivative works.

Guide for Educators (guide as PDF)

This guide is 154 pages in length and includes: activities & strategies for introducing Creative Computing in your learning environment.

<http://scratched.gse.harvard.edu/guide/files/CreativeComputing20141015.pdf>

A workbook version for learners (Workbooks as PDF)

A learner-focused version of the guide, including all of the student activity pages and reflection question templates.

http://scratched.gse.harvard.edu/guide/files/CreativeComputing20140820_LearnerWorkbook.pdf

Editable versions, for teachers (Guide as PPT or Workbook as PPT)

This guide and workbook are available as PowerPoint files. Remixing and translating of the material is encouraged.

Guide as PPT <http://scratched.gse.harvard.edu/guide/download.html>

Workbook as PTT <http://scratched.gse.harvard.edu/guide/download.html>

K to 3+ (May 3, 2017)

IF THEN backyard coding game for kids

Resource Link:

<http://leftbraincraftbrain.com/if-then-backyard-coding-game-for-kids/>

The If-Then Statement

If Then is what's called a conditional statement in programming. The program queries if one condition exists, then it commands it to do something. It can be as basic as a True or False question and answer or it can prompt an action.

If-Then Coding Game Rules

For every round, there is one Programmer and everyone else is a Computer. The Programmer stands in front of the Computers and gives them his command. If I _____ (fill in the blank), then you _____ (fill in the blank). For example, the Programmer below gave the command "If I turn in a circle, **Then** you turn in a circle."

You can set up your rounds however works best for your group of kids. We did three rounds per Programmer and then switched. Because you know kids love giving commands to other kids so everyone wants a turn as a Programmer!!!

K to 5+ (May 3, 2017)

Twenty Guesses-Information Theory—Unplugged activity

Resource Link: <http://csunplugged.org/information-theory/>

Summary

How much information is there in a 1000-page book? Is there more information in a 1000-page telephone book, or in a ream of 1000 sheets of blank paper, or in Tolkien's Lord of the Rings? If we can measure this, we can estimate how much space is needed to store the information. For example, can you still read the following sentence?

Ths sntnce hs th vwls mssng.

You probably can, because there is not much 'information' in the vowels. This activity introduces a way of measuring information content.

Curriculum links

- Mathematics: Number Level 3 and up. Exploring number: Greater than, less than, ranges.
- Algebra Level 3 and up. Patterns and sequences
- English

Skills

- Comparing numbers and working with ranges of numbers
- Deduction
- Asking questions

Ages

- 10 and up

Materials

- No materials are required for the first activity

There is an extension activity, for which each child will need:

- Worksheet Activity: Decision trees (page 40)

K to 5+ (May 9, 2017)

Coding In the Classroom - Home

Resource Link: <http://etec51065b.weebly.com/>

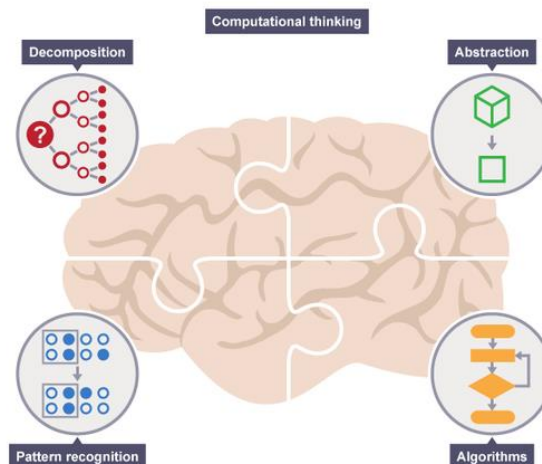
Summary

This website is an excellent and supportive resource for teachers who are looking to make coding and computational thinking a part of their lessons. It can also serve as a great resource for teachers who have already incorporated coding but would like to try something new or different.

The website's goal is to reduce the stress of meeting the coding standards of the BC curriculum, with this website serving as its own curriculum guide.

The resources found on this website are categorized by:

- Skill Level (Beginner, Intermediate, Advanced)
- Tech Level (No Tech, Low Tech, High Tech)
- Approach (Instructivist, Constructivist, Self-Directed)
- Privacy Concerns



Grades 2 & 3+ (May 9, 2017)

Grades 2 & 3 (adaptations for ELL students is possible at various grade levels)

Resource Link:

<https://code.org/curriculum/course1/2/Teacher#Vocab>

Move It, Move It

Lesson Overview

This lesson will help students realize that in order to give clear instructions, they need a common language. Students will practice controlling one another using a simple combinations of hand gestures. Once they understand the language, they will begin to 'program' one another by giving multiple instructions in advance.

Lesson Objectives

Students will:

- Recognize situations where they can create programs to complete tasks
- Predict moves necessary to get teammate from start to finish
- Convert movements into symbolic instructions
- Relate algorithms as programs to teammates

Teaching Summary

Getting Started – 15 minutes

1. Review
2. Vocabulary
3. Let's Control Ourselves

Activity: Move It, Move It – 20 minutes

4. Move It, Move It: Multi-Step Adventure

Wrap-up – 5 minutes

5. Flash Chat – What did we learn?
6. Vocab Shmocab

Assessment – 10 minutes

7. Move the Flurbs 2

Grades 4 & 5+ (May 9, 2017)

Resource Link: <https://>

Card Flip Magic – Error Detection & Correction

Summary

When data is stored on a disk or transmitted from one computer to another, we usually assume that it doesn't get changed in the process. But sometimes things go wrong and the data is changed accidentally. This activity uses a magic trick to show how to detect when data has been corrupted, and to correct it.

Curriculum Links

- Mathematics: Number Level 3 and up. Exploring computation and estimation.
- Algebra Level 3 and up. Exploring patterns and relationships.

Skills

- Counting
- Recognition of odd and even numbers

Ages

- 9 years and up

Materials

- A set of 36 “fridge magnet” cards, coloured on one side only
- A metal board (a whiteboard works well) for the demonstration.

Each pair of children will need:

- 36 identical cards, coloured on one side only.

K to 5+ (May 9, 2017)

A Comparison of 40+ Coding Tools (web link) by **EdSurge**

Resource Link:

<https://www.edsurge.com/research/guides/teaching-kids-to-code#%23A-Comparison-of-40+-Coding-Tools>

There are endless ways to learn programming available online. **EdSurge** has selected their favorite 40+ tools to get teachers started. Whether you're a complete tyro, robot-hacking hands-on learner, or a "l33t" coder looking for advanced training, you'll find something to help you hone your skills.

3 to 5 (May 16, 2017)

Unplugged Dice Race—Real-Life Algorithms

Resource Link:

<https://code.org/curriculum/course3/10/Teacher#Review>

Overview

Students will relate the concept of algorithms back to everyday real-life activities by playing the Dice Race game. The goal here is to start building the skills to translate real-world situations to online scenarios and vice versa.

Objectives

Students will:

- Name various activities that make up their day
- Decompose large activities into a series of smaller events
- Arrange sequential events into their logical order

Early Learning (May 16, 2017)

Superhero Coding

Resource Link:

<http://littlebinsforlittlehands.com/superhero-computer-coding-game-without-a-computer/>

Children in Pre-Kindergarten and Kindergarten love Lego, action figures, cars and games. When you can combine them all together they love it even more. With Superhero Coding, teachers can help students learn the basics of coding using basic tools found in most Early Learning Classrooms. Using poster board, colored tape, Lego (or other pieces to create obstacles), action figures or cars, and post-its with directional signs on them, teachers can play their way through no tech coding with their students. As students become more proficient with using the directional symbols on the post-its, they can proceed to using directional words to move their action figure through the student created mazes.

The web link listed above will provide you with more details. NOTE: It will take some PRE-PREP work to setup this activity or adapt what you already have created for a previous game board.