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(Collection started in March 2017)

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ADST RESOURCES---6 to 9

(Collection started in March 2017)

Teachers Learning Code

Resource Link: http://www.teacherslearningcode.com/

Teachers Learning Code is designed by Ladies Learning Code and proudly supported by Scotiabank for educators focused on inspiring kids to be builders – not just consumers – of technology through coding activities and challenges.

Whether you're a teacher in a classroom, a program coordinator at a community centre, a home-schooling parent or a Girl Guide troop leader – we've put together a comprehensive how-to guide and lesson planning tool to help you teach kids to code.

Teachers Learning Code has been designed for primary school teachers with little to no coding experience to be able to teach coding fundamentals to their students. We'll walk teachers through a how-to guide and lesson planning tool to help them teach kids to code.

- **Grades:** All Primary, Kindergarten, Grade 1, Grade 2, Grade 3, Grade 4, Grade 5, Grade 6, Grade 7, Grade 8
- **Subject Areas:** ADST, Arts Education, ELA, Mathematics, Physical / Health Ed., Science, ELL
- **Core Competencies:** Communication, Creative Thinking, Critical Thinking, Personal & Cultural Identity, Personal Awareness & Responsibility, Social Responsibility
- **Technical Skills:** Beginner
- **Costs:** Free

6 to 9 *(March 2, 2017)*

STEM lesson plans & hands – on activities from Microsoft Education

Build affordable scientific instruments and visualize data across space, earth, life, and physical sciences curriculum with students. Use lesson plans written by teachers to enrich science, technology, engineering, and math (STEM) classes with activities and assessments.

https://www.microsoft.com/en-us/education/education-workshop/default.aspx

6 to 8 *(March 16, 2017)*

French Coding Blocks

Resource Link: http://www.mrsgeekchic.com/free-french-printable-coding-blocks/

Coding blocks are useful tools for creating, hands-on, visual ways to connect with programming concepts. Similar to using the Scratch block-based coding tool, these offline paper blocks make for great visual aids when explaining coding and programming concepts in classrooms.

Ontario teacher Ashley Soltesz created a great set in French for your Core French or Francais Langue classes.

- **Grades:** All Primary, All Intermediate, Grade 3, Grade 4, Grade 5, Grade 6, Grade 7, Grade 8
- **Subject Areas:** Core French, Français Langue Première, Français Langue Seconde
- **Core Competencies:** Communication, Critical Thinking
- **Technical Skills:** Beginner
- **Costs:** Free

6 to 8 (March 16, 2017)

Computational Thinking Puzzles

Resource
Link: https://cs4fndownloads.files.wordpress.com/2016/02/cs4fnpuzzlebook11.pdf

Computational thinking is a core set of skills that computer scientists develop as they learn to program. It isn't something you can only learn through programming though. Puzzles can be a great and fun way to develop the skills. This puzzle book involves a wide range of puzzles that involve aspects of computational thinking. Some are algorithmic puzzles where the aim is to come up with an algorithm that solves the puzzle. Many like Kakuro and Cut Block puzzles are logic puzzles that are all about logical thinking. To be good at them, though, involves inventing your own rules and algorithms for solving them. Yet others, like code cracking grids involve computing concepts and algorithms in puzzle form.

If you enjoy these puzzles more can be found at www.cs4fn.org/puzzles/

Puzzles are most of all for fun, but it's always good to be learning useful skills too.

- **Grades:** All Primary, All Intermediate, Grade 2, Grade 3, Grade 4, Grade 5, Grade 6, Grade 7, Grade 8
- **Subject Areas:** ADST, ELL
- **Core Competencies:** Creative Thinking, Critical Thinking
- **Technical Skills:** Beginner, Novice
- **Costs:** Free

Graph Paper Programming

Resource Link: https://studio.code.org/unplugged/unplug3.pdf

By programming one another to draw pictures, students will begin to understand what programming is really about. The class will begin by students instructing each other to colour squares in on graph paper in an effort to reproduce an existing picture. If there's time, the lesson can conclude with images that the students create themselves.

Students will:

• Understand the difficulty of translating real problems into programs

• Learn that ideas may feel clear to them, and still be misinterpreted by a computer

• Realize the need for formal programming structures like loops and functions

- **Grades:** All Primary, All Intermediate, Grade 3, Grade 4, Grade 5, Grade 6, Grade 7, Grade 8
- **Subject Areas:** ADST, Arts Education, Career Ed., ELA, Mathematics, Science, ELL
- **Core Competencies:** Communication, Creative Thinking, Critical Thinking, Social Responsibility
- **Technical Skills:** Beginner, Novice
  Costs: Free

Computational Thinking: Monster Catalog

Resource Link: https://studio.code.org/unplugged/unplug2.pdf

With nothing but paper and markers, students will learn the four steps of computational thinking. After a brief introduction, students should be split into groups where they will have to create directions for other students to draw a specific monster (from a catalog of pre-selected monsters). The entire task must be decomposed, then teams will analyze all monsters in the catalog for patterns, abstract similar details from the monsters, then use that information to create an algorithm (directions) for another team to draw a certain monster.

Teams will then switch algorithms with another group and draw the monster based on what that algorithm indicates. Is the drawing what the original team intended?

- **Grades:** All Primary, All Intermediate, Grade 1, Grade 2, Grade 3, Grade 4, Grade 5, Grade 6, Grade 7
- **Subject Areas:** ADST, Arts Education, ELA, Science, Social Studies, ELL
- **Core Competencies:** Communication, Creative Thinking, Critical Thinking, Personal & Cultural Identity, Personal Awareness & Responsibility
- **Technical Skills:** Beginner, Novice
- **Costs:** Free

Computational Thinking: Make a Chatbot

Resource Link: https://www.oppia.org/explore/8ddJdz-g_9oH

In this activity, you will create a chatbot by applying the computational thinking process.

You might be wondering, "What is a chatbot?" A mathematician named Alan Turing predicted that computers might one day be capable of doing highly complex tasks and proposed a threshold of intelligence.

This test is known as the Turing Test. The test is fairly straightforward: if a computer is able to have a conversation with a human, and the human is unable to distinguish the conversation from one that they might have with a human, then the computer is said to have passed the Turing Test of intelligence.

- **Grades:** Grade 4, Grade 5, Grade 6, Grade 7, Grade 8
- **Subject Areas:** ADST, ELA, ELL
- **Core Competencies:** Communication, Creative Thinking, Personal & Cultural Identity, Personal Awareness & Responsibility
- **Technical Skills:** Beginner, Novice, Proficient
- **Costs:** Free