Resources

This list is a summary of some of Geering Up's favourite STEM learning websites, Youtube Channels, and tools. This is not an exhaustive list and there are many other amazing resources available online.

All resources on this list are free unless indicated otherwise.

This list has been broken into two sections:

- Youtube Channels
- Activity Resources

Resources are listed alphabetically within each section.

Youtube Videos & Channels

Resource	Description	Author	Suggested Use
Crash Course Engineering	Youtube video series explaining what engineering is and the types of engineering.	Crash Course	For your own learning or for use in the classroom.
Engineering Stories at UBC	Videos covering the lives of some female-identifying engineering students at UBC.	engstories	For your own learning or for use in the classroom. Especially useful for students thinking about university.
Sci Show Kids	Videos surrounding "why?" and explaining science concepts for young, curious minds.	Sci Show	For use in the classroom. Best suited to younger audiences (grades 2 - 5).

SeaBin Project Video	Video showcasing a trash bin created to help clean the plastic out of the ocean.	Seabin Project	Can be used as an inspiration activity for having students design their own ocean saving solutions.
Steve Spangler Science	Science experiments presented by Steve Spangler.	Steve Spangler	For use in the classroom.
UBC Geering Up Youtube	Videos featuring engineering students and professionals, showcasing engineering & science projects. Many science demonstration videos.	UBC Geering Up	GU Live Science videos can be used to teach scientific concepts in the classroom.

Activity Resources

Resource	**Description**	**Author**	**Suggested Use**
App Inventor	Visual Programming Platform for anyone to build a fully functional app.	MIT	For use in the classroom.
Arduino	A single-board microcontroller	Arduino	For use in the classroom with students who

	capable of prototyping many different projects. Used by students and engineers for prototyping.		already have some experience coding or with hardware devices like micro:bits. Software is free, an arduino board can be purchased ($20-40).
AutoCAD	CAD software used professionally for 2D and 3D designs.	AutoDesk	For use in the classroom, for those already experienced with CAD design (high school students). Free for educators through the education licensing page.
BC Math	Online tutorials and lessons for grades 8 - 12 BC Math curriculum.	Developed by Math Teachers in BC.	For activity inspiration for use in the classroom.
Celery	Online engineering resource exchange. Most resources are book suggestions.	New Jersey Institute of Technology	For finding published book suggestions to purchase or free e-books for engineering activities.
Code Combat	A programming game to teach Python, Javascript, and HTML.	Code Combat team	For use in the classroom. Great for an “extra” activity if students

			finish the main coding challenge early.
Code.org	A website with a learning curriculum for K - 12 computer science.	Code.org team	For use in the classroom and for personal computer science competency development.
Co-Spaces	A paid platform used for introducing Augmented Reality (AR) & Virtual Reality (VR) to students. Uses block-coding.	Delightex (Software Company)	For use in the classroom. There is a free basic version and free trial codes can often be found online for the pro version. Pro version is recommended for extended use.
CS Unplugged	A collection of teaching resources that teaches Computer Science without the need for a computer.	University of Canterbury Computer Science	For activity ideas for the classroom.
Exploring Computational Thinking (Google EDU)	A resource repository of computational thinking activities.	ISTE	For activities to use in the classroom.

Google Tour Creator	Platform for creating your own 360 degree video tours.	Google	For use in the classroom. Great for integrating social studies activities with technology.
Hour of Code	Hundreds of coding challenges that can be completed online.	Hour of Code Committee	For use in the classroom, there are challenges for a variety of skill levels. Can be used for way more than one hour.
International Society for Technology in Education (ISTE)	An association dedicated to promoting technology in classrooms through pro-d and networking.	ISTE	For finding Pro-D Sessions and for activity ideas.
Lee's Electronics	A Vancouver store for purchasing small electronics for projects.	N/A	For Vancouver based teachers, a store to purchase cheap electronics parts. Make sure to ask for the educator discount!
Lightbot	Easy to use introduction to programming	Hour of Code	For use in the classroom with younger students (grades K - 5).

	logic through a game.		
Machine Learning for Kids	Easy to use platform for introducing machine learning to kids. Integrates with Scratch and App Inventor.	Dale Lane, IBM	For use in the classroom to introduce artificial intelligence (AI).
Makey Makey	An external board that connects to the computer and behaves as a keyboard. Can be used to connect everyday objects to computer programs, including Scratch.	Makey Makey	For use in the classroom for teaching creativity and computational thinking. Each Makey Makey Board must be purchased ($75 for 1 board).
micro:bit	A pocket-sized computer for digital skills learning. The micro:bit is a piece of hardware that can be coded using block-coding.	BBC	For use in the classroom for teaching creativity and computational thinking. Virtual Version is free. Micro:bit boards can be purchased ($20-25).
National Geographic	A searchable database for	National Geographic Team	For activity ideas for the classroom.

Classroom Resources	lesson plans, maps, and reference resources for teaching a variety of STEM subjects.		
Ozobots	Line-following robots to introduce coding. Can be controlled using block coding on a computer or with coloured lines on paper.	Ozobot	For use in the classroom. Must purchase ozobots for use (1 robot is ~$100).
Pinterest	Searchable website for many categories but especially useful for searching for STEM activities.	Pinterest	For STEM-related activity lesson plans.
Quick, Draw!	Interactive drawing game that uses a neural network (artificial intelligence) to detect your drawing.	Google	For use in the classroom as a fun introduction to artificial intelligence (AI) and/or as an icebreaker.
Science Buddies	A website with many engineering	Science Buddies Organization	For STEM-related activity lesson plans.

	project ideas for K - 12.		
Science World	At home learning resources, field trips (for those in Vancouver), and pro-d are all offered by Science World.	Science World	For use in the classroom either for activity inspiration or as a field trip.
Scratch	Easy to use, block-coding platform.	MIT	For use in the classroom.
Spheros	Programmable robots for introducing coding and robotics.	Spheros	For use in the classroom. Robots must be purchased ($50-150 per robot).
Skype a Scientist	Online platform for connecting a class with a scientist.	University of Connecticut	To schedule a meet & greet/Q & A with a scientist for your class.
Teach Engineering	A website with many engineering activities for K - 12.	Colorado Boulder Engineering (professors, graduate students, and K - 12 teachers)	For STEM-related activity lesson plans.
Teachable Machine	Interactive tool for creating a	Google	For use in the classroom to

	machine learning model and learning about artificial intelligence (AI).		introduce artificial intelligence (AI).
Thunkable	Block-coding software for creating applications.	Arun Saigal (MIT)	For use in the classroom. Both free and paid versions available.
TinkerCAD	Easy to use platform for 3D design and printing.	AutoDesk	For use in the classroom, especially as an introduction to CAD.
Tynker	Educational programming platform to mod Minecraft with visual programming. Offers courses.	Tynker Team	For use in the classroom or for students to continue learning at home.
We Made It	Program promoting girls in engineering. Offers teacher resources connected to the Ontario STEM curriculum.	Ryerson University, University of Ontario Institute of Technology, University of Waterloo, and Western University.	For activity inspiration for use in the classroom.