

WWEST Activities/Lessons (2026-2027 school year)

Activity Name	Suggested Audience/ Grade	Description
Anatomical Hand	5+	Using simple materials students will create an anatomical hand that is able to move with application to simple robotic principles. Discussion around musculoskeletal systems will be included in this discussion.
Animal Adaptations	K+	Through hands-on interactive activities, students will explore how animals are suited to their environments and if change happens, how an animal may have to modify to survive. Data collection can be used with older students to quantify effectiveness of certain adaptations.
Animal Camouflage	K+	Using common materials, as well as, various data collection techniques, students learn the importance of camouflage for survival and look at different methods animals use to survive. Older students can learn to use quantifiable data to interpret results.
Arm physiology: Joints, Muscles, Bones	5+	Using musculoskeletal terminology, students will use everyday materials to construct and test simulated motion of the arm using the different anatomical components in the process.
Balloon Cars	4+	Students will use simple materials to build their own balloon powered car. Energy and force are discussed in this engineering task.
Blood and Circulation (Circulatory System)	5+	Students will investigate human circulation. This will include understanding how blood flows, and investigating variables that may alter heart rate in a data collecting exercise.

Catapults	4+	Using simple materials, students will design, build, and test catapults. Application of concepts related to forces, simple machines, motion, and Newton's laws can included in this lesson. Secondary classes may incorporate parabolic/quadratic equations, or motion calculations, depending on teh class.
Climate Change Chemistry	3+	Students will investigate how climate change is affecting ocean acidification. Using natural indicators, the concepts of acids/bases/neutral solution as well as testing substances at various pH help to discuss the increased CO2 in the environment is impacting the ocean.
Colour Diffusion and Chromatography	K+	Younger students explore the concept of diffusion and how some colours may include other colours. Older students will work with basic chromatography to see how this technology can be used in different situations such as crime scene analysis, or looking at plant pigments.
CUSP: Connecting underwater sound project	6+	Students will work with pre-made hydrophones to understand how sound travels in an aquatic space and discussion about impacts on the environment. This is best for a longer block of time, and access to computers with USB A ports are necessary. <i>(Sponsored by Westmar Advisors)</i>
Digestive System Understanding	4+	Students create a maze, complete with a marble track, to mimic and explore the human digestive system. Adding what happens at each stage, possibly how to identify nutrients etc.
DNA Neuron Coding	6+	Linking to concepts related to the structure of the nervous system and the concept of defining DNA and how it can be coded in cells. Students will include discussion of protein synthesis using transcription and translation examples and simple coding. Younger audiences can use this activity to introduce coding and the concept of DNA.
Edison Robot Coding	2+	Level 1: Students will be introduced to Edison robots and challenged use barcodes to get them to move around the room. Level 2: Students will use computers (with USB A connections) to code their Edison robots, Level 3: Students will explore options with the robots (need computers)
Elastic and Inelastic Collisions	12	Students will actively engage in collision simulations while gathering measurements, and calculating factors such as momentum, and velocity. They will use these measurements and calculations to help discuss whether energy is conserved in different types of collisions.

Elastic Energy Bungy Jump	6+	Students will explore the relationship between kinetic and potential energy while addressing differences between balanced and unbalanced forces. Quantifiable data will be collected and graphing will be done.
Electrical Circuits & Ohm's Law	7+	Students will explore more aspects of electricity and its relationships between current, voltage, and resistance. The use of circuits and multimeters will be used in this activity. <i>(Sponsored by BC Hydro)</i>
Electrical Circuits Introduction	7+	Students will actively learn differences between current and voltage, as well as, work with simple circuits to understand key differences between series and parallel circuits. <i>(Sponsored by BC Hydro)</i>
Electrical Transmission from source to sink	3+	Discussion through hands-on activities will help students understand how electricity is transported, concentrated and then decoupled to reach homes a large distance from the electricity generation and their home. <i>(Sponsored by BC Hydro)</i>
Electromagnets	9-12	Through building and manipulating their own electromagnets students will collect data to investigate factors that affect the magnetic strength of their made. Depending on available materials, students will create their own simple motor as well.
Endocrine System Card Game	6,12	Using a simulation card game, students will learn about functions and feedback loops of different hormones, insulin and glucagon in particular.
Food chains and Food Web: Understanding Energy in Ecosystems	3-6	Students will understand the different trophic layers and the energy that is transferred through a food chain. This focusses on the amount of energy moving through the food chain, rather than just a food chain. Additional content regarding factors that affect a healthy ecosystem will be discussed.
Genetics: introducing Mendelian Genetics through data collection	10+	Through simulation and data collection, students will model using hypothetical organisms to understand the concept of crosses used in simple Mendelian Genetics.

Heat Energy and Absorption using Colour	4-6	Students will investigate effects colour and the transfer of heat energy. Introduction to heat energy is included in this activity. (<i>Lesson Sponsored by Fortis BC</i>)
Light Energy, EMR, Mirrors and Lenses	8	Students will investigate the different properties and characteristics of the electromagnetic spectrum. Observing laws of reflection/refraction using lenses and mirrors will be explored. (<i>Sponsored by BC Hydro</i>)
Magnet Exploration	K-3	This is an introductory lesson where students will categorize magnetic vs nonmagnetic objects, and test various magnetic strength with different materials.
Makey Makey Technology	6+	Students will use the Makey-Makey Arduino to learn about circuits and properties of insulators/ conductors. Access to chromebook/laptops with USBA docks are required for this activity. (<i>Sponsored by BC Hydro</i>)
Matter Exploration	K+	Using simple substances, students will explore and visualize the differences between solids, liquids and gases. This activity involves using properties of matter to identifying unknown solids. Different activities will be provided and adapted for different aged audiences.
Mice Robot Coding	K-3	This activity is geared to younger students working with programmable mice robots. Simple coding will be completed and introduction of mathematical principles and patterning will be included.
Micro:bit Coding		Level 1: Students will learn how to code micro:bits. Level 2: Students will use the micro:bit to code and collect data (students should be familiar with the micro:bit). Level 3: Students will learn to code and successfully operate a Finch Robot using Micro:bits. Students need access to laptops/ chromebooks with USB A connector.
Mixtures: Homogenous/ Heterogeneous and Emulsions	6	Students will investigate solutions and emulsions. Simple ingredients are used to showcase differences between solutions, heterogenous mixtures, and the role of emulsifiers in creating miscible mixtures. Separating mixtures can be introduced here.

Mouse Robot Coding	K+	Level 1: Students will use simple coding commands to operate the mice robots (youner students), Level 2: Students will collaboratively program a Mouse Robot to maneouver it on a fictional distant planet.
Natural Selection and Introduction to Evolution	7+	Using a dog breeding simulation, students will investigate artificial selection and use the gathered data to help understand the concept of selection and apply to natural selection. Introduction of Mendelian inheritance can be incorporated here as well.
Neuron Beading	K-6+	In this lesson students will learn about the role the nervous system plays in sending messages throughout the body, by creating a neuron model incorporating simple coding. The code will be on the model of the neuron.
Newton's 3 Laws: Cars in Motion	6	In this activity students will use toy cars to test and demonstrate Newton's Laws. Using changes in mass, force, and motion students will collect data to interpret through the Newton's Laws lens.
Nibi Water Song Scratch Coding Activity	6	Students will use the Scratch interface to learn simple block coding and design animations using Nibi Water Song as the starting point. Student access to chromebooks/computers/tablets is required.
Oil Spill Clean-up Challenge	6+	Students will test and evaluate different methods of cleaning up an "oil spill" and determine which is best based on circumstances and/or stakeholders. This incorporates environmental stewardship as well as engineering to solve problems presented. (Sponsored by Westmar Advisors)
Ozoblockly Coding: Using ozobots without paper and markers!	K+	Using computer or tablets to program/code the ozobot robots. No markers will be used to code these robots. Access and the ability to use laptops/ chromebooks/tablets is necessary for this activity.
Paper Electrophoresis: Using DNA to solve a crime!	10+	This dry simulation of DNA Electrophoresis looks at the structure of DNA, the role of restriction enzymes and PCR to help "visualize" DNA. This visualization on a paper gel will demonstrate how technology in biology is helping solve many mysteries.

Photosynthesis and Plant Needs	3+	Plants play a large part in survival on the planet, including the carbon cycle. In this activity, students are introduced to a hands-on activity to investigate the process of photosynthesis and look at the roles different pigments play on plants and the role photosynthesis plays on the carbon cycle.
Plants Anatomy, Flowers, and Fruit	1+	Students will investigate structure and function of various parts of plants. Using visual cues, various properties of plants can be predicted. The importance of different parts of plants and pollinators will be discussed in this activity.
Polymer Exploration	3+	In this lesson, students will create polymers that exhibit different properties after mixing beginning materials. This could be in discussion with food production, or production of a polymer ball.
Project Based Science Activity Series (multi visit series).	3+	This is a 4-Activity series where students learn about the scientific method, work to develop their own science project, and present their findings in a class exposition. WWEST Educators will work with you and your students to create in-class assessments to meet the needs of your curriculum.
Properties of Water	K+	Liquid Water is fundamental to the planet, it is what makes our planet unique. Students will examine the different properties of water by looking at its polar properties and comparing with materials that may alter its effects.
Rock Cycle	5+	Students will investigate the different parts of the rock cycle through simulation and the way rocks behave under formation.
Rollercoasters (Marble)	6,9-12	Level 1: Rollercoaster Energy Transfer: Students will design marble rollercoasters testing their designs. Level 2: Polynomial Rollercoaster: Students will solve mathematical problems (polynomial and geometric) and build a working paper rollercoaster paths. Level 3 (Grade 12 ONLY): Rotational Motion Roller Coasters--Measurement and use of various formulae determining conservation of energy in relation to rotational motion are included.

Salmon Life Cycles	K-3	Through hands-on interactive activities, students will explore the fascinating life cycles of five species of Pacific Salmon found in BC. Looking at how salmon find their way home as well as complications to their survival will be discussed.
Soil Science: The Importance of Soil Structure	5+	Students will look at soil as a vital resource needed for life on earth. The examination of soil structure and the different properties different soil types will have on the environment. For older audiences, the sampling and use of soil triangles will be used.
Solar Oven Engineering Challenge	4+	Using the engineering process, students will use a variety of materials to design, build and test solar ovens with the sun as the sole source of energy. This lesson is most successful during periods of higher outdoor temperatures, otherwise we bring in heaters to be a pretend energy source. <i>(Sponsored by BBA Engineering Limited)</i>
Sound Energy Understanding	1+	Students will use simple materials to learn about sound endergy, including pitch, volume, and noise. Depending on age, students may use technology to record different ways to record sounds.
Straw Rockets	6	Students will design, build, and launch paper rockets with pressure generated by air. Different aspects of flight will be covered. Students will use the engineering process to successfully build their own rockets.
Tallest Tower Engineering Challenge		Students will be tasked to plan, design, and build a tower that includes structural integrity as well as stability when exposed to different situations. Various materials will be supplied for them to build their prototype. <i>(Sponsored by McElhanney)</i>
The Scientific Method	K-12	Through a hands-on activities, students will understand the importance of variables, hypothesizing and following procedures to collect data, and build into asking scientific questions. Activities will be set based upon the age of the participant.
Things that Fly	4-7+	Students will use concepts related to motion, flight, and machines to build things that fly. The class will construct different models of flight. Students will have time to modify designs to see if they can create better machines. Geometry, testing variables, and scale are included in this discussion.

Vertical Jump Test/Analysis	4+	Students will test and explore changes to vertical jumps heights based on different variables. They will see different ways to change and test vertical jump heights. The use of Newton's 3 Laws are included in this activity as is the understanding of physical literacy and movement.
Water Quality Indicators	6+	Students will analyze water samples from different water bodies and learn how to conduct relevant water quality tests to determine the health of the water system.
Watershed Explorations & Water Cycle	3+	By collaboratively building models of watersheds, students examine the basic geography of a watershed, how water flows through the system, and how people can impact the quality of water. The discussion of the water cycle is included in this activity. (Sponsored by McElhanney)
Weathering & Erosion	2-4	Using the scientific method, students will explore the concepts of erosion and weathering (both chemical and physical/mechanical weathering)
Wind Turbinew as a Renewable Resource	4+	Students will investigate different forms of energy and make a simple wind turbine. Discussion and design will be included to share how wind can be used for different purposes including the generation of electricity as a form of renewable resources. <i>(Sponsored by BC Hydro)</i>