

Activity Name	Suggested Audience/ Grade	Content Focus	Description *All activities incorporate hands-on learning opportunities
B=biology, C=chemistry, E=earth/space, G=engineering, P: physics, M=math, S=Science processing, T=ADST/technology, V=Environmental			
LEARNERS WILL:			
Anatomical Hand	5-7	B	Create a functioning anatomical hand, with applications to musculoskeletal systems and technology.
Animal Adaptations	K-3	B	Explore how animals are suited to their environments and how an animal may have to adapt to survive changes. Higher level learners will use data to quantify effectiveness of certain adaptations.
Animal Camouflage	K-3	B, M	Use common materials and data collection techniques, to learn the importance of camouflage for survival. Higher level learners will use quantifiable data to interpret results.
Arm physiology: Joints, Muscles, Bones	5+	B	Construct a model and test simulated motion of the arm, incorporating anatomical components in the process.
Artificial Selection and Genetics	6-10	B	Use a dog breeding simulation, to use data and investigate artificial selection and natural selection. Introduction of Mendelian inheritance can be incorporated.
Balloon Cars	4-7+	T, P	Engineer a balloon powered car and connect learning to concepts of energy and force.
Blood and Circulation	5+	B, S	Investigate human circulation and variables that may alter heart rate in a data collecting exercise.
Catapults	4+	P	Design, build, and test catapults. Depending on grade level, application of concepts related to forces, simple machines, motion, and Newton's laws, parabolic/quadratic equations, or motion calculations is available.
Chalk Erosion and Weathering	2-4	E	Explore concepts of erosion and weathering (both chemical and physical/mechanical weathering).
Climate Change Chemistry	3+	C, V	Investigate how climate change is affecting ocean acidification by using natural indicators and CO2 simulation, along with understanding of acids/bases/neutral solution to test substances of varying pH, and impacts on
Colored Diffusion and Pigment Chromatography	K-1	C, M	Explore the concept of diffusion and how colours may include other colour pigments. This activity is tailored to younger audiences; however, for higher level learners, leaf chromatography is included in the photosynthesis
Dichotomous Key	4-6,11	B	Create a dichotomous key and gain appreciation of their role in taxonomy and life.
Digestive System Maze	4-6,11	B	Create a marble track maze based on the human digestive system.
DNA Neuron Coding	6+	B, T	Link concepts related to the structure of the nervous system and how DNA is 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+	T	Use block coding with Edison robots to build shapes and complete challenges. Students will need access to laptops/ chromebooks with USB A connector for this activity.
Elastic and Inelastic Collisions	12	P, M	Engage in collision simulations to determine energy conservation through collection of data, and calculations pertaining to momentum, and velocity.
Elastic Energy Bungy Jump	6+	P	Explore the relationship between kinetic and potential energy, while addressing differences between balanced and unbalanced forces, using data collection and graphing.
Electricity and Circuits	9	P	Determine current and voltage, and understand key differences between series and parallel circuits.
Electromagnets	9-12	P	Build and manipulate electromagnets to investigate factors that affect magnetic strength, with an option to extend learning and create a simple motor (when time and supplies are available).
Endocrine System Card Game	6,12	B	Use a simulation card game to reinforce understanding of functions and feedback loops related to different hormones, including insulin and glucagon.

Food Chains and Food Webs: Energy Transfer in Ecosystems	3-6	B, V	Extend understanding of simple food chains to gaining knowledge on trophic layers and energy transfer within a food chain, along with factors that affect a healthy ecosystem.
Harmonica and Sound	2-4	P	Reinforce understanding on how sound is created, transferred through media, and received by ears and other sense organs.
Heat Energy and Absorption using Colour	4-6	P, T	Investigate the effects of colour in the transfer of heat energy.
Light Energy, EMR, Mirrors and Lenses	8	P	Investigate properties and characteristics of the electromagnetic spectrum through observing laws of reflection/refraction, and use of lenses and mirrors.
Magnet Exploration	K-3	P	Categorize magnetic and nonmagnetic objects, test magnetic strength, and create a game or "testing tower" to reinforce understanding.
Makey Makey Technology	6+	T	Use Makey-Makey Arduinos to learn about circuits and properties of insulators/ conductors. By the end of the lesson, students should be able use alternative materials to help run computer applications. Access to chromebook/laptops with USBA docks are required for this activity.
Matter Exploration	K-4	C	Explore and visualize the differences between solids, liquids and gases using properties of matter to identifying unknown solids. Higher level learner adaptations are available.
Mice Robot Coding	K-3	M, T	Use simple coding to control the Mouse Robot and reinforce mathematical principles and patterning. This activity is geared to younger students working with programmable mice robots.
Micro:bit Coding: Data Collection	4+	T	Use Micro:bit technology to collect data and monitor changes in the classroom environment. This lesson can be adapted to specific lab activities if given notice. Access to laptops/ chromebooks with USB A connector is
Micro:bit Coding: Movement and Measurement	4+	B. P	Use Micro:bit technology to support measuring and collecting data on human movement. This lesson will include physical literacy. Access to laptops/ chromebooks with USB A connector is required for this activity.
Micro:bit Coding: Programming Finch Robots			Learn to code and operate a Finch Robot using Micro:bits to complete coding challenges. Access to laptops/ chromebooks with USB A connector is required for this activity.
Mixtures: Homogenous, Heterogeneous and Emulsions	6	C	Investigate separation, and the differences between solutions, heterogenous mixtures, and the role of emulsifiers in creating miscible mixtures.
Mouse Robot--Misson Control Space Challenge	3+	T, E	Work in teams, to collaboratively program a Mouse Robot to operate on a distant planet.
Neuron Beading	K-6+	B, T	Create a connection between computer science and the nervous system in how coding, encryption, and sending messages occur, through creation of a neuron model and Morse Code beading.
Newton's 3 Laws: Cars in Motion	6	P	Use toy cars to test changes in mass, force, and motion while collecting data to interpret results using a
Nibi Water Song Scratch Coding Activity	6	T, V	Use the story "Nibi Water Song" as a foundation to then applying the Scratch interface to block code and design animations. Access to chromebooks/computers/tablets is required.
Oil Spill Clean-up	6-9+	C, V, S	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
Ozoblockly Coding: Using Ozobots Without Paper and Markers!	K+	T	Use computers (rather than paper and markers) to code the Ozobots. Simple to advanced block coding is possible depending on the level of participant. Access to laptops/ chromebooks/tablets is required for this
Paper Electrophoresis: Using DNA to Solve Problems!	10+	B, T	Engage in a dry simulation of DNA Electrophoresis to look 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, Pigments, and the Carbon Cycle	3+	B, S	Investigate the process of photosynthesis and its role in the carbon cycle and survival on the planet, while also diving deeper into understanding pigments found in plants.
Pixels and Pinecones	K-7	B, V	Join us in partnership with Science World and explore local environments and ecosystems. Access to app Seek by iNaturalist, or Google Lens is required for this activity.
Plants Anatomy, Flowers, and Fruit	1-3+	B	Investigate structure and function of various parts of plants to understand pollination, and how using visual cues, various properties of plants can be predicted.
Polymer Exploration	3	C, P	Create polymers with connections to food production, or production of a polymer ball, through use of materials that will that exhibit different properties once mixed.
Project Based Science: 4-Activity Series.	3+	Science	Participate in a 4-part series learning about scientific process, develop an individual 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. NOTE: Additional virtual sessions will help support
Properties of Water	K+	C	Examine properties of water and its uniqueness to Earth, by looking at polar properties and comparing with materials that may alter its effects.
Reaction Time	K-6	B	Use the scientific method to test and determine reaction times related to body functions, particularly within the nervous system.
Rollercoasters (Marble)	6,9-12	G, M,	Option 1: Rollercoaster Energy Transfer: Use engineering skills and knowledge of energy transfer to design and test paper rollercoasters. Option 2: Polynomial Rollercoaster: Build a rollercoaster to solve mathematical problems (polynomial and geometric) and test hypotheses. Option 3: Rotational Motion Roller Coaster (Physics 12): Design and build a rollercoaster to measure various formulae to determine conservation of
Salmon Life Cycles	K-3	B, V	Explore the fascinating life cycles of five species of Pacific Salmon found in B, and how they find their way home amid challenges to survival.
Skeletal System Investigation	5	B	Investigate the importance of bones within the musculoskeletal system, while building models of various parts of the human body.
Soil Science: The Importance of Soil Structure	5+	E, G	Examine soil structure and the properties of various soil types as vital resources for life on earth. For higher level learners, sampling and use of soil triangles will be used.
Solar Oven	4+	G, E, P, V	Build and test solar ovens with the sun as the sole source of energy. This lesson is most successful during periods of sunny skies and higher outdoor temperatures.
Squishy Circuits	4-9	P, T	Create and test a working circuit using a variety of materials. Higher level learners will gain deeper understanding of Ohm's Law.
Straw Rockets	6	G, E, P	Use the engineering process to design, build, and launch paper rockets using pressure generated by air, to discuss and discover concepts of flight.
The Scientific Method	K-12	S	Reinforce the importance of variables, hypothesizing, and following procedures to collect data, when designing scientific questions and reasoning. Age appropriate activities will be determined in collaboration with teachers
Things that Fly	4-7+	P, G	Construct and modify models of "flying things" based on concepts of motion, flight, geometry, testing
Vertical Jump Test/Analysis	4+	P, S, B	Use Newton's Laws, physical literacy and movement to explore biomechanical changes and the effects on vertical jump results.
Water Quality Testing	6+	C, V	Analyze water samples from different water bodies and conduct water quality tests to determine the health of local water systems.

Watershed Explorations and Water Cycle	3+	B, V,	Reinforce water cycle elements by collaboratively building models of watersheds, to examine basic geography of a watershed, how water flows through the system, and how people can impact the quality of water.
Wind Turbine as a Renewable Resource	4+	P, V, T	Design and test wind turbines as a form of renewable energy, in generating electricity.