Vancouver Island Regional Science Fair 2025 – Project List

Exh. #	Last name, First Name	Gender	Grade	Project Type	Project Category	Project Name	Please describe your project.	
25	Schindel, Evan	Male	4	Experiment	Engineering and Computer Sciences	Organic Batteries: Can More Fruits and Vegetables Generate more Power?	In this experiment I tested how the amount of fruits and vegetables affects the voltage. I started with half, then added half for a whole, then another half and then 2 full fruits/vegetables to see what happens. I I used copper and zinc as electrodes and a multimeter to measure the voltage and recorded how much power each produced. My goal was to find out if adding more would increase the voltage in a steady way. This experiment helps us to understand how everyday foods can be used to generate electricity.	Elementary
38	Rodger, Benjamin Yan, Alan	Male Male	5 5	Innovation	Engineering and Computer Sciences	Paper Flight	Our project and experiment is to test many paper air planes to find some of the best paper planes. My partner and I also will make a paper plane for ourselves. We have read and watched numerous videos and books. We have looked at all parts of the planes from numerous commercial jets, cargo jets and military jets. My partner and I have designed and made many prototypes of paper planes. We will also investigate all of the planes and recommend some designs and also recommend parts of the paper airplanes tried and used by us. If you want to make a paper plane of your own. We will also be doing a quiz for the kids to enjoy.	Elementary
1	Kozlowski, Ozzie Laming, Hailey	Male Non-binary	5 5	Study/Discovery	Environmental Sciences	Determining the Most Sustainable Way to Produce Electricity	This project is about determining the most sustainable form of energy that produces electricity. The categories in this project are hydroelectricity, solar energy, nuclear power, coal, and wind energy. This study will look at the cost of producing the electricity, how much land is used, the amount of energy produced, and the environmental impacts. This project explores four types of energy and comparing them with a number of catagories such as accessibility, costs, enviromental impact and a couple more	Elementary
2	Erlank, Lukas	Male	5	Experiment	Environmental Sciences	Hungry Hamster	In this experiment I determined the effect of three different diets on a hamster's ability to produce energy running on a hamster wheel.	Elementary
3	Kouwenberg, Olivia Holmes, Anaya	Female Prefer not to say	5 5	Study/Discovery	Environmental Sciences	Red Wolves: The wolves that roamed southeatern USA	This is a study about how red wolves are endangered by human and environmental effects. We also researched the current and past efforts to save them.	Elementary
4	MacKay, Finley	Female	5	Experiment	Environmental Sciences	Water filtration methods	Finley will be using various materials to test the efficacy of natural water filtration methods.	Elementary
5	Dawes, Aubree	Female	5	Experiment	Environmental Sciences	The doggie bag breakdown	For my project I wanted to better understand how plastic doggie poop bags break down. I tested 4 types of bags; 3 different brands of doggie poop bags and Ziploc sandwich bags. We placed a sample of each bag in 5 different environments for 2 months and then tested the tensile strength of the bag to see if the environment had any effect on the poop bag. The environments were; a control (plain bag), buried outside in 8 inches of soil, outside on top of soil, submerged in tap water, submerged in an iron-enriched water, and under UV light. We used a force meter, and cut the samples into 2mm x 10mm strips and recorded the tensile strength of each sample 5 times. We learned that certain environments DO weaken doggie poop bags which help to accelerate their "break down".	Elementary
6	Yu, Anqi (Angelika) Macklam, Winter	Female Female	4 5	Experiment	Environmental Sciences	Magnetic Earth	How store bought potting soil compares to our homemade soil with a magnetic powder in the growth of beans.	Elementary
7	Adedeji, Goodness Niu, Jesse	Male Male	4 4	Experiment	Environmental Sciences	The Carbon Snake	You mix sugar and baking soda together then you burn it then the carbon rises into a snake. A snake called the sugar snake/ carbon snake that looks like dark rocks	Elementary
8	Wilson, Liam	Male	4	Innovation	Environmental Sciences	Personal Water Filter	I am making a personal water filter it will filter things like chlorine, dirt, odour, taste, bacteria, organic chemicals, Radon, pollutants, arsenic and viruses	Elementary
9	Mukhtar, Zahara	Female	4	Study/Discovery	Environmental Sciences	What happens to a dying star?	My science project is about a couple of the many things that can happen to a dying/fallen star.In my science project you will find a lot of random, cool and odd facts.I used three (counting google) search engines which are NASA App and a bit of wikipedia for my project.I was planning on doing my project with a partner but everyone who said they would be my partner eventually left to quit or be someone else's partner.So i felt a bit stressed and i was keen on quitting until i asked my parents if i should and they said it was my choice but they also thought i could do it on my own.Anyways,i have been busy so i didn't get as much done as i hoped.My science project has been fun to make and it was fun to learn about new things.It's not as long as i hoped though	Elementary
10	Marshall, Violet Zappella , Ella	Female Prefer not to say	4 4	Experiment	Environmental Sciences	Exploding Colours	We will test how different ingredient change how fizziness of bath bombs - how fast they dissolve. We are seeing the impact of different ingredients on the fizziness of bath-bombs.	Elementary
16	MacKenzie-Gornall, Ruth Choi , Se-rok	Female Female	5 5	Study/Discovery	Environmental Sciences	Climate change	Research on fossil fuels, global warming, and other climate change-related subjects. Exploring ways to reduce climate change by using technology like wind turbines and solar panels. Research where climate change occurs the most and explain why. global warming, fossil fuels, and other climate change related subjects. Encouraging people to act up against climate change. Research about where climate change is more prone to occur.	Elementary
45	Horn, Miles Young, Mariah	Male Female	5 5	Experiment	Environmental Sciences	Glow-in-the-Dark Secrets: Investigating Bioluminescence	Our project, Glow-in-the-Dark Secrets: Investigating Bioluminescence, is about tiny ocean creatures called dinoflagellates that can glow in the dark! We wanted to see how different light conditions—always light, always dark, or a mix of both—affect how bright they glow. We discovered that they glow best when they get both light and dark. This experiment helped us learn more about bioluminescence.	Elementary

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46	Chakanyuka, Evan	Male	5	Experiment	Environmental Sciences	How Well Does Water Capture CO? When You Add Different Substances?	This experiment investigates how adding different substances to distilled water affects its ability to capture carbon dioxide (CO?). The hypothesis is that substances that chemically react with CO? will improve the water's ability to retain it. The experiment involved adding five different household substances—baking soda, drain cleaner (sodium hydroxide), hydrated lime (calcium hydroxide), sea salt, and vinegar—to distilled water. An Alka-Seltzer tablet was used to generate CO?, and a syringe measured the volume of gas released. Mass change and pH were also recorded. The results showed that drain cleaner captured the most CO?, while vinegar released the most. The study explores potential applications for carbon capture in mitigating climate change.	Elementary
47	Scott, Catherine (Bless)	Female	5	Innovation	Environmental Sciences	Alternative Diaper Fillings	Disposable diapers are costly and harm the environment. Could there be an alternative that a parent could use in an emergency using other materials? I looked at different substances that might be used as fillings to find out what could be absorbent enough.	Elementary
48	Dupuis, Joan Kempe, Mira	Female Female	5 5	Study/Discovery	Environmental Sciences	How noise pollution affects whales	Our project is about why noise pollution is affecting whales and their ecosystem, environment and migration. The purpose of our project is to find out how it affects whales and how we can help! We chose this topic because we both love whales and we really want to help them! We will be sharing the things that are causing noise pollution and telling you ways to stop noise pollution and what has been hurting them! We will also be sharing what it sounds like before there was anything interrupting whales and after! Whales communicate with echolocation and we wanted to know how certain objects have a huge impact on how they migrate and interact!	Elementary
49	McDowell, Kellan	Male	5	Experiment	Environmental Sciences	Do all compostable materials turn to dirt?	In this experiment, I wanted to learn if compostable bags and takeout containers would compost and become soil like yard waste does. I took a tour of the Victoria Compost Centre and learned how to start a compost bin at my home. I created a compost bin and started composting with a mixture of yard waste, vegetable scraps and paper products. I added takeout containers and a compostable bag to compare how they decompose. I regularly mixed the compost, and observed changes in the bin as some materials broke down. I also learned that weather can affect how quickly compost breaks down. At the end of my project, I will remove all of the material from the compost bin, and compare how the materials look at the end of the time, versus how they looked at the start. I have taken pictures throughout the process so I can compare the materials.	Elementary
50	Brussow, Theodore	Male	5	Experiment	Environmental Sciences	Soil Solution	My experiment was about how a red clover plant grows in different types of soil. The three types of soil I used were beach sand, loam soil, and potting soil. I thought the clover plant would grow the most in loam soil because it is rich in nutrients, also all the research and data I collected said that loam soil is good for growing plants. This experiment gave me some surprising results.	Elementary
15	Horwood, Kai Liu, Raymond	Male Male	5 5	Experiment	Health Sciences	The Science Behind the Spherification of Popping Boba	Popping Boba is a delicious snack. But do you know how they make it and the science behind it? Unlike normal boba, popping boba is made using spherification which is a chemical reaction between sodium alginate and calcium chloride or calcium lactate. When sodium alginate combines with calcium chloride it creates a squishy shell and a liquid is trapped inside. Our experiment investigates how the addition of sodium citrate and changing pH affects the ability of different foods to undergo spherification? This project will show you how the changing of PH affect the popping boba. We learned that if the PH level is too acidic for example 1 or 2 on the scale the boba balls won't form. But if the PH level was nuetral for example 5, 6, or 7 makes perfectly round boba.	Elementary
17	Kendrew, Brielle	Female	5	Experiment	Health Sciences	Sun Safe?	My experiment tests which natural fabric blocks UV light the most. In my experiment, I used a UV meter to determine how much UV light was coming out of the sun, and then I put 6 fabrics in front of the meter to see how much UV light would get through. I was trying to determine a fabric that would you could wear to protect you from the sun to protect from sun burns and skin cancer.	Elementary
20	Dack, Cheetah	Male	5	Experiment	Health Sciences	How much radiation do your daily devices generate?	Cheetah used an RF meter to test the RF radiation levels of common devices to compare the exposure levels and then researched methods for reducing exposure and tested a method to measure results.	Elementary
21	Matamoro, Ellie	Female	5	Experiment	Health Sciences	What is the Most Effective Natural Antibacterial	I aimed to discover what the most effective natural antibacterial is among a selection of common natural agents is at inhibiting the growth of bacteria	Elementary
11	Chabun, Kira Layton , Adelaide	Female Female	4 4	Study/Discovery	Life Sciences	Who's the better superhero? The giant pacific octopus or Mystique?	We will study giant pacific octopuses and learn how they change their appearance through their shape, texture, and colours. We will also study Mystique from X-Men and how she shape shifts. We'll find out the difference to see who's the better superhero.	Elementary
12	Alleyn, Charlee	Female	5	Experiment	Life Sciences	Do dogs have a favourite colour?	My project is about dogs' favourite colour.	Elementary
13	Bennett, Liva Lomas-Hamilton , Rae	Female Female	4 4	Study/Discovery	Life Sciences	Cats are smarter than Dogs	We think cats are smarter than dogs in many different ways. We intend to prove this with a series of questions discovering that we believe will the true answer to this ongoing debate. For this project we will be exploring cats and how smart they can be, like are cats smarter than dogs? We will be finding cool cat facts and seeing what they do in different scenarios.	Elementary
14	Grant, Brady	Male	5	Experiment	Life Sciences	Multitasking: do athletes have an advantage?	This was a project which aimed to answer the question of whether athletes are better at multitasking than non-athletes. I included in the category of athletes students who are engaged in out of school sports for an hour for at least 3 days per week. I then tested my theory by administering two types of tests: one required the participants to balance a cup of water while walking in a straight line for 60 seconds and counting backwards from 100; the one one asked the participants to answer math questions while bouncing a ball inside a circle for 60 seconds.	Elementary

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18	Taethiengtam, Bryan	Male	5	Experiment	Life Sciences	Quality of bath bombs in Victoria (Do store bought bath bombs contain harmful ingredients?)	: To compare bath bombs in Victoria that have more benefits and safety. A good soap has to have a pH of 8-10, the higher it is the more moisturizer it has. Good bath bombs have goodies that fizz and dissipate in water that releases from strong colors to flower petals. Good bath bombs don't have dangerous substances and chemicals. However, are all bath bombs in Victoria markets safe? We test Bath bombs that are the most popular scent one to test in the science project. The most popular smell is lavender.	Elementary
19	Chen, Cody Nikelski, Yan	Male Male	4 4	Experiment	Life Sciences	Food Preferences in Salt Water Crabs Living in the Aquarium	Investigating the Food Preferences of Warm Saltwater Crabs in Captivity Project •The four test foods (seaweed, fish, shrimp, and chicken) will be prepared in small, equal-sized portions. •The foods will be placed in separate corners of the aquarium simultaneously to ensure that the crabs can freely choose among them. •The experiment will be conducted over two separate trials to assess consistency in food preference. •Trials will be spaced apart to allow crabs to reset their feeding behavior between tests. •The first food item that each crab approaches and begins eating will be recorded.	Elementary
22	Busch, Alex	Male	4	Experiment	Math and Physics	Balloon Powered Car	A balloon powered car uses the air pressure from an inflated balloon to move forward, demonstrating Newton's 3rd law of motion (for each action there is an equal and opposite reaction). The potential energy from the balloon is converted into kinetic energy to move the car forward. We hypothesized that making the straw attached to the balloon have a larger diameter would make the car move farther, because more air would come through the straw at once compared to the smaller diameter straw. We tested the balloon car with 3 different straw sizes. We were correct, the larger diameter straw propelled the car the furthest, the medium sized straw the next furthest, and the smallest diameter straw went the shortest distance.	Elementary
23	Kuponiyi, Tobi	Male	5	Experiment	Math and Physics	Magnet Mania	This project is about the thermal dependence of the strength of a magnet. The big question is: how does temperature affect the strength of magnets? My hypothesis is that the hotter magnet will be stronger than the colder magnet because the particles of the hot magnet are able to move, and would expand the magnetic field. This would be the opposite with the cold magnet, as its particles are not static and unable to expand the magnetic field. Due to not having a magnetic sensor (or magnetometer) to measure the strength, I improvised by using a paper clip. The idea was that a strong magnet would attract the paper clip from afar, while a weak magnet requires the paper clip to be close for it to be magnetized. The distance of magnetization is the measure of the magnet's strength.	Elementary
24	Myhre, Linnaia	Female	5	Experiment	Math and Physics	It IS Rocket Science!	This project tests the size and shape of air rocket fins to see which one makes the rocket go the farthest. Using triangles, sqaures, and semi-circles, rockets were launched with an air rocket launcher and the distance travelled was measured.	Elementary
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26	Pereira, Isaiah	Male	7	Innovation	Engineering and Computer Sciences	SmartSleeper: Optimize Your Sleep Environment	My project is called SmartSleeper. It is a device designed to optimize your sleep environment by focusing on the six most important factors for optimal sleep quality: temperature, humidity, air quality, ambient light, blue light, and ambient sound. The device evaluates each of these areas and assigns a colour red, yellow, or green(Red being the worst, green being the best) to represent their status, along with an overall score out of 100.	Intermediate
29	Crawford, Kate	Female	6	Experiment	Engineering and Computer Sciences	AI or REAL?	Welcome to my project AI or REAL? My hypothesis says If participants are presented with a slideshow that has one real image and one AI image of the same thing then they will most likely be able to identify the AI image and be about 75% correct because people will be able to see that there is something extra in the image or that it just looks cartoon-like. So I made a slideshow that had 20 images in total of 10 animals and 10 flowers.	Intermediate
30	Belke, August Salter, Nicholas	Male Male	7 7	Experiment	Engineering and Computer Sciences	Face Forward: Optimising AI Recognition Software	What is the smallest possible sample size needed for an Artificial Intelligence (AI) powered recognition software to correctly recognize faces? We created a camera that hooks up to AI with those amounts of images. (Hypothesis and Variables) If: We use teachable machine to recognise faces Then: The AI will be more accurate with 30 images Because: 30 images is a stable midling Independent variable: The amount of images Dependent variable: The AI's accuracy Controlled variables The AI model, The people the images are of, the camera.	Intermediate
35	Bi, Lucas McLuckie, Matthew	Male Male	6 6	Innovation	Engineering and Computer Sciences	Homemade Microbit Drone	We want to make a drone using a micro bit/code. Throughout our making and testing we will try to add other features to prevent crashing like when it goes past a certain speed(gravity) it will re-balance itself with the motors.	Intermediate
36	Howard, William Thompson, Rowan	Male Male	6 6	Innovation	Engineering and Computer Sciences	Robot raccoon	My partner and and I are going to make a robot raccoon out of Lego and cover it with cardboard. we are trying to make him walk and clean up trash	Intermediate
27	Watt, Raymond	Male	7	Experiment	Environmental Sciences	Vacuums: A brief overview , along with an experiment demonstration.	A brief overview of how different items interact inside of a vacuum ,with a demonstration ,and how this can happen in real life.	Intermediate
55	Picardi, Thea	Female	6	Experiment	Environmental Sciences	Plants on Mars	The project has 4 categories of plant, (succulents, angiosperms, herbs, and grasses,) each with 4 different types of plants within those. There are 9 seeds planted for each type. The experiment took place for 2 weeks. The project is testing which category of plant thrives best in Martian "Regolith". The hypothesis summed up said that the succulents would thrive best because they are from the desert whose soil is the most similar to the soil of Mars. This experiment is important because, if we ever did have to leave the planet because of the climate being unsuitable, then plants on Mars are necessary for life on Mars.	Intermediate
56	Ligue, Neisha	Female	6	Experiment	Environmental Sciences	LED Light Impact on Plants	In this experiment, I aim to explore how different LED light colours affect the growth and health of plants. LED lights are commonly used in indoor gardening and farming due to their efficiency and ability to provide specific light wavelengths that plants need for photosynthesis. However, not all colours of light are equally beneficial for plant growth. The project will test 3 different LED light colours including purple, red and blue plus a control (no light), to determine which light colour promotes the best plant growth. I will grow identical plants, which is a bean plant, under each LED light colour, controlling variables such as temperature, water, and soil type, to ensure that the only difference is the colour of light. Over the course of several weeks, I will observe the plants for changes in growth rate, stem height, and overall health. By measuring and comparing the growth of plants under each light condition, this experiment aims to identify the optimal LED light colour for plant growth and health. The results of this experiment helps us maximize plant growth in environments where natural sunlight isn't available or reliable. Plus, it could offer valuable insights for indoor gardeners, farmers, and researchers interested in maximizing plant growth while using energy-efficient lighting.	Intermediate
57	Li, Darwin Xu, George	Male Male	6 6	Experiment	Environmental Sciences	Showdown of the Superior pHs	Showdown of the Superior pHs is a project involving onions growing in hydroponics, each watered with a different liquid with varying pH levels. The independent variable is the type of liquid given to the plant and its pH level. The dependent variable is the length of the longest root of each onion, and the controlled variable is the amount of sunlight & liquid given to the plant, and also the type of plant itself(which in this case, is onions). The question is, "Which substance with what pH level makes onion roots grow the longest in hydroponics(pHs 2-10*)?" The hypothesis is, "If onions are grown in normal water, then their roots will grow the longest, because water is not harmful to the plant and has a pH level that is in the range of 6-7, the most efficient level of pH to grow onions in." *only liquids with pH levels ranging from 2-10 were used, due to the other pH levels either being too dangerously corrosive or acidic If onions are grown in normal water, then their roots will grow the longest, because water is not harmful to the plant and has a pH level that is in the range of 6-7, the most efficient level of pH to grow onions in.	Intermediate

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58	MacDonald, Violet Marks, Elizabeth	Female Female	6 6	Experiment	Environmental Sciences	Frozen in Time: The Impact of Solutes on Ice Melting	Our question was "How Long Does It Take For Ice To Melt In Different Solutes?" Our hypothesis was: If salt is added to ice, then salt will melt ice the fastest because adding salt to ice will result in the H?O molecules and salt molecules being drawn to each other, breaking the hydrogen bonds, and causing the ice to melt faster. This is because the salt molecules have ionic bonds, meaning they come apart easily in water and can have many molecules interacting with H?O molecules and breaking hydrogen bonds. Sugar does not dissolve as easily in water because of its covalent bonds, which can't break in water. This will make it melt slower than salt because there will be less molecules to interact with H?O molecules and break hydrogen bonds. For the procedure, we put the solute on the ice and waited for it to melt. We did this three times with each solute to get the best results	Intermediate
59	Lu, Shuli	Female	6	Experiment	Environmental Sciences	Salinity Filtration : Which Filter Works the Best?	I am filtering ocean water to which of three filters will work the best to reduce the level of salinity.	Intermediate
60	Li, Aaron	Male	6	Experiment	Environmental Sciences	Investigating the greenhouse effect	I am going to show an experiment about the greenhouse effect and we start off with 4 jars containing these elements: air, vinegar, bicarb(aka baking soda) and CO2(from a chemical reaction: vinegar+bicarb).The 4 jars will be labeled and have a plastic wrap around the jar to represent the atmosphere of the earth. We are going to leave them out in the sun for 5 minutes and 10 minutes. We measure the temperature of each jar by using a thermometer. The jar labeled with CO2 will have the highest temperature readings because the plastic wrap traps all of the CO2 and will be heated up more by the sun. This is an example of the greenhouse effect and our earth(the jar in the experiment) is constantly getting warmer because our CO2 emissions keeps getting greater and our atmosphere traps all the heat that's why our planet is in global warming. I will also do another experiment in contrast that shows when we don't have an atmosphere and when we check the temperature it is way lower because the chemical reaction is endothermic and no CO2 was trapped after the reaction.	Intermediate
61	Wang, Caren	Female	6	Experiment	Environmental Sciences	Wonderful Wigglers Working???	My hypothesis stated, "If there are more red wigglers in a pot of soil, then the height of each Russian Red garlic plant will increase the most because red wigglers provide many benefits to the plants, such as providing aeration and nutrients to the soil." There are 30 plants total. The first 10 plants have no worms. The next 10 plants have 1 worm. The final 10 plants have 5 worms. The average is calculated every category. Plants are measured once every week for 2 weeks.	Intermediate
62	Bond, Cohen	Male	6	Experiment	Environmental Sciences	Decomposition of Materials	My Hypothesis is If the material is thicker than it will decompose slower because there is more material. Here's what I, did I took a thicker biodegradable material and thicker non biodegradable material, and thinner materials of each. I tested them against each other to see which material would decompose faster in dirt. My experiment was set up over 4 weeks I checked to see how durable the fabrics were and how much was left of them. Every week on Wednesday I dug them up and verified the durability and how much of the fabric was left.	Intermediate
63	Loo, Vera Sewagudee-Peden, Allegra	Female Female	7 7	Experiment	Environmental Sciences	Decomposing Paper Towels	The project is about which chemicals (in the form of paper towels) are easier to decompose. We have the paper towels damped, and add in more compose every week to help it decompose. In addition, we have tiny mushrooms that are trying to grow there. The paper towels are kept in containers, which are the ice cream tubs. The experiment will last about 7 weeks. The reason we did this kind of experiment is because we thought it would be a good idea to find out what type, and how much, chemicals can affect our world. We use smaller things, like coffee grounds, or decomposing bark, and even egg shells to get the same feeling. The paper towels that we used for this project were; Ultra, Bounty, half of the Bounty paper towel, and Eco. If you do not know, Ultra has way more chemicals, while Bounty and Eco has minimal. Our project is about growing mushrooms at home using different types of paper towel to see if their is a difference	Intermediate
28	Berryman, Kate Sundher, Jasnoor	Female Female	6 6	Experiment	Health Sciences	Test Bacterial Growth in Different Sources of Water	Test Bacterial Growth in Different Sources of Water. Samples were obtained from a number of water sources to determine the relative bacteria in each. Samples included Snow melt, Ocean, tap, and filtered tap water. Samples were applied to Petri dishes (with Agar) including a control with no samples. Periodic photos/measurements were taken to assess bacteria growth.	Intermediate
43	Zilber, Alma	Female	6	Experiment	Health Sciences	The Battle of The Beats	The project is about how different music tempo in beats per minute affects your heart rate and blood pressure. I start by measuring the participants normal heart rate and blood pressure for 50 seconds and I let them rest for 20 seconds. I repeat the process with the participant but they listen to the first song (BPM 1) which is Stitches by Shawn Mendes with low BPM (60-80) for 50 seconds and wait for 20 seconds and record the data. Then I do the exact same but with the song Sorry by Justin Bieber with medium BPM (90-110) for 50 seconds and rest for 20 seconds and record data. I repeat that process one more time but with the song You Belong With Me by Taylor Swift with high BPM (120-140) for 50 seconds and rest for 20 seconds and measure and record data. I repeat steps 1-7 with other participants. I finally put all the data into many charts and graphs to analyze the results.	Intermediate
52	Fountain, Sofia Jansen, Haylee	Female Female	6 6	Experiment	Health Sciences	The Battle of the Hand Cleansers	Our project compares the school soap with hand sanitizer, rinsing with water alone, and using wet hand wipes to see which one most effectively cleans hands. For the experiment, participants apply a germ simulanting product (Glo Gel) to hands, then shine their hands under a black light to see the amount of simulated bacteria on their hands. Next, they wash their hands with the regular school soap and water, and then shine their hands under the black light to see if the amount of bacteria decreased. They then test each hand cleansing method in the same fashion using a consistent procedure.	Intermediate

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53	Chen, Kara	Female	6	Experiment	Health Sciences	Gastroesophageal Reflux Disease (GERD)	My science fair project investigates which remedy is most effective for relieving GERD (Gastroesophageal Reflux Disease), also known as acid reflux or heartburn. GERD occurs when stomach acid backs up into the esophagus, causing a painful burning sensation. The project compares the effectiveness of antacids like Tums with home remedies such as baking soda, ginger tea, apple cider vinegar, and milk in neutralizing stomach acid. The goal is to determine which treatment can best help relieve the symptoms of GERD and provide temporary relief.	Intermediate
54	Xin, Tori Zhou, Justine	Female Female	6 6	Experiment	Health Sciences	Expiring Milk!	Our science fair project is about trying to figure out which type of milk will last the longest. Our types were skim milk, whole milk/ 3.25% milk, 1% milk, and 2% milk. We poured the milk into separate red plastic cups and put it on the windowsill. We waited until all three types have gone bad, and recorded our results.	Intermediate
39	Cheung, Tessa Kingsbury, Isla	Female Female	6 6	Experiment	Life Sciences	Hygro-hair	Our experiment tested which type of hair can absorb the most moisture. We tested curly, wavy, straight, and frizzy types of hair.	Intermediate
40	Cherrington-Green, Petra	Female	6	Experiment	Life Sciences	The Amazing Slime Mold!	Even though slime molds are single cell organisms, they can solve day to day problems. My project is about growing slime molds, and using them to solve simple mazes.	Intermediate
41	Kabani, Aarish	Male	6	Study/Discovery	Life Sciences	BLUE LIGHT - FAST OR SLOW?	Project is trying to determine the effects of Blue lights on eyes. It will be conducted by studying 2 groups of students (between ages 9-11 yrs) with the help of ruler drop test .	Intermediate
42	Fairhurst, Scarlett	Female	6	Experiment	Life Sciences	Music vs Concentration	My project is testing how different types of music affect concentration. I tested this by giving a group of people three worksheets; they completed the first worksheet in silence while i recorded there time and accuracy; they did that twomore times while listening to classical music and pop music	Intermediate
44	Liedtke, Lily Zwicky, Sophie	Female Female	7 7	Experiment	Life Sciences	Where's Waldo	Me, Sophie Zwicky, and my science partner, Lily Liedtke's project will focus on visual searches and what colours/ shapes make something stand out, while other things blend in and are harder to find. We chose this project because we found this scientific area interesting. Particularly because me and my partner enjoy visual pastimes such as painting and drawing. We thought it would be interesting to do a project based on visual searches using different colours and shapes to expand our knowledge on visual objects. In our experiment, we place an image search and prompt in front of a person. They will find the letter/ shape from the prompt given in the image search. We are timing the amount of time it takes for the person to find the letter/ shape asked. We will take and use this data in a graph from multiple people. We will also be testing different images on the same people to test what word search is the easiest (to test our hypothesis). This is my second year at the Regional Vancouver Island Regional Science Fair and as for my partner, this is her first. We are very excited to share our knowledge, research and data with all of the people at the science fair this year!	Intermediate
51	Tian, Bruce Wilkins, Marcus	Male Male	6 6	Experiment	Life Sciences	Worm World	We will create four zones that are accessible to the worms. Each of the four zones will contain equal amounts of different types of foods. We will place 40 red wiggler worms in the center of the zones. We will cover the container with black plastic bags to shade light and heat from turning them into dry worms. At the end of the experiment we will see where the most worms migrated. This could indicate their preference for that type of food and suggest healthier soil because of their higher number and presence breaking down matter and improving soil.	Intermediate
31	Han, Fredric	Male	6	Experiment	Math and Physics	Pendulum	To prove that the Pendulum Formula is true and to relate the Pendulum to the earthquake seismometer. I want to experiment on if the length of the Pendulum (In the Formula) will effect the Time period.	Intermediate
32	Alexander, Brad Hachey, Finn	Male Male	6 6	Experiment	Math and Physics	Basketball Forms	The project is about basketball shooting forms. The hypothesis is that if you have a lowers shot pocket your will have higher shot percentage because the lower shot pocket helps get more power and momentum into the shot. We had 5 participants take 10 shots with each of the 3 forms. Does changing basketball shooting forms affect shot percentage? Research: Traditionally, a lower "shot pocket"" (where athletes are holding the ball just before you shoot it), is usually optimal for most players because a shot pocket a few centimeters above the waist helps players get power and momentum into a shot. Most of the time the best shooting pocket is what feels the most natural or comfortable so if that means a shot pocket is higher than the chest, then you might have a higher percentage with that form.	Intermediate
33	Arun, Rakshith	Male	7	Experiment	Math and Physics	Hand Position and Shot Accuracy	My project is about the sport squash. It is played by hitting the ball against the wall in front of you. I am testing which is the most accurate grip position to play with. I tested two grip positions, a higher grip position (choking up) and a lower grip position (butt end). I also tested how firm you are holding your grip. My experiment was fairly simple, so basically you set up two shoes at the back of the court as targets, and then you stand at the T (the base/middle) and try to hit the target. After every time you hit, measure the distance away the ball landed away from the shoe using the different grip positions. That summarizes my experiment.	Intermediate
34	Dong, Will	Male	6	Experiment	Math and Physics	How far can a plastic water bottle go	The project will have a motar . Inside will be a plastic water bottle and there will be lots of air preusure . Then there will be an area where vinegar and baking soda. Then the plastic water bottle will launch.	Intermediate
37	Storry, Zenna	Female	6	Experiment	Math and Physics	Nature's Descent: Beach Objects in Quicksand	I chose to create an experiment to measure the rate/ pace at which found beach objects would sink into quicksand.	Intermediate
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Vancouver Island Regional Science Fair 2025 – Project List								
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64	Fairhurst, Eleanore	Female	8	Experiment	Health Sciences	Sunscreen Showdown	My project explores whether different brands of SPF 50 sunscreen provide the same level of UV protection using a UV-Vis spectrometer. To test this, I diluted sunscreen samples, filtered them, and measured their UV absorption at wavelengths of 290-320 nm. Since sunscreen effectiveness can vary based on ingredients, water resistance, and formulation, this experiment helps determine if all SPF 50 sunscreens offer equal protection or if some perform better than others. I tested each sample three times to ensure accurate and reliable results. By conducting this experiment, I hope to better understand how well different sunscreens work and which brands provide the best defense against harmful UV rays.	Junior
65	Li, Charlotte	Female	8	Experiment	Health Sciences	Color Psychology: How Hues Shape Our Memories and Feelings	Participants will look at 10 words on their screen for 10 seconds, each round on a random background. After the 10 seconds, they will type down as many words as they can remember, looking at if warm or cool colors help memorizing better.	Junior
66	Brooks, Ali Buckley, Ella	Female Female	8 8	Experiment	Health Sciences	Bottled Up	For our science fair project, Bottled Up, we investigated whether people prefer hard or soft water by conducting a blind taste test of different water brands. We tested Fiji, Dasani, Nestle Pure Life, distilled, and tap water. The water hardness was determined using an EDTA testing method. Participants were given samples in marked cups and asked to rank them based on taste preference. After, the data was collected and analyzed to identify trends in water preference.	Junior
67	Behn, Silke Hardcastle, Emma	Female Female	8 8	Experiment	Health Sciences	Beauty on a Budget	Our Science fair experiment is following the question of whether expensive or affordable skincare works better based off of moisture and oil levels using two types of moisturizer one affordable and one expensive with the same main ingredient. We tested 20 human participants by finding the initial moisture levels without any product on the face and then applying the affordable moisturizer to one side of the face and expensive to the other. Then we waited 1 minute of the moisturizer to soak into the skin and then we scanned the moisture levels. For our research we found that the environmental impact of affordable skincare and expensive skincare is the same because expensive skincare has more sustainable packaging but affordable has more sustainable packaging. We also researched about the best ingredients for teenagers, and finally why expensive skincare is so expensive. Not only did we test which moisturizer was better for teens but which one was more sustainable overall. We found that larger packaged products were more sustainable because they are often larger which leads to throwing out packaging less.	Junior
68	Craig, Annabelle	Female	8	Experiment	Health Sciences	That's a Wrap!	The beauty industry generates a significant amount of waste, especially due to single-use packaging. It's estimated that over 120 billion units of packaging are produced annually worldwide, with 3 billion of these units being wasted in 2020 alone. Most of this waste consists of single-use items such as plastic containers. My Science Fair project last year, tested four different types of fruit-based face masks to see which dissolved best in water. It was determined that avocado banana dissolved the best and had brightening benefits for skin. This is why I wanted to create a reusable wax wrap, which is biodegradable and eco-friendly, offering a potential solution to reduce the waste created by the beauty industry's single-use packaging. In this experiment, I made three types of wraps using brown paper bags and soy wax, beeswax, and paraffin wax. I did ten trials per paper type. In addition, I tested the decomposition rate of 3cmx 3cm square samples of the four paper types in sea soil compost over four weeks. My results determined that beeswax wraps keep the face mask moist for the longest amount of time while the soy wax wrap degrades the fastest. Further research is needed to determine which of these two waxes has the least effect on the microbiome of the soil for maximum environmental sustainability.	Junior
69	Kuo, Averi	Female	9	Experiment	Health Sciences	Time for a break!	Blood oxygen is a key factor to ensure skeletal muscles function properly, to prevent muscle fatigue and subsequent injuries. It is critical to maintain optimal blood oxygen levels to prevent injury due to muscle fatigue. The hand muscles often perform fine and repetitive movements, and are especially susceptible to fatigue-related injuries, such as during typing. This experiment tests how blood oxygen saturation (%) is affected by the amount of time a participant performs a repetitive task such as typing. The hypothesis is blood oxygen saturation (%) will decrease as the amount of time the participant types increases from 5 to 30 minutes. Using Apple Watches, we measured the blood oxygen saturation (%) at the narrowest (Point A) and the widest part (Point B) of the forearm. Point A is where the tendons are located, and point B is where the muscles are located. The results from the experiment showed that when the longer the participant typed their blood oxygen saturation (%) would decrease. In both the right and the left arms, the average data from all participants showed an overall decrease in average blood oxygen saturation (%) from 98% and 97% to 96% and 96% as typing times (minutes) increased from 0 minutes to 30 minutes. Furthermore, the blood oxygen saturation (%) in the tendon (Point A) was always lower than in the muscles (Point B). The results show that tendons are more susceptible to fatigue related injuries due to lack of oxygen, and research has shown that tendon	Junior
70	Bai, Yingshan Webster Guillen, Elia	Female Female	8 8	Experiment	Health Sciences	A Spike in Pressure	Our experiment investigated how playing a volleyball game affects blood pressure. High blood pressure is a significant health issue, contributing to strokes and heart disease. During exercise, the heart works harder to supply oxygen to muscles, temporarily increasing blood pressure. We hypothesized that playing volleyball would raise participants' blood pressure.To test this, we measured the blood pressure of eight participants before and after two volleyball games. The results showed an average increase of 1.78% in systolic pressure and 9.43% in diastolic pressure. Most participants experienced an increase, except for one outlier whose blood pressure decreased, possibly due to genetics or measurement error. This increase occurs because exercise demands more oxygen, making the heart pump faster and with greater force. Additionally, stress and excitement during a game can release adrenaline, constricting blood vessels and increasing pressure.	Junior
71	Iqbal, Anna	Female	9	Experiment	Health Sciences	The Effect of Wildfire Smoke Particles on Blood Clot Formation	Wildfires are a big problem worldwide. Smoke inhalation can cause many diseases. In particular it can increased risk of clotting that can cause cardiovascular diseases that include heart attacks and strokes. Although smoke particles have been shown to increase clotting, the full mechanisms underlying this are unknown. Smoke particles can be absorbed into the blood, and it is unknown whether these particle can directly activate clotting. This project specifically tests whether or not smoke particles can directly affect clotting. To test this, smoke particles were created from wood and increasing concentrations were added to human plasma and clot formation was assessed.	Junior
72	Olagundoye, Hadassah	Female	9	Experiment	Health Sciences	Do Vitamin Gummies Affect Reaction Time?	The aim of my project was to find out if vitamin gummies have an effect on reaction time, and to see if they have the potential to increase one's reaction time.	Junior

Vancouver Island Regional Science Fair 2025 – Project List								
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73	Szuroka, Valentia Sun, Katheryn	Female Female	8 8	Experiment	Math and Physics	The Brachistochrone Curve: A Scientific Path to Efficiency	Our project is about the Brachistochrone Curve which is a curve that allows an object to go from one point to another in the shortest time. In this experiment, my partner and I are testing 3 different tracks and comparing their speed to each other. The results shows the practical applications of the Brachistochrone Curve that can be used in real-world scenarios.	Junior
74	Kaku, Pahal	Female	8	Experiment	Math and Physics	Buoyancy Battles	My experiment is Buoyancy Battles and my experiment question was: Does changing the width of a boat affect its buoyancy in water? The purpose of my project was to explore the relationship between a boat's width and its buoyancy in water. Buoyancy is a fundamental principle of physics that explains why some objects float while others sink. By designing and testing aluminum foil boats of varying widths but constant lengths, my experiment aims to determine whether increasing a boat's width enhances its ability to float by increasing the amount of water it displaces. The results of my experiment show a larger width is the most buoyant force. The ability to float is based on the buoyant force which was greatest hence why I believe the largest boat was the most buoyant. In the future, I will continue to research the factors in boat design that help boats float. My project on understanding the concept of flotation is relevant in the real world and is tied closely with engineering, especially in large vessels like cruises and more locally the Bc ferries	Junior
75	Ip, Elyse Oshkai, Anya	Female Female	8 8	Innovation	Engineering and Computer Sciences	Tuning the Palette	Sound (Music) and color (Art) are two amazing ways we express ourselves and feel emotions. When we think about how sound works—like its pitch (how high or low it is) and volume (how loud or soft it is)—we can also compare it to color, which includes aspects like hue (the type of color) and value (how light or dark it is). We created a visual display with sound input to create a color output. Imagine if music notes could be seen as colors! Just like colors can create beautiful images on a canvas, sound can create pictures in our minds. By mixing music and visual art, we can see that sound and color have a lot in common. Our question was, how can the elements of sound, (pitch and volume) be translated into the elements of color (hue and value) to create a visual representation of music? We decided to do this with code, and we chose to represent our outcome using the reverse concept of our project. Instead of turning notes into random colors, we chose to show our project using an image which we then represented using sound, by finding the color hex for each color and turning that into a note's frequency.	Junior
76	Lee, Lauren Wang, Chloe	Female Female	8 8	Innovation	Engineering and Computer Sciences	Thermal Shielding	For the science fair, I aimed to prevent cell temperature changes by creating several insulated phone covers lined with different fabrics. The question was: does creating an insulated phone cover with refractory coatings and reflectiveness sustain battery life? Refractory coatings act as barriers that reflect temperature away from the fabric, similar to how mirrors reflect light. Reflectiveness is similar to refractory coatings. I wanted to start this project because my phone would always decrease rapidly whenever it was in cold climates. Our project is on making a phone case that sustains temperature. Our question was: Does creating an insulated phone cover with refractory coatings and reflectiveness sustain battery life? Our hypothesis is "If we test Insul Bright and Silicone sheets to see which one sustains battery life longer, then the fabric with the most refractory coatings and reflectiveness will protect the phone's temperature and battery life because the reflectiveness helps reflect temperature off of the fabric keeping whatever object is sealed by the fabric safe and refractory coatings help sustain temperature by the strong barriers in all environments."	Junior
77	Ji, Jacob	Male	8	Innovation	Engineering and Computer Sciences	BlockReact	A volleyball blocking board with the purpose to improve volleyball blockers reaction times. It has three LED's, which flash one second after another once the game starts. Once the sequence is complete, a LED will flash. The user must then hit the corresponding button located underneath the LED in the shortest time possible. An LCD screen will display that rounds reaction time. At the end of five rounds, the screen will display the users average reaction time. The product is intended for volleyball players, or anyone wanting to work on their reaction time. Additionally, the board could be used as a target for serving, a block board for defensive help, and more.	Junior
78	Tolias, Nikolas	Male	9	Innovation	Engineering and Computer Sciences	The Polar Bear Coat: A hug from a Polar Bear	This innovative project entails my personal endeavor into efficient thermal insulation application on real world issues. Examining the dilemma of incredibly expensive coats and heated jackets that lack effective heat retention capabilities, I concentrated on developing and producing my own coat that exceeded in these categories. The result was a fully functional, incredibly affordable heated jacket composed of tested insulators and liners that demonstrated most effective heat retention capabilities. With these physical evidence, can be strongly supported that heat jackets and coats in general, are overpriced for the quality that is extended in return.	Junior
79	Turner, Alexander	Male	9	Innovation	Engineering and Computer Sciences	How an automates system helps plant growth.	I coded and developed a system that would automatically water plants. I wanted to see how much moisture affects plant growth, and does an automated system make sense for plants.	Junior
80	Pelligra, Clarita	Female	9	Experiment	Life Sciences	Participation in Physical Activity in Teenagers	I did an experiment comparing age versus the participation in physical activity in and out of school. To collect my data, I sent out a survey to many middle and high school home forms in my school and made a short video to help the students understand what and why it was important that they answer properly and honestly. With my data I will be able to tell if age really does affect comfortability participating in physical activities. After getting a good analysis, my plan is to take all the data I have and see if I can find anything that my school can help to make everyone feel more included in day to day physical activity, if not just being okay with participating in activities the school offers.	Junior
81	Dallin, Ethan	Male	9	Experiment	Life Sciences	How colour affects the gamma brainwave used for learning	In my project I studied how colour affects the gamma brainwave (which is used for learning). I did this by having the participants put on a Muse EEG headband. They also were wearing safety glasses with colour filters on (of which there are 6 colours). As they were wearing the Muse and coloured lenses they were playing solitaire on an iPad, while their brainwaves were being measured. I found that the most effective colours were green and red.	Junior

Vancouver Island Regional Science Fair 2025 – Project List								
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82	Humphreys, Tristyn Price, Cleo	Female Female	8 8	Experiment	Life Sciences	Illusions In A Blink: Age Vs. Perception	We tested whether age affects how fast you perceive optical illusions. We got the idea to do this experiment because we found it fascinating how optical illusions can trick our brain into seeing things differently than they really are. Our question was does age affect how fast you perceive optical illusions? Our hypothesis was If we ask people of different ages then the people that are younger will perceive the camouflage optical illusions faster because the younger you are the faster you perceive visual images. We asked 10 grade 8 students and 10 teachers to find a hidden number in a camouflage illusion. Overall, the students were faster in finding the number then the teachers, although the fastest teacher was faster then the fastest student.	Junior
83	Wang, Shiny (Qingyang)	Female	8	Innovation	Life Sciences	Help Rufous Hummingbirds	Rufous hummingbirds have been declining but they are also really important. In this project, I have designed a new feeder and new nectar solution that helps the Hummingbird. I will also explain some of the reasons for my choice, and the physiology of hummingbirds.	Junior
84	Gomori, Laurel Trinder, Nina	Female Female	8 8	Experiment	Life Sciences	Taste the Rainbow	We decided to test whether the colour of the food we eat affects the way it tastes. To do this, we gathered 6 participants and had them taste 3 different foods in two different colours each. One version of each food was dyed an odd colour, and the other was not. We had our participants taste the dyed food first and rank it on a scale from 1-10. They then did the same with the undyed food. What we wanted to find out was how much it would affect your taste if you had something coloured a gross colour vs if it was not dyed at all. Our project was also heavily based on the placebo effect because the dye had no flavour, but the participants still rated the dyed foods lower because they thought that it would taste different or worse. This experiment tests whether the colour of food affects how the brain perceives it. To test this, we dyed regular foods strange colours. We dyed scrambled eggs green, milk orange, and hummus purple. We then had the participants taste the first food that was dyed and give a ranking on a scale of 1-10. After they tried the undyed, ranked it, and did that for all of the other foods. Our hypothesis was If the colour of food is different from what participants think it should be, then the participants will rank it lower on a scale from one to ten because the brain perceives it as being off or bad because it's discoloured. Our hypothesis was correct as everyone liked the undyed foods more, even though they tasted the same. Throughout this experiment we discovered that it has much more to do with the brain then it does with the taste buds.	Junior
85	Syal, Meenanshi	Female	8	Experiment	Life Sciences	A Pressure Test	This project aims to show people how feeling pressured, or self doubt affects your daily life. This project will show others that feeling pressure isn't just in your head, and that's a real phenomenon, and it does affect lots of people. What I will do to conduct this project is to make a test on hallucinations, because they are relative to interpretation, and even though some do "correct" answers, most of them don't.I will then get a group of people, give them the test, and try to make them feel pressure, to see if they will change their answers. This experiment's purpose is to show others that pressure/stress of failure makes people do things they wouldn't usually do. This would be a very good thing to prove, because if teachers realize that hovering over students is making them more stressed, and making them change their answers, they would stop doing it.	Junior
86	Hamilton, Iben	Prefer not to say	8	Experiment	Life Sciences	Take a Breather: Effective Breathing for Running	This experiment tested which breathing technique out of nasal breathing, mouth breathing, and pursed lip breathing (inhaling through the nose and exhaling sharply through the mouth). This was done by running 50 metres three times per day over the course of three days, all times alternating each breathing technique.	Junior
87	Franco, Lily Geddes, Piper	Female Female	8 8	Experiment	Life Sciences	Tick Tock: Does Gender Have A Watchful Eye On Time?	As extremely active middle schoolers, we wanted to see if gender influences an individual's ability to estimate the passing of time? We hypothesized that If males and females are asked to estimate the passage of 5 minutes without using any cues, then boys will have a more accurate sense of time because studies suggest that males tend to rely more on numerical estimation, meaning rounding off numbers for the sake of convenience, which may aid in time perception.	Junior
88	Macmillan-Thomas, Imogen	Female	8	Study/Discovery	Environmental Sciences	"Is This Really Garbage?"	My project involved going through the garbage cans at my school and seeing how much is thrown out unnecessarily. How much of it can be recycled and composted? I think this is important because a lot of people, especially young people, might not know how to properly sort their garbage and recyclables, which leads to excess waste in landfills.	Junior
89	Farish, Des	Male	8	Experiment	Environmental Sciences	Solar Shadows	My project investigates the impact of solar panel height on the size of the shadow cast underneath, with the goal of understanding how this could influence agrivoltaics. Agrivoltaics is a method of growing plants beneath solar panels, optimizing land use by combining agriculture with renewable energy production. The experiment tested a model solar panels placed at varying heights (10 cm, 15 cm, and 20 cm) and measured the size of the shadow cast beneath at different flashlight angles (90°, 135°, 180°). The experiment aims to provide insights on how solar panel height can affect land use, especially in agricultural settings, where the right amount of shading could help grow crops while still producing solar energy.	Junior
90	Loomer-Douglas, Magnus	Male	8	Experiment	Environmental Sciences	Sustainable kitchen Fertilizers	This project is all about trying to find which products from the kitchen could be used and which ones are the most effective	Junior
91	Bandechha, Aeshan	Male	9	Experiment	Environmental Sciences	How mushrooms affect plant growth	For my experiment I tested how Mushrooms affected Plant growth. The experiment was set up to see how different amounts of mushrooms affect the growth of plants. My experiment took 4 weeks and tot set it up I put different amounts of mushrooms into each bin filled with plants and tested how the different amount of mushrooms would affect plant growth.	Junior
92	Morley, Reagan	Female	9	Experiment	Environmental Sciences	The Mushroom Meal - Can Blue Oyster Mushrooms Degrade Plastic Effectively?	Plastic waste is a big problem, taking up to 500 years to degrade depending on materials and environmental conditions. Over three million tons of plastic is thrown away in Canada each year (#BeatPlasticPollution Challenge, 2024). In recent years mushrooms have been proven to degrade plastic naturally (The Perfect Spore?, 2023), but research is evolving as to the optimum type of mushroom to plastic type combination for best degradation results. My experiment tests if blue oyster mushrooms, which are common in British Columbia, can degrade three types of pure plastic of different densities: High Density Polyethylene (HDPE), Low Density Polyethylene (LDPE), and Polyvinyl Chloride (PVC). My project showed that it is possible, with results demonstrating that blue oyster mushrooms can degrade up to 2.6% of some types of plastic in the span of 42 days. As a second step in the project, I used the resulting mushroom waste from the experiment, which had absorbed toxic plastic material during the degradation process, to create a sustainable biofuel briquette as a subsidiary product.	Junior

Vancouver Island Regional Science Fair 2025 – Project List								
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93	Curry, Lily	Female	9	Experiment	Environmental Sciences	Can such small insects escalate climate change to a large extent?	This research will show how temperature affects oxygen consumption and metabolic rate of Carausius morosus over 15 minutes. I am interested in how insects might impact climate change as the earth heats up. I will measure the oxygen intake of the stick insect by using a small syringe. Then glued on to the end of the syringe is a capillary tube of known dimensions. This microrespirometer is sealed on both sides to create a closed chamber. Within the microrespirometer, chemical KOH reacts with carbon dioxide creating negative pressure pulling in the indicator dye up the capillary tube. I will place an insect inside the microrespirometer making sure it is protected from contact with the KOH.	Junior
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Vancouver Island Regional Science Fair 2025 – Project List								
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99	Su, Kevin	Male	11	Innovation	Engineering and Computer Sciences	Aquatic Wireless Batteryless Telemetry: A Self-Sustaining Fish Tagging Device with Enhanced Data Transmission	This project aims to eliminate a long-standing problem with fish tags: batteries — once the battery of a fish tag dies, the fish is lost forever. To overcome this limitation, a novel device utilizing Polyvinylidene fluoride (PVDF) film — a piezoelectric element — to harvest the kinetic energy of a fish's movements in water to power an ultrasonic transmission circuit capable of transmitting temperature and location data without the need for batteries is designed. For the harvester specifications, numerical and multiphysics simulations are carried out to find the optimal piezoelectric material to maximize harvesting efficiency. A geometrically optimized bluff body is fabricated onto the end of the PVDF material to maximize the amplitude of the piezo in water. In experimentation, a fish tank and a makeshift vibration generator are utilized to simulate the motion of a fish's tail in water, where the energy generation capabilities of the device are measured under differing bending frequencies, mimicking the practical circumstances of the movement of different fish in water. The device is encapsulated by a 3D printed mechanism allowing easy yet structurally sound attachment to a fish's outer body waterproofed by epoxy resin. This work provides a promising future in the disciplines of fish migration and oceanography.	Senior
100	Xu, Ke	Male	11	Innovation	Engineering and Computer Sciences	A Modular Peristaltic Robot with Origami Torsion Tower Structures Based on Diagonal Crease Methods	I intend to innovate a robot to promote sustainable farming. In the twenty-first century, the effect of industrial emissions on agricultural practices and the consequence of farmland pollution on the climate crisis have been a hot topic. However, there is a shortage of labor and accessible technology that can monitor and test agricultural practices, motivating me to conduct a literature review on how flexible and soft robots can play a role, especially in narrow spaces. Therefore, the innovation aims to design and innovate a modular peristaltic robot to help farmers, environmental organizations, and governments with farmland monitoring, abiotic factor measurement, and chemical concentration detection. The project manufactures two generations of robots under one-way and two-way movement patterns through two-dimensional drawing, three-dimensional modeling, laser cutting, and three-dimensional printing. The project conducts a correlational study on the influence of the amount of expansion and contraction on the torsion force, the impact of the delay and the movement pattern on the speed, and the influence of the rotational angle on the speed. The 0.5 N.m servo motor selected for the robot fulfills the maximum torsion force required by the torsion tower structure. One-way movement patterns are more suitable for open and explorational environments, and two-way movement patterns work better in ambiguous and complicated environments that require forward and backward adjustments. The project determines that the most appropriate rotational angle for one-way and two-way movement patterns are 20 and 140 degrees, respectively. The robot achieves modularization, decomposes naturally, and can explore narrow spaces.	Senior
101	Aphiwetsa, Elmond Curtis, Ethan	Male Male	11 11	Innovation	Engineering and Computer Sciences	Oscar AI	OscarAI is an intelligent waste sorting system that uses computer vision and machine learning to automatically categorize trash into appropriate disposal bins. Using a Raspberry Pi 5 connected to multiple motors and a camera, the system captures multiple angles of waste items when they enter the sorting chamber. These images are processed by our custom-trained AI model that can identify different waste classes with high accuracy. When an item is detected, OscarAI analyzes it and directs it to one of many bins (recyclable containers, compost, paper, or trash) or returns mixed/unidentifiable waste to the user. The system features LED indicators and audio feedback to enhance the user experience. Built with durable materials, OscarAI incorporates distance sensors, motors, and pulleys, automated the sorting process. Our project demonstrates how AI can improve recycling accuracy and efficiency, helping address the growing challenge of waste management.	Senior
102	Chankhamhaengdecha, Manuchaya	Female	11	Innovation	Engineering and Computer Sciences	Machine Learning-Powered Ocean Pollution Reduction	I trained a machine learning model using the YOLO CNN algorithm and the TACO dataset to detect and track garbage in real time. By using a waterproof camera, the AI can classify waste, send alerts to waste management teams, and analyze trash trends to trace pollution sources.	Senior
103	Sun, Zhuola	Female	11	Innovation	Engineering and Computer Sciences	Novel Wind Turbine Hub Design for Improved Efficiency	This project builds upon previous research on improving wind turbine efficiency with dimpled hub designs. Last year's low-wind-speed tests showed promise, which led to this expanded study on dimple optimization and wake effects. A redesigned circular wind tunnel tested 50 3D printed rotors with refined dimples shapes and depths. An Arduino system with an INA219 sensor measured power output, eliminating human error from manual readings and Tracker (video analysis software) confirmed rotational speeds. Wake effect studies used a dual-turbine system with a motorized linear rail for precise positioning. CFD simulations validated results, and smoke visualization tested the setup. Long-term tests measured power fluctuations over 20 minutes.	Senior

Vancouver Island Regional Science Fair 2025 – Project List								
Exh. #	**Last name, First Name**	**Gender**	**Grade**	**Project Type**	**Project Category**	**Project Name**	**Please describe your project.**	
104	Loomer-Douglas, Nouria	Female	10	Study	Engineering and Computer Sciences	Cold Goats: Designing a Heat Transfer System Using Horse Manure	Canada has carbon emission reduction plans. Using renewable energy, even for small projects, is important to achieving these goals. I work at a farm where we have a herd of 11 horses and a small herd of seven goats. The goats live in an enclosure and during the winter, it can become cold. I want to figure out a way that we can heat the goat enclosure without using electricity or propane. I realised that the horse manure emits steam, and I was curious about how hot it got inside the pile. I was shocked to discover that the air temperature was 10° C. The thermometer inserted into the middle of the pile read 60°! This seemed like a renewable heat source was right in front of me. Therefore, my project explores how to capture the heat generated from horse manure to sustainably heat the small goat enclosure. After exploring various ideas such as somehow heating water from the manure and using it in the floor or walls of the enclosure or charging a battery that would harness the heat into energy to then power a small heater, I landed on the idea of studying building techniques that use different kinds of natural materials for insulation. I then realised that perhaps the easiest way to use the heat from the manure was to bring the manure closer to the enclosure I am researching for my project, the ideal composition of compost for maximum heat production, and am designing two different potential structures in the goat enclosure to see if it would work as well as a portable heater.	Senior
105	Kim, Liana	Female	11	Innovation	Engineering and Computer Sciences	Brain Detox: Investigating Ultrasound-Enhanced Waste Removal	I am programming an automated MRI data processing pipeline to analyze dynamic contrast-enhanced MRI scans of rat brains, focusing on the effects of Low-Intensity Focused Ultrasound (LIFU) on glymphatic clearance. The dataset obtained from Seoul National University's Radiology Lab includes a control group and a LIFU-treated group, where ultrasound stimulation is hypothesized to enhance waste clearance by increasing cerebrospinal fluid (CSF) flow. My research explores LIFU's potential as a non-invasive therapeutic approach for neurodegenerative diseases like Alzheimer's. My tool automates MRI data analysis, reducing the manual effort required for large-scale studies. It processes, visualizes, and quantifies contrast agent movement, using Gaussian filtering, slice-by-slice ROI selection, and time-series intensity extraction. By normalizing data against a muscle ROI, it computes key quantitative metrics, including time-to-peak intensity, peak-to-baseline recovery time, and signal difference ratio, assessing how effectively waste is cleared. The tool analyzes the LIFU "sweeping" effect, where ultrasound accelerates waste movement, helping to prevent toxic protein accumulation linked to neurodegeneration. By comparing pre- and post-LIFU MRI scans, my project provides a standardized, efficient, and reproducible method for evaluating glymphatic function. To expand accessibility, I will publish the software package on GitHub, making it available for researchers studying glymphatic clearance and clinicians exploring LIFU for Alzheimer's and other neurodegenerative diseases. This work demonstrates how LIFU-enhanced glymphatic flow can promote brain waste removal, supported by experimental results from rat MRI data.	Senior
106	Dai, Ronsher	Male	11	Study/Discovery	Math and Physics	X-ray Based Solar Activity Forecasting	Solar activity poses a major threat to many human activities, such as communications and research satellites, as well as the health of astronauts and potentially ground-based electrical grids. More specifically, high-energy protons emitted by solar energetic particle (SEP) events can disrupt internal electronics and cause cancer in humans. Therefore, predicting when these events occur is extremely important, so as to ensure that protective measures can be taken. The approach that I have taken is rooted in the so-called "Big flare syndrome". Essentially, high-intensity SEP events will almost always be associated with a powerful flare, regardless of the underlying physical processes actually occurring in the Sun. We can exploit this relationship since the primary product of solar flares are X-rays, which travel at the speed of light. These X-rays will reach satellite detectors before energetic protons, which provides a sort of early warning system for a possible SEP event. I employed solar proton and X-ray data from the NOAA's GOES satellites from 1996 - 2020, which covers solar cycles 23 and 24. Following this, I then used machine learning models to analyze the data behind high-intensity SEP events, producing a predictive model for SEP events based on the aforementioned principles.	Senior
94	Martin, Jeremy	Male	10	Innovation	Environmental Sciences	Insects as Energy: A Young Founder Venture	(IEC) Insect Energy Corporation is a mentored Canadian BioEnergy pre-startup founded to commercialize primary research developed in a student home-study applied science project conducted during the Covid19 lockdowns in response to the Canadian Food Waste Reduction Challenge. We use farmed insects to upcycle food waste into energy enhanced biomass fuel pellets.	Senior

Vancouver Island Regional Science Fair 2025 – Project List								
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95	Lee, Ethan	Male	11	Innovation	Environmental Sciences	Synthesis and Applications of Functionalized Graphene Oxide-Activated Carbon Composites for Advanced CO2 Adsorption	Carbon capture materials, a recently explored technology with the ability to combat the greenhouse gas effect, have gained prominence due to their ability to selectively adsorb CO2 molecules from our air. CO2 capture technologies involving sorbents exhibit two distinct adsorption properties: physical and chemical. The composites' strong adsorption properties are generally formed using materials with porous structures, such as activated carbon, metal-organic frameworks (MOFs), and zeolites. This study aims to investigate the CO2 adsorption capacity, efficiency, and regeneration cycles of functionalized carbon capture materials. To enhance adsorption performance, the composites are synthesized using pentaethylenehexamine (PEHA) as an amine functional group and integrating copper-based nanoparticle (CuNP) modifications within the structure of a porous graphene oxide-activated carbon base. This research aims to assess the potential impacts of these modifications, focusing on the contribution to developing more effective and sustainable carbon capture materials in the context of climate change.	Senior
96	Chou, Neo	Non-binary	10	Study/Discovery	Environmental Sciences	Study in Acid-Base Amphoterism and its Application in Hydrogen Gas Production	Using the inherent properties of certain post transitional metals, developing a method to better create and produce hydrogen gas	Senior
97	Fournier, Margaret	Female	10	Experiment	Environmental Sciences	A Novel to Reforestation	Deforestation often couples with soil degradation. Instead of growing a new forest from seed, this project investigated growing a new forest by planting branches cut from existing trees. After several design variations were tested this project developed the following method. Hardwood branches were placed in compost bags that were filled with a potato peel extract. The extract provided naturally occurring rooting hormones, some nutrients and sufficient water to establish rooting. Next to the branch, biodegradable straws provided a way to add additional water to support root development. A string was used to close the bag around the branch and straw. This baggie system was then anchored inside a carboard tube. The cardboard system was then planted in the ground.	Senior
98	Kola-Asa, Damaris Li, Youlan	Female Female	11 11	Innovation	Health Sciences	BEEDLE: A Microneedle-Based Implant for Targeted Neurorestorative Therapy in Traumatic Brain Injury and Neurodegenerative Disorders	Traumatic brain injuries (TBI) and neurodegenerative disorders pose major challenges due to limited treatment options and the blood-brain barrier's restriction on drug delivery. BEEDLE (Brain-Enhancing Embedded Device with Localized Efficiency) is an implantable microneedle-based device designed for precise, sustained drug administration to neurogenic regions like the hippocampus. By bypassing the blood-brain barrier, BEEDLE delivers neurotrophic factors, senolytic agents, and neurotransmitter stabilizers to enhance neurogenesis and synaptic plasticity. It features a phased-release mechanism regulated by a microcontroller, ensuring controlled drug diffusion while minimizing systemic side effects. Initial testing confirms BEEDLE's accuracy in targeted drug delivery with minimal tissue disruption. This innovative approach bridges biomedical engineering and neuropharmacology, offering a scalable, customizable solution for neurorehabilitation, particularly in TBI patients. Future advancements will focus on miniaturization, biosensor integration, and advanced drug encapsulation strategies to optimize long-term therapeutic outcomes.	Senior
107	Tang, Churong	Female	11	Study/Discovery	Health Sciences	Deriving Candidate Biomarkers from UroA-treated Cell Transcriptional Features & CRC Cell Heterogeneity	Current research on the relationship between gut metabolites and colorectal cancer remains limited. Urolithin A's capacity to induce mitophagy and its antioxidant and anti-inflammatory activities is well known. However, detailed insights into potential connections between Urolithin-A's transcriptional features and the CRC tumor microenvironment are still lacking. These insights likely could inform future CRC treatment strategies. With this in mind, my project utilized bioinformatics approaches to achieve several important results: 1. Identification of Differentially Expressed Genes: Four highly differentially expressed genes were identified in the transcriptional profile of UroA: CYP1A1, GDF15, TBC1D3, and RPL21. These genes collectively participate in cellular inflammatory responses, nutrient absorption, and immunomodulation. 2. Ligand-Receptor Pairs in Cell Communication: Among immune cells, B cells and T cells were found to be significantly associated with various epithelial cell subpopulations in the CRC microenvironment. Focus on these interactions revealed three key novel ligand-receptor pairs: LGALS9-CD45, APP-CD74, and GZMA-PARD3. These pairs are involved in cell proliferation and differentiation, cell adhesion and migration, immune regulation and inflammation, as well as angiogenesis and apoptosis. Given their prominence in my results and their key roles in other cancer types, these three ligand-receptor pairs may serve as important biomarkers for colorectal cancer.	Senior
108	Zhang, Jason	Male	11	Experiment	Health Sciences	Catching Cancer	Identifying cancer subtypes using genomic data. Then slowly reducing the amount of genes in the training data, and comparing the model accuracies.	Senior
109	Yakimovitch, Teagan	Female	11	Study/Discovery	Health Sciences	Treating Chronic Pain	My project I spoke with Behaviour Vets and researched the complexity of chronic pain. I learned of its many effects both biologically and phycology. I found how it is an issue with the modulation phase of pain. I then looked into the NMDA receptor and how it is commonly blocked using an anti-receptor to treat chronic pain. However I found that this way comes with many unwanted side effects and treatment can be both costly and inaccessible as it involves the ministration of opioids. I then was able to find an alternative treatment that was able to achieve the same results as blocking the NMDA but without the many side effects. Using antidepressants commonly given to humans such as ketamine centralization can be treated more effectively. This treatment is still fairly new but more types of drugs are being researched.	Senior
110	Lake, Clara	Non-binary	10	Experiment	Life Sciences	Effects of Essential Oils in Deterring Rats	My project looks into how different scents of essential oils can be effective in deterring rodents, specifically rats. I conducted this experiment in an ethical way, evaluating the reactions of each of my 6 pet rats to 4 different essential oil scents as well as one control group without a scent and one group with a positive/attractive scent. I measured the effectiveness of each scent by measuring the rats' distance from the scent over time.	Senior

Vancouver Island Regional Science Fair 2025 – Project List								
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111	Zhang, Anya	Female	11	Experiment	Life Sciences	Antibiotic Avengers: Old Meets New	With the continuous increase of antibiotic resistance, the need for antibiotic innovation is an urgent issue within the scientific community. The purpose of this experiment is to determine whether combining the active ingredients of traditional and modern antibiotics will kill bacterial colonies more effectively than when used separately. Traditional and modern antibiotics were prepared (honey, garlic, ginger, Auro amoxicillin trihydrate) and each of them were tested on Lactobacillus acidophilus bacteria on a petri dish, both alone and in combination with one another. The zone of inhibition and bacterial growth rate were observed for each antibiotic group.	Senior