

## Vancouver Island Regional Science Fair 2023 – Project lists

Exhibit #	Proj. #	What is the name of your project?	Names	Grade	Grade Category	Type	Classification	Summary	Gender	Language	School name
60	1101	A sunny day for beans	Saul Simons	4	Elementary	Discovery	Biotechnology	I was wondering whether the amount of sunlight a plant gets affects the size of its leaves. I think that the plants which get more sunlight have smaller leaves. I think this because the plants with less light will have bigger leaves to get more light.	Male	en	Westmont Montessori School
7	2101	The Effect of Impurities on Boiling Points	Naja Chakanyuka	5	Elementary	Discovery	Earth and Environmental Sciences	My experiment was the about the effect of impurities on boiling points. My hypothesis was that the cleaner water would boil at a lower temperature than the water with more impurities. I collected and observed the clarity of water samples from the ocean, lagoon, lake, a rain barrel, the tap and bought distilled water from the store. From the Home Depot, I purchased a pH kit to test the water samples for the following: Iron, Nitrate, Copper, Total Hardness, Total Chlorine, Free Chlorine, Total Alkalinity, and pH! The pH kit helped me determine which water was the cleanest and dirtiest. I then boiled the water to see how the boiling point differentiated between the samples. My hypothesis was correct because, in the end, the cleaner water boiled at a lower temperature.	Female	en	Pacific Christian School
8	2101	No More Nitrates!	Quinn Davies	5	Elementary	Discovery	Earth and Environmental Sciences	My project was to analyze lake water quality at Queenswood Farm to see if it can be safely used as drinking water. Upon finding that the lake water contained more nitrates than was safe for drinking, I then tested different filtration methods to see whether I could bring the levels within a safe range. I found that using lemon peels, or a Brita water filter, reduced the level of nitrates to be within a safe range for drinking.	Female	en	Pacific Christian School
9	2101	Liquid Effect	Neisha Ligue	4	Elementary	Innovation	Earth and Environmental Sciences	This experiment is about testing the different types of liquids such as oil, juice, milk, coffee and water (as control) on how it affects the growth of a bean plant.	Female	en	Westmont Montessori School
10	2101	Mushroom Effect	Jet Ducharme	4	Elementary	Discovery	Earth and Environmental Sciences	This experiment tests which type of mushroom will decompose plastic the fastest. I will be testing this by growing mushrooms on plastic and measuring which mushroom is most effective at decomposing the plastic they have been grown on.	Male	en	Westmont Montessori School
61	2101	What Happens when you give plants spice	Mateo Nicholas	5	Elementary	Discovery	Earth and Environmental Sciences	This experiment will use different types of spice and observes what happens when you put spice in soil. I will use different levels of chilli powder and see the result.	Male	en	Westmont Montessori School

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62	2101	What is the best way to reduce global warming	Camila Cota	5	Elementary	Discovery	Earth and Environmental Sciences	So I built a small machine known as a bio digester ,that makes the same thing that our stomachs do to food. We used some bacteria from manure to start the digestion and we stored the gas produced from it and we proved that it has a good energy value. I wanted to understand if food waste or garden waste are equal or wish one would be better to use to generate more gas If we all were able to store and use this gasses form our waste , we would be able to reduce a huge amount of fossil fuel gasses / greenhouse effect gasses My hypothesis was that food should be better to create more energy and also reduce global warming	Female	en	Pacific Christian School
11	4101	Can Music Affect The Heartbeat	Claire Schroeder	5	Elementary	Discovery	Health Sciences	The aim of my experiment was to see if fast music would make a person's heart rate go faster than other types of music. I played four types of songs, including a fast song, and they measured their heart rates using a heart rate monitor after each song. I recorded the data and then interpreted the results.	Female	en	Pacific Christian School
57	4101	Heart Rate Recovery - Quicker with pop or classical?	Jordan Stewart	5	Elementary	Discovery	Health Sciences	I investigated the quickest way to lower a persons heart rate using both classical and pop music as my variables. For my control, I had my participants do the test without music. The procedure of my test included my participants elevating their heart rate above 120 bpm by doing jumping jacks. I timed each of them to measure how quickly they were able to have their heart rate return to 70 bpm.	Female	en	Pacific Christian School
63	4101	Will CO2 Levels Affect REM Sleep?	Joshwin David	5	Elementary	Discovery	Health Sciences	Adequate sleep is vital for maintaining good physical and mental health, and environmental factors can affect sleep patterns. High levels of CO2 in indoor environments can be one such factor that disrupts sleep quality and quantity. The aim of this project is to investigate whether CO2 levels in a bedroom can impact the amount and quality of Rapid Eye Movement sleep, a crucial stage of the sleep cycle. REM sleep is essential for physical and cognitive health, including learning, creativity, and memory. To conduct this experiment, three conditions will be tested: with the door closed, with ventilation, and with house plants. CO2 levels and REM sleep data will be collected and analyzed to determine if there is a relationship between CO2 levels and REM sleep. This experiment will provide valuable insights into how indoor air quality can impact sleep patterns and offer practical solutions for improving sleep and overall health.	Male	en	Pacific Christian School
64	4101	Music & Mood	Avery Johanson	5	Elementary	Discovery	Health Sciences	Does music affect your mood? Using 15 test subjects, I had pick their mood and rate it on a scale from 1-10. After playing intense music of the opposite mood for 60 seconds, I had them re-evaluate how they were feeling using the same system.	Female	en	Pacific Christian School
58	5101	Does air pressure affect plant growth	William Haines	5	Elementary	Discovery	Life Sciences	I tested the effect of air pressure on mung bean growth using pressurized chambers made from 2-litre pop bottles. I found that mung beans grew best at normal atmospheric pressure and worst at higher atmospheric pressure.	Male	en	Pacific Christian School
59	5101	Protect Your Plants From Slugs	Petra Cherrington-Green	4	Elementary	Discovery	Life Sciences	The goal of this project is to prevent slugs from eating plants in the garden. I have tested ways to keep slugs off of plants without harming the slugs or the plants.	Female	en	Salt Spring Elementary School
65	5101	Your nose knows	Elisha Steeper	5	Elementary	Discovery	Life Sciences	I want to find out what the best way to get rid of dog odour from a towel is. I will be testing baking soda and cream of tartar to see which one works best. I tested ten people and asked them to rate the dog smell from zero to ten. Zero being lots of smell and ten being no dog smell.	Female	en	Pacific Christian School
1	6101	It's Electrifying! Investigating the difference of static electricity in different material types.	Owen Chen / Peyton French	5	Elementary	Discovery	Physical and Mathematical Sciences	We were interested in finding out which materials have the strongest and weakest reaction to static electricity. We tested 3 materials (ballon, plastic bag and tin foil ) and tested our hypotheses.  In our project, we looked at the difference in static electricity that 4 different types of materials generated. For each material, we looked at 3 different trials. We found there to be difference in the types of materials we investigated.	Male	en	Maria Montessori Academy

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2	6101	Where Are You Ticklish?	Sadie Alderliesten	5	Elementary	Discovery	Physical and Mathematical Sciences	This project is to answer the big question of where is the average person most ticklish. I created a survey and gave it to 132 people. Then I analyzed the results to determine a weighted tickle score.	Female	en	Pacific Christian School
3	6101	What Makes Soda Pop?	Carson Beaumont	5	Elementary	Discovery	Physical and Mathematical Sciences	My Grade 5 Science Fair Project is about What Makes Soda Pop? I research about what makes soda pop go flat and I wanted to find out if I could create my own soda recipe without using actual CO2? I researched different types of chemical compounds, tested them and logged the results. I learned a lot in my during my research and found an interesting fact as well. I had a lot of fun working on this project and making my own recipe.	Male	en	Pacific Christian School
4	6101	The Amazing Ice Cream Car!	August Belke	5	Elementary	Innovation	Physical and Mathematical Sciences	The basic idea of my innovation is designing and building a small, scaled car that makes ice cream using simple machines and edible chemistry. This innovation solves the problem of not having enough ice cream and not having it fast enough. The project uses coffee cans as scaled car wheels. Inside the wheels the ice cream is made. The coffee cans will turn because of the axles attached to the can and a pulley that using friction. The ice cream will be made by turning the coffee cans. The forces of motion will also help turn the coffee cans	Male	en	Victoria School For Ideal Education
5	6101	Pendulum Experiment to Measure Local Gravity	Feykemi (Kemi) Daniel	5	Elementary	Discovery	Physical and Mathematical Sciences	Gravity varies based on where you are on earth and in the universe. This experiment measures gravity by observing the period of swinging of a simple pendulum. By keeping the pendulum mass constant (fixed variable), controlling the length of the pendulum string (independent variable) and observing the period of swing of the pendulum (dependent variable), I am able to estimate the local gravity using the simple pendulum equation. While gravity is usually measured to be 9.81, my measured value of 9.5 might have been due to experimental error, local gravity variation or both.	Female	en	Pacific Christian School
6	6101	Need for Speed	John George	5	Elementary	Discovery	Physical and Mathematical Sciences	This is an experiment to systematically study and identify what is the best shape for an automobile from an air resistance (drag) standpoint. I carefully constructed a test set up to perform the experiment with various car shapes while minimizing the effect of outside variables. By measuring the final speed of various car shapes rolling down a ramp I was able to determine the best car shape. The results of the study can be applied to improve the fuel efficiency of our school bus and BC Transit buses.	Male	en	Pacific Christian School
20	1201	Can two 11-year old's design a new protein in a computer	Charles Block / Liam Leclerc	6	Intermediate	Discovery	Biotechnology	Charles and his friend Liam have been studying proteins and have decided to create a new protein in a computer that can stop ice crystals from forming like the proteins found in the blood of antarctic fish.	Male	en fr	Ecole Victor Brodeur
13	2201	How Salmon Will Save the Planet: why we need to save salmon	Magnus Loomer-Douglas	6	Intermediate	Discovery	Earth and Environmental Sciences	I admire salmon. I like how they are determined. I am interested in learning more about how salmon contribute to a healthy environment and why it is important to protect them.	Male	en	Christ Church Cathedral School
14	2201	Say So Long to Soggy Straws!	Reagan Morley	7	Intermediate	Discovery	Earth and Environmental Sciences	I have created an experiment to test biodegradable, non-toxic waxes as a possible coating for paper straws to see if they can enhance the experience of drinking a "slushy" by making the paper straw last longer and by reducing the papery taste. In my experiment, I test the performance of three kinds of waxes as coatings for paper straws against regular convenience store paper straws when placed in a "slushy". The waxes I test as coatings are paraffin wax, soy wax and coconut wax. All three waxes are biodegradable and non-toxic if ingested. I measure the results the straw performance on several factors, including taste, length of time in drink before soggy occurs (durability), and adherence of the wax to the straw. I conduct the experiment two times to ensure accuracy of results and of straw performance.	Female	en	Christ Church Cathedral School
15	2201	The Global Effects of Shark Finning on Our Oceanic Ecosystems	Evan Vinnitsky-Woodman	7	Intermediate	Discovery	Earth and Environmental Sciences	My goal is to research the global effects of shark finning on our oceanic ecosystems. I used a variety of online resources to help me gather information on this topic. I found that in the last 50 years alone the earth has lost 70% of the shark population thanks to direct killings from humans.	Male	en	Christ Church Cathedral School

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66	2201	The Effect of Compostable Plastic in Soil on Plant Growth	Liam deGoey	6	Intermediate	Discovery	Earth and Environmental Sciences	My project deals with the effect of compostable plastic bags in soil and the effect on plant growth. I used wheat grass as the sample plant. I used different ratios of soil:compostable plastic to test my hypothesis which was that it would negatively effect plant growth.	Male	en	Christ Church Cathedral School
68	2201	Soil Electrical Conductivity	Amelia Byrd Fisher-Franke / Lisa Pai	7	Intermediate	Discovery	Earth and Environmental Sciences	<p>For our science fair project, we chose to investigate the volume of electricity that can pass through different types of soil. Before starting this project, we needed to figure out what organic compounds and other natural materials conducted the most electricity. According to research, the soil with the best capability to trap moisture would have the best conductivity due to water being highly conductive. Based on this research, we concluded that the soil type with the best conductivity would be the most beneficial for plants. Before experimenting, our hypothesis was: If a conductivity indicator is placed into different types of dirt, then the dirt with the highest electrical conductivity will be the clay soil because it can trap the most amount of water which can conduct a higher amount of electricity than the other components in the soil.</p> <p>Our project was to determine the electrical conductivity of various soil types using a conductivity indicator that can provide valuable insight into the composition of the soil. By measuring the electrical conductivity of the soil, we can gain a better understanding of the soil's mineral content and its ability to hold water. This information can be used to make decisions about soil management, such as irrigation and fertilization. (WRITTEN BY A PARENT?)</p>	Female	en	St. Michaels University School
70	2201	Waves of the Future	Christian Attwell / Jeff Zhang	7	Intermediate	Innovation	Earth and Environmental Sciences	In this project, we will be designing, manufacturing, and testing a wave powered electrical generation system. We will test our model for functionality, We will then field test the generator for identification of optimal wave conditions for power generation.	Male	en	Arbutus Global Middle School
72	2201	Harnessing Tidal Energy	Conor Beamish	7	Intermediate	Discovery	Earth and Environmental Sciences	In this project I will research how to create energy from tides by discussing the benefits, limitations, and any environmental impacts on the wildlife in the area. I will also look at the different ways of producing energy and classifying different designs. Lastly I will create a model to demonstrate how tidal energy works.	Male	en	Arbutus Global Middle School
69	3201	Apple vs. Samsung	Abby Kim	7	Intermediate	Discovery	Engineering and Computer Science	Today, 6.8 billion people use cellular phones. The two biggest companies are Apple and Samsung, both with huge brand loyalty. I sought to find out which brand people prefer and why: Apple or Samsung. A Google Forms survey was created. I predicted that more people would choose Apple, because it is a more global brand and the operating system is more specific. This survey had 144 participants. There were 117 female and 26 male participants. The majority were from Canada. Participants from four countries (Canada, USA, South Korea, and Philippines) answered that they preferred Apple. Respondents from the UK, Italy, Malta, and Panama preferred Samsung, but there were only 1~2 participants from each. Overall, both genders liked Apple better. Eighty-three females preferred Apple and fifteen males preferred Apple. All age groups preferred Apple over Samsung. Reasons for this preference included operating system, camera, synchronization, and friendliness of Apple.	Female	en	Assumption School Elementary
17	4201	A comparison of preferred lenses.	Liam Kingsbury	7	Intermediate	Discovery	Health Sciences	My project is about polarised lenses and how they may or may not improve vision. My great grandmother has trouble seeing, so I want to help her see. I used polarised lenses, normal sunglasses lenses, and glasses with no lenses. We walked around turkey head walkway and tested out the different glasses. I recorded my observations.	Male	en	St. Michaels University School

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18	4201	Is Screen Use Ruining Your Sleep?	Michaela Yee	7	Intermediate	Discovery	Health Sciences	Teens spend a massive amount of time on technology, on average nine hours of recreational screen time per day, according to the CDC. The circadian rhythm is influenced by sunlight. When the environment is dark, the body produces melatonin which is a hormone which induces sleep. The body produces less melatonin when looking at blue light from screens because blue light is similar to sunlight. The hypothesis was if middle schoolers spend three or more hours daily on recreational screen time, then they will be more likely to sleep for less than 8 hours because the blue light generated by screens interferes with production of melatonin. In this experiment I asked middle schoolers two questions: How many hours do you sleep, and how much time do you spend on screens recreationally. This topic investigates one of the potential impacts that technology has on our daily lives.	Female	en	St. Michaels University School
21	4201	Sugar (not so sweet?)	Tess Hellner-Mestelman	7	Intermediate	Discovery	Health Sciences	Sugar is sweet. But are we being fooled by labels advertising “no sugar added” or “all natural” ingredients? My project looks at the sugar content of “no sugar added” drinks and sweeteners found in my home. In this study, my family members and I guessed how much sugar was in a cup of each drink or natural sweetener, and compared these results to the actual sugar content on the ‘Nutrition Facts’ labels. Some results were surprising and led me to research Canadian guidelines for daily sugar intake. I looked at why we crave sugar, and the health risks of exceeding these guidelines, such as diabetes, heart disease and childhood obesity, which is on the rise. All these conditions can cause lifelong health problems. Advertising “no sugar added” can be misleading and might be harming our long-term health. Ideas to increase awareness of healthier choices are explored in my study.	Female	en	Selkirk Montessori School

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22	4201	How does the job of a receptionist nurse affect their life span.	Sofia Nizamova	7	Intermediate	Discovery	Health Sciences	In this project you will learn what the drawbacks are of a receptionist nurse's job. My project will discuss what challenges a receptionist nurse will face and if possible how to solve them.	Female	en	Christ Church Cathedral School
73	0201	Soap vs Soap	Betty Huang / Sydney Martin	7	Intermediate	Discovery	Health Sciences	<p>In this project, the researchers experimented with bar soap and liquid soap to see which one makes your hands cleaner. In this experiment, a chemical called agar (a jello-type ingredient that is poured into Petri dishes, that helps grow bacteria) was used, to calculate which glass slide (washed in different types of soap) had the least and the most amount of bacteria grown on the dirty one and the four other ones. The question that this experiment aims to answer is the following: What is the best type of soap to use to prevent getting ill? If compared, 4 kinds/brands of soap to see which one makes an individual's hands cleaner, then we think the 2 liquid soaps will be better because bar soap is made from liquid soap and maybe some thickeners.</p> <p>"Our project is called Soap vs Soap. We experimented with 4 different types of soaps, specifically two liquid and two bar. This was in order to see which one killed the most bacteria. We had students in our class touch different scientific glass slides. We had 5 of them. One for each brand of soap and one to track one that's dirty. We then washed them in the different types of soap, swabbed them, and put them on agar plates for the bacteria to grow."</p>	Female	en	St. Michaels University School
12	5201	Fascinating Fertilizer	Morgan Vandermolen	6	Intermediate	Discovery	Life Sciences	I will make my own fertilizer out of nitrogen, phosphorous and potassium, then I will test it against other brands of fertilizer to see which one makes a bean plant grow the fastest.	Female	en	Westmont Montessori School

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16	5201	Germ vs. Classroom	Farrah Cheung	7	Intermediate	Discovery	Life Sciences	The purpose of this experiment was to investigate which surface or item in the classroom has the most germs. To perform this experiment, the first step was to swab various surfaces throughout the classroom using swabs, the same thing that one would test for COVID-19 with, and then calculate data on how many germs each plate had by calculating the percentage of the germs compared to the size of the petri-dish. The question for this experiment was 'What is the Dirtiest Place in the Classroom?' The hypothesis was "If I test which surface in the classroom has the most germs, then, (on top of) students' desks will be the dirtiest because many students at SMUS use them daily.	Female	en	St. Michaels University School
67	5201	Purr-fect Vision	cleo price	6	Intermediate	Discovery	Life Sciences	I tested if cats could see primary colours, or if everything was black and white. I chose this project because I wanted to know if cats see the world in colours. I was also really interested in how cats' eyes work and I wanted to look deeper into that. What I did was I got 4 red cups and 1 yellow cup, and 4 yellow cups and 1 blue cup, and 4 blue cups and 1 red cup, and then I put a treat under the odd coloured cup. Each time, the cat went to that cup because there was a treat under it. On the eleventh try, however, there was not a treat under any of the cups. If the cat went to the correct coloured cup, that meant he could see that colour.	Female	en	St. Michaels University School
71	6201	The Science of Stealth Planes	Paul Holland	7	Intermediate	Discovery	Physical and Mathematical Sciences	My project is about which shapes are most reflective of light. I placed a folded piece of paper, a lux metre, and a flashlight in a box lined with black construction paper. I would then turn on the flashlight, and record the lux that was picked up by the lux metre. This experiment was a model of how radar reflects off of different planes, though light is not a perfect model for radar waves.	Male	en	St. Michaels University School
19	1301	Natural Sidewalk Deicers	Nouria Loomer-Douglas	8	Junior	Innovation	Biotechnology	I am testing homemade sidewalk deicers. I want to make sure that less people slip and fall while ensuring that the deicers are nontoxic and safe for the environment and animals. I will achieve this goal by testing three different natural substances that could be used as natural deicers that are readily available to everyone: coffee grounds, vinegar and sugar beets.	Female	en	Christ Church Cathedral School
23	1301	Evaporation Electricity: Nanoengineering Wood for Sustainable Energy	Liam Pope-Lau	8	Junior	Discovery	Biotechnology	With the need to find renewable and non-polluting resources, wood can be used for many innovations. As shown in this investigation, there are local and novel options for wood-based clean energy generation using the hydrovoltaic effect through water evaporation. Hydrovoltaic energy is created through the direct interaction between nanomaterials and different forms of water by absorbing heat from the environment and changing it from liquid to gas through evaporation. I designed this experiment to investigate the relationship of wood samples with different masses (Balsa, Western Red Cedar, Basswood, and Douglas Fir) and their energy output. I nanoengineered the wood samples by soaking them in NaOH (a proven method of cell wall modification in both science and industry) and testing the electrical current (mV) in each sample as the water evaporates over time through the hydrovoltaic effect. These nanoengineered materials can expand possibilities for self-powered devices.	Male	en	St. Michaels University School
24	2301	How does Mycelium sequester carbon?	Charlotte Banting-Spooner	8	Junior	Discovery	Earth and Environmental Sciences	What is mycelium? A study looking at how different types of mycelium sequester carbon on a long term basis. Habitats of mycelium and threats facing the world's mycelium populations.	Female	en	Christ Church Cathedral School
25	2301	The Effects of Farming in Africa	Yashita Kaku	8	Junior	Innovation	Earth and Environmental Sciences	In the last year alone, more than half a million children have been at risk of dying in nutrition centers at the hands of malnourishment; with more than half the country facing some form of famine. After researching this problem, I realized that this was an issue that couldn't be solved with funding alone, which led to creating the idea for the idea of this design a farm powered by solar energy. Upon which the design was updated and improved into three prototypes; the third one was the final design. A vertical farm powered with solar panels to help solve this ongoing issue in Somalia, and all across Africa.	Female	en	St. Michaels University School

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26	2301	Removing Crude Oil from Existing Discarded Plastic	Jaeden Sewagudde-Peden	8	Junior	Discovery	Earth and Environmental Sciences	I want to find out if it is possible to remove crude oil from existing plastic to create a sustainable renewable resource from an existing environmental challenge. I will find out if it is even possible to remove the crude oil from plastic, I will research if we can use the crude oils that have been removed to create more plastic. We will dive into the procedures necessary to remove the oils from the plastic and I will look at how expensive the procedure is and if it is even practical.	Male	en	Christ Church Cathedral School
27	2301	The Electrifying Effects of Water Pressure	Jai Tatra	8	Junior	Innovation	Earth and Environmental Sciences	I investigated how micro-hydro power plants work and how logical they are. I chose this topic because I want to see how efficient hydropower plants are as, here in BC, we use hydroelectric dams to power our cities and houses. With the prices of everything going up including hydropower, I want to see if there is a way that we can make it more cost-efficient for us and our wallets. If we can increase the water pressure in our hydroelectric dams or hydropower plants, can we produce more electricity for our cities and homes? Also, if BC goes to all-electric vehicles by 2035 as planned, can we meet the increased demands for electricity that EVs would pose, by increase in water pressure in hydroelectric dams and thus not having to build more hydropower plants which would save our taxpayer dollars, without having to build new infrastructure?	Male	en	St. Michaels University School
28	2301	Environmentally Friendly Anti-Bacterial Cleaner	Noah Grand	9	Junior	Discovery	Earth and Environmental Sciences	Using petri dishes and agar, I grew bacteria and I then applied salt water with different levels of salinity. I then recorded the growth rate and surface area that the bacteria covered. Because of the process of osmosis, the salt water removed the moisture from the bacteria and effectively "dried it out." This stunted the bacterial growth rate, or it killed the bacteria all together.	Male	en	Glenlyon Norfolk School
29	2301	How do the impacts of wildfires affect the growth of plants	Kaitlyn Chan	9	Junior	Discovery	Earth and Environmental Sciences	In this project, the aftermath of wildfires on plants was investigated, and the ability of plants to absorb the pollution and smoke caused from the wildfires. The project explored the growth environment post fire, through experimenting on plant reaction with smoke treatment, and seed germination with liquid smoke.	Female	en	Glenlyon Norfolk School
38	2301	Exploration of an energy sustainable approach to enhance heat exchange	Ayden Kuo	9	Junior	Innovation	Earth and Environmental Sciences	Due to climate change, hot summers are hotter and longer. Air conditioned shelters are not sustainable for both budgetary and environmental reasons. Without consuming energy, a ventilated shelter may be the solution to prevent people from suffering from heat exhaustion. In this project, two types of ventilation openings, funnel vs round, were explored to determine which opening enhanced heat exchange more effectively. The funnel opening allowed the temperature to drop from 40-30 °C in 5 minutes while the round opening took 7 minutes. The underlying mechanism involves a temperature difference between two regions that naturally drives air flow in an attempt to reach a thermal equilibrium. The streamlined funnel opening allows air flow to accelerate more effectively thus resulting in a rapid decrease in temperature. These results suggest that a shelter constructed using funnel opening ventilation may be ideal in providing cooling centres for populations in need during summer heatwaves.	Female	en	Glenlyon Norfolk School
56	2301	A Green Place	Leighton Palmquist	9	Junior	Discovery	Earth and Environmental Sciences	This project aimed to answer the question, how can adding cedar trees to green spaces increase oxygen levels? To do this, three simulated green spaces (one with no cedars, one with one cedar, and one with two cedars) were created. It was expected that the highest oxygen levels would be recorded in the bin with two trees. Observations were made over a period of 8 days. Moisture inside the bins was noted daily, as well as am and pm temperatures. The bin with no trees was the warmest at nearly every measurement; sometimes significantly warmer. The bin with no trees varied greatly in temperature. The bin with one tree consistently had similar temperatures at each reading and appeared to be evening out over time. Results suggest that more trees can reduce the effects of global warming in urban areas.	Male	en	Assumption School Elementary
55	3301	Converting Sound Energy to Electrical Energy	Alyosha Silvester	9	Junior	Innovation	Engineering and Computer Science	Is it possible to convert sound energy to electrical energy and what variables are important for maximizing the energy capture? I used a speaker driver to test this out to see if this would be a viable solution for generating electricity in my community.	Male	en	Glenlyon Norfolk School



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31	4301	How Different Audio Frequencies (hertz) Affect Heart Rate (bpm)?	Shreesha Ramandev	9	Junior	Discovery	Health Sciences	My project title is 'How Different Audio Frequencies (hertz) Affect Heart Rate (bpm)?' My project was done so I could discover how our environment's audio affects our health and what type of hertz can be used in the waiting rooms or in places that can cause stress. I wanted to test certain hertz that I found online and see if they actually work. My results confirmed my hypothesis except for one. The outlier was 10 hertz. In conclusion, the lower the frequency of the audio, the faster the subject's heart rate will slow down.	Female	en	Glenlyon Norfolk School
32	4301	Horse apples aren't what you think.	Amelie French	9	Junior	Discovery	Health Sciences	Facing an uncertain climate change future, we will most likely face more dry weather in the Pacific North West, coastal areas, and globally. This drying of the environment will increase sand in the equine gut and have the potential to be a contributor to increasing cases of equine colic, the number 1 killer of horses.	Female	en	Glenlyon Norfolk School
33	4301	The Future of Injury Reduction in Contact Sport	Liam Whiteside	8	Junior	Discovery	Health Sciences	I investigated the overall injury rates, as well as concussion rates, in different contact sports, specifically rugby and American football, finding that rugby is a sport more prone to concussions but football has a higher rate of severe injury. I then researched why this is and if these injuries are caused by flaws in equipment or a lack of technique. With these findings, I wrote letters to BC Rugby and the BC Provincial Football Association. I expressed that these organizations should highly consider implementing the suggestions I've provided them with into their provincial programs in order to help reduce the rates of major injury in contact sports within the province and beyond.	Male	en	St. Michaels University School
34	4301	The Correlation Between Age & Hand Hygiene	Alivia Massullo	8	Junior	Discovery	Health Sciences	This project aimed to determine which age group would result in the most cultured colonies of bacteria and molds: 3-4 year olds (Preschool), 5-7 year olds (Kindergarten – Gr. 2), 8-10 year olds (Gr. 3-5), 11-15 year olds (Gr. 6-9), adults? I predicted that the 3-4 year olds would have the most bacteria on their index finger as they do not wash their hands on a regular basis without getting reminded. A total of 48 samples were collected over all age groups. Sixteen samples did not show any bacterial growth after two weeks. Eleven Petri dishes grew only one colony of bacteria. One dish grew more than 40 small colonies. I suspect these to be Candida Albicans, Aspergillus Nidulaus, Penicillium Digitatum and some possibly Serratia Marcescens. The results of this study suggest that my hypothesis was incorrect. The 5-7 year old group had an average of 7 colonies per participant.	Female	en	Assumption School Elementary

## Vancouver Island Regional Science Fair 2023 – Project lists

Exhibit #	Proj. #	What is the name of your project?	Names	Grade	Grade Category	Type	Classification	Summary	Gender	Language	School name
35	4301	Scentful Studies	Alana Scott	8	Junior	Discovery	Health Sciences	A study to determine which scent of three is the most useful for memorization for ages 11-15. Done using scented masks and printed shapes on cards for participants to memorize the order of.	Non-binary	en	Westmont Montessori School
36	4301	Sweet Scores	Andrei Marti	8	Junior	Discovery	Health Sciences	I am a type 1 diabetic and I love to play soccer. Type 1 diabetes is an autoimmune disease in which your pancreas does not function effectively. The pancreas produces a hormone called insulin, type 1 diabetics are insulin dependent. In my experiment, I investigated how different foods affected my blood sugars during soccer practice. I tested 3 different groups of foods: Simple sugars such as a banana, complex sugars/carbohydrates like bread, and proteins like those found in eggs. I tested my blood sugars 30 minutes prior to soccer with my CGM (continuous glucose monitor). I also ate at the same time (30 minutes prior). After practice, I reviewed my data during soccer practice and recorded it on a table. I ate each of the 3 categories of food 4 times (4 complex sugars, 4 simple sugars, and 4 proteins) before drawing my conclusions. I was the ONLY subject.	Male	en	St. Michaels University School
37	4301	Keep on Track!	Eli Alexander	8	Junior	Discovery	Health Sciences	Students often do homework late at night when they feel tired, are not working at their best, or just need a boost. Solutions are necessary to keep them at focus. Sometimes, students use exercise, play video games, eat a protein bar, and more. Are these effective? As I've researched, I've found no studies or experiments that have tested these against each other. The closest I've found are studies that survey students to see if they're tired or feeling focused. In this experiment, I will test students' attention and focus using trail-making and STROOP tests. They will participate in one of three activities except for the control group. The three actions will be: running laps on the field for 20 minutes, playing video games for 20 minutes, or eating a protein bar. They will complete a trail-making test and a Stroop test before and after the activity.	Male	en	St. Michaels University School
30	5301	Memory over time	Kevin Su	9	Junior	Discovery	Life Sciences	My project aims to discover how certain groups of people's memories can differ over time. I will accomplish this by having participants experience an event. Then, after a set period of time (1-30 days), I will see how much of the initial memory they retained.	Male	en	Glenlyon Norfolk School
53	1401	An environmentally friendly approach to extracting heavy metals from solutions utilizing melanin found in hair	Alexis Kuo	11	Senior	Innovation	Biotechnology	Melanin is a biological pigment that has the ability to sequester heavy metal ions within tissue. Proposed applications have encountered challenges in extracting the melanin and applying it in a sustainable method. The aim of this project is to explore a sustainable approach to remove metal pollutants using finely-ground hair by submerging it into aqueous solutions (CuSO <sub>4</sub> , FeSO <sub>4</sub> and FeCl <sub>2</sub> ) for 2 weeks. Gravimetric analysis was used to determine the amount of total dissolved solids remaining in the solutions. Results showed that hair was able to effectively remove 72.2%, 65.7% and 77.0% percent of metals from the aqueous solutions of CuSO <sub>4</sub> , FeSO <sub>4</sub> and FeCl <sub>2</sub> , respectively. Further analysis showed that hair was able to enhance removal of metals from the aqueous solutions by 22% and up to 36%. In conclusion, melanin in hair can be used as an accessible, sustainable, and environmentally-friendly method to remove heavy metals.	Female	en	Glenlyon Norfolk School
54	1401	Banana-peel-based Biodegradable plastic	Harry Lin	10	Senior	Innovation	Biotechnology	A laboratory is currently dedicated to developing biodegradable plastic made from banana peels as a replacement for traditional plastic. The focus is on creating a compostable, durable, and widely accessible alternative. The lab has already determined the optimal heating time for the material in a toaster oven, and is now shifting focus to testing how various chemical molarities will impact the final product. Consistency has been identified as a significant issue in previous lab work, and modifying the solution's consistency is expected to improve the shaping and drying processes.	Male	en	Queen Margaret's School
39	2401	Photo Volts	Phoebe Dendes	10	Senior	Innovation	Earth and Environmental Sciences	Using light to power a car to be 100% off the grid to lower the amount of damage done to the environment for building dams to reduce everyone's carbon footprint.	Female	en	Glenlyon Norfolk School
40	2401	SPACE FOOD	Megumi Fujita	10	Senior	Discovery	Earth and Environmental Sciences	"Space food" is what astronauts eat in space. I'm sure you are interested in differences between what we eat on the earth and space food. I did research on the internet about requirements of space food, how do astronauts eat and how does space food taste at first. Eventually, I did experiment to observe which fruit work best as space food.	Female	en	Home School

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44	2401	Plastered Plants Defeat Drought	Katharine Morley	10	Senior	Discovery	Earth and Environmental Sciences	<p>High temperatures and droughts have become more frequent in B.C. due to climate change, and these conditions severely impact agriculture. I was inspired by a recent study published in Plant and Cell Physiology which suggested that ethanol improves plant growth during drought. I tested the authenticity of this claim in my own experiment with radish plants and to create an ethanol-based fertilizer that could be used to save drought-stressed plants.</p> <p>I investigated three different ethanol solutions. I applied these solutions to mature radish plants for three days, and then ceased all water supply for four days to simulate drought. I utilized photosynthetic flotation to test the rate of photosynthesis in the plants to evaluate the efficacy of each fertilizer. My results were promising, indicating that two ethanol concentrations exceeded the ability of water to promote plant growth during drought. Testing is ongoing, focusing on more precise ethanol concentrations.</p>	Female	en	Glenlyon Norfolk School

## Vancouver Island Regional Science Fair 2023 – Project lists

Exhibit #	Proj. #	What is the name of your project?	Names	Grade	Grade Category	Type	Classification	Summary	Gender	Language	School name
45	2401	Is Horse Manure a Viable Source of Energy?	Rose Wu	10	Senior	Discovery	Earth and Environmental Sciences	This project is about comparing energy produced by burning horse manure and wood to see which works better in different situations. The project is mainly an experiment with some research and facts. The reason why I chose this topic is because there is a lot of animal waste in our school especially horses. Waste managements becomes one of the most important thing that need to be focused on under this situation.	Female	en	Queen Margaret's School
47	2401	"Expanded polystyrene foam" that grows on trees	Richard Lee	11	Senior	Discovery	Earth and Environmental Sciences	Expanded polystyrene foam (EPS) has caused serious environmental problems worldwide due to its non-biodegradability and sometimes toxicity. It is important to reduce plastic pollution and to develop biodegradable alternatives. Pomelo peel (PP) has a lightweight, porous structure, and is biodegradable. The purpose of this project is to determine whether or not certain characteristics of a PP make it an effective bio-packaging material. This work studied the compressive mechanical properties and impact absorption performance of PP. The results show that the peel can take strain, which reflects its capability to resist pressure and absorb energy. It is also somewhat elastic, and does not collapse outward, maintaining its integrity. The cushion test shows that the optimal porous structure of PP endowed by nature can provide foam-like protection for eggs. Some properties of PPs are similar to or even better than foam, which make it a promising candidate of packaging alternatives to EPS.	Male	en	Mount Douglas Secondary School
43	3401	Three-track transformable robot for emergency rescue detecting	Kaisheng Ma	11	Senior	Innovation	Engineering and Computer Science	There are increasing number of disasters caused by both climate change and political conflicts in recent years, and these disasters all trigger to massive building collapse, which takes away people's life. I hope to create a kind of robot that can assist rescue teams to do rescue work more efficiently, and that will help save more lives. A robot that can help in debris needs to be small, flexible, expandable and remote-control. Based on these features, I designed, refined and built a prototype of the rescue robot. The prototype is a three-track transformable robot; the three sections can be arranged in multiple ways by two joints to face various conditions. The central body of this robot is expandable to external sensors or cameras, so this robot may help rescue teams detect survivors in debris. Some tests have been done on the prototype to check its abilities as well.	Male	en	Pearson College UWC
41	4401	Bacteria fighter: Fenugreek	Alaa Ibrahim	10	Senior	Discovery	Health Sciences	The project I will be conducting, Bacteria fighter Fenugreek, is a project that tests if Fenugreek is truly a sufficient Bacteria fighter. I will conduct multiple experiments comparing Bacteria growth with and without Fenugreek, and determine whether Fenugreek should be considered much more frequently in natural medicines. I will examine a plant that is often undermined in western naturopathic medicine, but tremendously prevalent in cultures in North Africa and South Asia. My project will compare research versus experiment results to synthesize if Fenugreek is truly a natural wonder and should be used more frequently in natural medicines in Western societies. The aim of this project is to determine the affluence of Fenugreek and whether it should be globalized as a naturopathic option for combating bacteria. Additionally, I would like to introduce other medicinal properties of Fenugreek, to allow people to consider a new and revolutionary medical option to explore.	Female	en	St. Margaret's School
42	4401	Difference between lactose intolerance and dairy allergy	Marina-Jiayan Xie	10	Senior	Discovery	Health Sciences	The project is a study based on the population distribution of different ethnic groups and nations who are diagnosed with lactose intolerance and dairy allergy. In order to operate a more specific study, this project introduces the biological characteristics of lactase and lactose and briefly explains the reason behind food allergies. Then, I campaign mass research of qualitative data of the population of different nationalities that have such problems and further explain the historical and genetic reasons behind that. Last but not least, this study also includes alternative choices: lactose-free milk and dairy-free milk, including their flaws or in other words, truths.	Female	en	Queen Margaret's School

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Exhibit #	Proj. #	What is the name of your project?	Names	Grade	Grade Category	Type	Classification	Summary	Gender	Language	School name
46	5401	Which Reactants of The Home-made Bath Bomb Increases The Density and The Reaction Speed The Most?	Dow Kim	10	Senior	Discovery	Life Sciences	This project is an experiment which explores the chemical reaction that occurs between the most common reactants that are used and can be easily obtained in our daily lives, such as baking soda (Sodium bicarbonate), sour salt (Citric acid), and cornstarch (High-amylose). Initially what sparked my interest to begin this experiment was my natural curiosity – I have always been curious about how cosmetic products, foods, and everyday items were created. The scientific process of making those objects intrigued my curiosity and I chose one of the cosmetic products, a bath bomb, to illustrate what role each reactant takes. So I have decided to make several bath bombs with each group consisting of different amounts of the reactants and how these affect the density and the reaction speed.	Female	en	Glenlyon Norfolk School
48	5401	The Effects of Blue Light on Adolescents' Circadian Rhythm and Quality of Sleep	Jason Cheng	10	Senior	Discovery	Life Sciences	This research study aims to determine the effects of blue light, often emitted by electronic devices or bright LED-Lights, on adolescents' circadian rhythm, and their quality of sleep. Through analyzing various peer-reviewed sources, this study was able to correlate the decrease in melatonin levels to the use of electronics before sleep, thus negatively affecting the quality and lengths of sleep.	Male	en	Queen Margaret's School
49	6401	The Dual Dipole Radio Telescope	Evan Warburton	12	Senior	Innovation	Physical and Mathematical Sciences	When I learned about the decameter wavelength Jovian radio signals that are detectable from Earth, I had to understand more. For my project, I built my own amateur radio telescope to see if I could collect spectrograms and find trends in my observations of these celestial signals. Over several months I gathered the appropriate equipment and put together a dual dipole antenna array that uses software defined radio (SDR) to create digital data. My project is in ongoing use, and I have detected multiple signals, including upper-atmospheric lightning that occurs here on Earth.	Male	en	Oak Bay Secondary School
50	6401	Paper airplane	Wakako Hagiwara	10	Senior	Discovery	Physical and Mathematical Sciences	This project is primarily aimed at discovering ways to make paper airplanes fly long distances. My project focuses on experimentation and some research. In this project, I built and compared different paper airplanes by varying their weight, angle, wingspan, size, and with and without elevators. The reason why I chose this theme is because I loved playing with paper airplanes when I was little. And now I have a passion and curiosity for the physics of paper airplanes.	Female	en	Queen Margaret's School
51	6401	I Need More Spacetime	Nathan Hellner-Mestelman	10	Senior	Discovery	Physical and Mathematical Sciences	It is known that Hubble's Constant—the rate of expansion of our universe—is approximately 73 km/s per megaparsec. It is also known that the rate of expansion was slower in the past, and will accelerate in the future. My project aims to show that it is possible to predict the time and process by which our entire universe will end, using only a backyard telescope and a personal camera. By observing nearby and distant Type-1a supernovae in galaxies beyond our gravitationally-bound Virgo Supercluster, one can detect the change in redshift and brightness between them. Taking into account the delay from a finite speed of light, it is possible to determine the galaxies' distance and recession velocity. I aim to calculate and verify the rate at which our universe's expansion is changing over time, and the ultimate implications the expansion rate has for humanity.	Male	en	Mount Douglas Secondary School
52	6401	What makes a strong electrolyte?	Maggie Preston	10	Senior	Discovery	Physical and Mathematical Sciences	Within my project, I will be researching what is an electrolyte. Along with discovering what makes a strong electrolyte. This will be discovered through experimenting the conductivity of an electrolyte (makes a stronger electrolyte) using a contraption which requires electrolytes. If my contraption (water electrolysis) does not work, then it will be evident that the electrolyte is not strong. After gathering my data on the strengths of the electrolytes, I will transfer the research knowledge from strengths of the electrolytes to the results. Through comparing the attributes which make a strong electrolyte.	Female	en	Queen Margaret's School

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Exhibit #	Proj. #	What is the name of your project?	Names	Grade	Grade Category	Type	Classification	Summary	Gender	Language	School name
						6	Biotechnology				
						26	Earth and Environmental Sciences				
						3	Engineering and Computer Science				
						18	Health Sciences				
						9	Life Sciences				
						11	Physical and Mathematical Sciences				
<b>Elementary</b>											
				20		1	Biotechnology				
						6	Earth and Environmental Sciences				
						0	Engineering and Computer Science				
						4	Health Sciences				
						3	Life Sciences				
						6	Physical and Mathematical Sciences				
<b>Intermediate</b>											
				18		1	Biotechnology				
						7	Earth and Environmental Sciences				
						1	Engineering and Computer Science				
						5	Health Sciences				
						3	Life Sciences				
						1	Physical and Mathematical Sciences				
<b>Junior</b>											
				19		2	Biotechnology				
						8	Earth and Environmental Sciences				
						1	Engineering and Computer Science				
						7	Health Sciences				
						1	Life Sciences				
						0	Physical and Mathematical Sciences				
<b>Senior</b>											
				16		2	Biotechnology				
						5	Earth and Environmental Sciences				
						1	Engineering and Computer Science				
						2	Health Sciences				
						2	Life Sciences				
						4	Physical and Mathematical Sciences				
73											