



# MIDDLE YEARS PROGRAMME

## Personal Project Exhibition

### Class of 2019

April 25, 2017

*The Personal Project Exhibition is the culmination of a year long process of independent research, planning, production, and presentation. The projects run the gamut of creativity and are intended to be of personal interest and to be personally challenging for each student. This exhibition is the capstone event of the students' journeys through the Middle Years Programme.*

*The Grade 10 students summarized why this Personal Project was meaningful to them and what challenges they faced. Their responses are included in this brochure.*

*Thank you to the many advisors who were guides to our students.*

*Congratulations to the Class of 2019 for all your hard work!*



**RIVERSTONE**  
INTERNATIONAL SCHOOL

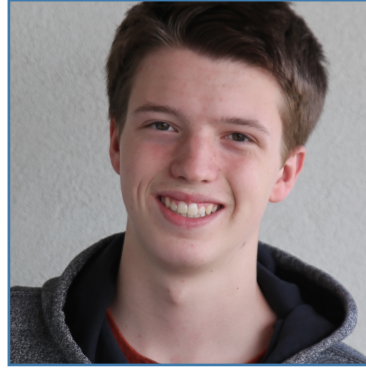


**Evana A**

*Building a Prosthetic Hand*

Since I was young, I have always liked figuring out how things work. I have known for a long time that I want to be a biomedical engineer, and I developed a fascination of how prosthetics work in sixth grade. I am interested in how they provide function and range of motion while still being light and able to provide maximum efficiency. This led to the goal of trying to build a prosthetic hand for my Personal Project. I decided to build it out of 3D-printed plastic that was able to move. I researched plastic materials for making a light, yet strong prosthetic and used super glue to hold all of my pieces together. My final product was a life-size, plastic prosthetic that is able to mimic the motions of a real hand. This project has taught me a lot about patience, as it took weeks to print and piece together my hand, and it took a while to feel productive. It also taught me a lot about time management, as I had to balance the printing process with my research and trying to piece together the available plastic parts. Furthermore, this project introduced me into the world of engineering, which I will forever remember.

*Advisor: Jenn Schmutzler*



**Orion B**

*Creating a Political Website*

I have always been interested in United States politics, and this project focuses on highly politicized issues. I also support non-partisan principles (looking at multiple arguments while disregarding political parties), which I've tried to embrace for each topic I researched. I am curious about how to solve the nation's problems through fair process and developing policy, which benefits as many people as possible. I made a website outlining a variety of solutions from different political standpoints for eight different issues. This included giving my opinions on each issue based on what I learned from my research. I believe my research skills improved greatly as I familiarized myself with how to identify good sources. When writing my content, I learned about countless ways to improve America as a whole, as well as being enlightened on the flaws of my country. I developed a better understanding of politics and their complexities. I tried to improve on being critical of my own beliefs while accepting others' ideas. I discovered my strengths and weaknesses as a learner, and grew from those lessons.

*Advisor: Joe Beard*



**Laurel C**

*Writing and Illustrating a Children's Book on the Benefits of Zoos*

I created my project because when people think of zoos, they think of animals living in poor and unfair conditions. This may have been true in the 1950's and 1960's, but with improved understanding, zoos have adapted a model that closer resembles animal's natural habitats. With the loss of habitats and populations decreasing, zoos are playing an integral part in the survival of numerous animal species. My intended purpose was to educate all generations and change their opinions so they see the benefits that zoos provide. Working at a zoo provides me with a type of firsthand account of all the amazing things that zoos do to save animals, and I wanted to share that with the people who feel differently. I felt that the best way to spread this message is through the children themselves who visit. One thing that I learned is how the creation of something as small as a book can unite people and educate them as well, no matter their background or level of education. I also learned the power that combining words and pictures can have in spreading a message.

*Advisor: John Pedersen*



**Thomas C**

*How to Run a Campaign for President*

In this world of polarization, the world is seen in black and white. Politics is one of the main culprits in creating this divided society. Being a politician is a tempting position for many individuals. A politician has power in an equal society. They can make a difference in how they choose to govern. Now, my project was all about answering one question: How does an individual rise to a position of power? For this project, I was able to explore my passion for politics and how our current political landscape has formed. I researched the techniques to running a successful political campaign, and how current elected officials and previous presidents have reached their current positions. Along with this, I also researched the importance of accurate polling, and the lack thereof in the 2016 election. Other important issues that my project covered was the selection of a vice president and federal judges. One of the main powers that a president has is being able to shape the judicial branch of government and pick a vice president, so I decided do that for myself.

*Advisor: Jeff Cole*

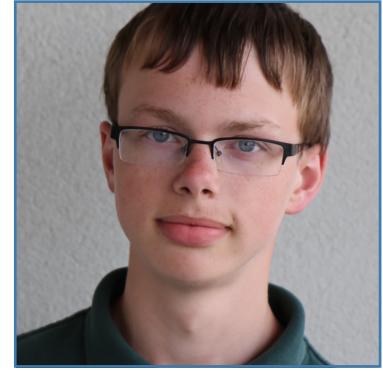


**Jackson C**

*The Snowboard*

For my Personal Project, I explored the area of scientific and technical innovation, by designing, building, and riding a snowboard of my creation. This project was meaningful to me because it allowed me to explore my personal interests in snow sports. For this project, I took my interest in skiing and attempted to expand it by using the Personal Project. For this project, I built a fully functional snowboard, and I taught myself the basics of the sport on the board I created. The most challenging part of this project was the sheer amount of time it took me to complete the project, nearly 60 hours in total. It was often difficult to find the time to work on my project, also balancing academics and athletics; however, I was extremely pleased with the final project. This project had many unexpected issues that occurred, for example, the bamboo base splitting in the mold. This aspect of the project helped me learn the importance of preparing for unexpected issues that arise, not only within the project, but in the rocky road of life.

*Advisor: Jeff Cole*



**William C**

*WillOS*

My project was the creation of a simple, bootable operating system: from scratch. My product is capable of very simple command handling and file editing, and can perform practical, but basic, functions. I was interested in my project because I had little experience with low-level programming languages, and I wanted my project to be oriented around programming. I was curious about how difficult it would be to accomplish my project, and I wanted to understand how computers break down complicated instructions into the very simple commands interpreted by the computer's hardware. I did not rely on any external programming or shortcuts, as I wanted to understand how every element of my program works and why. As a result of creating my product, I was able to learn about the basics of how software interfaces with hardware, as well as how that can be practically applied to my future projects.

*Advisor: Joe Beard*



**Olivia D**

*Composing an Orchestra Score*

Music has been a salient part of my life since I was young. My interest in bass and orchestra grew out of two personal questions I continually ask myself: how can I expand my musical abilities and how can I connect with others through music? I revisited these inquiries and created my goal to compose and record excerpts of a piece of music written for a string orchestra. The final composition, “Rhapsody Ostinato,” is 8 minutes long and I was able to record a 2 and a ½ minute excerpt of the composition with the Timberline Chamber Orchestra. In the future, I hope to record the full composition with a larger orchestra. My hope was to create a piece of music that was complex, yet exciting for all listeners. From this project, I’ve gained proficiency in composition software and techniques as well as orchestration. It also allowed for my first forays into conducting, rehearsal leading, and recording. The skills I’ve gained throughout this project will, no doubt, serve me later in my musical career. I am interested in pursuing film scoring and large-scale orchestral composition in the future.

*Advisor: Gerardo Flores-Pacheco*



**Anna F**

*Creating a Bike Powered Generator*

For my Personal Project, I created a Bike Powered Generator. I was interested in creating one because sustainability and athletics have been prominent interests in my life. Combining these two topics allowed me to expand my knowledge on the topic of physics. Last year, I took the class of conceptual physics. The topic of motors interested me and I wanted to learn more about how chemical energy could be converted into mechanical energy. It was challenging to connect the wires to the outlet without them short-circuiting. In this project, I also learned to better manage my time on a long-term basis. Bike powered generators have the ability to be integrated into classrooms to help students learn about the topics of circuitry, gear ratios, and electricity. The process of creating my project helped me to challenge my personal limits and expand my knowledge on renewable energy and conceptual physics.

*Advisor: Jon Moreno-Ramirez*



**Manaka G**

*Building a Piano*

For my project, I decided to explore the structure of the piano because I have been playing piano for a long time and I enjoy it. I built a small piano and composed music for its nineteen keys, although it can be played on any piano. I used the actual grand piano model to create my small grand piano, but I adjusted the structure and materials for most of the parts and the piano became my unique creation. For this project, I learned the internal structure of the piano and what materials that are used for the different parts of the piano. Also I learned how to design a piano, how to work with wood using variety of tools, and how to build the different parts of the piano. I had many trials to see if my design would work or not. I learned how to fix and adjust the structures so it actually sounded like a piano. This project increased my knowledge about the piano and my appreciation for the work that goes into building a piano.

*Advisor: Samantha Cole*



**Samuel G**

*Baking French Bread With my Own Yeast and Creating a Website*

This project was meaningful because I learned how to bake awesome French recipes that I will keep doing for the rest of my life. My project was to make Baguettes and croissants out of yeast I made myself and then explain how I did it on a website. For this project, I made 3 baguettes of 14 inches each and 10 croissants. I met with my advisors each week to see and organize my plans and what I still had to do. This project was one of the most organized projects I've ever done. I wanted to make a project that I would enjoy doing and I can say that it was successful. I created a website to make my project highly challenging and also to explain my project and my creations to other people. So for my last point, I would say that the Personal Project was a great experience for me and it helped me organize my work by myself (and my advisor) and I really think it will help me for the future.

*Advisor: Summer Henson-Conger*



**Holden G**

*Creation of a Game Using GML*

I've played games for a decent part of my life, be it on road trips or just hanging out with my friends. When I was presented with the opportunity to make whatever I wanted, I immediately thought about making a game. Once this project was completed, I found myself with an excellent foundation for future game creation and/or coding endeavors. The game itself has a few tutorial levels and two fully fleshed-out levels. With more time, these levels could be expanded upon fully. Coming out of this project, I have learned a number of important and useful skills, such as the ability to program in GML and how to problem solve in the technical environment used by GML. I have also learned how animation works in programming and how to call outside information into a program. A key takeaway from this project for me is for me to realize that while it seems daunting to get into, programming as a whole is a combination of relatively simple languages to write in - they have syntaxes and grammar, just like spoken languages.

*Advisor: Jenn Schmutzler*

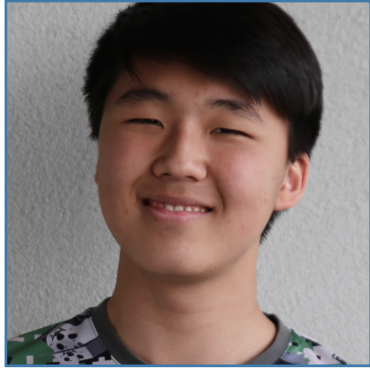


**Audrey H**

*Collapsible Kayaking Paddle*

Recently, I was introduced to the thrilling sport of whitewater kayaking. When I first began, I felt a source of freedom and excitement through the sport. After which, I decided to pursue whitewater kayaking as my passion. I know that the only reasonable project that could be accomplished in this timeframe would be to build a kayaking paddle. Intrigued by being able to construct my own paddle, I researched more into the topic and found that the paddle would be more complex than I had originally hoped. After much discussion with my advisor, I decided on building a collapsible kayaking paddle because the market needs more paddles that can collapse. The interesting part about my kayaking paddle is that it is completely original: the shaft to the blades were all hand constructed so that no other paddle will have the same features as mine. This project not only improved my skills in the construction portion of the paddle but also showed me my intellectual limitations and what I excel in.

*Advisor: Ben Brock*



**Sungwoo (Tommy) K**

*The Korean Dinner Party*

To be honest, I didn't have any idea what to choose as a Personal Project at first. But in the meantime, I also realized that I didn't have any opportunity to show my personality to my school friends. So when I thought about it, the most special thing about me is that I am Korean. And I also like to cook. So this is why I chose a topic to show who I am and cook for people. I cooked Korean dinner to my 10th grader friends. Since I wanted to make fresh foods, I made only 2 kinds of food on the day of my Korean Dinner Party. The name of the Korean foods I made are "Tteokguk" and "Bulgogi." I felt I really need to thank the people who cook for me because every time when I practiced cooking and right before I served the food to my friends, I understood how chefs could feel uneasy and nervous before they serve. And cooking takes quite a long time. It was a very good experience to share my culture with my friends. And I appreciate all of my friends who came to dinner.

*Advisor: Jane Kaserman*

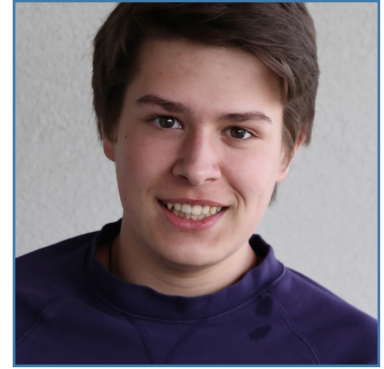


**Yu K**

*Making a Music-Teaching App for Elementary-Aged Students*

I chose this topic because I have a six-year-old brother who plays the flute and is a big fan of mobile games. I want to inspire him and other students at his age with more music knowledge than they learn in class and keep him "accompanied" when the parents aren't around, so I chose to teach the piano in this app. I'm a pianist, and making an app was challenging for me because I'd never done this before and I didn't know anything about it. After doing some research, I figured out that to make an (iOS) app, I need to build it on Xcode on a Mac computer. The programming language used in Xcode is Swift. I had learned a little bit of C language before but had never heard of Swift, so I downloaded the Swift Playground app on my iPad to get a little idea of how it works. Then, I watched some videos and met with some friends to learn how to build my app. What I learned in this was not only how to make an app and the programming language Swift, but also how to turn an idea into something real and how to learn new things from all sources.

*Advisor: Hilda Ramirez*



**Anton (Tony) K**

*Examining Non-Profits*

The main goal of my project was to create a presentation about the way non-profit companies work. The focus of the product is to create awareness and to encourage people to participate and possibly start non-profits. Companies that I looked at as examples are: "One Stone," "Life's Kitchen," and "Riverstone International School." During the process, I enjoyed holding interviews and researching the economic aspects of non-profits. Close work with people who keep the organizations alive was also helpful. The secondary goal was to start the base for my EE that will probably be on the same topic. I learned a lot from this project, especially about the organization and planning of all the work that needed to be done. The most challenging part was to hold interviews and film them, but I enjoyed it and gained valuable experience!

*Advisor: Bob Carignan*



**Jordan L**

*PE for Poets*

My project, named PE for Poets, aspires to help students obtain their full potential as a learner and a person by exploring the means of being a healthy person. I was inspired to create this project by a desire to help others, and my unique perception of the community around me. When I asked myself what I could do to make a difference, it didn't take long to find the source of discomfort in our society. Although Riverstone is an amazing school, I found that my classmates and I struggled with the same thing: how to manage the rigorous school work while being true to ourselves and who we want to become. Hence, I created my website. This website provides simple resources for students to use quickly to overcome difficulties such as stress, exercise, and nutrition. Not only does it inform students on healthy lifestyles, it also helps them obtain their own. This project reminded me that although education is a key aspect in success, belief in yourself will take you much further in life. I am thankful that PE for Poets has started my journey to unlocking my true self.

*Advisor: Ben Brock*



**Maggie L**

*Exploring Unity, Cohesion and Leadership in Small Unit Groups*

My project was inspired by my passion for teamwork and cooperation, and my interest in why certain groups are more cohesive than others. I was interested in making a booklet to help leaders facilitate unity in groups because I believe that Riverstone has a strong outdoor program, and some trips could benefit from a guide to help leaders unify diverse groups. Cohesion is an important part of Riverstone's community, and I really value the community that the trips provide, so I wanted to learn more about it. I constructed this booklet by defining the importance of leadership and leadership by example in small unit groups. Through this project, I explored the importance of leadership by example and the difference that my actions can make in the community. The research that I gathered helped me realize that I have a passion for leadership by example and cohesion that I hope to extend beyond my Personal Project in my final years of high school. I also learned important communication and personal evaluation skills. The project made me more self sufficient and responsible for my own actions because I realized the value I have in my community.

*Advisor: Andy Johnson*



**Bobby L**

*An Entrepreneurial Venture*

I am incredibly interested in skiing and outdoor sports, it is a very important part of who I am. I decided to commit myself to finding how I can maximize my time on the slopes, by limiting the time I had to commit to eating. I had a wealth of prior knowledge in regard to my product and the sport, but virtually had no knowledge regarding business and entrepreneurship. In regard to skiing, I have been experimenting with the concept of a lunchable for a few years. In this project I finally committed to the idea, and created a lunchable that would provide enough calories for a full day of stop-free skiing. Throughout the project, I used and developed time and self-management skills. This is the first large independent project I have ever completed. It required me to challenge myself and to work on self-monitoring, which was difficult but was and hopefully will continue to be useful.

*Advisor: Jen Coffey*



**Drew M**

*Creating a Pair of Skis on a Budget*

I've always said I was born to be a skier. I've been skiing since I was five years old. It's always been about me, the skis, and the mountain. Because you're racing against the mountain, and because of the danger aspect, you form really strong relationships with your skis. In order to be successful on the mountain, it's vital that one retains a strong partnership with their skis based on mutual respect and understanding. Hoping to further my skiing abilities, I decided to explore the engineering and design behind a pair of skis through constructing a pair myself. The design of my skis draws from a few different styles, but in the end my hopes were to create a pair of skis that were complex, yet conformed to my needs and desires. In the end, I've gained extreme proficiency in ski modeling softwares, workshop techniques, and ski creation. This has opened up new opportunities for me in engineering and design, and I will continue to pursue it in the coming years. There is no doubt that the things I've learned in this project will benefit my success in my future careers.

*Advisor: Hilda Ramirez*



**Patrick M**

*The Exploration Of A Self-Sustainable Coffee Lifestyle*

I was interested in coffee because it is a beverage that we consume every day. I wanted to understand coffee even deeper than the cup by exploring the process of growing and harvesting my own coffee bean. For my project, I created a guidebook that follows my experience of personally making coffee from the seed to the cup. My mission was to inspire readers of my book into taking part and living a self-sustainable coffee lifestyle. The most challenging part of my project was finding different ways to inspire the readers of the book. I learned that growing your own coffee isn't as complex as one might think. I learned a lot about the global impact of the coffee industry. By focusing on the lack of regulation in developing countries, I explored the negative impacts the coffee industry had on the individual, the workers, and the environment. In the end, I found that growing your own coffee solves all of these fairness and developmental issues. After this project, I will continue growing my own coffee to the point where I can live a self-sustainable coffee lifestyle.

*Advisor: Bob Carignan*



**Jeremy M**

*Creating an Offensive Basketball Playbook*

One of the biggest passions in my life is basketball. I've always found the bond and trust that players have with and in their coach to be interesting. I've experienced this and have come to realize that the trust comes from the decision that coaches make in a game's deciding moments that result in wins. For my project, I created a basketball playbook to counter both traditional and non-traditional defenses. It consists of offenses meant to break down anything ranging from zone defenses to full court presses. I learned how to see the game of basketball through a coach's eyes as well as a player's eyes. While they may have different views on things, they both have the common goal of winning. I came to realize that while a player may think that being a coach isn't very difficult, it can prove to be very challenging and creating my playbook really helped me to see this.

*Advisor: Roy Ledesma*





**Avery P**

*Solar Panel*

I built a fully functional solar panel, researched the environmental impacts of solar energy, and compared it with fossil fuels for my Personal Project. I was interested in learning more about renewable energy because I believe that it can be a solution for the world's energy problems in the future. Climate change is a worldwide issue that many haven't acknowledged. Solutions, such as solar energy, need to be embraced by the world for a happier, healthier future. As a part of my project, I researched the environmental impacts of the energy our world currently runs on and the implications of powering the world with solar. I also learned about the mechanics of solar energy. To build the solar panel, I had to learn construction skills and soldering. With my solar panel, I was able to simultaneously charge a phone, iPad, and light a light bulb. Completing this project was difficult because of the time management aspect, and the challenging part of soldering the fragile solar cells. However, I was able to learn a lot about myself and how I learn best through this project.

*Advisor: Samantha Cole*

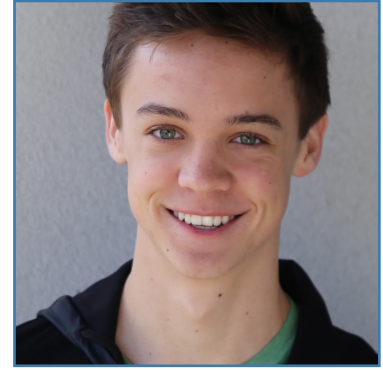


**Vimean R**

*The Art of Music Production*

In my Personal Project of choice for my 10th grade year, I chose to study the qualities and system in Music Production of Electronic music and sounds. Music production interested me because I am very much inspired by all kinds of music and I wanted to be able to produce something that shows my love for how the craft is created, especially in the area of electronics because I think that many do not understand the work put into the small specs of pop music or the overall sound of their favorite songs and bands. I was able to learn about the importances of organizing and understanding the layout of how musical sounds/elements work out. I was able to create a musical piece of electronic music as a product of my learning. But more than the quality of the product, I was able to learn the mechanics it takes to be able to use a system of creating music. It is my belief that the experience of learning how to produce will aide me in future compositions of music.

*Advisor: Damon Brown*



**Solomon R**

*Video Game Trailer*

I am an avid gamer and an extremely techie person, so I combined my passions of gaming and video production to produce a fan-made trailer for Borderlands 2. I made the vast majority of the trailer from the ground up and I was exposed to more challenges than I initially thought. I had to teach myself basic coding languages I had never seen before, edit in a completely different style to my other videos, and ultimately gained an appreciation for the work done by multi-million dollar studios in an effort to sell a game effectively.

*Advisor: Damon Brown*



**Anwen R**

*Drawing Human Anatomy*

I have always been passionate and persistent in drawing and often draw in my free time, and most recently I have been interested in figures. However, no matter how much I drew, I always felt frustrated that the people I drew never looked proportional or anatomically correct. The human eye is very conscious of what looks right and wrong in the human body, so even if the mistakes I made were slight, I was never satisfied. I decided to take advantage of this project to research and practice drawing the human anatomy. I focused on the proportions of the body as a whole, and specific details and techniques for each body part. To present my work, I sketched large drawings and documented my process in my journal. Through this project, I learned that in order to break the rules, I have to know the rules first, and how applicable and important that phrase is to drawing. I also learned how to practice in the most efficient and thorough way, which will make me able to continue practicing and improving on drawing anatomy.

*Advisor: Jim Harper*



**Massimo R**

*Creating a Pair of Sunglasses*

I was interested in this topic because I was able to learn the skills to build something out of wood. I was also able to learn about how sunglass lenses impacts our eyes and how it impacts the way men and women are able to work everyday. I was really interested in learning about how something we use everyday truly improves our lives. I created 2 final pairs of sunglasses and 2 other sunglasses that showed the process throughout my project. The final 2 sunglasses are very fragile and could still be improved, and the other 2 really show how little I knew in the beginning and how much I had to improve to get to where I am now. I learned about how much sunglasses are used in so many lines of work. Such lines of work include carpentry or any type of jobs that are outside, and sunglasses protect our eyes from the sun. The sun can cause cataracts in the eyes and sunglasses prevent that from happening.

*Advisor: Samantha Cole*

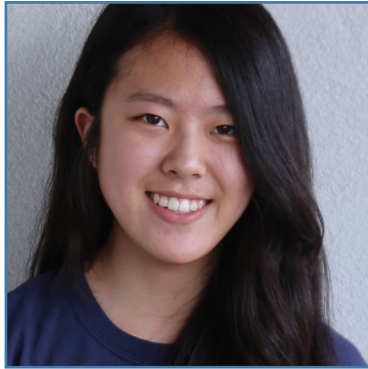


**Frances S**

*Constructing a Longboard*

I first became interested in longboarding in seventh grade. I discovered this because I needed an easy way to get to and from school everyday and I did not have a bike at the time. I chose longboarding because it is easy to use and easy to store. I soon became interested about how longboards were made and how they functioned. The final product of this project is a fully functional longboard. I constructed the deck of the longboard and painted it. Along with the construction of the deck I also put together the trucks, wheels, and bearings of the board. Over the time it took to complete this project I gained new skills such as woodworking and operating power tools. I learned how complicated the construction of a simple object could be. While making the longboard, I was able to learn more about the overall process of construction of a longboard.

*Advisor: Jim Harper*



**Kana T**

*Designing an Adult Coloring Book for Stress*

For my Personal Project, I was interested in exploring my passion and creating a product that would help others. After spending time researching how I can apply my art skills to a real world problem, I became more passionate in illustrating an adult coloring book for stress. The whole process of completing this project involved researching its characteristics and why it is necessary for adults to reduce stress. Since I accomplished my goal, I better understand the procedure on illustrating an adult coloring book and I improved my self-management skill. I will find this skill useful the next two years of high school as we complete the Diploma Programme. I am very thankful for this opportunity that Riverstone has given us and I hope the future sophomores will find the Personal Project a great chance to explore their passions.

*Advisor: Christine Corbin*



**Maryana T**

*Learning about Photography through a Phonebook of Boise*

I was interested in my project because of my desire to learn more about photography. I've always wanted to know how to take pictures that were powerful. I did research on how to take such photos and looked at photography books. I have showcased my work by creating a photobook of Boise, Idaho, and the locations I found interesting and unique. I took four pictures for each location. Not only did this project help me learn about photography, but it also helped me learn about self-management. Because this project was set over a long period of time, I had to learn how manage my time so that I didn't procrastinate the project. Many times when I went to a location to take pictures I would have to go back to the location additional times in order to get pictures that I felt were powerful. This taught me how to be reflective and also how to criticize my own work in order to improve.

*Advisor: Christine Corbin*



**Tommaso T**

*A Blueprint of a 420 Dinghy Sailboat*

In September I was interested in this topic because of a personal experience. I was introduced by a family member to the world of sailing about 2 years ago and since then my passion for sailing never stopped expanding. Although I knew how to sail on this specific 420 sailboat, I was interested at the boat's design and its components. I was interested in this topic because I was fascinated by the complexity of older blueprints and the hard work that architects put in while drawing sailboats from just looking at it. I chose this topic because I wanted to explore the big world of sailboats by creating 2 different blueprints from 2 different views, one from the side and one from the back, and describe most of the components that make the 420 sailboat. What I learned in this project was what I wanted to explore in the beginning: I learned how to draw objects in architectural style and now I can say that I know the 420 really well.

*Advisor: Christine Corbin*



## **Ian W**

### *19th Century Hiking*

The Personal Project is an exciting and unique experience that I got to undertake throughout the final year of the MYP. I went on my first backpacking trip when I was 5 years old, and it developed into a passion. Before I had a topic, I decided I wanted to integrate the outdoors in my Personal Project. Over the summer I decided that I would combine one of my other interests history with the outdoors. I went on a backpacking trip using only pre-1900 gear as if I was a western explorer. While I had to make some compromises to the policy of only pre-1900 gear. I did learn a lot about about the history and in a lot of ways the beginnings of the the activity that I and so much of the Riverstone community loves so much. Throughout the process, my understanding and passion for my project grew, and I am so happy that the MYP gave me the opportunity to do the Personal Project.

*Advisor: Ben Brock*