



BLUE MOUNTAINS  
GRAMMAR SCHOOL



# 2021 ART & DESIGN AWARDS

HSC VISUAL ARTS & DESIGN EXHIBITION

*Sponsored by Dr Ken Marshall*



Blue Mountains Grammar School would like to acknowledge the traditional owners of the land on which our school is situated, the Dharug and Gundungurra peoples, and pay our respects to Elders past, present and emerging.



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# WELCOME IAN MAYNARD

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**A true education extends far beyond foundational academic competencies. It opens possibilities and grows diversity by nurturing every one of the many 'languages' people use to explore and express their experiences, thoughts, feelings, imaginings and understandings. Art and Design are among these languages.**

George Brecht, the 20th Century American artist, stated that "art is the result of a deeply personal, infinitely complex, and still essentially mysterious, exploration of experience."

As I write this introduction, I undertake such a process. The very act of writing clarifies what I think and therefore helps me better understand myself and the world. In doing so the content and form of my writing reflects who I am and who I am becoming. In the same way, through their art and design, each Blue Mountains Grammar student is provided the opportunity to explore and express their history, their experiences, their thoughts, their prejudices and their fears. Through this process they are becoming fluent in the language of visual art and design as a means of understanding themselves and making sense of the world.

This, of course, is what life is about. Most of us do this in relative privacy, however as the 19th century French novelist Emile Zola put it, as an artist he had no choice but to "live out loud."

The 2021 BMGS Art and Design Awards celebrate those in our community who are prepared to 'live out loud' so that others can learn from their lives. We value the products of their creativity not only because they bring us pleasure, elicit in us a response or meet some quality standard, but because of the very honest, intimate and familiar manner by which they have employed their chosen medium to discover and express themselves.

I thank our generous sponsor, Dr Ken Marshall, and congratulate every exhibitor and the teachers who have nurtured their talent.

**Ian Maynard  
Headmaster**



# VISUAL ARTS



# CONGRATULATIONS & THANK YOU

## SALLY HERRON

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**I would like to congratulate the Year 12 Visual Art students who have worked consistently all year to complete their practical Body of Work, despite the many challenges 2021 has thrown their way.**

We are so proud of these very hardworking and diligent students who devoted many hours to achieving such a high standard of work and creativity.

I would like to take this opportunity to thank the students' parents who also adapted to lockdown conditions coming up with creative spaces in their home to turn into art studios. Thank you for your encouragement and ongoing words of gratitude, homemade cakes and treats to share on our long days working in the studio at School.

I admire these students for pushing themselves out of their comfort zones, trying new mediums; when they thought they were finished then taking on one more challenge and extending themselves ever further.

Teaching art for me is really special; there are so many precious moments of watching a student discover something new, being surprised about what they could achieve and being so proud of themselves that they can't stop smiling or even laughing. This is why I love to teach and treasure time building self-belief in one's own creativity.

I would like to thank and acknowledge Dr Ken Marshall who has sponsored the Art and Design Awards for the last 20 years. Blue Mountains Grammar School is incredibly fortunate to have such a generous and supportive patron.

I would also like to thank the staff members and artists who have mentored students and collaborated with me in so many different ways. I extend a big thank you to Mr Michael Herron for mentoring painters; Mr Paul Murray for teaching life casting; Mr Brendan O'Keeffe for sharing his knowledge and assisting with laser cutting; Ms Nadia Matteucci who assisted with marking, and Ms Julie Hiam whose collaboration helps to make challenges feel as light as a feather.

Thank you also to the Maintenance Team, Jeff, David, Tim and Tony, who assisted in hanging the artworks.

Thank you to the parents who went out of their way to drive equipment to and from school, and put up with art mess for an extended period of time. It has all been worth it now that you have something great to put on the wall or a plinth at home.

I wish our 2021 Visual Arts cohort all the best in 2022 and beyond.

**Sally Herron**  
**Head of Visual Arts Department**

# MORE THAN TWO

## KALANA CAMPBELL-FULLER

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**MEDIUM:** ACRYLIC PAINT ON WOOD PANEL

**INFLUENCES:** PICASSO, RICHARD LARTER, HILMA AF KLINT, NAN GOLDIN



*More than Two* is a two-dimensional painting, consisting of three large-scale, wooden panels. The work includes multiple portraits depicting numerous representations of gender. This format plays on the title of the series, as the multiple perspectives act in clear defiance to the traditional ideology of there being only 'two' genders.

*More than Two* is an appropriation of Richard Larter's *Five in a Row Show* which consists of a collage of iconic women. The Pop Art style of these paintings allows for the creation of a fun and colourful atmosphere. By using a colour palette and Pop Art style similar to Larter's, I hope to communicate that gender identity is something to be celebrated rather than suppressed. Through the use of mass portraiture, collaged together, the paintings portray all kinds of representations of gender identity.

The inclusion of three panels complements the title of the work, each panel telling a story of oppression and liberation within the LGBTQ+ community.

Panel one references Australia's historical oppression of this community, with the inclusion of traditional painting iconographies such as the halo and the rays. The first panel also references Picasso's painting *Les Femmes d'Alger (O. J. R. M.)* in its composition and the use of masks on figures.

Panel two looks at 'exploration' as a key theme in the LGBTQ+ community. The majority of images are from Nan Goldin who shot intimate portraits in the 80s and 90s, a time when gender expression was emerging on a more mainstream level despite the restrictive legislation of the times.

Panel three represents contemporary attitudes towards gender expression, referencing artists such as Hilma Af Klint whose *Swan* series touches on topics of both gender expression and spectrum.

*My Body of Work* aims to educate and even challenge people's ideas on gender and its role in society. Gender exists on such a diverse spectrum and through *More than Two*, I hope to communicate the vastness of this concept.



# IS THIS WHAT ARISTOTLE WAS TALKING ABOUT? A CATHARTIC RELEASE REBECCA DOCHERTY

---

**MEDIUM:** DIGITAL PHOTOGRAPHY, VIDEO

**INFLUENCES:** ANA MENDIETA, KERRY TRIBE, BO BURNHAM



[View video](#)

**I am a creative person. I've always been drawn to the artistic and expressive. But over the past few years, my ability to create has been affected in an inconstant manner by my struggles with mental health.**

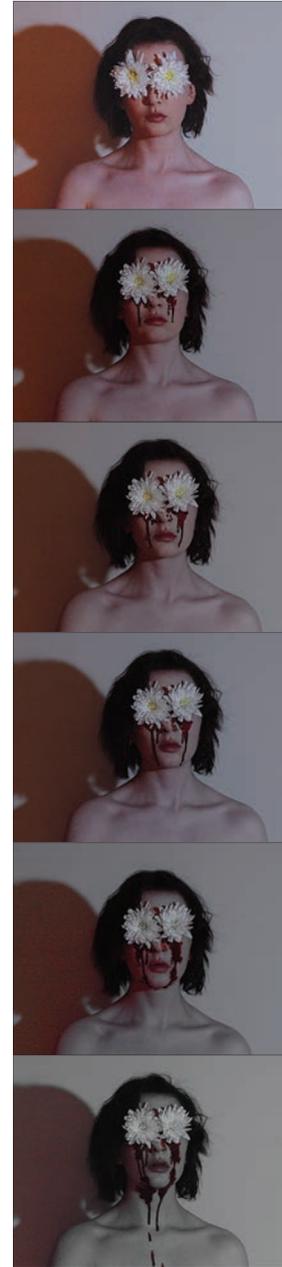
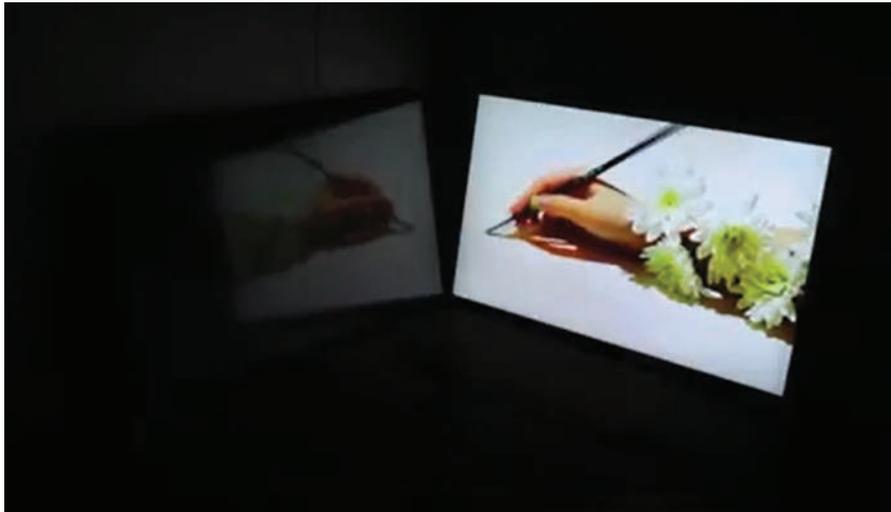
I have often found myself in droughts where I find it incredibly difficult to write, photograph, film, or edit projects - the things I love doing most! The irony of my dilemma is that I've found artistic inspiration in my struggles with mental health and that inspiration has aided me in creating what I believe are some of my better works.

I have taken inspiration from Ana Mendieta and her confronting use of blood in her *Body Tracks* performance, and Kerry Tribe's use of dual screens in her film *H.M.*

I developed my concept during the 2021 lockdown after watching Bo Burnham's *Inside*, as I strongly related to the pains in creating 'content' for an audience.

Through my films and series of photographs, I aim to explore how mental health and creativity are connected. This has been achieved through the installation of two separate videos playing in sync with each other, the right representing creativity and the left representing mental health. The two films interact with each other - conveying the way creativity and mental health are linked.

I have also used a series of photographs to illustrate how it feels to have your creativity drained by your mental state. I have used this collection of works to analyse two seemingly opposing forces - but perhaps they are more akin than I first thought.



# WAILING

## AVELYNN DRUMMOND

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**MEDIUM:** SCULPTURE, CERAMIC, FILM

**INFLUENCES:** GUAN WEI, HOKUSAI, PAUL MURRY, BARBRA KRUGER, JULIAN SCHNABEL, KEN & JULIA YONETANI, RICKY SWALLOW, BILL VIOLA



[View video](#)

**I wanted to create a visceral artwork that explores the impacts of whaling and how we, as consumers, are part of the never-ending problem. I want my Body of Work to speak to its audience from the position of an art activist to stand against whaling.**

These magnificent creatures would have removed two million tonnes of carbon dioxide from the atmosphere. If the whale population dwindled to zero, that would result in boatloads more carbon remaining in the atmosphere, hastening global warming.

My Body of Work has been influenced by a range of artists, including Gaun Wei, Hokusai, Paul Murry, Barbra Kruger, Julian Schnabel, Ken and Julia Yonetani, Ricky Swallow, Bill Viola, Sonia Pedrazzin and Greyson Perry. These activists are also educating their audiences on a range of global issues.

I decided to slip cast dinner plates and include them in my work to reference the consumption of whaling products. Whether that be eating, wearing or smelling, we as consumers are part of the problem.

The silhouette of the female figure versus the white positive space of the whale on one plate reiterates positive/negative action.

The use of gold, in part, is ironic as it is both precious and also marks the rich line of intervention and power of destruction.

The head cast references the consumerist nature of humans and how we are just as responsible for the slaughter of these animals, just as much as companies who use whale bones, oil and cartilage.

I decided to cast my mother as this connects to the idea of mother nature and how she is metaphorically wailing and crying out for us to stop the butchering of her children.

The shell included in the work represents how we have to listen to mother nature's cries, stop destroying, and instead protect and nurture her, just as she has done for us for millions of years.

Whales belong on this planet just as much as you and I. So why do we feel the need to destroy their lives, their habitats and their homes?



# DETERIORATION OF MEMORY AND MATTER

## MILLA GIBSON

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**MEDIUM:** DIGITAL PHOTOGRAPHY, CERAMICS

**INFLUENCES:** PENNY BYRNE, DAMIEN HIRST, KAI WASIKOWSKI, JANET LAURENCE, JOAN ROSS, CLAUDIA FONTES, NORIKO KURESUMI, JOHN GLOVER



*Deterioration of Memory and Matter* explores the relationship between the idea of colonisation and Australia's natural environment.

English settlers colonised the land in 1788, bringing with them their familiar customs and way of life. Over time their destructive practices have gradually decayed Australia's unique bush, rock and coral, however, the idea of colonisation has slowly deteriorated as well due to the influence of Australia's harsh environment.

The fragility of porcelain in my work reflects the delicate relationship between the idea of colonisation and Australia's natural elements. Inspired by Penny Byrne and Claudia Fontes, the porcelain Meissen figures symbolise colonisation and represent a nostalgia for England. The blue, white and gold reflect the colour of these mass-produced Meissen figures while also reflecting the colours of the ocean. The gold details aim to subtly acknowledge The Australian gold rush era, a key point in Australia's history that had a profound impact on the country's national identity.

The pocked surfaces on the figures, that resemble organic matter, engulf and distort their shape and identity. From a vibrant blue to off-white, the figures deteriorate in colour demonstrating the dissolving idea of colonisation.

Delicate blue and gold porcelain pieces that resemble coral, influenced by Noriko Kuresumi, colonise the figures but they too lose beauty through their deteriorating colour. The loss of colour, shape and form of the figures shows the influence of Australia's environment on the English identity within this country and the gradual decay of colour in the coral reflects the environmental issue of coral bleaching.

My 2D work is inspired by Kai Wasikowski and comments on how Australia's environment has been influenced by colonisation, while also exploring the decaying nature of the idea of colonisation.

With eyes appropriated from an old English portrait, the central figure shows the influence of colonisation on the Australian identity as well as showing how people aim to ignore the environmental problems within this country by only seeing the world around them. The figure holds her hands to her throat symbolising the decaying ideology of colonisation while also symbolising how Australia's natural environment is gasping for life.

As time progresses the beauty of the oceans and bush will become a fading memory therefore, as we continue to deter from the idea of colonisation, we must change our ways to save our coral reefs, bush and rock environments.

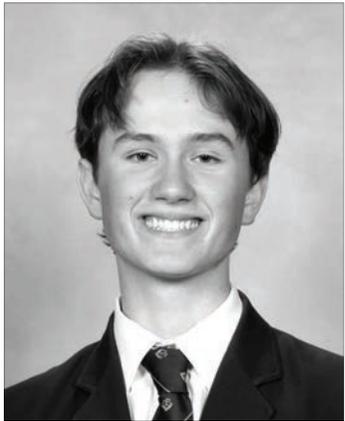


# RUKENFIGUR MICROCOSMS OF COLLECTIVE MEMORY

## MITCHELL HERRON

**MEDIUM:** OIL PAINTING ON LINEN, VIRTUAL REALITY

**INFLUENCES:** CASPAR DAVID FRIEDRICH, TEAMLAB, SEAN LANDERS



*Rückenfigur* is an artwork that explores how we often see the world through someone else's eyes. The interplay between the two mediums of paint and digital media records a range of people's thoughts and experiences in response to connecting to nature.

The viewer, unable to see the figure's face, is invited to peer into what the figure is gazing. This self-portrait is an appropriation of the oil painting *Wanderer above the Sea of Fog* by Caspar David Friedrich, recontextualising the natural beauty of the Blue Mountains to engage the audience.

The work juxtaposes the traditional art-making practice of oil on linen and a gallery experience, with a multisensory, virtual reality, interactive non-gallery experience. This allows each viewer to experience the landscape in their own way and recognises that the conventions and traditions of the physical gallery experience have evolved to cater for a global audience.

I have intentionally selected to work in traditional oil on linen, framed in a romantic style with an engraved metal plaque. In my painting, the landscape of the Blue Mountains is seen through the eyes of Casper David Fredrick as indicated by the style and colour of trees in the foreground, echoing a European influence on our thinking.

This Body of Work started by looking at the Blue Mountains landscape as a metaphor for rebirth and complete reinvention, thinking about the future, post-Covid lockdown.

For me, this painting has become a personal symbol of 2021's isolation, and the virtual reality component is a reflection of people's collective thoughts on nature's power and the ability to see it from someone else's perspective. The act of audience participation and interaction aims to increase the meaning of the work for each viewer.

Appropriating artists such as teamLab and Sean Landers, and the thoughts of individuals via the use of text, builds a collective, personal response. I believe everything and everyone is connected in the world. The building up of text layers eventually becomes a crescendo of collective thoughts and experiences. The artwork acts as a conduit for reflection on past and present, making us question what our romantic visions are today.

Intentionally involving audience interaction, reiterating the notion of time and change via the camera's movement, this virtual reality experience shows the viewer that they are indeed responsible for physically engaging with and determining their own experience of the world, and how they choose to participate in it.



View Virtual  
Reality video



View the  
artwork

Katoomba Mitchell Scott Kerron  
Rückenfigur wanderer above the sea of fog  
"In nature we never see anything isolated, but  
everything in connection with something else which  
is before it, beside it, under it and over it."

"Plunge boldly into the thick of life, and seize it where  
you will, it is always interesting." Goethe

# FINDING FEMININITY

## PHOEBE MASON

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**MEDIUM:** DIGITAL COLLAGE, PAINTING ON PERSPEX, READY-MADE SCULPTURE

**INFLUENCES:** JOAN ROSS, BETTY TOMPKINS, JOHANNA GOODMAN, MARTHA ROSLER



**Finding Femininity is a collection of painted digital collages and sculptures that culturally recontextualise artworks using postmodern juxtapositions.**

My artwork dissects the representations and expectations of women from art history, mocking the significance of renowned paintings created, by male artists, during eras when the constructs of being female were dictated by men.

Selecting subject matter from a variety of historically well-recognised artworks, I have appropriated five paintings by prominent male artists. These five are; *The Birth of Venus*, 1485-1486 by Sandro Botticelli, *The Milkmaid*, 1657-1658 by Johannes Vermeer, *Everhard Jabach and His Family*, 1660 by Charles LeBrun, *A Sunday Afternoon on the Island of La Grande Jatte*, 1884-1886 by Georges Seurat, and *The Weeping Woman*, 1937 by Pablo Picasso.

Each artwork has been an iconic image from art history, shaping society's, as well as my own, understanding of what constitutes high art.

The sculptural element of my body of work consists of five ready-made objects, inspired by the transformation of the manufactured object into art in Duchamp's work.

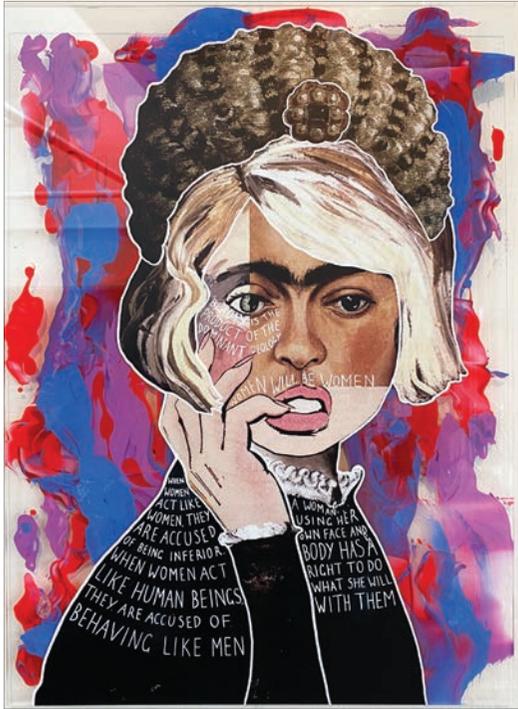
A mug, a camera, a hand mirror, a wooden spoon, and a small statue of Venus, their display on the table mimicking the nature of artefacts exhibited in a museum.

Such delicate artefacts invite the audience to pick them up and explore the words that encompass and hide the initial appearance of a once simple and uncorrupted object.

Each sculpture corresponds with one of my perspex collages, presenting as a single symbol, encompassing the theme and issues explored in each artwork.

My Body of Work acts as a satire of art history, commenting on the chaotic nature of searching for the constitution of being female.

This artwork acts as redemption to art history's iconic female figures who have been underpinned by the male construct of femininity, creating a contemporary expression of female identity.



# SIMPLICITY OF FORM

## ELLA MCDOWELL

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**MEDIUM:** DIGITAL PHOTOGRAPHY AND DRAWING

**INFLUENCES:** RACHEL WHITE REED, JAMIE NORTH, WILLIAM BRAITHWAITE, FRANK LLOYD WRIGHT



**My artwork aims to explore and investigate the relationship between positive and negative space in architectural forms as well as celebrate how the natural environment can enhance and mimic the structural form of buildings.**

I have always found architecture interesting, specifically the designs which reflect the simplicity of shape, and the geometric lines which make up the bare bones of architecture. The clouds in the photographs mimic and mirror the curves of the buildings further emphasising their shape.

The audience's focus should be on the formation and structural design rather than the texture or pattern of the surface materials of the buildings. This is achieved through the black and white monochromes and the minimised texture of the photographs.

The photos are accompanied by line drawing interpretations of the buildings themselves. These simple drawings outline the strongest lines of the building and have softer, extending lines. These lines act as vector lines, drawing the audience's attention to the centre.

The overall display acts to demonstrate the progress that develops from the mind to the paper before the construction. By taking inspiration from architectural blueprints for the drawings I was able to display the initial progress and then have the photographs next to it show the final product.

My Body of Work aims to explore the empty carcasses of architecture, removing and stripping the buildings of any colour or material to ensure the audience focuses on the raw structure and the simple lines of the buildings. Specifically revealing how lines connect and intersect to create form from nothing.



# COLLAPSE

## CHARLOTTE MCNAIR

---

**MEDIUM:** PRINTMAKING, PHOTOGRAPHY FILM, DRONE FOOTAGE

**INFLUENCES:** HENRY GOLD, JAIME PLAZA, TOBIAS BUCHE



[View video](#)

**My Body of Work** titled *Collapse* explores the destruction of the Capertee Valley, known also as the Gardens of Stone National Park.

Capertee Valley is a beautiful, natural environment located two-and-a-half hours west of Sydney. The Capertee Valley is surrounded by natural rock formations called pagodas which protrude from the cliff lines throughout the valley. The valley is scattered with old mining relics, built by those miners whose ruins tell the story of those who visited the landscape before us.

Despite the beauty of such a landscape, it is worrying that the pagodas and cliffs in some areas have been undermined by coal mining. Pillars were left in place to limit the subsidence of the natural landform. It has since been revealed that these supporting pillars will be extracted, undoubtedly destroying the many surrounding cliffs and pagodas of Capertee Valley. My work aims to highlight the beauty of the Gardens of Stone National Park and encourage people to reconsider the industrial, ecological and physical collapse happening in our society today.

I drew inspiration from various artists, the most influential ones being Henry Gold, Jaime Plaza and Tobias Buche.

Henry Gold and Jaime Plaza both heavily explore landscape photography and have also photographed the Capertee Valley. These artists helped influence my style of photography as well as build my subject matter. I also drew on Tobias Buche's photography to inform my layout and composition—taking inspiration from his black and white artworks which contrast the subject matter.

My Body of Work is made up of multiple elements such as printmaking, photography and film. I chose to do printmaking as the faded and almost antique look of the prints represents the impending destruction and disappearance of the surrounding environment. To complement this, I used photography to demonstrate the current beauty of the Capertee landscape and to really highlight the importance of maintaining such a unique ecosystem. The film demonstrates the monumental scale of the National Park while also engaging the audience by educating them on what's going on in the Capertee. All mediums combine to connect my audience with the title of the work.



# SONDER

## JESSICA MCNAIR

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**MEDIUM:** LINO-CUT PRINTING, COLLAGRAPH, INTAGLIO PRINTING

**INFLUENCES:** ROBERT MAPPLETHORPE, ANDREA CASTRO



**Sonder refers to the realisation that each random passerby is living a life as vivid and complex as your own.**

My Body of Work is heavily influenced by this definition and is focused on the complex connection between the differing perspectives of individuals experiencing life.

I've chosen to explore this concept in a way that reflects my understanding of the human experience using several images from my life.

As an identical twin, I often feel disconnected from any sense of individuality with much of my life being a replicate of my sister's life.

*Sonder* is a work created to explore the parallels of the human experience and remind the audience that every individual views the world subjectively. Even a small inconsistency within my own world can drastically alter my perspective of life in comparison to my sister's perspective—regardless of our biological similarities.

I chose lino-cut printing as well as collagraph and intaglio printing to use in my work, as I feel the simplicity of these mediums allow the audience to focus on the faces in the artworks, recognising them as simple-featured strangers who are going about life at a moment in time. This way, the audience has no context of the moment and may recognise the individual as a random person sitting next to them on a train.

This type of improvised capturing of a moment was a result of the influence of Robert Mapplethorpe's photography as well as Andrea Castro's series, *Strangers*.



Sonder  
[sohn-dehr] noun  
1. the realization that each random passerby is living a life as vivid and complex as your own.

# THE CRAFT OF THE FORGOTTEN WOMAN: MY DEDICATION

## CHLOE NEALE

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**MEDIUM:** CERAMICS, DECALS AND PHOTOGRAPHY

**INFLUENCES:** GRAYSON PERRY, CINDY SHERMAN, JUDY CHICAGO, JENNY HOLZER, BARBARA KRUGER, ORLAN, TRACEY EMIN, GUERRILLA GIRLS



*The Craft of The Forgotten Woman: My Dedication* explores the history of feminism and the representation of women in the past.

Throughout history, women have been oppressed in many ways. This has been documented across art, with women being objectified and misrepresented, particularly with ideals of the male gaze.

My artwork includes appropriations from several different periods, with a focus on iconic and feminist women. In the style of Cindy Sherman, I created self-portraits appropriating significant women.

These portraits work to personalise my artwork whilst referencing the past to evoke meaning. Jenny Holzer and Barbara Kruger's use of text in their artist practices have inspired me to use text to add meaning and draw attention to issues of focus. I included many quotes from a range of important women who have impacted history in some way.

I incorporated a range of ceramic techniques including the use of glazes, slips, underglazes, copper oxide, sgraffito, inlay, and decals, celebrating craft in my exploration of the many applications of ceramics.

My artwork includes signs and symbols throughout, suggesting meaning not only when seen from distance, but when looked at in detail. The hand print not only links to the way women have been constrained through history, but includes a personal reference. The underglaze decal of a woman has her head missing and blends into pink underglaze to suggest her lack of identity and personality. The colour choices are purposeful: pink, blue, white and green and refer to stereotypes, gender and fertility.

The domesticity women have been expected to conform to for centuries is explored by including several aspects that relate to the traditional role of women in the household, such as fabrics as well as connections to culinary and other domestic work.

Decals split up my vases' compositions and add visual interest. They each reference my concept as well as including another craft of photography and digital media.

In exploring the ceramic form and the oppression of women through art and culture, I challenge the viewer to reassess history, to acknowledge women of the past, as well as challenge their traditional expectations of high art.



# SCARS OF HUMANITY

## LUCY SAUNDERSON

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**MEDIUM:** ACRYLIC PAINT ON CAMPUS

**INFLUENCES:** EUAN MACLEOD, ROWEN MATTHEWS, ANSELEM KIEFER



**My painting, *Scars of Humanity*, aims to communicate the impact of humankind on the degradation of nature through consuming its finite resources.**

Depicting the vast, barren and dry landscape of an open-cut mine, my work begs to ask questions about the treatment of the earth by humans who consume the world's finite resources and create irreparable scarification. The faceless human figures on either side of the mine scene, inspired by Euan Macleod, represent humans as a whole, and highlight the ignorant destruction that we create, acting as a reflection of society and our attitude of ignoring the issues for which we are responsible.

Starting with Plein Air painting in my local environment, I was moved by the amount of greenery and the flowing streams of water. This luscious environment is greatly contrasted by the desolate plains of the mining field, a place with connotations of empty ruins and destroyed land. From here, I moved into the studio and using a range of reference images of these desiccated, man-made earth wounds, I crafted a body of work representative of the perpetrator—being the human, the weapons—being the mining vehicles, and the result—ruined land.

Influenced by Rowen Matthews' artist practice, I used thick, gestural paint strokes, mixed with modelling paste and sand to replicate the texture of the barren mining landscape. I chose a monochromatic colour palette of oranges, browns and reds to highlight the landscape's dryness and absence of moisture.

Anslem Keifer's use of unusual materials inspired me to combine materials straight from the earth such as sand and dirt, allowing my collection of paintings to convey the relationship between man and unnatural environments, and how they reflect each other. The small canvases above my main piece depict small sections of the cliff faces carved out by man and machine, highlighting the intricacy and beauty of the natural intersections of rock and minerals. The beauty of the natural elements of mineral-rich soil starkly contrasts the hideous damage and destruction of the natural world.

Through creating this work, I hope to draw attention to the cruelty to which we subject our planet, and to plead for change. Without change, the future of humanity and the earth are uncertain.



# LARZARETO

# RHIANNA SAY

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**MEDIUM:** PRINTMAKING, WATER COLOUR

**INFLUENCES:** DEL KATHRYN BARTON, BABY GUERRILLA, ABYSS 607



**My Body of Work is about the struggles experienced worldwide due to government lockdown from the global pandemic of Covid-19.**

These mental and physical battles are represented through the use of colour and symbols. The buildings displayed in my artwork are bleak and solemn, depicting the emotions felt by everyone forced to stay home with their family or even by themselves. Colour is also used to symbolise blood and illustrate the increased suicide rates from having to stay enclosed in a small habitat whilst the world moves on.

A symbol that can be found in all five artworks are 'eyes', symbolising the always-watching government officials who constantly oversee our every move and restrict our mobility. Another symbol that is repeated throughout my Body of Work are 'hands', reaching out and bleeding as they try to escape the barriers, even though they are harmed in the process.

As well as the visual symbols, there are also written messages using words such as 'lockdown', 'help', 'stuck', 'trapped' and 'scared'.

These words are written in languages including Chinese, German, Spanish to exemplify that these lockdowns and associated mental health struggles are felt worldwide by those of us trapped inside brick walls.

Colour also plays a major role in my artwork as I have chosen to keep my buildings and structures black and white whilst everything surrounding appears exuberant and full of life, almost teasing us from the outside that we are trapped in a bleak and meaningless space.

The drawings that surround the buildings have all been chosen for a purpose, as they all seem locked away or impossible to get to - such as a large mountain with a rope ladder that doesn't reach to the bottom, or a barred window building that has no door.

I choose to focus my work on mental health as I believe most people's mental health deteriorated during the pandemic. Being able to channel my frustrations and fears through artwork was something that took me away from the real world and allowed me to focus on something else.



# VACANCY

## ROSIE SULLIVAN

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**MEDIUM:** ACRYLIC PAINT ON CANVAS, DIGITAL MEDIA

**INFLUENCES:** JEFFREY SMART, ELIZA GOSSE, ALEX FRAYNE



**In contemplating the nature of my home in the Blue Mountains, I realised that the local culture and community is built upon a rich history of tourism and travellers. Those people who stop momentarily to explore a place that is unfamiliar to them, yet so familiar to me.**

As the Covid-19 pandemic hit, I noticed this sense of culture and community shift; lookouts were emptied, streets were abandoned and train stations were silent.

Inspired by the minimalistic, distinctive and reduced works of Jeffrey Smart, David Hockney and Eliza Gosse, I painted three Blue Mountains' hotels from my own photographs. I aspired to shed light on the suburban and industrial architectural landscapes of the Blue Mountains using a limited colour palette and simple reduction. The absence of humanity in all three paintings and the deserted hotels are a recurring symbol of isolation and also convey a sense of otherness that is often associated with visiting foreign places. The exclusion of textual elements from each painting further emphasises this sense of vacancy and contributes to the reduced structural form.

The paintings also embody a certain continuity within the European history of this area: the tourists are a variable—they come and go, but the buildings will always be there.

The series of digitally manipulated photos paired with my paintings add a human factor to my Body of Work, and juxtapose the otherwise remote compositions. Through capturing lookouts and train stations overflowing with a travellers, and then recording the same locations devoid of human figures, I hope to provide an insight into the changing nature of tourism over time.

This concept is reiterated in the title, *Vacancy*, alluding to both the rarely seen desertion of these tourist destinations as well as conceptually to the 'vacancy' signs at hotels. The black and white prints (with colour highlights added from the muted palette used in my paintings) draw the audience's eye to key elements of each photograph and create a continuity between the two forms. The layout of the photographs acts as a sort of 'puzzle', with the content holding the viewer's eye.

The use of my own digitalised handwriting aims to reference the style of old photographs and provides a personal connection to each photo.



'Colonial getaway in Blue Mountains', Joan Morris (The Canberra Times, 4 November 1990)

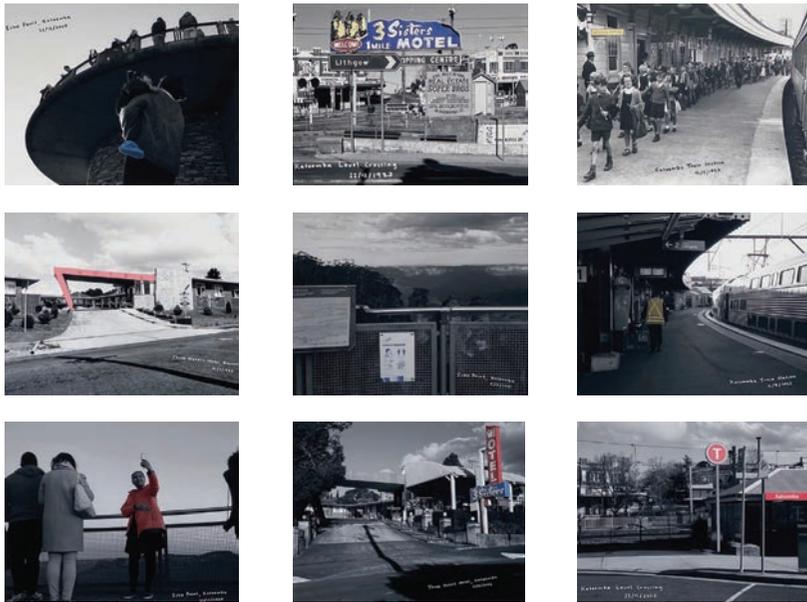
'It is only a four-hour drive from Canberra to the Blue Mountains, but it is a journey back in time. There is definitely a more colonial feel to the air and the landscape the higher you go, and an overnight stop in Leura confirms it.'

'Ghost Town', Rosie Sullivan (11 August 2021)

Lookouts that were once overflowing with tourists from around the world and back again, and train stations that were always crammed, no matter the weather, are now empty. Hotels lie abandoned and streets hollowed out, apart from the occasional stroller with a masked identity. A place I was once so familiar with had become a stranger to me, and a stranger to itself.

'Echo Point', Della Falconer (Dictionary of Sydney, 2016)

'Situated in Gundungurra and Darug country, Echo Point emerged as a major tourist destination in the 1920s and today attracts around 1.4 million visitors a year. Combining a "holiday playground" atmosphere with the sublime, Echo Point is a compelling site for thinking about the many different ways of seeing that have shaped the Blue Mountains landscape: Indigenous, Romantic, commercial and environmental.'



'On the Blue Mountains, Tourist Season Begins' (The Evening News, 28 October 1905)

'Early trains, late trains, trains at odd times, started last week for the tourists, and, in spite of rain, mountain mists, cold weather, and high gales, visitors went to the Blue Mountains in crowds.'

'Tourist attractions "decimated" by border closures and travel restrictions', Andrew Taylor (Sydney Morning Herald, 23 January 2021)

Blue Mountains tourist attraction Scenic World had more than 1.1 million visitors in 2019 and managing director Anthea Hammon estimated visitor numbers have dropped 75% in the past 12 months. The loss of international travel has had a devastating impact on many tourism businesses in the Blue Mountains, who are hanging on by a thread.

'Fairmont Resort', Tim Cayzer (Sydney Morning Herald, 21 November 2013)

'Our infectious holiday laughter echoed through the grand reception of the Fairmont Resort and down the narrow hallways, dragging our pristine white towels past ball pits and fluorescent vending machines, angling straight towards the circular outdoor pool. We always forgot how cold it was until we plunged into its depths, placing bets on who would stay in for the longest.'



# **INDUSTRIAL TECHNOLOGY [TIMBER]**





# A YEAR LIKE NO OTHER

## IAN HARRISON

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**What an unusual year it was to be negotiating the completion of a HSC Major Project.**

Across NSW, students, teachers and schools alike were given the option to down tools and apply for a 'projected mark'. Some students, however, opted to take up the challenge and complete their projects, navigating their way cautiously through ongoing public health orders and Board of Studies directives.

The Blue Mountains Grammar School Industrial Technology (Timber) class of 2021 were one such group that never wavered. These students kept adjusting and readjusting. They turned up, made sacrifices, displayed common sense and demonstrated self-management. They were resolute in their determination to get to the finish line with style.

I would like to publicly congratulate the six members of the class on their application to their projects and thank them for making this aspect of 2021 a memorable one for all the right reasons.

You have set the bar high for the class of 2022.

**Ian Harrison**  
**Technology & Applied Studies and**  
**Industrial Technology Timber Teacher**

# SIDEBOARD

## SEBASTIAN ALDRED

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**MATERIALS:** MAHOGANY, HOOP PINE, JARRAH



The drawings I initially created for this sideboard project were digitally crafted. I decided to start using hand drawings later in the year when certain aspects of the project had changed, and new designs or ideas needed to be made.

Using CAD Drawings to convey individual parts along with how they should be joined was beneficial as I had to do all of the problem solving before making the model which in turn shortened the time it took me to complete various domino and pin/finger joints. The program also has the capability to warn of incorrect dimensions and strength tests for joints depending on the material you input, which acts as a guideline as to the joints that should be used.

I gained ideas about the frame of my project through various woodworking magazines and books. Ideas about how the drawers were going to look and how many I would need. Even though I had not planned on building my own legs, I sourced ideas about how they should look from the same magazines and books. These ideas also helped me choose the appropriate legs based on the structure of my base to properly support the weight.

The rose design was created using Adobe Photoshop and Adobe Illustrator. I found a line drawing of a rose and changed the colours to black and white and maximised the contrast between those two colours in Photoshop. I then rendered the image into Adobe Illustrator where each line was modelled to be a moveable vector object. The image was then changed to a file that could be easily read by the laser cutter, and the wood was positioned within the machine where the graphic was then cut.

Overall, I believe that my project was completed to a high standard and one with which I am satisfied.



# OUTDOOR BENCH

## THOMAS BAHNISCH

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**MATERIALS:** RECYCLED HARDWOOD



**My parents wanted an outside lounge chair that prioritised both comfort and practicality in its design.**

I viewed a range of designs during the research stage of the project which helped me to conceptualise a rustic and practical aesthetic.

The comparison of different timbers was a simple yet effective method of determining the right timber for my project. I chose recycled hardwood for its sustainability, durability and concrete strength, even though it can be challenging to work with.

As I researched the various joints, it became apparent that I needed to choose wisely. This was because the joints have a significant impact on the final look, and with a very specific vision in mind, I needed to find just the right combination of joining methods. Through research, I learned about the structurally solid bridge and mortise and tenon joints, and the scan fittings which remain exposed to complement the aesthetic of the project.

I applied the concrete-like Megapoxy in the heavy load-bearing joints over the basic PVA glue used elsewhere. This step was also interesting as I was able to investigate how the adhesives work to bond timber, and how different types of adhesives rely on different principles.

With the laser cutting machine being an impressive and commonly-used machine at our school, I thought it beneficial to look into incorporating this and other techniques to add an element of ornate creativity to my otherwise practically-focussed project. I am very glad I took the time to do this, as I was able to incorporate features that I did not initially envision, and are now integral to the project's appearance. I am also grateful that I took this step as I was able to learn and interact with advanced computer systems and expand my skillset.

With the project finished, I am not only relieved but extremely proud. I have worked hard and my project is exactly what I imagined and more. The character that the recycled timber brings, along with the richness of the tung oil, gives my product a fantastic look that has exceeded my expectations.



# KING-SINGLE BED WITH LED LIGHTING

## MANI HITCHENSON

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**MATERIALS:** TASMANIAN OAK, LED STRIP LIGHTS, STEEL



**From the get-go, I had a good idea of the shape and design of the bed I wanted to make.**

I undertook multiple tests and developed various models and prototypes to ensure that the actual construction process of the bed was efficient and free of errors.

Selecting suitable timber was important and there were many things to consider. I needed a cost-effective timber that was machinable and easy to work with. I decided on Tasmanian Oak.

The bed is large and heavy and will be used a lot. I needed to factor in strength and durability when considering construction and assembly. I used haunched mortice and tenon joints as well as normal mortice and tenon joints for the body of the bed where strength is required. Domino and biscuit joints were used in the bed head and shelving where weight and strength were less of a concern.

This bed design uses LED strip lights as a way of making the piece visually appealing and practical as it lights up the bedhead. I wanted to use LED strip lights in my project to add another degree of difficulty and to extend my skills.

I used a three-part, water-based finish as it was easy to apply and looks good.

Overall, I think that the planning, reporting and production of my Year 12 Industrial Timber project went smoothly. I believe my project was finished with a high-quality result and I am happy with the outcome.

This year has presented me and my peers with some obstacles, but we overcame these challenges and completed some great projects. I hope my project will be of use in future years to come.



# SIDEBOARD WITH WATERFALL FEATURE

## OSCAR JONES-ROMEO

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**MATERIALS:** 100% RECYCLED OREGON AND JARRAH TIMBERS



**For my Year 12 major project I designed and constructed a room-dividing breakfast bench.**

I wanted to make this project because my dad had been renovating our home and I wanted to make a piece that could be used in the house.

I also thought it would be fun to build a sideboard because it is a simple concept and design, but still allows room for creativity. I wanted it to look nice as well as being stable and practical.

I chose Oregon and Jarrah timbers for my project. Oregon is very cost effective and is readily available in recycled timber yards. It's a great timber to recycle as it looks good and is easy to work with. I also chose Jarrah as a feature wood to balance the look of the project. Jarrah is a beautiful reddish-brown hardwood that works well with Oregon.

To join the waterfall and the table top together, I used a mitre joint, with dowels and dominoes to make it secure. I did some tests beforehand so that I could get a perfectly fitted joint. When cutting the mitre joints, I did a test cut to make sure that the saw was set perfectly at 45 degrees. When cutting the dominoes straight into the rail, I did some tests so that the domino machine lined up where I wanted it to be.

I think that, overall, the sideboard has the recycled look I was aiming for, but it does not look 'rough'. There are simply a few nail holes and they add character.

I am thrilled with my finished project. I had enough time to add features and do things well to make it just that little bit better. Using materials I had around me and being able to modify ideas to implement better ones, has made the whole creation process very smooth.



# TASMANIAN BLACKWOOD DESK

## WILLIAM STACY

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**MATERIALS:** TASMANIAN BLACKWOOD



For my Year 12 HSC major project, I wanted to construct a desk that I could use for schoolwork as well as leisure activities such as video gaming. I wanted the design to be functional for a range of uses and be versatile for different needs that may arise in the future.

My desk features a large working area, so it can fit a monitor, keyboard and mouse, a desk lamp, and small stationary items.

I used the online 3D CAD modelling software, OnShape, to create 3D models of each piece of the project, as well as combining these to create final assemblies and isometric drawings.

I used Tasmanian Blackwood for the whole project as the uniform aesthetic and high polish (achieved through burnishing) is very pleasing.

I used domino joints which are extraordinarily strong, easy to make, and are suitable to use for the panels in my desktop. I also used dowel joints for the sub-frame of my desk.

Mortise and tenon joints are very strong and effective joints, and moderately difficult to make. Pairing the two together increased the difficulty of making the joint, but provided excellent strength when assembling my back legs to the back panel of my project. Half-lap joints are also strong joints and were used for joining my legs to the sub-frame assembly.

I finished the desk with multiple coats of Organoil Hard Burnishing Oil. This process deepens the grain and brings out a beautiful shade of the original timber.

Overall, I am very pleased and proud of the desk that I have created, and have thoroughly enjoyed the entire MDP process through both the ups and downs of COVID.

I intend to place the desk in my room or into an office/open space. I am glad that I managed to deliver an end product of which I am proud and will enjoy using for many years to come.



# DRINKS SIDEBOARD

## JAKE WEBER

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**MATERIALS:** TASMANIAN OAK, HOOP PINE, PLYWOOD



**For my year 12 HSC major project, I wanted to design and construct an aesthetically pleasing and functional sideboard that could be used for storing glasses, alcoholic beverages and mixers.**

I started by sketching some concepts and developed these in OnShape. These CAD drawings were crucial to my project as they helped visualise what the finished project would look like both to me and to other people.

During the testing, modelling and prototyping phase, I used Adobe Photoshop and Illustrator to create the Cherry Blossom and Bonsai designs for sliding doors. I also practised using a three-piece kitchen router and a sliding table router. I used scrap pieces of timber to gain experience on the self-centring dowel jig and drill. This helped develop my confidence before dowelling the shelves for the cabinet.

Joinery included stopped housing joints to connect the end frames with the bottom shelf, rebate housing joints to join the top shelf to the legs, and wedged mortise and tennon joints to connect the top of the legs to the tabletop.

I sanded the woodwork using an orbital sander and finished the project with coats of thinners, varnish and tung oil. I applied a wax finish for a final layer of protection. As well as guidance from my teacher, I received help from Branches Timber Craft in the sanding of my components and advice from a local cabinet maker in sourcing products for the tracks and rollers in the sliding door system.

Over the past year, I have developed as a woodworker and really improved my skills. The construction process was long and challenging, however, it has all been worth it in the end.

I am very proud of the final result and know that this sideboard will be used in our home for many years to come.





# DESIGN & TECHNOLOGY



# INNOVATIVE AND INSPIRING

## BRENDAN O'KEEFFE

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The Year 12 Design and Technology students featured on the next few pages, have shown an incredible commitment to developing skills across a range of current and emerging technologies.

Challenging at the best of times, this cohort undertook their last two years of study during a global pandemic, having to navigate all the challenges that entailed.

To conceptualise and deliver a Major Design Project (MDP), students worked through a design process that included mind-mapping and sketching, concept development as well as research, analysis and prototype development. Students gained new skills in computer aided design (CAD), 3D printing, and a variety of production techniques.

Drawing on their own experiences, passions, and concerns for the world around them, the students developed some incredibly innovative ideas and solutions. Folios were developed throughout to support and structure the students' journey through the design process.

The resulting MDPs are resolved prototypes that exemplify the students' design and technology skills, determination, and the original thinking required to achieve a successful result. Congratulations to Year 12 for delivering such an excellent and inspiring range of projects.

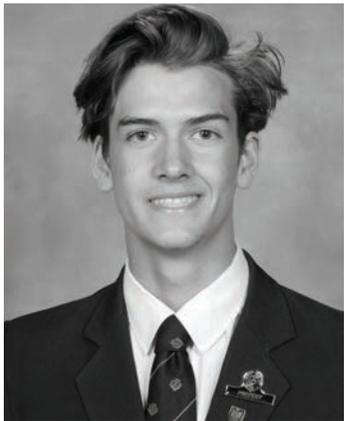
**Brendan O'Keeffe**  
**Design and Technology Teacher**

# CRUMPLE JACKET

## ALASTAIR BOWMAN

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MATERIALS: POLYLACTIC ACID (PLA), DONOR JACKET



**This jacket was designed as an experiment to see whether improvements could be made in the protective ability and price point of modern protective jackets.**

The material used to make the crumple zone was polylactic acid (PLA). This material is readily available and it is possible to print as many prototypes as required without needing to spend hours in manufacturing. PLA was also used because of its ease of recyclability. Even though PLA is not as strong as aluminum or steel, the ability to print multiple versions quickly and efficiently (without defects) makes it a better choice.

The crumple zone is placed inside the skin of the jacket and is made of PLA. It has an infill density of 10% which creates a tough rigid shape that will hold together until the jacket is retired or is put to use in an accident.

Overall, this project has allowed me to explore new ideas and attempt to create something that could benefit other people by creating a safer environment to in which to ride motorbikes. It has further developed my knowledge of motorcycle injuries and how to reduce risk through preventative measures and the use of the right protective equipment.

I have also gained more knowledge of 3D printers and the materials used within these new and emerging technologies which may benefit me in the future.

Once I receive the jacket back from marking, I intend on using it to its full potential, although I hope to never have to test its safety features in real life.



# WEARABLE STRESS-RELIEF TOY

## ZACHARY BURGESS

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**MATERIALS:** MAGNETS, 3D PRINTING FILAMENT, NYLON STRING



[View video](#)

**The initial concept for a wearable skill toy centered on creating a product that was similar to a fidget spinner—something that people could easily use and carry around.**

The idea to add stress and anxiety relief as part of the design and functionality of the product came as a result of personal research into the craze of fidget toys and discovering why they are so popular amongst school students.

I used OnShape CAD modelling software during the design process and Ultimaker Cura to slice my STL files from CAD to G-code. The beads were 3D-printed on the Prusa i3 Mini. The utility cord was threaded through the lower bead knot was tied at the end so that the cord could not be pulled back through the hole. Housed in the top of each bead is a magnet allowing for the beads to clasp together so that the toy can be worn as a bracelet.

I had a discussion with my school's Counsellor and the Head of Wellbeing about introducing this product to a school environment. Both believed the product was a good idea. The wearability of the toy would allow teachers and members of staff to better identify students who experience mental health issues related to anxiety and ADHD.

A major positive aspect of the toy is its playability. Advanced Belgeri players will experience Begleri in a new format, creating the potential for creating new tricks to be developed, courtesy of the unique-to-person string size and the ergonomic design of the beads. Novices can learn new tricks and skills while relieving their stress and anxiety.

The focus required to manipulate the toy is imperative to the stress relief aspect of my MDP, as the toy serves as a distraction. Additionally, the satisfaction of mastering a new trick helps build confidence in the individual. The process of mastering a new trick teaches young children that hard work and perseverance pay off, while also demonstrating how to overcome difficulties through persistence.



# SUSTAINABLE FLAME ZONE HUT

## MATTHEW FOSTER

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MATERIALS: BALSA WOOD, PLYWOOD, GLUE, SPRAY PAINT



Bushfires are an ever-present threat in Australia's summer months. More than 2,700 homes were destroyed in the 2019/20 bushfires costing the economy upwards of \$20 billion.

Additionally, the price of housing in Sydney continues to climb due to increasing demand and lack of available housing. Given these factors, I wanted to design a house that was smaller, affordable and bushfire resistant.

I aimed to create a product that would provide a flameproof sustainable solution to the housing crisis. It needed to be flame resistant and meet BAL-FZ standards. It also needed to be compact and able to house up to two permanent residents. Sustainability was a key consideration and the product needed to be insulative and only constructed of materials that were not harmful to the environment.

Due to cost constraints, a model was developed using balsa wood, plywood, glue and spray paint.

I developed the design using SketchUp for 3D design and rendering and was able to achieve a photorealistic visual of the design before commencing physical production of the model. I used Floorplanner software to create the final floorplan design and furnished interior visualisation.

Laser cutting was used for the model as it produced the highest quality cuts ensuring all the pieces of the model would fit together neatly.

Rammed earth walls would be used for external and internal walls as they are best for fireproofing and sustainability, and have insulative benefits.

Double and triple glazed windows would be used on the house as, although they are expensive, they are most effective at insulating.

Solar panels would be used to provide a sustainable electricity source.

Overall, I am extremely happy with this design. The project has taught me valuable skills in problem-solving, research, experimentation, laser cutting, CAD and the importance of perseverance.



# GYM PERFORMANCE BRACE

## TYLER FROST

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**MATERIALS:** POLYLACTIC ACID (PLA), VELCRO



**More than 62 million people worldwide use gymnasiums each year to stay in shape. Gyms are a great place to get fit, but they're also places where injuries may occur.**

Some products, such as the lower back brace, exist to reduce the risk of injury during deadlifts and rack pulls, but there is a lack of safety equipment available for other muscle groups.

I wanted to create a means of keeping gym enthusiasts, primarily novices, safe when exercising by designing a device that teaches good form, technique and reduces injuries when using a bench press.

With the use of CAD software such as OnShape, designing the different pieces simple as models could be refined before ever being created. These models allowed me to see my project and get rid of some of the confusion created when trying to think of ideas solely in my head. I also used PrusaSlicer a pre-3D printing program that allowed me to import STL files and export them as G-code for the 3D printer. The Prusa Mini 3D printer allowed me to create physical models of the designs I made in the Onshape software.

The chosen material for all pieces was PLA as the material is able to withstand human pressure.

The product also features easy attach and detach velcro which can be adjusted to the user's arm size with ease, to remove unwanted sweat and dirt that may otherwise get trapped and cause bacterial growth and odours.

I created a teaching-focused product to train users where the wrist should be positioned so that weight is evenly distributed throughout the body. It also teaches the user how far down to come in a press to get the most out of the exercise, without hindering movement that is good for muscle activation and growth.

I decided on 'Gorilla Fitness' as a brand name. A gorilla is a strong and muscular animal and this could symbolically align with the goals of a gym enthusiast.

Overall I feel my project was a success and I am happy with how everything turned out.



# SMOOTHIE SOCIALS

## ELLA MCDOWELL

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**MATERIALS:** MARINE PLYWOOD, METAL POLES, GLUE, NAILS, LACQUER, PLASTIC ROOFING



[View video](#)

**I wanted to design and make a full-scale food stand that could be easily assembled by two people and also be flat packed into an SUV for easy transportation. I also wanted to develop a logo and brand style that would appeal to a target audience of young people interested in healthy eating and environmentally-friendly produce.**

I came up with 'Smoothie Socials' as the brand name as the alliteration is playful and makes the brand easy to remember. I felt this name would resonate with a younger target market who are active on social media platforms. I researched food preferences within the target audience group and developed a menu of delicious, healthy and Instagram-worthy food that could be eaten by people with specific dietary requirements.

I used sketches, CAD and cardboard models to develop my project from concept to build. I tested several joinery techniques using cardboard to create adapted half-lap joints that would allow the pieces to be slid in and out easily. This process also showed that I needed additional support for the benchtops.

I initially planned to use plywood however I realised that I needed to use structural plywood as the non-structural plywood bowed and splintered. I also used marine plywood for the benchtops as it is water resistant. I glued and nailed extra support to the walls under the bench to make the design as structurally sound as possible.

To create the logo, I drew some rough sketches until I found a design I liked. I outlined this design using a sharpie and scanned it through to the computer where I was able to finesse the image and add the words 'Smoothie Socials'. I printed this image onto a darker timber that matched the colours of the benchtops.

In building the food stand I gained experience and skills using a range of tools including the jigsaw, a table saw and the circular saw.

I'm extremely proud of my final product and I'm looking forward to testing it out in a real marketplace.



# TWO-IN-ONE CUP HOLDERS

## OLIVER MULTARI

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**MATERIALS:** ACRYLONITRILE STYRENE ACRYLATE (ASA), POLYLACTIC ACID (PLA)



**My current car is 20 years old and doesn't have cup holders. This makes drinking beverages, or even a run to McDonald's, quite challenging. If hot liquid spills in your lap you could easily have an accident.**

I wanted to make a two-in-one cup holder that could be secured to a car's air vents and other parts of the car if required.

My primary target market is people who own older-style or classic cars that do not have in-built cup holders. My secondary market is for people who may want additional cup holders for their modern cars.

I reviewed several other cup holders already on the market which helped me visualise what I wanted (and didn't want) in my design. This process also helped me to develop points of difference to ensure my product would stand out in the market.

I developed the project in OnShape which helped me fully realise my prototypes and final designs, as well as allowing me to incorporate modifications or improvements as issues or ideas arose.

I also reviewed several materials for creating the prototype and decided on PLA as it is both biodegradable and strong. For the final design, I used ASA as it is extremely strong and both UV and water resistant.

I used a 3D printer to produce my prototypes and final product. It was very efficient as I could work from home and this gave me extra time if I needed to fix mistakes or make improvements.

The process of making my product was extremely enjoyable and it was a lot of fun using CAD to create cup holders for my car. I picked up many skills and I am extremely happy with the result.



# PORTABLE HOT PLATE

## BRENDAN SYMONDS

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**MATERIALS:** STEEL, SILICON, WOODEN DOWELS, BBQ HOTPLATE



I really enjoy cooking and camping and have my own YouTube cooking show, *Cooking with Brendo*. A comment was left on one of my cooking videos that stated “Brendo, you HAVE to cook in the outdoors,”. This comment was the inspiration for my project.

Most outdoor BBQs require either their own fuel source (via storage) or have a small, open fire. I felt that making a BBQ that could be used on any sized fire or outdoor furnace would be really useful for campers and outdoor cooks.

I wanted to make something that was height adjustable (to accommodate different fire heights) and easily transported.

I tested the heat resistance of metals including aluminium, carbon steel, galvanised steel and stainless steel. I decided on carbon steel as it can withstand the heat from fire and is less expensive than stainless steel.

I also tested the heat resistance of the hotplate wheels by putting them in an oven to determine which one was least damaged after half an hour at 200°C.

My father taught me how to weld safely and join the metal components together.

Silicon filling was used to attach the wooden grips as this filling can resist temperatures of up to 260°C.

I used Cabot's Cabothan Clear lacquer on the dowel handles as it looks great and will help protect the wood from the elements.

Height adjustment is achieved by changing the position of the hotplate using holes in the bars pointing to the back axle, and the height-cut holes in the standing bar of the frame. This height adjustment system works well and is simple to use. The hotplate's customisable height allows it to sit over any open fire or outdoor furnace without burning the food or having it cook too slowly.

The portability of the MDP is good, the wheels make moving the device much easier than if it were to be carried.

I cooked some sausages and onions on the hotplate and they tasted great. There was no unexpected black staining of food.

The Major Design Project has been successful. There is room for improvement, but overall this has been a fruitful endeavour.



# SUSTAINABLE SKYSCRAPER

## HUON WILSON

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**MATERIALS:** BALSA WOOD, FLOOR PLANNER WALKTHROUGH SOFTWARE



[View video](#)

**As the earth's population continues to grow, pressure on the earth's resources increases, as does the demand for housing and accommodation in urban centres.**

Given these factors, I believe there is a clear need for skyscrapers that do not use a lot of resources and are able to self-sustain.

For my Year 12 Major Design Project, I undertook the design of a skyscraper that is almost entirely self-sustaining.

This type of building is known as an autonomous building, designed to be operated independently from infrastructural support services. The building I designed for this project would be connected to public roads, sewage systems and water systems, but I wanted to solve issues related to self-power generation and food production. I believe these kinds of buildings would be very attractive to tenants as the self-powering features would offset power and food costs.

I reviewed many other buildings to gain inspiration and also to ensure that my design would be different from anything that had already been built.

To differentiate my building from others I decided to use redirected sunlight to collect power for the solar panel. The face of the building is a reflective surface that helps to collect sunlight. The solar panel is operated by an adjustable which allows light capture throughout the day from any angle.

I used OnShape and Floorplanner to design the floor plan and the 3D walkthrough of the apartment level/ground floor.

I used Adobe Illustrator to create a design for the model that could be laser cut and glued together to create a clean finish. I used MakerCase to create the main box body for the building, including the finger joints.

I am proud of myself for undertaking a project like this, which could possibly have been seen as overly-ambitious and too much work, but I am very happy with the final result and I developed a lot of new skills that I will use throughout my life.



# THE SMART CUBE

## SEBASTIAN WOODROW

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**MATERIALS:** PLYWOOD, LED LIGHTS, WHEELS, WIRELESS CHARGER, PROJECTOR, MUG WARMER



When people were required to stay in their homes during the Covid-19, the use of streaming services soared. As people bunkered down at home (and stayed tucked up in their beds) I saw the need for a 'smart' bedside table that would allow people to stream their digital content, charge their mobile devices and keep their beverages warm.

I reviewed a number of products already on the market and there was definitely a gap for a smart bedside table that incorporated entertainment technology and beverage warming.

I visited the IKEA website to look at a range of bedside tables and gather information on bedside table dimensions. I noticed most bedside tables are rectangular in shape, so I decided to make mine a cube.

I looked at various timbers including Tasmanian Oak and plywood, and marine plywood. I settled on marine plywood as it is very strong and able to withstand moisture or beverage spills.

I selected swivel caster wheels as they are very affordable and work best on carpet.

A table saw was used to cut the marine plywood into four 600x600 mm squares. I used a laser cutter to make a 1 mm hole for the mug warmer and a Japanese handsaw to make the slits for the LED lights around the shelves.

To construct the cube, I used a router to create rebate joints as they are strong joints (due to the large fixing area).

After applying an undercoat, I used three coats of black, high-gloss enamel paint to the exterior of the desk using a roller and tray.

Overall, I am extremely pleased with the final product and the design portfolio. I thoroughly enjoyed developing and creating this product. A significant amount of effort was required and I am very satisfied with the end result.



