CONTENTS OF THE EXEGESIS

[CONTAINS **THREE** PARTS: THE USER MANUAL TO EXPLAIN THE MAP; THE EXEGESIS 'MAP'; AND THE CREATIVE ARTEFACT (THE DESIGN THINKING RESOURCE]

Creative Process and Thinking in Developing a Year Nine Design Thinking Resource

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1 7 9 9 4 3 2 0

A dissertation submitted to

Auckland University of Technology

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Master of Education (MEd)

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School of Education

PART ONE: THE USER MANUAL

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USER MANUAL

This manual needs to be read first to help the reader navigate the exegesis 'map'. It is a companion document that supports the main body of the exegesis itself (The Map). This manual helps describe the different narratives available, and how to follow the different pathways of the exegesis 'map'. The following information is contained in this guide:

- Attestation of Authorship
- Acknowledgements
- **Exegesis Abstract**
  - Guide Notes – reading The Map
  - The Map: sequential narrative
  - The Map: thematic narrative
  - The Map: visual narrative
- **Exegesis – Table of contents**
- **Exegesis – Table of figures**
- **Exegesis – List of footnotes**
- **Exegesis – References**

ATTESTATION OF AUTHORSHIP

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

Signed:

Date: 09/11/2023

ACKNOWLEDGEMENTS

There are many family and friends I want to thank for the impetus behind making this project a reality and have also supported my idiosyncratic thinking.

My supervisor, Neil Boland, thank you for letting me be who I am and facilitating my ideas. And for also making sure that I didn't stray too far from the necessary academic requirements that makes this an actual dissertation.

To Deborah Woodward, thank you for passing your keen eye over my words to make sure they say what they are meant to be saying.

To my parents, and my mother in particular, your extraordinary influence has left an indelible imprint on me personally and this extends into the realm of this very project, without you even having any direct involvement.

To the amazing teaching colleagues over the years (and you know who you are). The ones I would take with me if we were to go and set up our own school. You are special friends that we can share great discussions around music, art, design and education.

To my faculty, thank you for your patience and not demanding too much for me lately. I look forward to doing a better job.

And to all the wonderful students I have had the privilege of learning with – we are so blessed in this profession, and I wouldn't have it any other way.

EXEGESIS ABSTRACT

This dissertation is about my creative process and motivation in developing a teaching resource for a Year 9 Design Thinking course. It comprises three key components:

- A Design Thinking Resource (as the creative work)
- A Map (the exegesis)
- A User Manual (to assist with how to read the exegesis)

This approach to my exegesis is motivated by a desire to remain authentic to how I think and do things as an experienced teacher, design thinker, designer and artist. I express this personal approach in a way that is intentionally multifaceted and designed to be read in different ways. To help guide the reader through the exegesis, the user manual is meant to be read first, or at least referred to alongside.

The exegesis ‘map’ is set up as an alternative to the traditional written exegesis, because it isn’t limited to expressing ideas in a linear way. The physical map is the preferred way of reading the exegesis to overcome the limitations of the computer screen.

The format reflects the way I created the Design Thinking resource and what the resource is meant to do. Both the exegesis and the Design Thinking resource allow for multiple ways of reading and are meant to be visually rich, where images extend on what can be written beyond the parameters of the exegesis word count.

GUIDE NOTES – READING THE MAP

The exegesis has been set up to be read like a physical map. This allows the reader to navigate in multiple ways and take different journeys which facilitate different ways of digesting the information. The intention is to extend the reading beyond a single linear narrative to other interpretations.

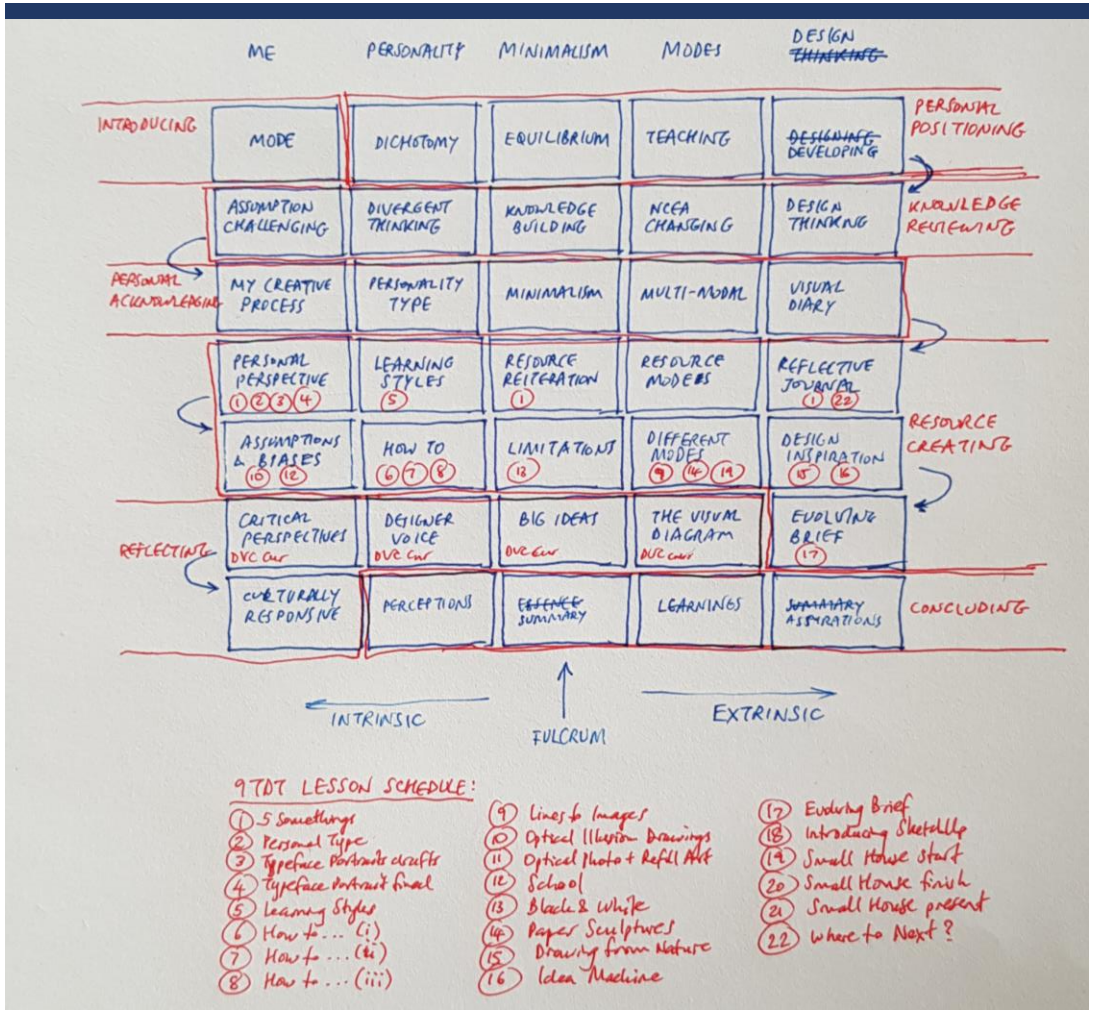
The exegesis a physical fold out map made up of 35 sections in a 7 x 5 configuration, that can be read sequentially or thematically.

The map comprises of 35 PowerPoint slides set up in their default widescreen format to also be screen friendly, so the reader has the benefit of reading each page in their full screen format on a device, as well as reading the actual physical map.

"Why do I work in Landscape rather than Portrait? Simply because the predominant interface of information is now through the monitor and the screen, rather than through print media, so it makes sense to me." (Samaeli, 2018, p. 1)

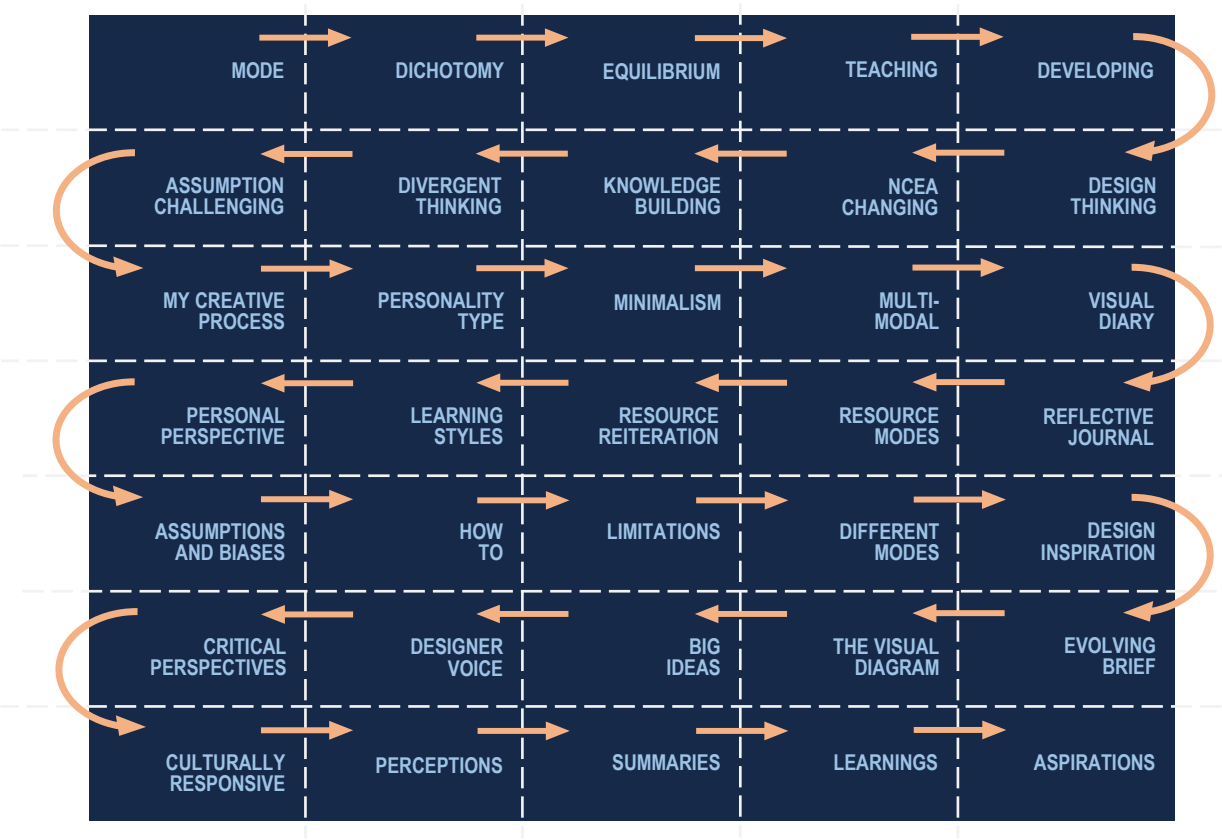
The exegesis pages are set on a dark background to reduce the glare and fatiguing impact from the backlight of the monitor screen.

The exegesis text column is set to the width of a conventional portrait A4 page to acknowledge the primary way we read large bodies of text.



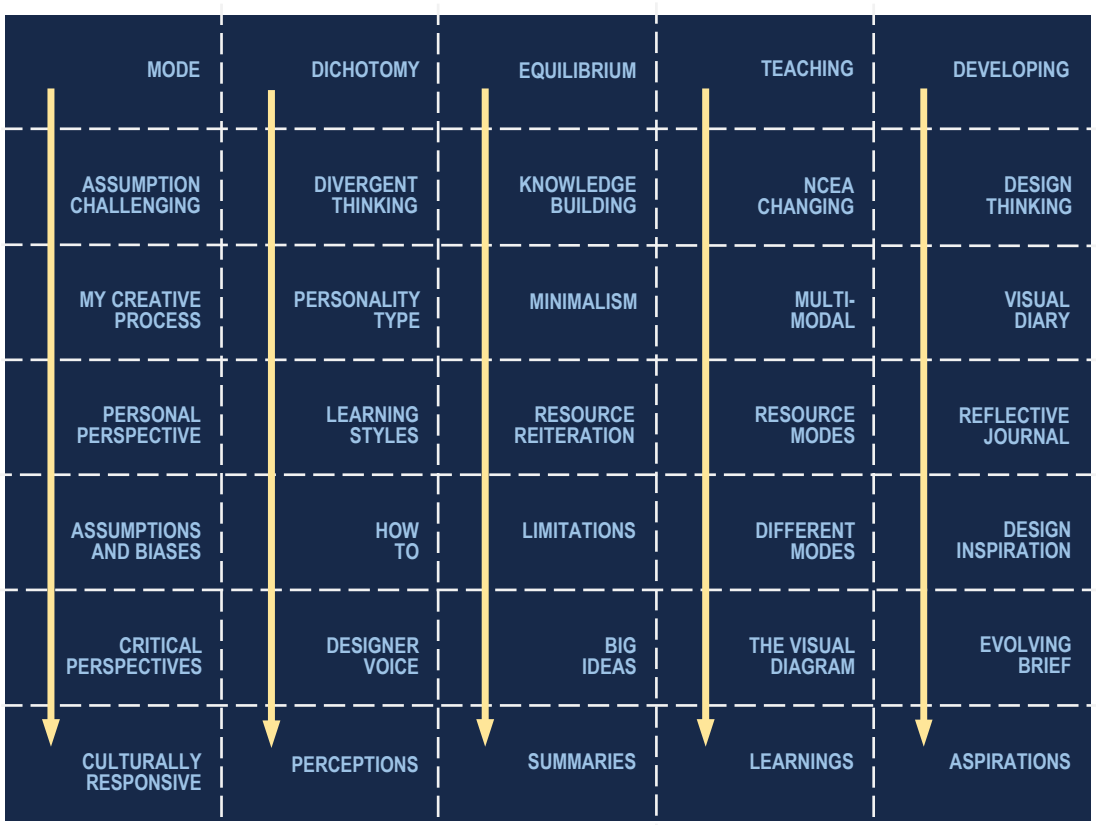
An early draft of the Exegesis format (The Map) sketched up to articulate the sections and alternative written narratives and their organization. (Samaeli, 2023).

THE MAP: SEQUENTIAL NARRATIVE



To read the exegesis as a more conventional sequential narrative (the one submitted as a PDF file), the reader follows the pink numbering at the top righthand corner of each section of the physical map. These run horizontally, snaking left to right and then right to left (as illustrated).

THE MAP: THEMATIC NARRATIVE



To read the exegesis as a thematic narrative, the reader follows the yellow numbering at the bottom lefthand corner of each section of the physical map. These run vertically, running top to bottom for each column (as illustrated).

THE MAP: VISUAL NARRATIVE

To read the exegesis as a visual narrative, the reader can gaze across the map of images as their eye leads them, in a way that these can coalesce in building a bigger 'picture' – each individual image providing a potential landing spot that can be connected in different relationships.

THE MAP – TABLE OF CONTENTS

TABLE OF FIGURES

LIST OF FOOTNOTES

Footnote 5:	My career of secondary schools comprised of the following: Onslow College (1996-2000); Sacred Heart Lower Hutt (2001-2003); Epsom Girls Grammar (2004); Whangarei Girls High School (2004-2007); Saint Kentigern College (2007-2018); and Takapuna Grammar School (2020-present)	4
Footnote 6:	As Teacher in charge of Design and Visual Communication (DVC) at Takapuna Grammar School, we were one of five schools to engage in the NCEA DVC mini-pilot in 2022 and one of fourteen schools involved in the NCEA DVC full pilot in 2023	7
Footnote 7:	As an exhibiting artist, I generated a growing collection of works that accumulated into an emerging body of cohesive works, moving through various phases that explored variations and iterations (fig. 12). Yet the creative process of designing is not necessarily going to be linear or singular, there is always going to be diversity of approach that is multifarious and multifaceted.	11
Footnote 8:	INTJ's, referred to as the Mastermind, stand above all others in their ability to plan of contingency. They can grasp how each step leads to the next, while able to prepare alternative strategies should challenges arise. They work well with systems and their viewpoint is 'pragmatic, skeptical, relativistic, focused on spatial intersections and intervals of time'. (Keirsey, 1998, p 199).	12
Footnote 9:	Particular works of significant influence from Steve Reich include:'Come Out' (1966); 'Piano Phase' (1967); 'Four Organs' (1970); and 'Six Pianos' (1973). From Philip Glass include: 'Two Pages' (1967); 'Contrary Motion' (1969); 'Music in Similar Motion' (1969) and 'Music With Changing Parts' (1973)	13

Footnote 10: Creative heritage is looked at in the broadest sense, it can be artistic, musical, dramatic, technical, scientific or even sporting. It could be as simple as how you design in everyday life in terms of the clothes you wear, the things you like, the people you associate with. 16

Footnote 11: Google Classroom is the online learning platform that is used by students and teachers at my school. 17

Footnote 12: There is a contention within education with regards to the use of learning styles, though the way Myers Briggs needs be viewed is in terms of its continuums of tendencies rather than classifications into specific categories. Likewise, learning styles are not mutually exclusive and through the design thinking course, this is something I explain to my students. It is through this lens that there can be a connection with Freirian concepts. 19

Footnote 13: Two scenarios where personal perspective transformed the students learning experience:
Student A – a well performing student, t in his final year did a project on his own tribe's marae. Because the project was deeply personal (including meeting with the kaumatua) he did what he proclaimed to be his best project, and his mother at a Parent Interviews was moved to tears in how much he invested in his project as the best thing he ever did at school.
Student B – a highly gifted student with a passion for trains, who chose to redesign his local train station he grew up using. He had a depth of knowledge, and along with his exceptional digital skills, collaborated with me as the teacher to produce one of the strongest projects ever done for NCEA DVC. 20

Footnote 14:	My learning experiences from my time in a primary school in Samoa, shaped my approach to education for the rest of my schooling, with the foundational skills that were drilled in. This was most pertinent when writing to my old primary school classmates and I wrote a page and a half of 7mm lined refill in cursive with a pen, to get a bundle of letters back from my peers who were still printing in pencil a couple of 12mm lines of text.	21
Footnote 15:	In addition to the six schools that I have been employed at, I have also relieved at a further four schools and done presentations or run professional development sessions at numerous more.	21
Footnote 16:	Examples of long-form minimalist/ambient pieces include: Philip Glass – Music With Changing Parts (1973); Charlemagne Palestine – Schlingen-Blangen (1979); Brian Eno – Thursday Afternoon (1985); Eliane Radigue – Trilogie De La Mort (1988); The Necks – Ether (2001); William Basinski – On Time Out Of Time (2017); Kali Malone – Does Spring Hide It's Joy (2020)	23
Footnote 17:	Visuospatial is defined as relating to or denoting the visual perception of the spatial relationships of objects (Google Dictionary, n.d.).	27
Footnote 18:	Professional Development workshops run for teachers were delivered in Auckland, Christchurch, Dunedin, Wellington and Hamilton during 2023.	27
Footnote 19:	Case in point, many educational policies are driven by catering for the larger 'core' or 'academic' subjects that are still motivated by examinations at the expense of many of the 'optional' subjects that have alternative approaches (such as project-based) and have different needs and intend to cater for different ways of learning and evidencing for assessment.	34

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PART TWO: THE EXEGESIS ‘MAP’

INTRODUCING: **MODE**

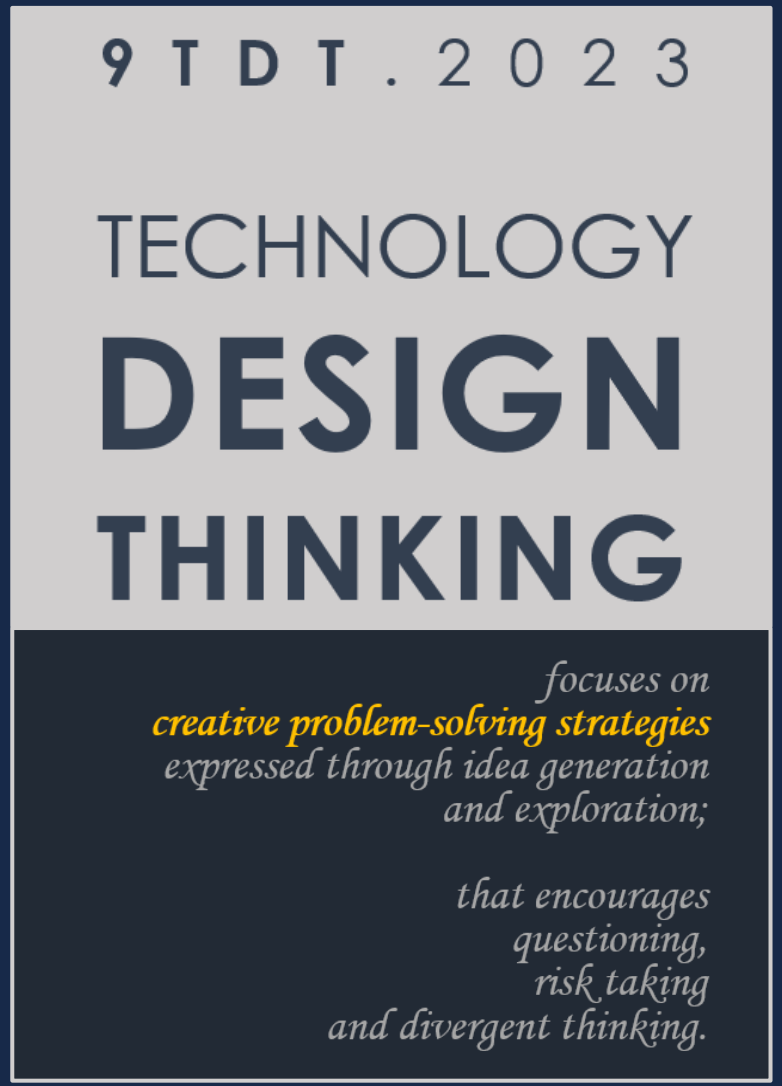

Figure 1: Slide 1 of the Year 9 Design Thinking course, this sets the main premise of the course to the students at the outset (Samaeli, 2023)

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My exegesis reflects the aesthetic approach of my supporting creative work; a teaching resource for a Year 9 Design Thinking course. The main idea behind the course is to question assumptions and develop divergent thinking (fig. 1). The nature of the resource reflects a deeply personal way of thinking, which motivates all that I do and is at the heart of my creative journey as an educator and designer. In doing this, the format of the exegesis itself becomes a creative work. The result being that the exegesis and the creative work are inextricably woven together.

I acknowledge this runs the risk of compromising its assessment (Lee, 2019) by not readily generating the expected evidence commonly recognised by accepted codes of assessment practice for academia. I know, as an experienced teacher and marker, that assessment has its parameters and working to these tend to net better results. In the end, my approach persists in terms of best showing the way I think.

To clarify the structure of the exegesis I include an accompanying User Manual. While placed as a form of appendix, it benefits the recipient to look at this first to help navigate the exegesis ‘map’. The sequential narrative pathway is just one way to read the exegesis, and I encourage ‘reading’ the thematic narrative pathway to comprehend the multifarious nature of this material[1].

My desire to thoughtfully question all things, including the very approach of an exegesis, is central to who I am and how I think. The theoretical frameworks associated with post-structuralism (Fawcett, 2012) is something I resonate with, though I take a quietly provocative approach as a teacher, while remaining connected to and considerate of the widespread practices and conventions of senior secondary education[2], underlined by the needs of mass education (Gilbert, 2005) and schooling for the masses (Hood, 2015).

Given my divergent leanings, the central purpose of the exegesis remains – clarifying what is behind my thinking and the creative processes in developing a Year 9 Design Thinking resource.

PERSONAL POSITIONING: **DICHOTOMY**

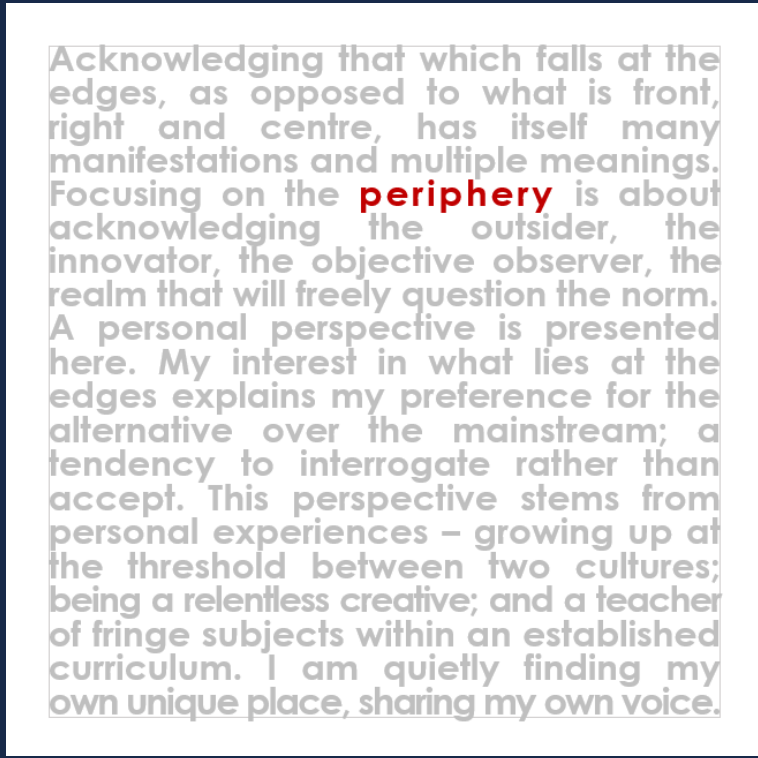

Figure 2: Blurb from the Periphery exhibition I put together in The Meeting Room at Saint Kentigern College (Samaeli, 2018)

Growing up amidst the prolonged separation of my parents, required navigating times of frequent verbal contesting along Samoan or Palagi lines. I negotiated these differences by not taking sides, but by finding equilibrium and positioning myself removed from either culture. I chose to observe from the periphery, a place I found comfort in (fig. 2). I was seen as Palagi by Samoans and as Samoan by Palagis.

In embracing this stance, I came to recognise my own unique identity that could critically evaluate the competing cultural perspectives of my parents. This not only protected me, it also allowed me to observe conflicting perspectives with neutrality and pragmatism. I learnt that there was no ‘right way or wrong way’, but rather that there were different ways to seeing things. I also became increasingly sceptical of words in themselves, instead favouring consistency of visible action.

PERSONAL POSITIONING: **EQUILIBRIUM**

Figure 3: Slide from a series of professional development workshops I ran for DVC teachers across the country (Samaeli, 2019)

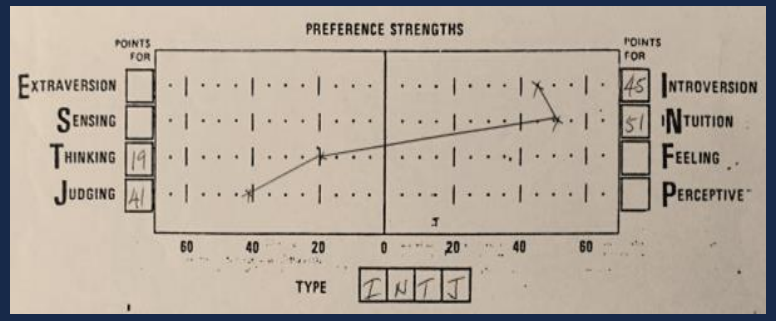

Figure 4: My results for the Myers Briggs Type Indicator Test facilitated by my Professional Studies Tutor as part of the teacher training programme (Gourley, 1995)

Polarities of perspective was to be a reoccurring theme throughout my architectural studies. I drew interest in the intersection of science and art that characterised architecture (Lawson, 2005). I saw this reflected in the eclectic mix of peers choosing to study architecture at the time, as well as the multiple pathways of learning available within the programme.

Seeking equilibrium between polarities was a reoccurring theme in many of my projects as an architecture student. Solid versus void; building versus wilderness; urban versus rural; theory versus practice; and religion versus secular; were personal inclusions I brought into different design projects (Samaeli, 1992). My desire to find equilibrium became a key motivation for each of these projects.

In my teacher training, learning about Paulo Freire's advocacy for liberating the oppressed, resonated with my teaching values of wanting to liberate others and what had shaped my life experiences in liberating myself. The tenet of 'naming your reality' (Freire, 2005) has informed my teaching practice and many of the creative heritage activities I have developed for my students (fig. 3).

Through the programme, learning about Myers Briggs Type Indicator (Nussbaumer, 2014; Wilde, 2011) and my own trait results (fig. 4) also significantly impacted what I valued as a teacher. In terms of understanding people, it gave a model that explained what I thought innately; that we are all uniquely different. Myers Briggs also affirmed the characteristics of my own unique identity[3]. What appeals is that each temperament doesn't sit in polar opposition to each other, rather they sit along a continuum, of which each of us would find a balance of that learnt or innate (Keirsey, 1998).

Figure 5: Slide from the Level 3 DVC course information, setting up my students with their own design projects for the year (Samaeli, 2023)

At the beginning of my teaching career, I was given permission to design a full five-year Graphics programme. I learnt how to transition to a new programme that successfully brought students and teachers along with its changes. In implementing a new programme, I recognised that this needed to be done incrementally[4]. Beyond responding to the requirements of the Graphics syllabus (Ministry of Education, 2001) and assessing for credentialling, a lens of individual identity based on my understanding of the ideas of Freire and Myers Briggs informed much of my programme development as a novice teacher. My programmes related to my values of acknowledging personal and critical perspectives (fig. 5), with an affinity to seeing things from different sides.

My experiences with dichotomy and polarity not only allows me to see things from different sides, but to also see connections between different things. This explains how I see architecture and education symbiotically, as reflective of my Intuitive tendencies (Keirsey, 1998; Wilde, 2011).

I gained a wealth of experience, built on developing learning and assessment programmes, across six different secondary schools[5], each with their own unique circumstances. These experiences inform my contract work as curriculum and assessment writer at a national level. The desire at this level, in being able to develop material that is inclusive of all learners and equitable to their diverse and individual needs (Ministry of Education, 2023), is something that readily aligns with my values as a teacher.

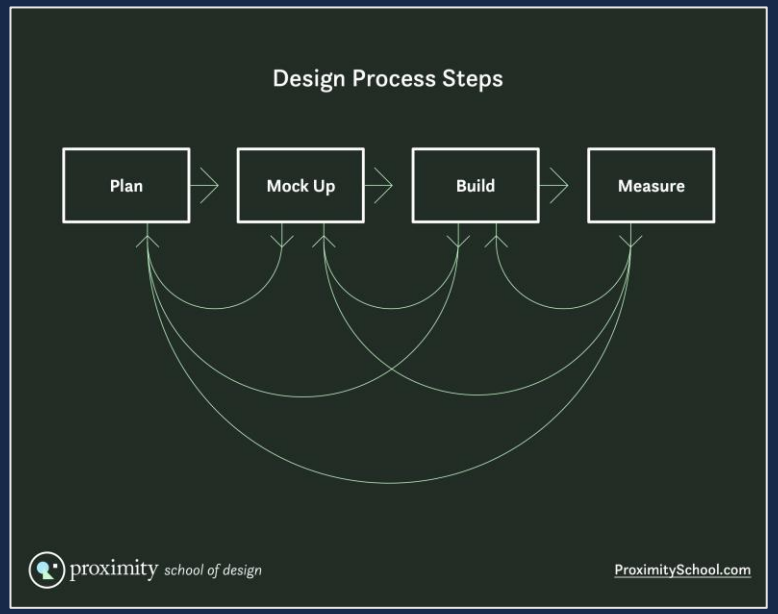

Figure 6: A design process model showing its progression contains continual reiteration (Retrieved from https://proximityschool.com/learn/design-process/, n.d.)

As a continually reflecting practitioner, I recognise that how I do things is built on my life experiences. We use our experiences to find principles that we can apply across different contexts and situations (Lotto, 2017). My varied teaching and designing experiences have resulted in my motivation to develop a Design Thinking course for junior secondary school students, bringing my latest thinking on education (both institutional and personal).

I value learning as essential to participating in our world. I am on a constant journey of personal growth, endeavouring to be better today than I was yesterday (Dwek, 2012). This is an adage I live by in my profession as an educator, it shapes my creative journey, and is something I strive to instill in each of my students as well.

At the core of initiating a Design Thinking course is the desire to engage students into being critical and creative thinkers who proactively engage in their learning at school and in their own lives. Ideally, this would emancipate students to understand that they can actively take control of their schooling, and not be passive participants.

I see learning as analogous with designing – there is a development process of continual reiteration (fig. 6), where ideas and understandings become increasingly distilled, clarified, and also more meaningful or purposeful (Dorst, 2017).

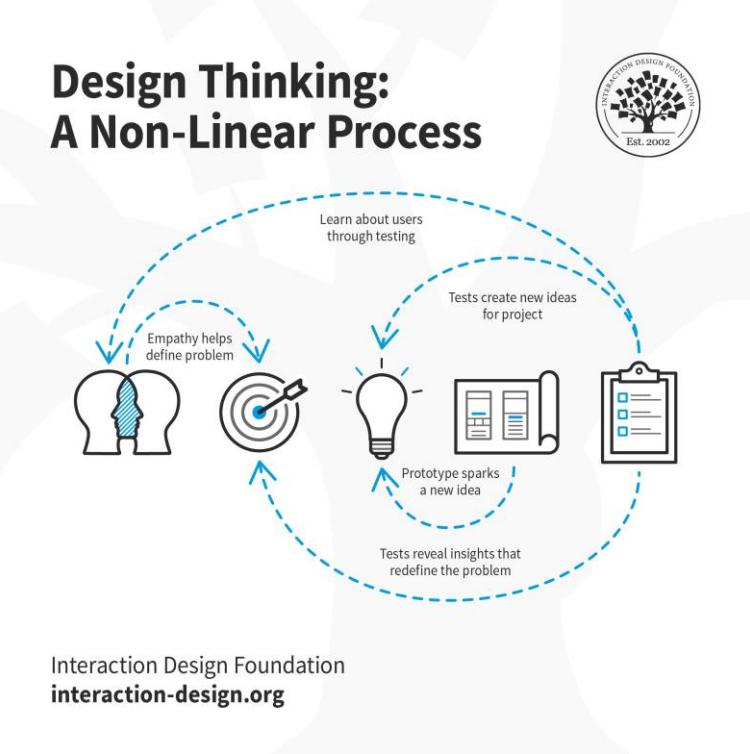

Figure 7: A design thinking model that has cyclical iteration as part of its process (Retrieved from https://www.interaction-design.org/literature/article/5-stages-in-the-design-thinking-process, n.d.)

Nigel Cross (2017) refers to design thinking as being "inherent within human cognition; it is a key part of what makes us human" (Cross, 2017, p. 3); it recognises what designers do when they are designing (Cross, 2017; Lawson, 2005). Bryan Lawson argues that designers do not approach each design problem anew, rather they bring their own motivations, beliefs, values and attitudes (Lawson, 2005; Lawson, 2007) that is likely to grow and change as a designer develops.

In the current New Zealand Technology Curriculum, design thinking is seen as supporting "students to be innovative, reflective and critical in designing" (Ministry of Education, 2017, p. 1). In being critical, you need to challenge your assumptions (Chatfield, 2018), as these not only affect decisions and what you do, your assumptions also effects how you view the places and events you experience, how you view school, how you view each of your classes and how you interact with people (Lotto, 2017; Samaeli, 2021). The process of design thinking can be iterative, introspective and deeply personal (de Vries, 2012).

Design thinking is not seen as a single definition, rather it has many interpretations depending on its context (Pressman, 2019). In the business context, design thinking goes beyond the practice of designers in terms of innovative approaches in leading businesses (Dam & Siang, 2019; Liedtka, Hold & Eldridge, 2021). Design thinking is analogous with contemporary thinkers on 21st Century learning and knowledge building (Dorst, 2017; Gilbert, 2005; Scardamalia & Bereiter, 2003; Scardamalia & Bereiter, 2006), where processes that are multi-layered and boundary-crossing have no simple linear approach (fig. 7).

It is argued that the practice of designers and the thinking used is complex (Dorst, 2017; Lawson, 2005), balancing the technical with the aesthetic (Lawson, 2005). Norman Potter (2002) sees design practice as a balance between a series of happenings or improvisations with more structured solution generating (Potter, 2002).

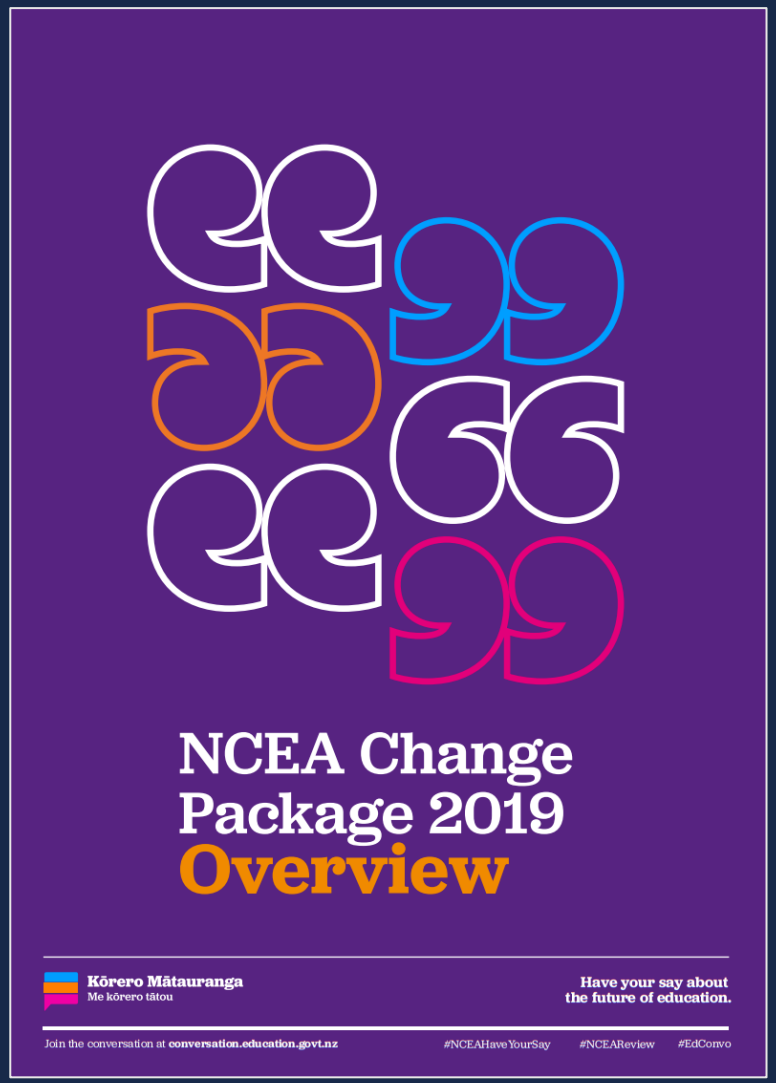

Figure 8: NCEA Change Package Overview cover page (Ministry of Education, 2019)

Working within the National Certificate of Educational Achievement (NCEA) framework as a senior secondary teacher, as well as being involved in the NCEA Review of Achievement Standards (RAS) as a writer and piloteer[6], I am invested in the changes that are currently being implemented.

A key view of the Labour Government is that education's purpose is to develop personal potential (Hipkins, 2018). This aligns with progressive thinking on education that sees the child as open-minded and receptive (Thomas, 2013) while instilling the principles and values of socialisation and personal growth (Egan, 1997).

A criticism of the National Certificate of Educational Achievement (NCEA) is highlighted by the research of the Ministry of Education that shows assessment has been broken into fragments that compromises deep curriculum learning (Hipkins, et al., 2014; Hood, 2015). Compartmentalising activities into a series of prescribed assessment milestones is seen as detrimental to rich and embedded learning (Ministry of Education, 2018), compromising the building of the capabilities and attitudes for lifelong learning (Ministry of Education, 2007). These capabilities include subject-specific knowledge; thinking skills; social skills; practical skills; and values (Ministerial Advisory Group, 2018).

The intention of the National Qualifications Framework (NQF) is meant to unify different pathways to provide equal footing, greater flexibility and inclusivity for all learners (Haque, 2014), though this intention failed to succeed as intended due to NCEA's fragmentation of learning (Ministry of Education, 2018). The NCEA Change Package of 2019 (fig. 8) provided the opportunity to review NCEA's Achievement Standards (RAS) in striving for an equitable and inclusive assessment framework (Ministry of Education, 2019; Ministry of Education, 2023).

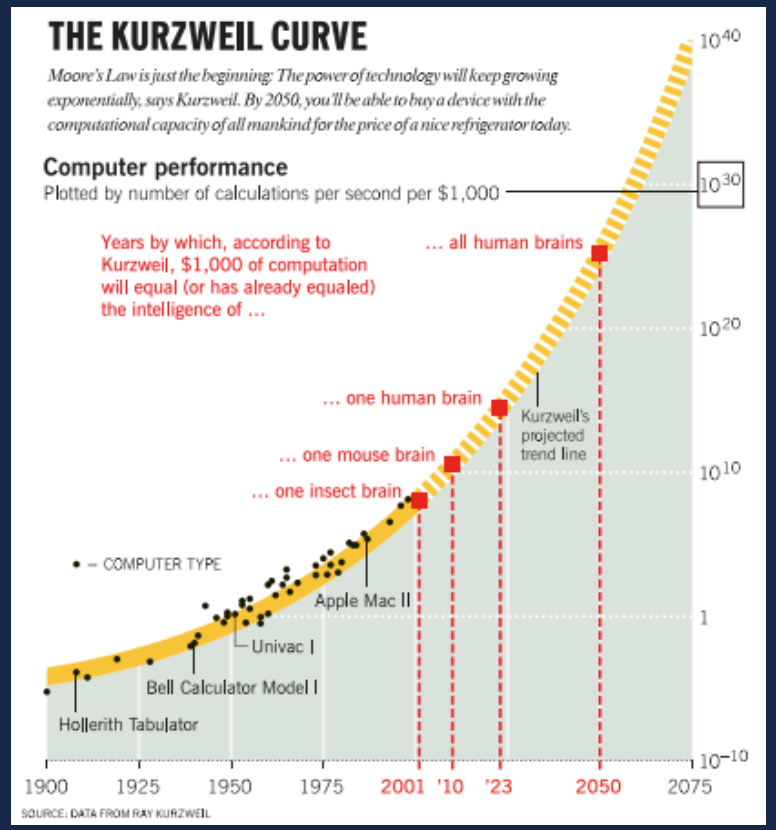

Figure 9: The Kurzweil Curve showing the exponential increase in computer processing performance (Retrieved from https://fortune.com/2007/05/14/ray-kurzweil-innovation-artificial-intelligence/, 2007)

Knowledge building concerns itself with a culture of knowledge creating (Scardamalia & Bereiter, 2006) which aligns with the intention of design thinking in terms of creating new ideas and innovations (Aflatoony, et al., 2018). The current Technology Curriculum states that design seeks new ways to improve people's lives (Ministry of Education, 2023), and to do this, we need to understand existing situations. Designers strive to innovate, by building new ideas and new ways of doing things that responds to an unpredictable future (Dorst, 2017; Robinson, 2017).

Ziauddin Sardar (2013) sees a future without fixed boundaries or set ways of thinking, filled instead with complexity and contradiction (Sardar, 2013). In such a scenario, alternatives are negotiable, contestable and multidisciplinary, people's individual differences are legitimate (Sardar, 2013) and their unique perspectives and ideas can be acknowledged.

Ray Kurzweil (2001) argues that an exponentially accelerating technological evolution of computer processing power (fig. 9) is stimulating the continually increasing complexity of information. This excessive wealth of information that is becoming available is putting greater importance onto the sources of information more so than what it is saying (Kurzweil, 2001). A surplus of information demands we change the way we filter it and judge its relevance (Weinberger, 2011). We are also susceptible to glossing over information rather than delving more deeply (Carr, 2010).

Developing design thinking can help manage excessive information in our increasingly complex realities. This thinking can be critical and creative, finding connections between ideas and events. From a creative perspective, "It depends" thinking is required, which may challenge those used to finding a right answer (Hipkins, R., et al., 2014).

KNOWLEDGE REVIEWING: **DIVERGENT THINKING**

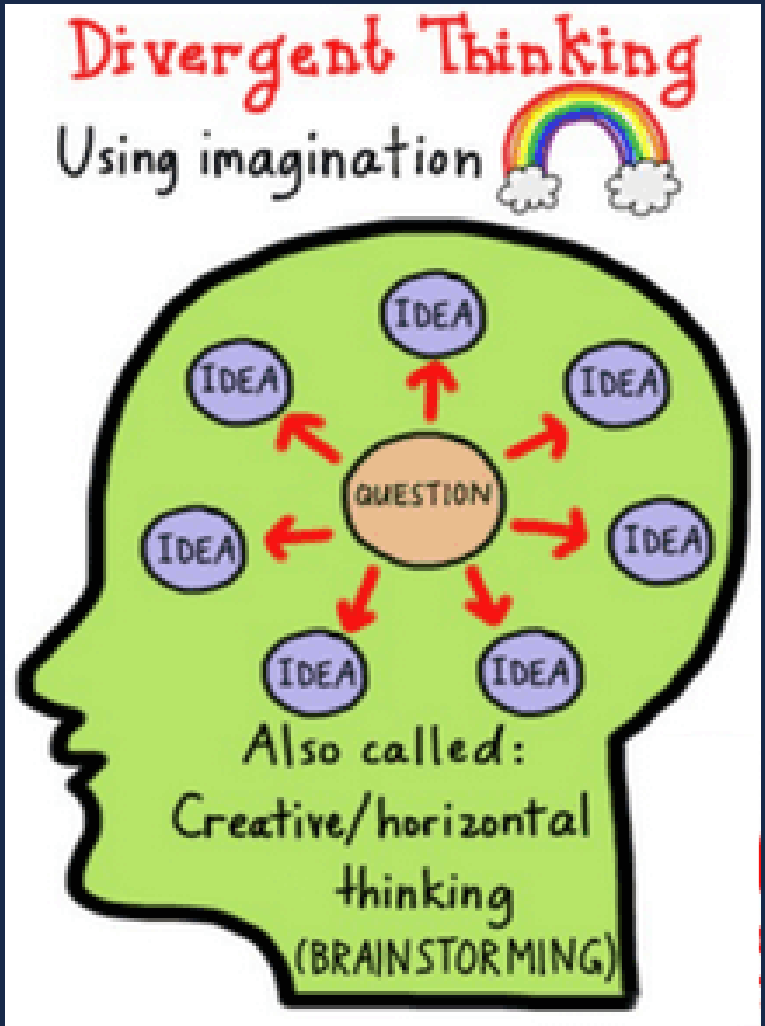

Figure 10: Sylvia Duckworth's divergent thinking diagram (Retrieved from https://sylviaduckworth.com/2016/12/, 2016)

Divergent thinking and convergent thinking are two sides of thinking utilised in designing. These constantly fluctuate throughout a design process that might begin with divergent thinking, as represented by the double diamond model of design thinking (Bravo & Bohemia, 2021). Kees Dorst (2017) argues we need to "move away from purely analytical ways of thinking" (Dorst, 2017, p 15) where design thinking is a mix of creativity and problem solving (Dorst, 2017). Allowing divergent thinking to flourish by relinquishing short-term goals for incubating creative possibilities (Steers, 2006) unlocks potential opportunities of innovation and taps into our own unique experiences and realities (Lotto, 2017).

Divergent thinking uses imagination and experimentation (fig. 10), where one can experiment and can take risks, because in this space, it is not about finding the right answer (Dorst, 2017; Samaeli, 2021). The ability for learners to think between, outside and beyond current paradigms is what is regarded by Rachel Bolstad (2012) as the ability to work with a diversity of ideas (Bolstad, 2012). Ken Robinson (2017) discusses the importance of creativity and imagination, identifying the need to be responsive in an unpredictable future where a culture of creativity involves everyone and extends into fields beyond those normally associated with creativity (Robinson, 2017).

KNOWLEDGE REVIEWING: **ASSUMPTION QUESTIONING**

Figure 11: Beau Lotto argues that information is meaningless and a construct of our past experiences (Retrieved from https://www.reddit.com/r/lambda_/comments/k5jcn2/context_is_everything_beau_lotto/, 2020)

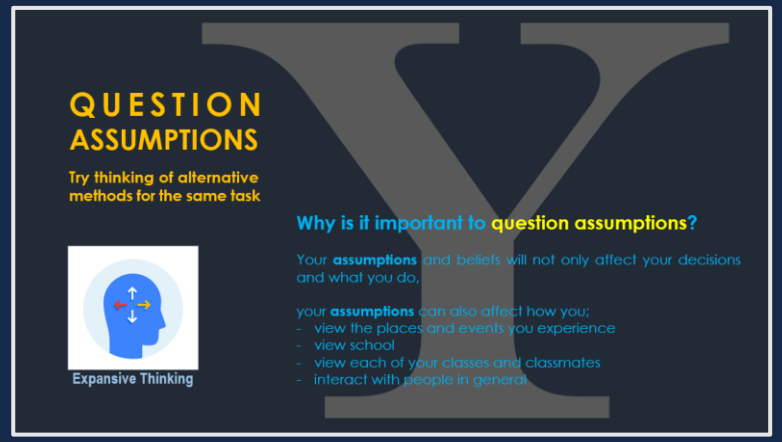

Figure 12: Slide 47 of the Design Thinking resource, this is the part of the course that introduces critical thinking with a focus on questioning assumptions (Samaeli, 2023)

Beau Lotto (2017) argues that we perceive our 'reality' as based on our own past experiences and memories (fig. 11). Lotto regards the reality of what we see, as what we have interpreted it to be. We make our own meaning, because it could mean anything (Lotto, 2017). Our reality is recognised as being largely personally constructed (Daniel & Harland, 2017), though remains situated within a social context. There is no simple, singular reality, rather, there are multiple realities, of which some gain more acceptance than others, depending on those who can access into that reality space (Samaeli, 2019).

The multiplicity of realities, its complexities and the unpredictability of the future, means that education needs to foster lifelong learners who can confidently navigate an uncertain future (Claxton, 2008). Guy Claxton (2008) writes that education is meant to be character-forming, and that every moment we are subject to small nudges and prompts on what to believe and what kind of person to be (Claxton, 2008). Given this, it remains important that one we can continually question and challenge these various perspectives and invitations (fig. 12).

PERSONAL ACKNOWLEDGING: **MY CREATIVE PROCESS**

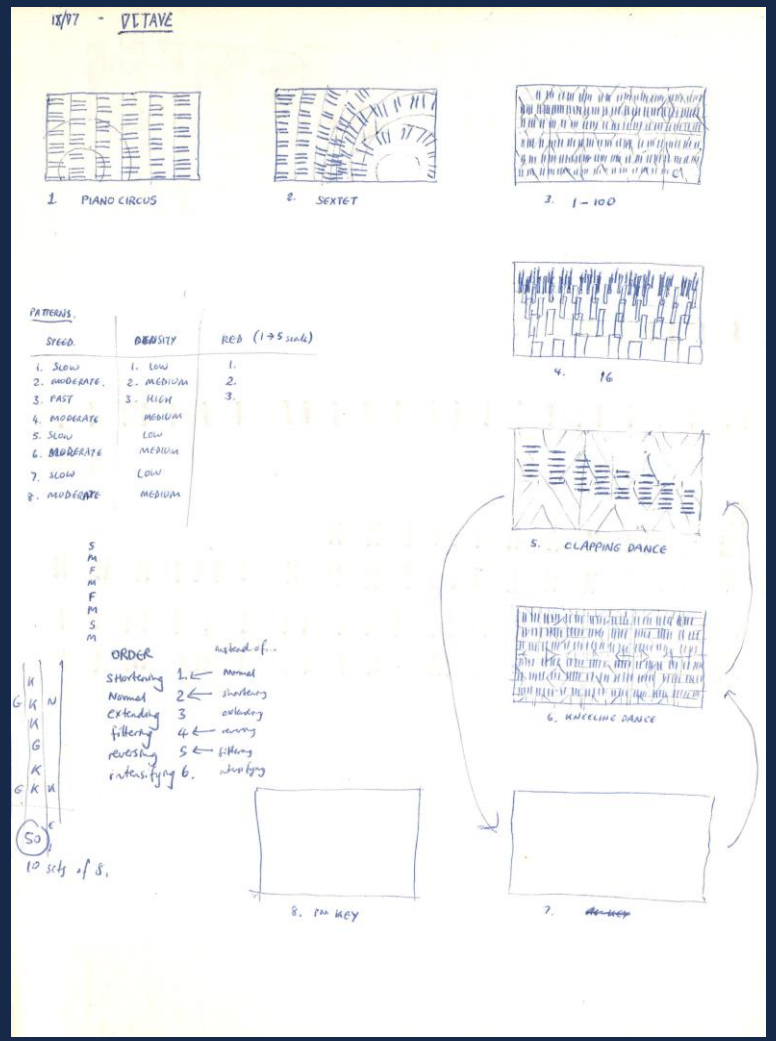

Figure 13: Sketches from my visual diary for my Octave series, reiterating different ways six sets of piano keys can be arranged (Samaeli, 1997)

My personal creative approach has sought to connect everything I do and see it as a coherent whole, whether as an artist[7], designer, teacher, curriculum writer, or learner. I do not see any of these pursuits as disparate or separate self-contained activities. They are woven together because that is how I deal with them. I see the world as a spatial framework where things and ideas make sense through their connections with each other (hence the format of this exegesis). These connections are time situated and based on what I already know and understand intrinsically, while I remain agile to continual input and reconfiguring.

My framework is a visuospatial map in my mind – always under constant reconstructing, I embrace re-evaluating and reframing at every opportunity. As a result, my visual map is in constant flux, accepting also, that sections do become established through the coalescing of coherent ideas and thinking. I see the framework like the construction of a building and like the increasing resolution of an image (or piece of music) – it is always resolving, evolving and revealing more of an idea. There is no start or finish, just the journey of reiteration; there is no definitive question and answer, just a perspective situated at a point of time (fig. 13). Hence the intention for this exegesis to avoid being fixed into a single linear narrative, instead striving to be dynamic and readable in multiple ways and narratives. And similarly, why the nature of my design thinking resource comprises of a series of activities that can be interchangeable based on circumstance.

PERSONAL ACKNOWLEDGING: **PERSONALITY TYPE**

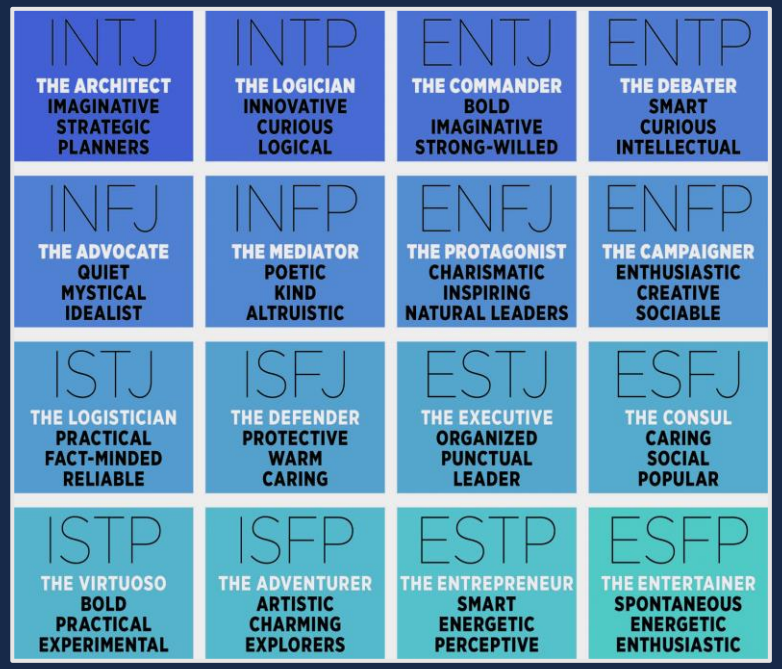

Figure 14: The sixteen MBTI categories. (Retrieved from https://practicalpie.com/myers-briggs-type-indicator/, 2023)

Learning about personality typologies was a significant influence when I studied to be a secondary school teacher at Christchurch College of Education. I learnt about the Myers Briggs Type Indicator (MBTI) and its Jungian principles (Keirsey, 1998; Wilde, 2011) as a model that sought to explain people's various personality traits (fig. 14). It affirmed my belief that there are different perspectives where each person is imbued with their own values, cultures and ways of seeing the world (Lotto, 2017). In particular, the four temperaments defined by David Keirsey is a model of defining personality traits I utilise in my approach and mindset as an educator (Keirsey, 1998).

The College of Education's Professional Studies programme provided the opportunity to align the Myers Briggs personality model with the Freirean lens of liberating the oppressed (Freire, 2005). From a teaching perspective, liberating students from their own potential oppression in a classroom that is part of institutionalised learning, was revelatory to me. I see ideas around student centred learning and culturally responsive pedagogies (Burns, et al., 2005) connecting with Freirean principles. These principles shape my pedagogy and values as a teacher. My desire for students to find their own way to learn that best suits them is affirmed (and explainable).

The theories of Myers Briggs also helped explain my childhood navigations between Samoan and Palagi 'ways'. It vindicated my decision in not taking sides, instead, finding my own unique 'neutral' position, a mutual balance between two cultures. The Myers Briggs Type Indicator (MBTI) also helped explain my own traits that shaped what I did. Knowing I did not originate from a single place (either exclusively Samoan or Palagi), necessitated me to find my own identity, something aligned with my INTJ[8] personality.

PERSONAL ACKNOWLEDGING: **MINIMALISM**

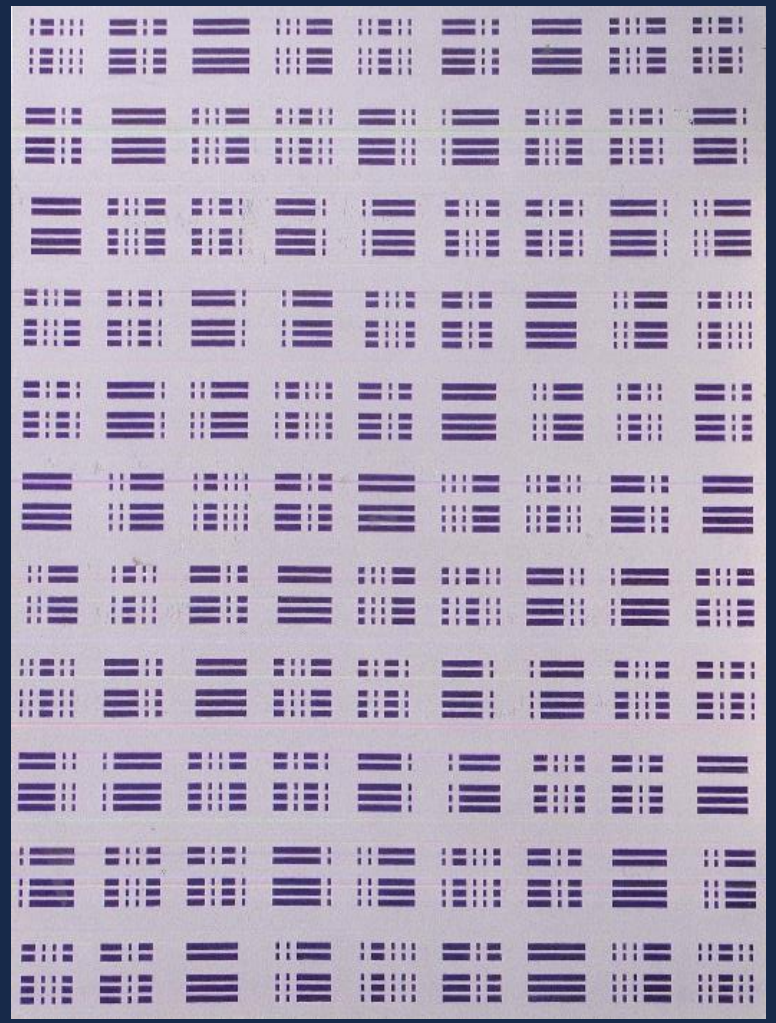

Figure 15: Resonance, an art piece that employs a shifting negative motif overlaying a regular repeating motif to create its dynamic sequencing of patterns (Samaeli, 1999)

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Finding out about minimalism and, specifically, American minimalist music through the early work of Philip Glass and Steve Reich in particular, was another major discovery for me. These works resonated with me deeply in terms of their restraint[9]. There was a sense that I had found my place, my identity, one that had always been there subconsciously but never fully recognised growing up. I was 23 at the time and I had just completed a paper on Modern Music in my final year of my Architecture degree.

What appeals to me about minimalism is that it isn't just about simplicity, rather it was about how to make the essence of things apparent within inherent complexity (Obendorf, 2009; Schwartz, 1996); to remove the extraneous and to focus in on the essential, the core of things (whether ideas or artefacts).

The aspect of minimalism that particularly appeals is one based around the notion of phasing. Steve Reich as a key proponent of phasing in minimalism, has always been of personal interest in terms of how he wants to make the processes in his music perceptible (Nickleson, 2023; Schwartz, 1996). There is a deliberateness and intentionality to his work that I resonate with. Phasing is something I began to employ within my own art (fig. 15), both within each individual piece, but also between pieces I had already done and were to do.

The gradual shifting of elements suits my cadence and has proved a useful strategy for me not only as an artist and creative, but also as a teacher. The latest iteration of the Design Thinking course also develops as part of an ongoing gradual phasing of my practice and perspectives as a teacher and artist.

PERSONAL ACKNOWLEDGING: **MULTI-MODAL**

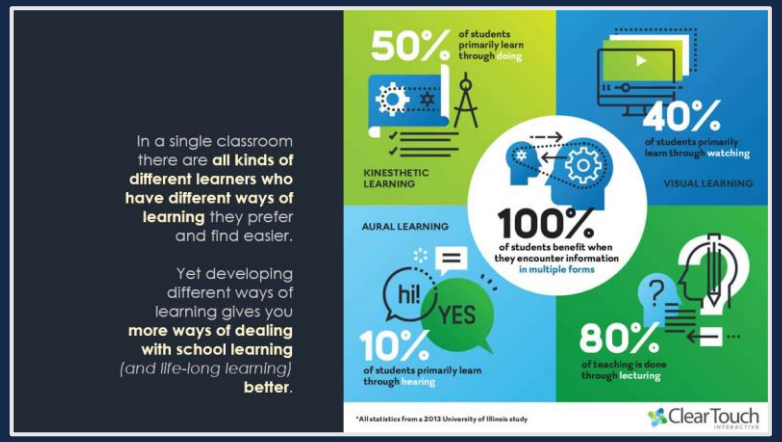

Figure 16: Slide 26 of the Design Thinking resource, showing the effectiveness of using different learning styles in concert (Samaeli, 2023)

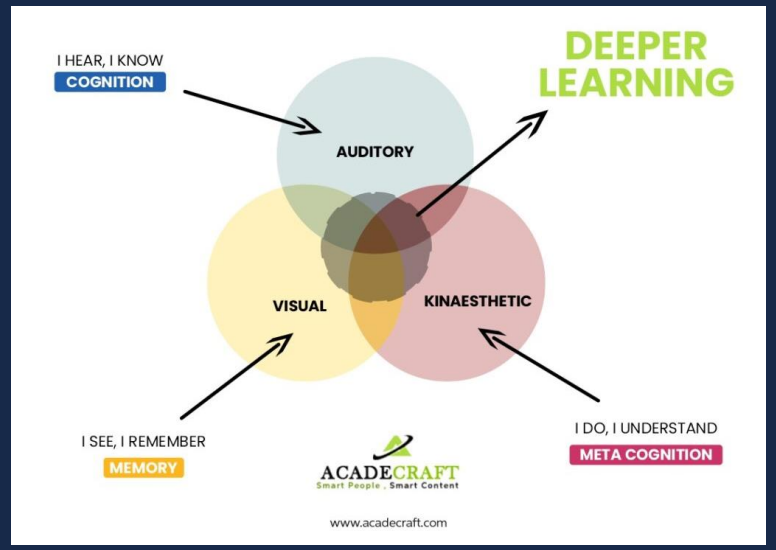

Figure 17: Multi-modal learning and learning styles. (Retrieved from https://www.acadecraft.com/blog/what-is-multimodal-learning-what-are-its-benefits/, 2022)

The Design Thinking course has been set up for students (and other teachers) to be able to utilise visual modes as much as reading and auditory modes. I see the opportunity to have the various modes to working together in a complementary manner to support student learning in a variety of ways with an increased opportunity to connect with students' different strengths and abilities (fig. 16). This approach to the programme also aligns with the principles of personality traits and learning styles (Keirsey, 1998).

Each mode can reiterate ideas in their own ways. While there are strengths and weaknesses with each mode in isolation, there are significant benefits in making available multiple modes working in concert (fig. 17). Hybrid opportunities that can happen in between modes, such as the visual diagram, facilitates the organic shifting between modes. It is this slipping between the modes (like the phasing of Reich's music) that provide new and unique scenarios beyond what might be expected. The concept of actuality talks about the moments between events (Kubler, 1982), and I have transferred this into the hybrid opportunities between modes as well.

PERSONAL ACKNOWLEDGING: **VISUAL DIARY**

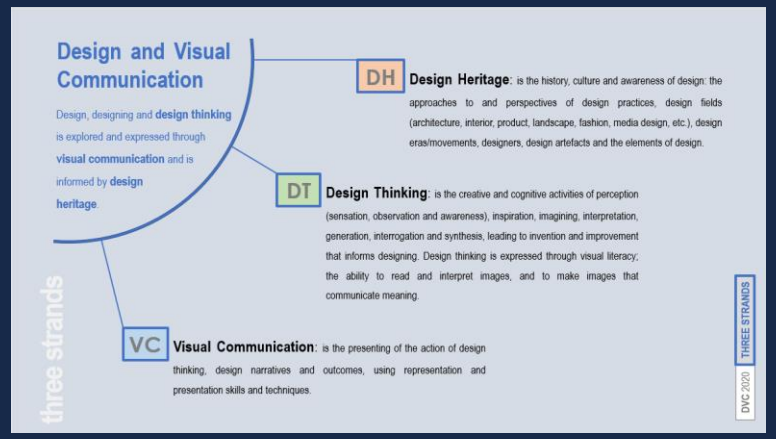

Figure 18: Design and Visual Communication Teaching and Learning Guides, visual overview of the three strands (Samaeli, 2020)

Documenting the visual narration of a creative thinking process is part of Design and Visual Communication (DVC). Evidencing the narrative of a student's design practice visually is a key component of the Visual Communication strand of DVC curriculum (fig. 18) (van Musscher & Samaeli, 2018). A visual diary can act as a physical document for recording design thinking and ideas.

I began using visual diaries at the outset of my university studies in architecture. My diaries were not only populated with drawings and images, I chose to record key ideas and theories from the texts I would read, exhibitions I would attend, and music I would listen to. My use of a personal visual diary went beyond my formal architectural studies, continuing alongside my creative projects, art making, and my own learning across a myriad of spheres (design, architecture, music, education, etc.). Each visual diary was chronologically organised, with its own start date. Throughout each edition, reoccurring themes on minimalism, design, personality, and education pervade. It was also the place where I would record some of my own thoughts and quotes (some I draw on in this exegesis).

My approach to my visual diaries is something that interests me as a teacher. In the same way that I am constantly figuring out what I am thinking about and continually growing my understanding and making sense of my place (who I am and what influences me), I am interested in what students understand in themselves and what they can bring to their own and others' learning.

RESOURCE CREATING: **REFLECTIVE JOURNAL**

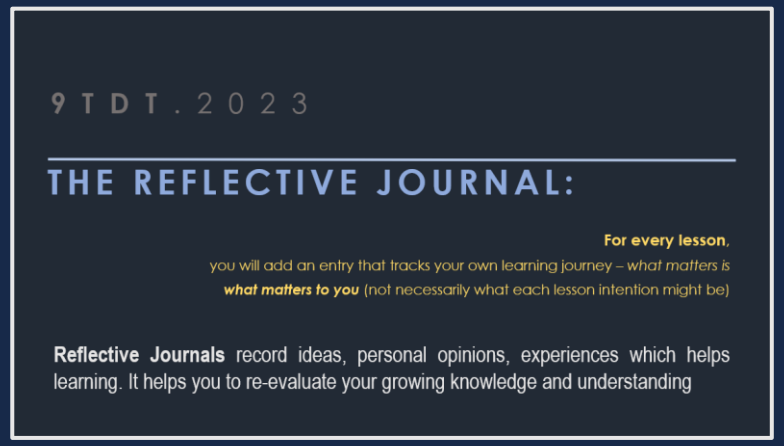

Figure 19: Slide 7 from Design Thinking resource, this introduces the requirements and purposes of student reflections (Samaeli, 2023)

Figure 20: Attributes of being a reflective learner (Retrieved from https://www.yourtherapysource.com/blog1/2018/10/19/reflective-learning-style-or-passive-learning-style/, n.d.)

As key part of getting to know my Year 9 Design Thinking students, an online reflective journal is set up for students to document personal reflections on their own work and learning (fig. 19). As well as sharing their personal opinions and experiences, their journals also document the work they are doing throughout the course. I see the reflective journal as actively support learning, by helping students embrace their growth in understanding, while encouraging greater success in their learning (Dweck, 2012). Students are encouraged to think about past experiences and learn from them through engaging with their reflective journals where there is also the opportunity to document questions and remain open to other suggestions, ideas or approaches (fig. 20).

Self-reflection is a part of critical thinking and the critique of oneself in terms of understanding and decision making, forming a significant part of design thinking and designing. Self-reflection also begins to engage at a formative level, the emergent and unique designer voice of the student, a key aspiration in the curriculum Big Ideas for Design and Visual Communication (Ministry of Education, 2022).

Through my teaching and with the Design Thinking course, I am interested in creating activities that stimulate self-reflection and engage active participation in learning. When starting at a new school in 2020, I commenced with an activity that required senior students to articulate their creative heritage[10]. It was a way to get to know more about them as learners and emerging designers.

RESOURCE CREATING: **RESOURCE MODES**

Figure 21: Summary of lessons slides taken from throughout the Design Thinking resource (Samaeli, 2023)

Learning taken from the lockdown experiences has informed the design of the Design Thinking resource, considering how the resource can work both within a classroom setting and remotely.

The pandemic lockdowns of 2020 and 2021 necessitated the greater use of online learning, which meant the greater employment of Google Classroom[11]. The lockdowns meant learning that was typically delivered in front of the class and supported by white board notes and drawings were no longer suitable for students who could not be physically present, and in some cases, even able to connect online.

With online learning, I no longer had the full range modes at my disposal (verbal instruction, body language, whiteboard, data projector, books, student examples, etc.). I was not able to respond in real time to either collective and individual needs. Online learning requires a lot more preparation time in advance, knowing the weight of significance that the contents and design of slideshows now takes on.

The use of PowerPoint takes on greater importance, in terms of supporting online teaching, as well as being self-sufficient enough for students to follow independently outside direct teacher guidance (fig. 21). To facilitate effective learning online, employing key visual communication principles of narrative, hierarchy and reiteration became essential. PowerPoint slides present information via a device screen and is most effective with the considered curation and arrangement of visual material.

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Figure 22: Slide 8 of the Design Thinking resource, the first reflection prompt of a series that is used to start each lesson (Samaeli, 2023)

Figure 23: Slide 3 of the Design Thinking resource, that overviews a summary of the aspects to be covered (Samaeli, 2023)

A desire for coherence underpins the development of all my teaching resources, especially those done digitally. For the Design Thinking resource, each lesson follows a consistent format. A reflective page commences the lesson, reactivating the learning from the previous period (fig. 22). A cover page follows containing the lesson number and activity summary, before any further details and exemplifying of the activity itself.

Consistency of format, style and sequence, embeds a coherency of approach that can draw attention to key points of difference, change or nuance. This embraces the minimalist attitude that underpins my personal approach to how I do things, whether creating resources or artworks. Like the exegesis presented here itself, I am compelled to find unity, both in content and style of any presentation.

While developing the resource as my creative artefact, extraneous slides were removed, and formats further amended. As an example, the reoccurring “what is this course all about?” slide that was originally used with greater frequency has been limited to use as a marker point for each major section of the course (fig. 23):

Personal Perspective (Lessons One to Four)

Learning (Lessons Five to Eight)

Critical and Divergent Thinking (Lessons Nine to Fourteen)

Designing (Lessons Fifteen to Twenty-One)

Future (Final Lesson)

RESOURCE CREATING: **LEARNING STYLES**

Figure 24: Slide 24 of the Design Thinking resource, outlining the activity the students are to complete on learning styles (Samaeli, 2023)

Figure 25: Visual prompt on learning used in the Design Thinking resource (Retrieved from https://www.wgtn.ac.nz/learning-teaching, n.d.)

Giving due consideration to learning styles is an aspect of the design thinking course that finds a connection between the Jungian concepts associated with Myers Briggs (Naussbaumer, 2014; Montgomery, 2002; Keirsey, 1998) with the Freirian ideas on liberation and pedagogy (Freire, 2005; Freire, 2001).

Personal learning preferences connects to Jung's ideas that people are driven from within by their own instincts, with natural inclinations that are also shaped by personal experiences[12]. This recognises that people are not all the same and that we perceive, communicate and learn in different ways (Keirsey, 1998).

Freire recognises the prevalence of oppressive pedagogies based on banking teacher-led learning, denying true communication and neglecting authentic thinking and learning for students (Freire, 2005). He understands that to nurture our humanity and identity, we need students to name their reality and share their experiences that respects what they know (Freire, 2001). By making overt our individual realities, experiences and inclinations in the classroom setting, we not only facilitate different learning styles; we also engender a greater respect for each other.

From a lesson on researching learning styles (fig. 24), I set up a small group activity that utilises learning styles through a form of collaboration that shares different experiences, expertise and skills. Building effective collaboration skills requires students to take on board each other's personal perspectives in contributing to the group (fig. 25). This also relates back to my own journey of reconciling two disparate cultural perspectives into a new 'whole' that integrates the two views.

In the case of the Design Thinking course, following learning styles straight after personal perspective makes sense to me, as this can situate and validate a personal perspective as one way to view things rather than being treated as either good or bad. Seeing this can help develop a constructive collective culture I am keen to establish.

RESOURCE CREATING: **PERSONAL PERSPECTIVE**

Figure 26: Slide 5 of the Design Thinking resource, outlining the requirements for the very first activity (Samaeli, 2023)

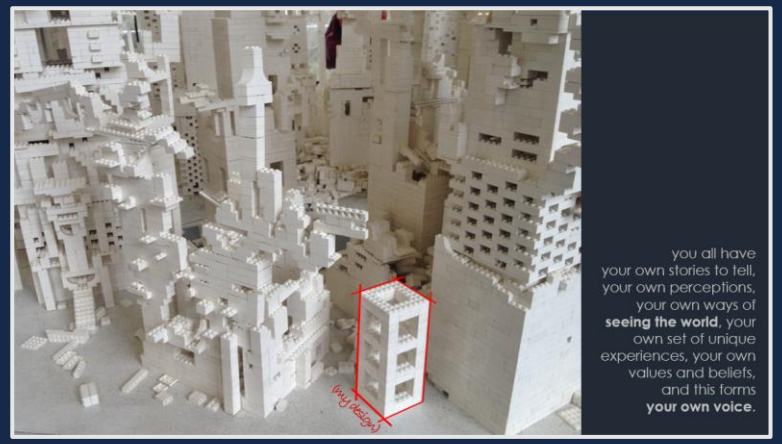


Figure 27: Slide 11 of the Design Thinking resource, illustrating an example of personal voice through a photo I took of my own idea as part of an interactive exhibition in New York (Samaeli, 2023)

I am motivated in creating a course that strives to activate students in their own learning experience right from the start of secondary school. I have always believed in empowering students' learning journey by bringing to the fore their personal perspectives can help them become more engaged learners. I recount numerous instances where I have seen this manifest itself in different individuals over the years[13].

My motivation in developing a Design Thinking course stems from this ongoing concern that secondary school students are not always encouraged to think for themselves nor to recognise the value and importance of their own personal perspective (Freire, 2005). I want to make apparent what they already know or have experienced does matter and can connect meaningfully with their learning at school.

From the first lesson, I am giving permission for students to bring their own perspective through telling their own stories (fig. 26). The "5 somethings" activity allows students to immediately draw their own personal connection with the Design Thinking course by allowing them to identify their own place with their first learning experience. Such an activity begins with students immediately bringing their own perspectives, experiences, and interests into their work (fig. 27), in line with Paulo Freire's 'naming your reality' adage.

RESOURCE CREATING: **ASSUMPTIONS AND BIASES**

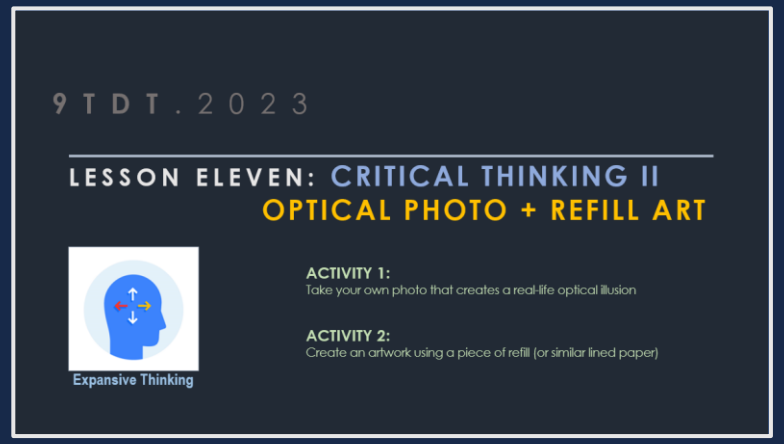


Figure 28: Slide 53 of the Design Thinking resource, critical thinking activities that manipulate perspectives seen (Samaeli, 2023)

Figure 29: Slide 60 of the Design Thinking resource, that builds on the concept that we all have our own perspectives, even on the ever day institution we all attend (Samaeli, 2023)

With recognising a person's personal perspective, there is an awareness that there will be inherent assumptions and biases. We all have our own way of seeing every scenario through our own lens, one based on our own sphere of experience because our individual existence is unique (Lotto, 2017). We make our own meaning of the information that enters our senses, and this meaning is grounded in what we already know and understand through our own prior experiences[14].

In the Design Thinking course, I use optical illusion scenarios to illustrate the duplicity of meaning and perception. What is seen is not necessarily what it may appear to be. Following up with an activity (fig. 28) that explores the different meanings or perspectives of various people can also illustrate how unique experiences and understandings can shape different and unique assumptions about something we all expect to encounter in a similar way. Using school as the context for showing difference of perspectives (fig. 29) is something that I readily connect with given the significant number of different schools I have visited, worked at and attended[15].

Throughout the Design Thinking course, I reiterate how personal perspective (through a number of activities and my pedagogy) shapes how we see the world and influence what we can do, given our unique experiences, assumptions and biases. Throughout the Design Thinking course, this means doing things in our own way to make the most of our learning opportunities.

RESOURCE CREATING: **HOW TO …**

Figure 30: Vision statement page from L3DVC course outline information (Samaeli, 2023)

Figure 31: Slide 28 of the Design Thinking resource, illustrating examples students could base their own learning resources they are developing in their groups (Samaeli, 2023)

The “How to” activity intends to build on from the learning on different learning styles, showing how they can also work in combination. Undertaking this group activity can bring opportunities for students to employ their own personal perspectives in a collaboration that values what each team member has to offer. Roles can be allocated, and different interests can be coalesced into a coordinated whole.

There is personal importance that the Design Thinking course, not only recognises students’ own perspectives individually, but also considers how this is done as part of an emerging supportive learning ecology (fig. 30). The “How to” activity is intentionally open ended for students to still be able to bring their own context of what the teaching resource will cover (fig. 31). The groups are also self-selected, as the dynamics of the groups are likely to work more effective as they already know each other. Essentially, this activity is the initial foray into collaboration and how the resource can be multi-modal and cater for different learning styles.

The idea of getting the students to work collaboratively on a learning resource also brings the opportunity to share and empathise what a teacher has to go through in considering the various ways students learn themselves. Likewise, as an emerging designer, empathising with the needs of the client or user is key for any design outcome to be fit for purpose and to find opportunities that not only consider the needs of people but also aspire to elevate and improve their situation and even their lives (Ministry of Education, 2023).

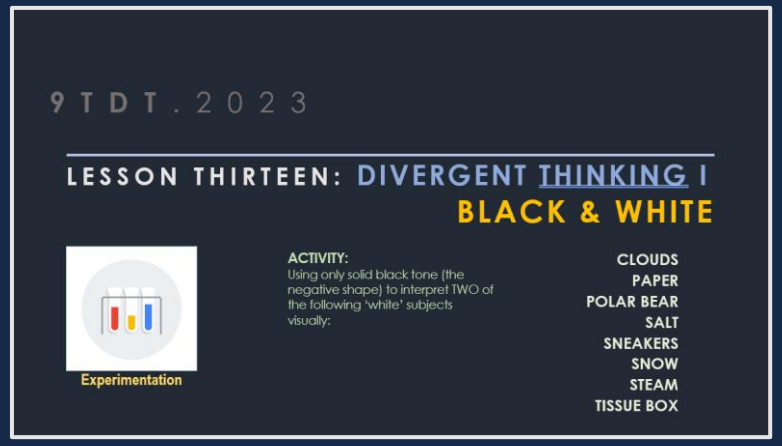


Figure 32: Slide 65 of the Design Thinking resource, a divergent thinking activity that requires working with limitations (Samaeli, 2023)

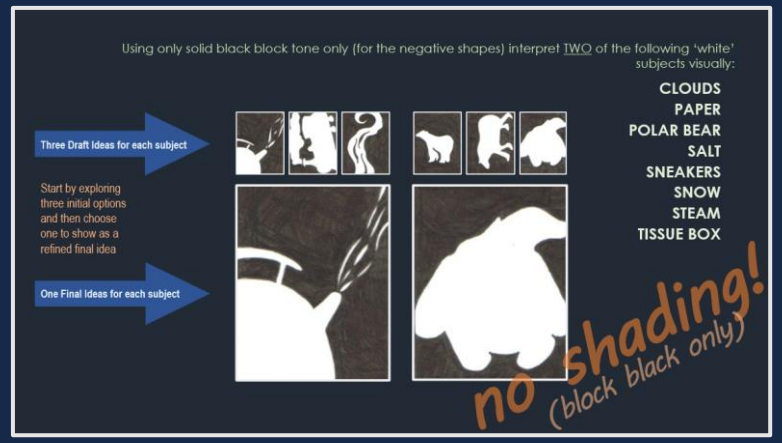


Figure 33: Slide 69 of the Design Thinking resource, exemplifying Lesson Thirteen that requires working with limitations (Samaeli, 2023)

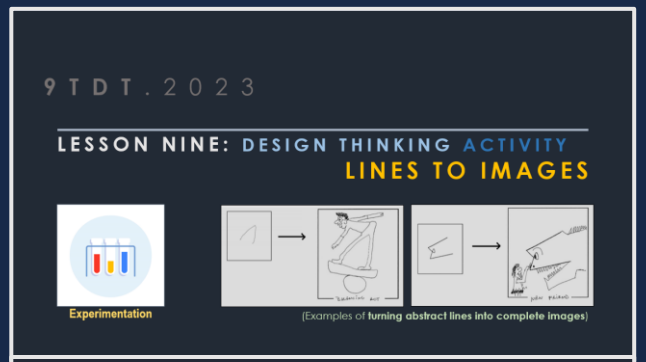
A minimalist mindset underlies the format of the Design Thinking course and many of its activities. The reiteration of a series of short learning activities are identified as “Lessons” that numerically ascend. The intention of this is that while they all have significance on their own merits, it is the sequencing of the activities that scaffolds and connects each activity into an emerging whole.

Throughout the iterative process of developing the Design Thinking course, a number of activities with intentional constraints have been created. One such creative activity is one based on the notion of negative space, and drawing attention to the space that resides around the figure. The activity is called ‘black and white’ (figs. 32 and 33) where students are limited to just applying block black tone to represent that which is not present, the ‘empty space’ so to speak. This notion that absence (or the void) does in fact have presence is something that I have had a long interest in (Samaeli, 1992). The ideas of John Cage, expressed through a piece such as 4’33’’ (1952) consider that there is no such thing as nothing, and that even silence is pregnant with sound (Gann, 2010).

Personal observations of some of these activities on reduction have proved challenging for learners in terms of stretching their patience and the need to delve into the subtlety of nuance. I have asserted that what I am able to endure, has been cultivated over many years of listening to long-form minimalist and ambient music[16], and this can be quite a step to take for young learners whose experiences largely reside in media rich contemporary times (Carr, 2010).

RESOURCE CREATING: **DIFFERENT MODES**

(a)



(b)

(c)

Figure 34: Slides 42 (a), 71 (b) and 92 (c) of the Design Thinking resource, showing the requirement of different visual modes for each activity (Samaeli, 2023)

Placed throughout the Design Thinking course is the intentional exposure to a range of different visual communication modes. These are initial forays into different visual modes with the intention not to bias one over any other.

Learning experiences in both the analogue and the digital, where drawing and physical modelling sit side by side with computer aided design (CAD) and digital modelling is something I value as a design teacher. As a snapshot of what this looks like, Lesson Nine is based around sketching, Lesson Fourteen is based around paper modelling, and Lesson Nineteen is based around digital modelling (fig. 34).

Exploring different visual modes aligns with the desire to value difference in all facets of what I do as a teacher, artist and designer. This is consistent with my desire to include learning styles, personality type, cultural perspectives into the Design Thinking course. Like learning styles, being able to use different modes can provide greater opportunities and strategies to designing or learning that is multi-pronged in approach. As well as acknowledging different visual modes equitably, there is the added benefit of acknowledging the different visual communication skills that learners may already possess.

RESOURCE CREATING: **DESIGN INSPIRATION**

Figure 35: Slide 77 of the Design Thinking resource, a design activity that requires the generation of design ideas inspired by nature (Samaeli, 2023)

Figure 36: Slide 81 of the Design Thinking resource, a design activity that requires the generation of design ideas inspired randomly generated context parameters (Samaeli, 2023)

The Design Thinking course focuses on the divergent thinking arm of creative thinking as an entry into developing students' design practice in the years ahead. The programme runs several self-contained design inspiration activities as potential strategies for ideation. Some examples of this are some short activities where students use different sources of inspiration to instigate design ideas (figs. 35 and 36). Offering a range of different activities exemplifies the notion that there is no one way of generating design ideas, even at the formative stages of learning to design.

Ideation is a distinct component of the DVC curriculum (Ministry of Education, 2021; Van Musscher & Samaeli, 2018), which purposefully utilises divergent thinking for the generating of new and unexpected design ideas. A key big idea of Design and Visual Communication explains divergent thinking in terms of generating and exploring design ideas (Ministry of Education, 2021).

Ideas can originate in different ways and from many different places. Connecting to aspects of personal perspective, learning styles, seeing differently, and questioning assumptions and biases, can support the idea that creativity and innovation can also come from a myriad of different places and sources.

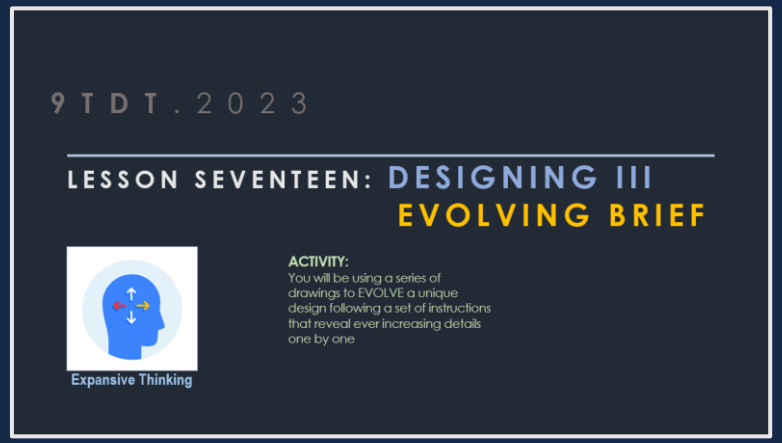


Figure 37: Slide 84 of the Design Thinking resource, a design activity that progresses from the general to the specific (Samaeli, 2023)

Figure 38: Slide 85 of the Design Thinking resource, the first step of the evolving brief which is suitably broad and open to a myriad of possibilities (Samaeli, 2023)

The concept of the evolving brief came about because of the frustration of students having predetermined outcomes in their minds when undertaking a new design project. The Design Thinking course with its focus on divergent thinking, is to navigate away from quickly predetermined solutions, allowing instead, unexpected and innovative possibilities to be nurtured. Design is not just concerned with purely analytical thinking, rather, it wants to allow some inventiveness as part of its process (Dorst, 2017).

What the evolving brief activity does is reverse engineer a design process by starting with the broad ideas first before moving into the details (figs. 37 and 38). This way, decisions are not made prematurely, and creative possibilities remain available. The importance of nurturing divergent thinking is that students who are used to being more convergent in their thinking, being conditioned to finding the 'right' answers to problems in most of their learning, can be liberated to play and use their imaginations (Duckworth, 2019).

REFLECTING: **THE VISUAL DIAGRAM**

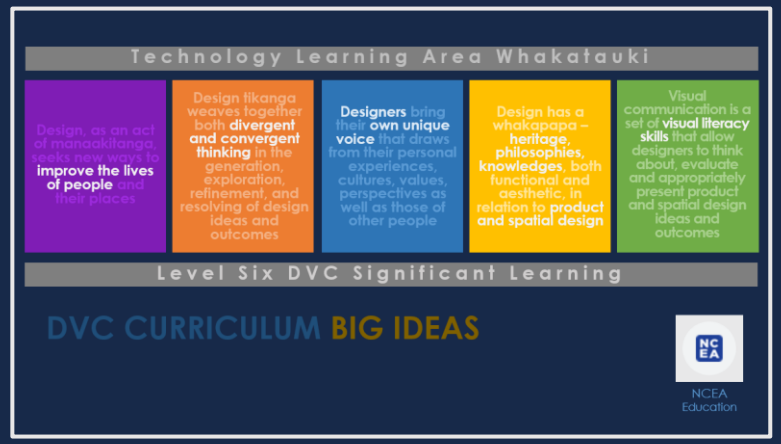


Figure 39: Slide from a series of professional development workshops I ran for DVC teachers on the DVC Big Ideas as part of the NCEA changes (Samaeli, 2023)

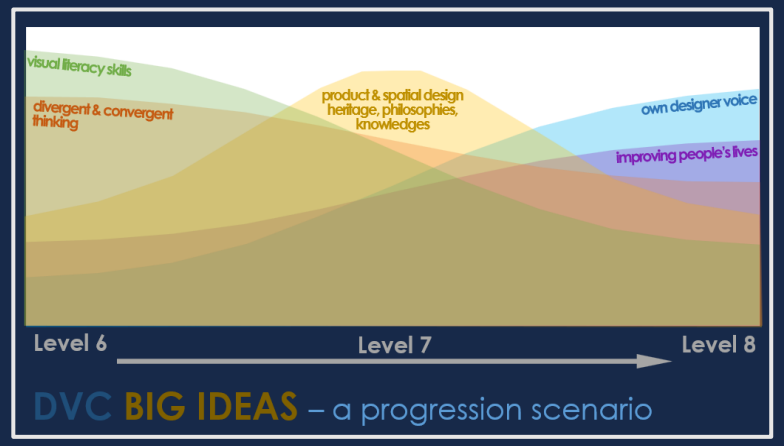


Figure 40: Slide from a series of professional development workshops I ran for DVC teachers on how the Big Ideas are not to be seen as all the same, but shifting emphasis over time (Samaeli, 2023)

Distilling a whole body of text that is restricted by its linearity or formatting, to a visual diagram, can open other ways of understanding information. The power of the visual diagram is in visual devices that utilise hierarchy, visuospatial[17] connections and emphasis in that provide additional advantage over the linearity of exclusively written text. Where possible, any text presented in the Design Thinking resource is treated graphically as much as possible.

As an example, I refer to the five Big Ideas for DVC as provided on the NCEA Education website (Ministry of Education, 2023). Defaulting to a standardised table neglects the underlying relationship and connections between each of the DVC Big Ideas and how they have been developed, and should be understood and applied to curriculum, assessment and learning. I put together several diagrams to visually explain these Big Ideas (fig. 39), including how they relate to each other over time (fig. 40). These diagrams formed part of a series of presentations I delivered to teachers around the country[18].

Figure 41: DVC Big Ideas with key words emphasised (Samaeli, 2023)

Figure 42: DVC Big Ideas arranged to show the core practice and knowledge in the middle, what DVC is based on at the bottom and what it aspires to at the top (Samaeli, 2023)

Being able to articulate the big ideas is integral to my practice. In developing the Design Thinking resource for this one term course, there are the five themes of Personal Perspective; Learning; Thinking (critically and divergently); Designing; and Future. The importance of recognising big ideas relates to the minimalist attitude of recognising the essence of things (Obendorf, 2011; Pawson, 1998) and the need for students to learn how to curate their work, especially given the complexity that is associated with designing (Dorst, 2017).

We manage the excessive availability of knowledge through curatorial filtering (Weinberger, 2011). Too much information can hurt our ability to think. Furthermore, a wealth of information can lead to focusing on the wrong information. We need to know how to filter information, in terms of what is good, bad, and most relevant.

Drawing upon the DVC Big Ideas as an example, key words are emphasised (fig. 41) and arranged in relation to each other (fig. 42) for clarifying the intentions of the Subject Expert Group (SEG) that is not necessarily read from the non-hierarchical table, as presented on the NCEA Education website (Ministry of Education, 2023). My concern is if all words are given equal emphasis, the meaning can be selectively taken towards an individual interpretation based on individual assumptions or biases that does not necessarily align with the SEG's intentions.

REFLECTING: **DESIGNER VOICE**

Figure 43: DVC Big Ideas, focusing on own unique voice (Samaeli, 2023)

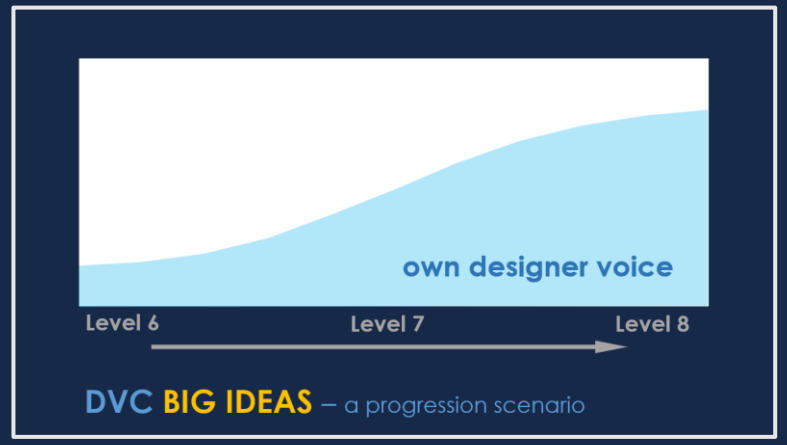


Figure 44: Showing how own unique voice builds with time, experience and maturity (Samaeli, 2023)

Underpinning the learning journey that begins with a Year 9 Design Thinking course, is a pathway through the DVC curriculum where students develop capabilities as emerging designers. As part of this journey, the latest iteration of the DVC Learning Matrix (Ministry of Education, 2023) brings the concept of the 'designer voice' (fig. 43) where students as designers can draw "… from their personal experiences, cultures, values, perspectives as well as those of other people" (Ministry of Education, 2023).

As part of becoming a designer, students bring their own ideas forward, and the origins of authentic ideas are ones that come from themselves and their own perspective and response to a design context. At its culmination at Level 3, students can develop their own design brief context that they connect with. Establishing a brief context that they can find a personal connection with, builds on the formative learning on personal perspective initially set out in the Design Thinking course, and this recognises that an emerging designer voice is something that comes with experience and maturity (fig. 44).

REFLECTING: **CRITICAL PERSPECTIVES**

Figure 45: Slide from a series of professional development workshops I ran for DVC teachers on the Critical Perspectives that are the key drivers behind the work on the NCEA changes (Samaeli, 2023)

The recent work that has taken place around the NCEA Changes and the curriculum refresh has been driven by a set of critical perspectives that intend to allow education to better accommodate the needs of all students (Ministry of Education, 2019). Evidence has shown that not all students have equal opportunities, and the equity around different views is not present (Carpenter & Osborne, 2014).

The following set of critical perspectives were set up by the Ministry of Education as key drivers to inform the NCEA change programme and the curriculum refresh (fig. 45):

- Mana ōrite mō te Mātauranga Māori - Equal status for mātauranga Māori in NCEA
- Pacific Values Framework – Delivering for Pacific Learners and Contexts
- Universal Design for Learning (UDL)
- Connections Between Subjects and Career Pathways (Ministry of Education, 2019)

These are important lenses to ensure that all our learners can see their place in education. Being able to acknowledge and value students' personal perspectives and experiences through the Design Thinking course is something that intentionally aligns with the Ministry of Education critical perspectives, especially the first three.

REFLECTING: **CULTURALLY RESPONSIVE**

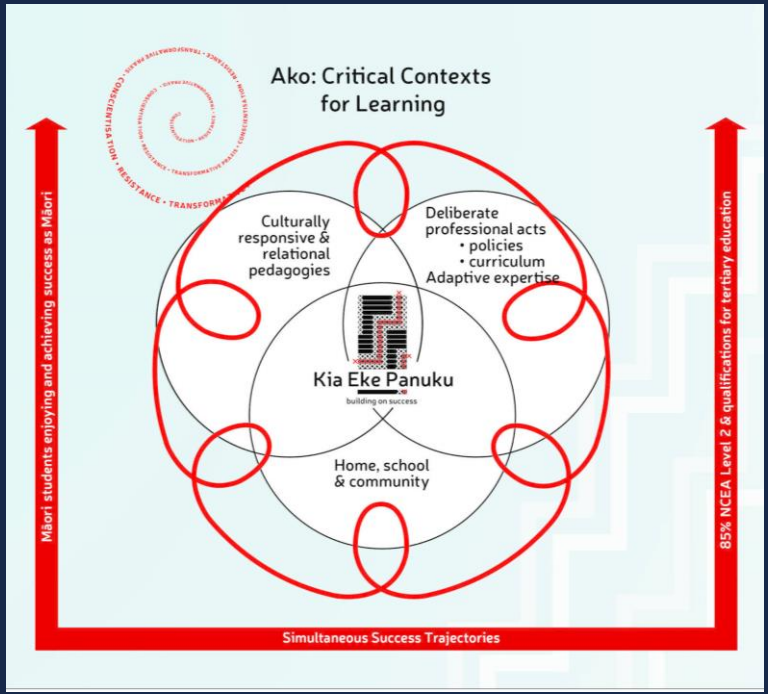


Figure 46: Culturally responsive pedagogies as part of a critical ecology for effective learning (Retrieved from https://poutamapounamu.org.nz/video/qc-video-3-deliberate-acts-of-teaching, n.d.)

School is often seen as a place separate from life and so the experiences one brings can be seriously neglected, or worse denied altogether (Claxton & Lucas, 2015). This can result in 'generic' learning that is waiting for the chance to find relevance or meaning should it come along.

All students have their own bodies of knowledge and skills that should have a presence in the classroom for their well-being and functioning as a learner. Culturally responsive teaching strategies can value the skills and knowledge each student brings. Culturally responsive pedagogies can bring to the fore positive learning experiences (fig. 46), greater engagement and more efficient and effective use of class time.

The heart of the Design Thinking course with regards to acknowledging personal perspective, is the hope that relationships of care and connectedness is nurtured, valuing people's own views and ways of learning and knowing (Berryman, et al., 2018).

PERSONAL

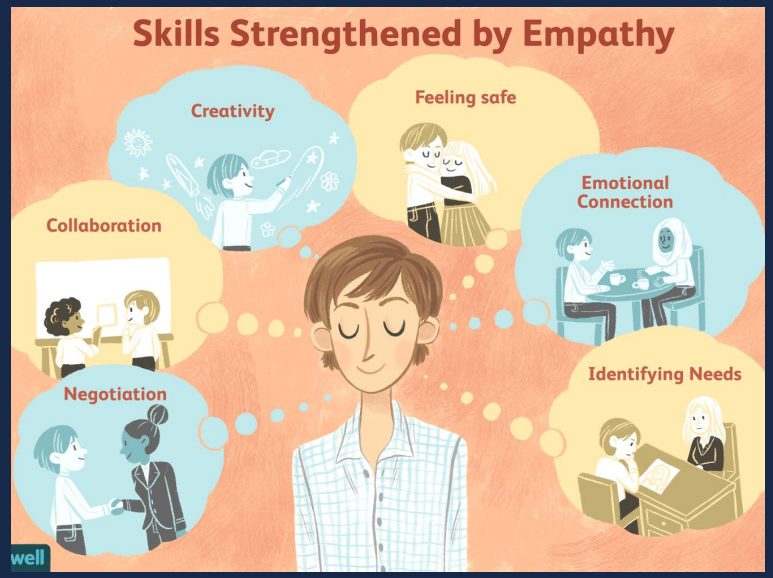


Figure 47: The benefits of empathy as discussed in the Design Thinking course in relation to the 'How to' group activity (Retrieved from https://www.downes.ca/cgi-bin/page.cgi?post=70920, 2020)

The importance of people's needs is something fundamental to designers and design thinkers. The purpose of design is to help improve the lives of people (Ministry of Education, 2017; Ministry of Education, 2023).

We need to know ourselves to begin to understand others, though in the end, the best thing we can do is to listen and to recognise and accept other perspectives and try to learn more about how other people think and perceive, shaped by their experiences, assumptions, and biases (Lotto, 2017). The Design Thinking course, with its blend of individual and group activities intends to unlock this mindset and my own pedagogy is to advocate for tolerance, empathy (fig. 47) and patience.

As the forerunner to Design and Visual Communication, the Design Thinking course can start to invite a way of thinking that embraces how design can respond to and inspire a better situation for all potential users or clients through design ideas and outcomes (van Musscher & Samaeli, 2020).

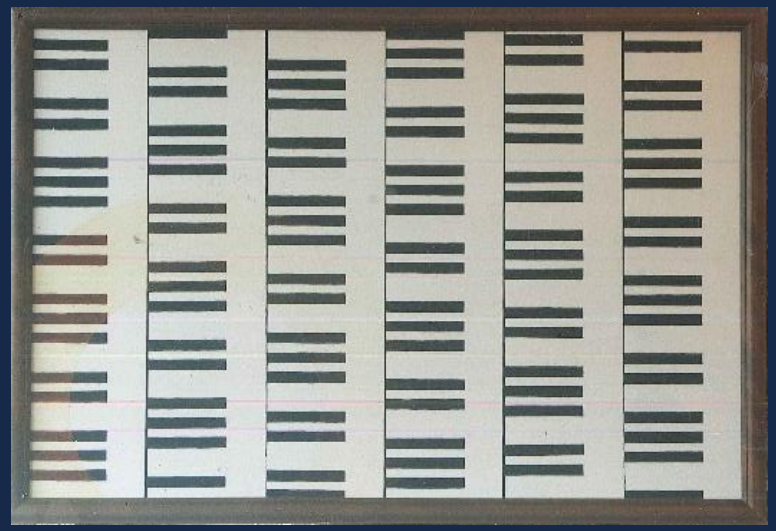


Figure 48: 'Piano Circus', was my first artwork acknowledged as being minimalist; has pride of place in my school office (Samaeli, 1997)

The minimalist concept of distilling information to its essence is an approach I take wherever possible (fig 48). It is something I readily take as my approach whether in the classroom or in a professional development or tutorial scenario. Right from the brief introductory statement for the Design Thinking course, I am reinforcing that the course is about the learning journey, and giving agency, knowing it is okay for things not to make sense immediately. For me, learning is about planting seeds, nurturing these with the intention of using reiteration as a pedagogical strategy.

There is an inherent coherency with (and even connection between) each distilled bit of information that can forge ways of making sense of complexity. These manifests itself throughout the Design Thinking course in different ways. There is the regular reiteration of a reflection activity at the beginning of every lesson and then there is the connection between activities at every opportunity.

Schools are often contradictory, espousing the possibilities of emancipation and lifelong learning for creating better people, though equally, they can be places of coercion and belittlement, with its propensity to crush spirits (Unwin & Yandell, 2016).

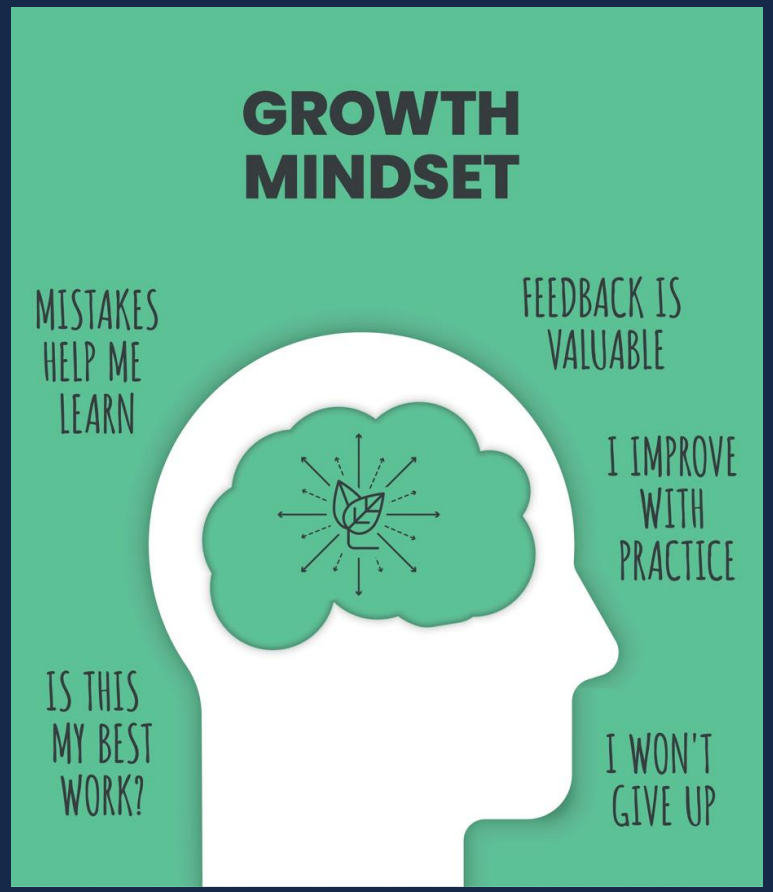


Figure 49: Developing a growth mindset can empower the process of learning (Retrieved from https://theauthormindset.substack.com/p/growth-v-fixed-mindsets, 2023)

The notion that we have our own biases and assumptions is a concept that I have seen pervading many aspects of education, and as much as teachers can have their own biases and assumptions, so too can students. This is something I have observed in many ways and underlying biases and assumptions can cause a significant barrier to effective teaching and learning[19].

Acknowledging and making explicit the idea that we all have our own ways of seeing and making meaning of the world, brings the freedom and license to be creative and critical learners, forging more proactive and meaningful future pathways. Finding simple activities that can question what is real and that there are alternatives to see endeavours to show this idea, to not only recognise that there are assumptions, but that these can be questioned or critiqued. We need to develop the growth mindset (fig. 49), acknowledging the process of learning (Claxton & Lucas, 2015; Dwek, 2012).

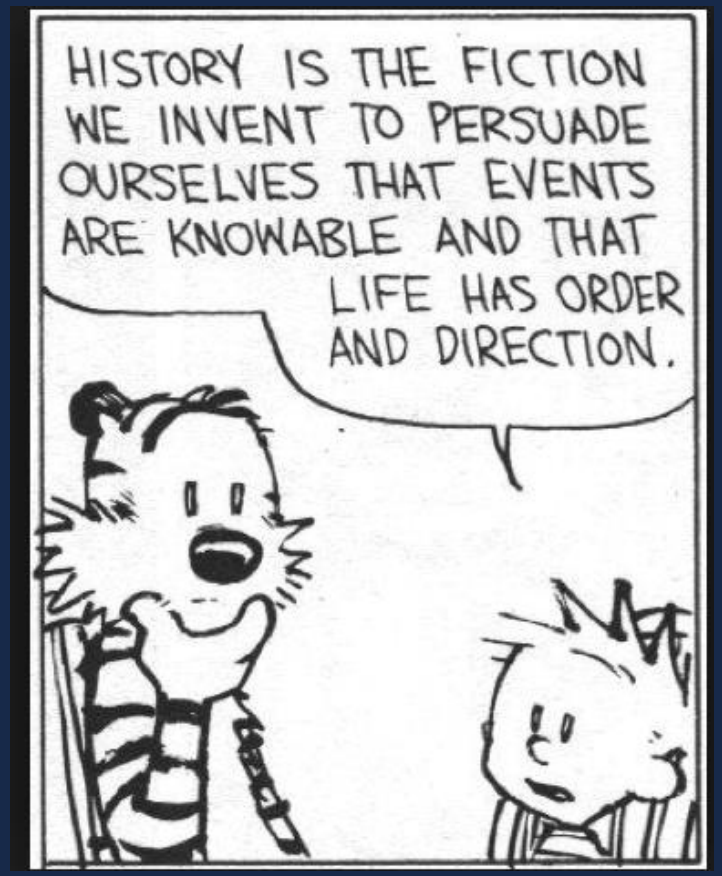


Figure 50: Post-structuralism described (Retrieved from https://www.emaze.com/@aiwicfzf/Poststructuralism, n.d.)

The ambition of the Design Thinking resource is meant to draw on the value I see in beginning to reimagine a contemporary and inclusive approach to education, not as the only way, but as one way in an ever complex and changing world (Fawcett, 2012), that will continue to evolve with further experiences and constructs (Butler, 2002).

The ambition of this exegesis has been to not only discuss the processes in developing the Design Thinking resource, but also to manage the academic pursuit of creating a dissertation like a design thinking activity itself. The desire to reject convention has brought a discursive challenge throughout, in getting through this project done, yet it is this poststructuralist sensibility that has motivated me all along (fig. 50). My hope remains that such an undertaking has led to an outcome that might say more than the words contained on these pages.

PART THREE: THE CREATIVE ARTEFACT
(DESIGN THINKING RESOURCE)

9TDT.2023

TECHNOLOGY DESIGN THINKING

focuses on
creative problem-solving strategies
expressed through idea generation and exploration;

that encourages questioning, risk taking and divergent thinking.

9TDT.2023

TECHNOLOGY DESIGN THINKING

(fourth generation)

History of the iPod Classic

1G (2001) **2G** (2002) **3G** (2003) **4G** (2004) **5G** (2005) **6G** (2007)

https://www.youtube.com/watch?v=cUDo2Ugw1n88ab_channel=AppleExplained

4G (2023)

9TDT.2023

WHAT IS THIS COURSE ALL ABOUT?

This is meant to be a course that is not so much about the learning outcomes, but more **the learning journey**.

It is not meant to be for just for a specific subject but **for all subjects**.

In this course, **creative play is to be encouraged** ☺

A) This course is about your **PERSONAL PERSPECTIVE**

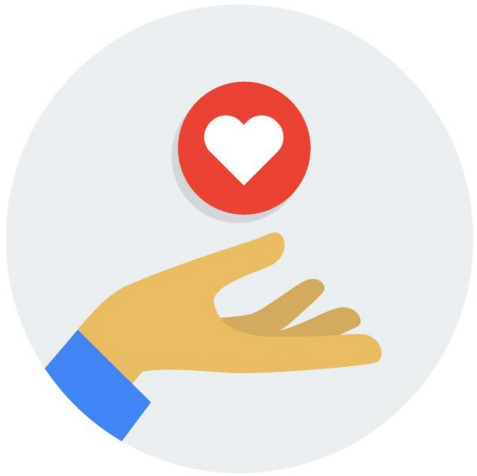
B) This course is about your **LEARNING**

C) This course is about your **THINKING** (critical & divergent)

D) This course is about your **DESIGNING**

E) This course is about your **FUTURE**

These are the key aspects we will focus on in this course:



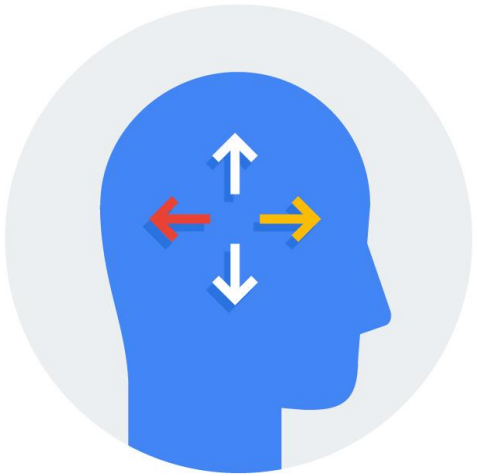
Empathy

PERSONAL PERSPECTIVE

LEARNING

THINKING (critical)

DESIGNING



Expansive Thinking

PERSONAL PERSPECTIVE

LEARNING

THINKING (critical & divergent)

DESIGNING

Experimentation

PERSONAL PERSPECTIVE

LEARNING

THINKING (divergent)

DESIGNING

9TDT.2023

[Provide an image and a brief written statement for each of the 5 somethings]

LESSON ONE: PERSONAL PERSPECTIVE I

"5 SOMETHINGS"

WHO ARE YOU?
PERSONAL STUFF

A) SOMETHING that relates to **what you do** (job, sport, etc.)

B) SOMETHING that relates to **a great memory you have**

C) SOMETHING that is **precious / important to you**

D) SOMETHING **you would like to have** (but don't need)

E) SOMETHING that relates to **what you would like to be doing in the future**

5 SOMETHINGS

A

WHAT I DO: As a DVC teacher I like to explain things on the white board and Maxiflo have the best white board markers for doing this.

https://hyperallergic.com/548225/looking-back-at-one-of-mies-van-der-rohes-most-famous-buildings/

B

A GREAT MEMORY: I visited the Seagram Building in 2007 and it is the only building in New York by Mies van der Rohe. New York is one of my favourite places and Mies is one of my favourite architects.

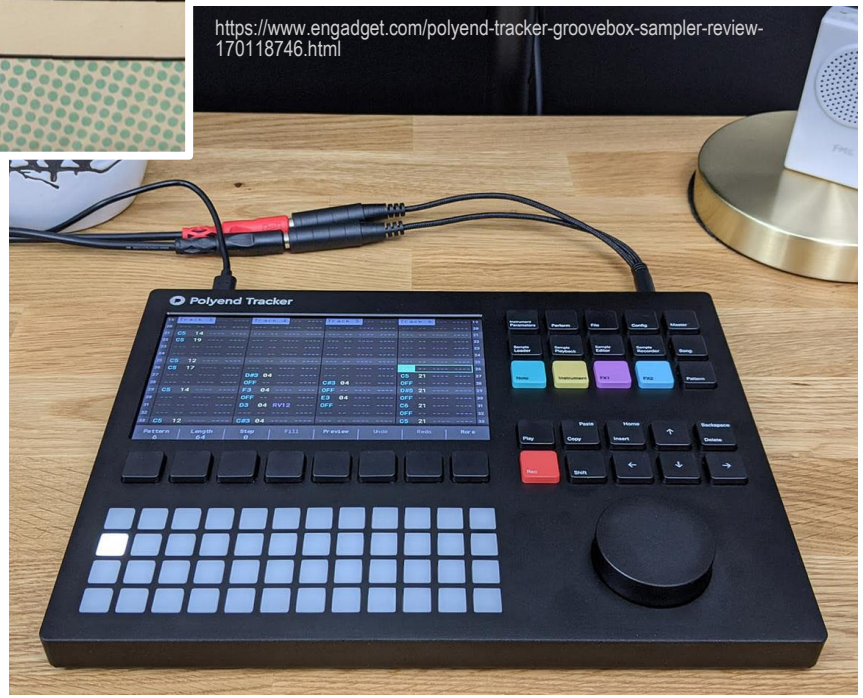
C

PRECIOUS TO ME: This is a gift I was given by Campbell Kneale (who is Birchville Cat Motel). It is an original composition entitled 'For Motu Samaeli – Edition of 1'

https://synthanatomy.com/2019/11/osmose-next-gen-synth-with-3d-playability-haken-audio-engine.html

D

I WOULD LIKE: One of these – an Osmose Expressive E, a ground-breaking augmented keyboard synthesizer; you can control the sounds with the way you can press, bend and shake the keys. These are in limited stock worldwide and not available in New Zealand currently.



https://www.engadget.com/polyend-tracker-groovebox-sampler-review-170118746.html

E

IN THE FUTURE: In my career post-teaching, I would like to be making my own music – this is a Polyend Tracker groove box that I have recently acquired for making electronic music.

9TDT.2023

THE REFLECTIVE JOURNAL:

For every lesson,

you will add an entry that tracks your own learning journey – *what matters is* ***what matters to you*** (not necessarily what each lesson intention might be)

Reflective Journals record ideas, personal opinions, experiences which helps learning. It helps you to re-evaluate your growing knowledge and understanding

Lesson ONE / Title of lesson: **5 Somethings**

What did I learn from doing this design activity?

If i did this design activity again what would I do differently?

What else did you learn? (Might not be related to the design activity)

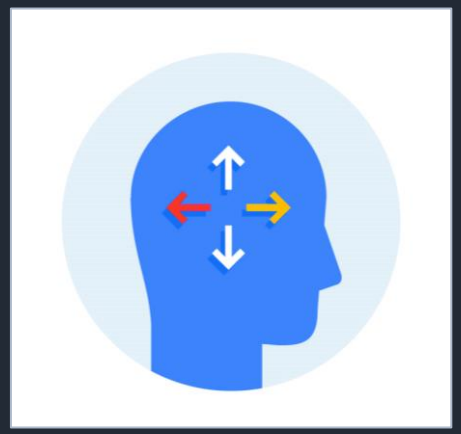
WHAT DID I LEARN FROM LESSON ONE?

your **personal statement**

as an entry in your reflective journal (dated)

9TDT.2023

LESSONS 2-4: WHAT IS THIS COURSE ALL ABOUT?



Expansive Thinking

A) This course is about your **PERSONAL PERSPECTIVE**

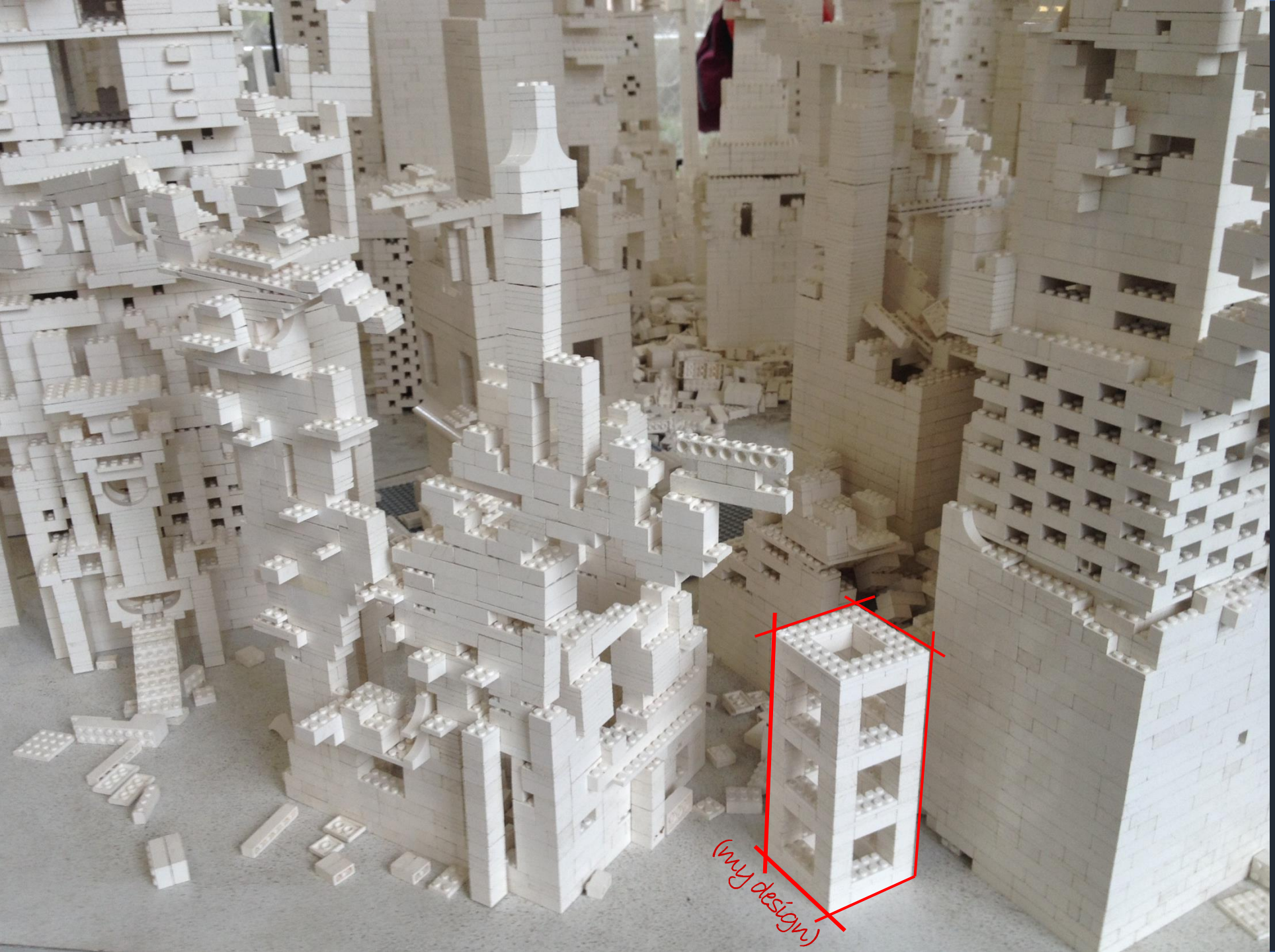
B) This course is about your **LEARNING**

C) This course is about your **THINKING** (critical & divergent)

D) This course is about your **DESIGNING**

E) This course is about your **FUTURE**


personal perspective

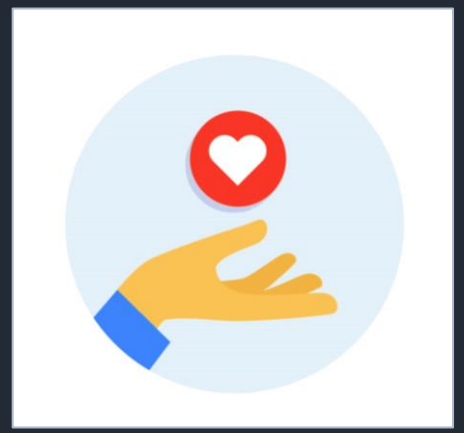


you all have
your own stories to tell,
your own perceptions,
your own ways of
seeing the world, your
own set of unique
experiences, your own
values and beliefs,
and this forms
your own voice.

9TDT.2023

LESSON TWO: PERSONAL PERSPECTIVE II

PERSONAL TYPE

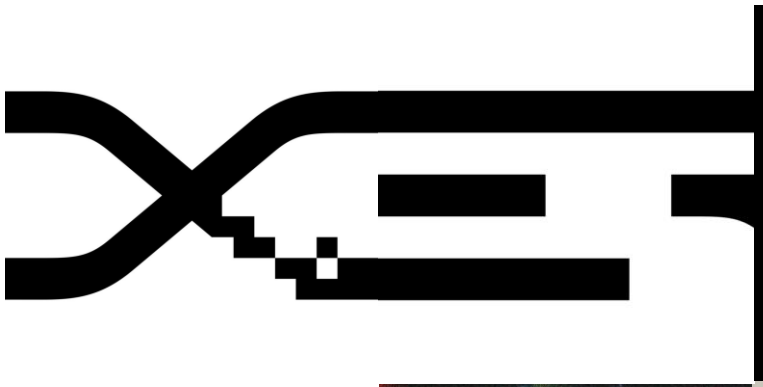


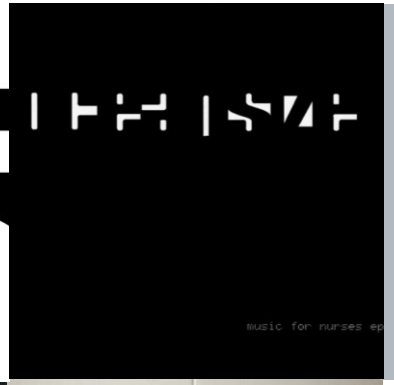
Empathy

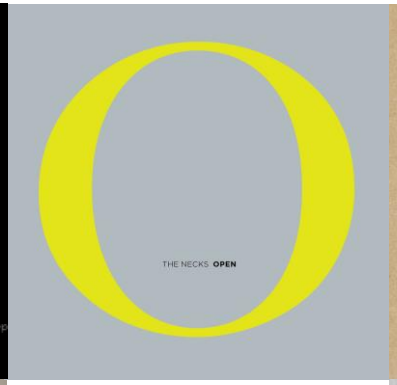
Consider your **INTERESTS, HOBBIES** and **FAVOURITES** (e.g. food, movies, music, books, clothing labels, cars, sports, electronic gear, etc.)

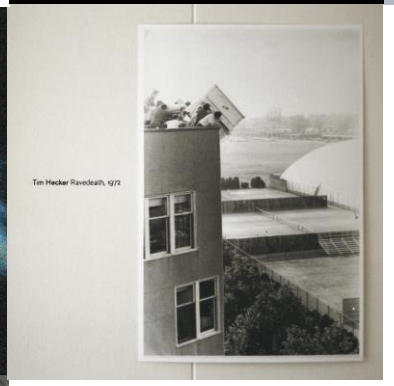
Gather visual images that **INCLUDE TEXT** (letters or words) which relate to you in terms of your interests, hobbies and favourites. These could be logos, posters, album or book covers, business cards, advertising, labels, etc.

#1/ Personal Type









fundació
mies van der rohe
barcelona

Well Tempered Lab

WOO AUDIO

CHORD
Chord Electronics Ltd.

MERIDIAN

Audio Note

DeVORE
FIDELITY

WHAT DID I LEARN FROM LESSON TWO?

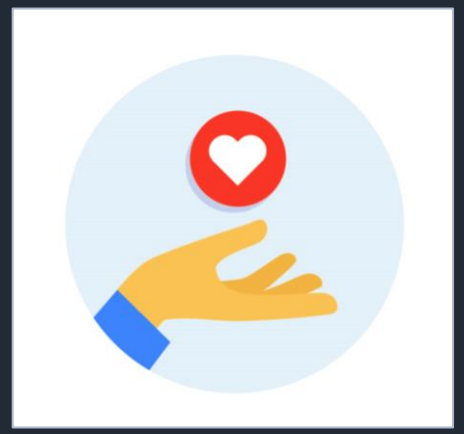
your **personal statement**

as an entry in your reflective journal (dated)

9 T D T . 2 0 2 3

LESSON THREE: PERSONAL PERSPECTIVE III

TYPEFACE PORTRAIT (draft ideas)

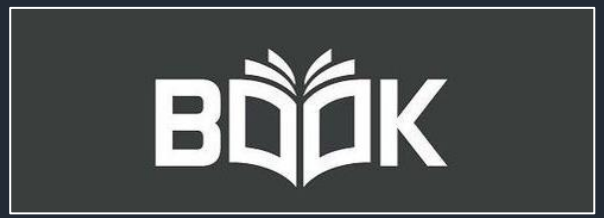


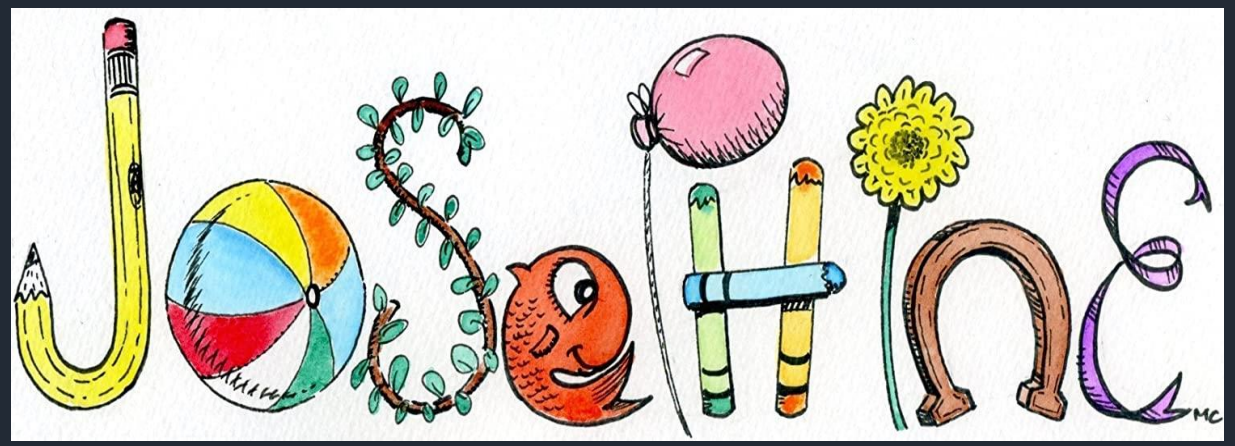
Empathy

Use the appropriate typeface, **for your name**, to best express one or more of your personal **INTERESTS**, **HOBBIES** and/or **FAVOURITES**.

i. Consider typeface style, letter spacing, and use of upper and lower case, paying particular attention to the actual size and placement of the letters in your name. **Draft up a couple of Initial Ideas.**

Personal Perspective #3/ Typeface Portrait





WHAT DID I LEARN FROM LESSON THREE?

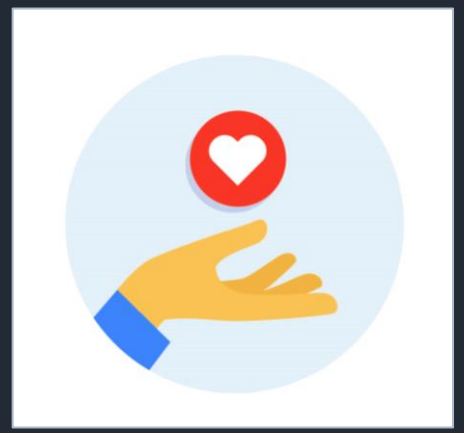
your **personal statement**

as an entry in your reflective journal (dated)

9TDT.2023

LESSON FOUR: PERSONAL PERSPECTIVE III

TYPEFACE PORTRAIT (final idea)

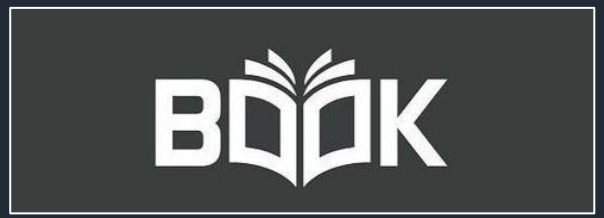


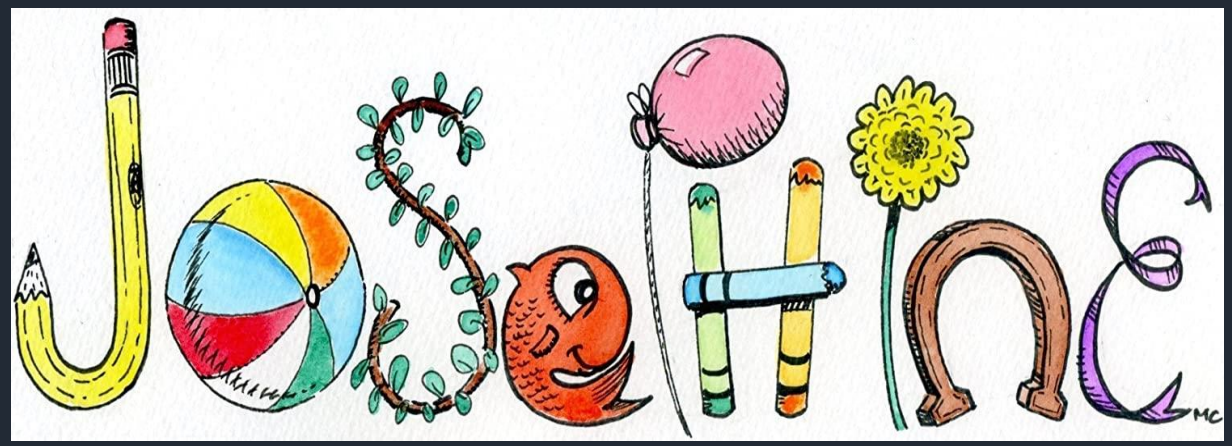
Empathy

Use the appropriate typeface, **for your name**, to best express one or more of your personal **INTERESTS**, **HOBBIES** and/or **FAVOURITES**.

ii. Select from your Initial Ideas and refine a **Final Idea** and carefully render your whole name to complete your idea.

#2/ Typeface Portrait (examples)





WHAT DID I LEARN FROM LESSON FOUR?

your **personal statement**

as an entry in your reflective journal (dated)

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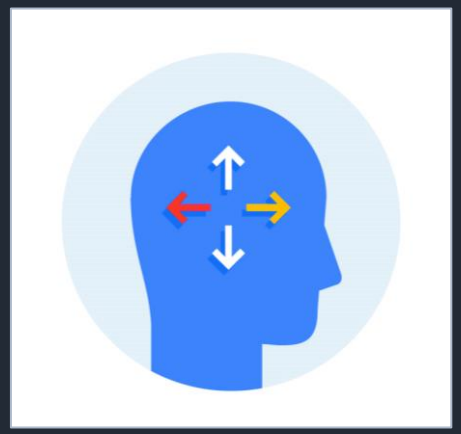
LESSONS 5-9: WHAT IS THIS COURSE ALL ABOUT?



Expansive Thinking

A) This course is about your **PERSONAL PERSPECTIVE**

B) This course is about your **LEARNING**

C) This course is about your **THINKING** (critical & divergent)

D) This course is about your **DESIGNING**

E) This course is about your **FUTURE**


How do you keep learning?
MOTIVATION
Reading
Staying up to date with current events
By reading EVERYTHING I CAN
reading the newspaper
MAKING MISTAKES
learning

(LEARNING STYLES)

VISUAL

Learn best when information is presented visually through images or graphs.

AUDITORY

Learn best through the spoken word – conversation or audio recordings.

READING/WRITING

Learn best through text, either reading it or writing notes. AKA "verbal learning".

KINAESTHETIC

Learn best when they can interact with their learning environment.

UNEEQ
DIGITALHUMANS.COM

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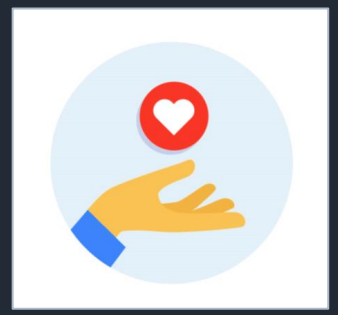
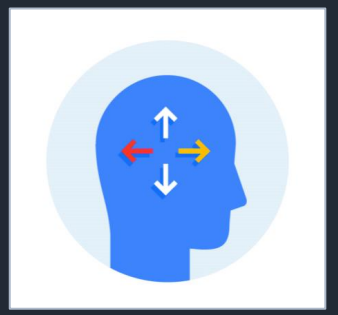
LESSON FIVE: LEARNING ACTIVITY I
LEARNING STYLES RESEARCH



Empathy



Expansive Thinking

Choose ONE of the following Learning Styles:

- VISUAL LEARNING **"images"**
- AUDITORY (or AURAL) LEARNING **"sounds"**
- READING/WRITING (or VERBAL) LEARNING **"words"**
- KINAESTHETIC LEARNING **"actions"**

Research and **find out about** the Learning Style's:

- Definition, Characteristics, Examples (1 slide)
- Strategies, Benefits, Importance (1 slide)

Find **an image or two** that also explains the Learning Style

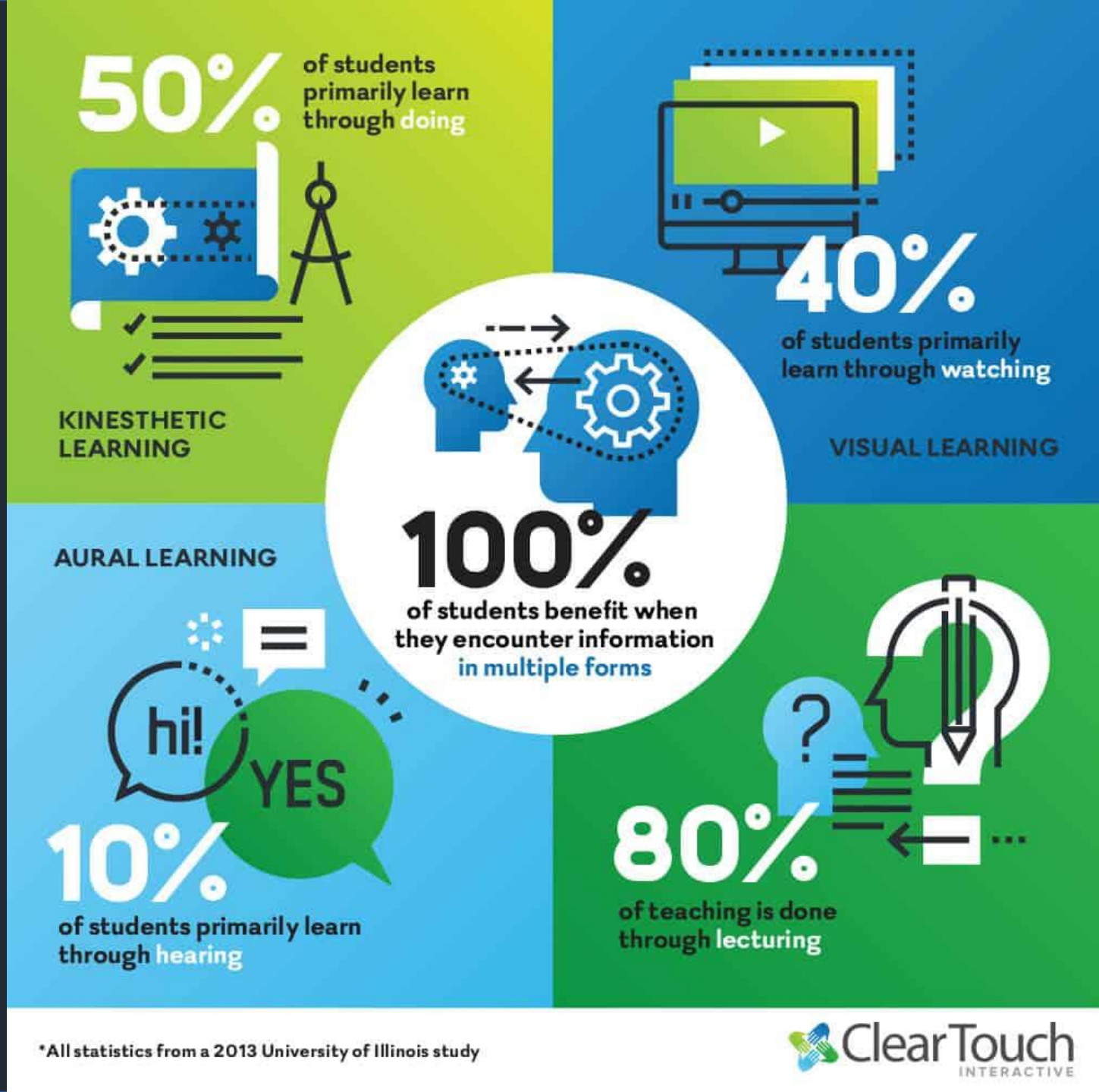
WHAT DID I LEARN FROM LESSON FIVE?

your **personal statement**

as an entry in your reflective journal (dated)

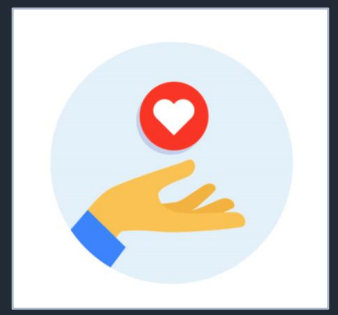
In a single classroom there are **all kinds of different learners who have different ways of learning** they prefer and find easier.

Yet developing different ways of learning gives you **more ways of dealing with school learning** *(and life-long learning)* **better**.

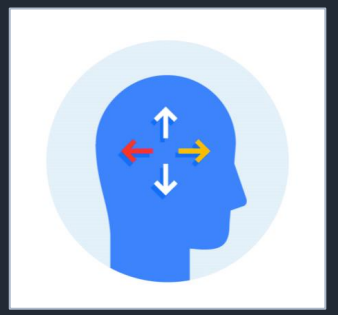


9TDT.2023 "HOW TO DO SOMETHING..."

LESSON SIX: LEARNING ACTIVITY II (a)
COLLABORATIVE RESOURCE



Empathy



Expansive Thinking

In GROUPS of 2 – 3 students*, develop a learning resource that can teach others **how to do something**.

As a GROUP you are to work through the following steps:

- **STEP ONE:** Decide what the something is (a simple skill)
- **STEP TWO:** Draft up a plan for a teaching resource that caters for at least TWO different learning styles (VISUAL, AUDITORY, VERBAL, KINAESTHETIC) – *you will have two more lessons on developing this resource*

** It would be beneficial to have a group that covers research done on two learning styles from Lesson SIX.*

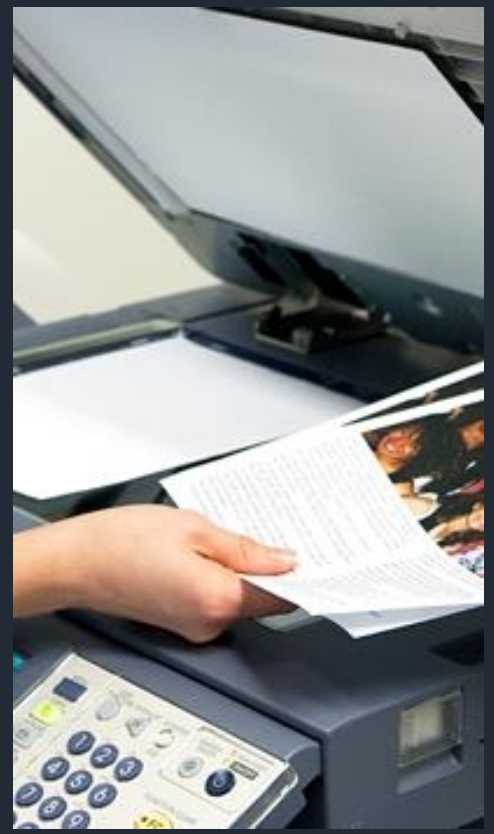
"HOW TO..."

In your group, come up with a **simple how to do something**, for example…

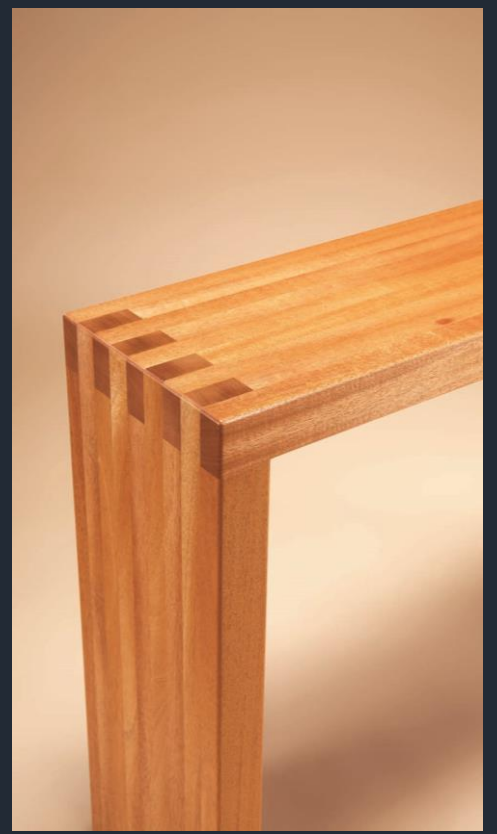
shoot a free throw

knit a scarf

make a milkshake



scan a drawing



build a finger joint

"HOW TO..."

STEP TWO:

Draft up a plan for a teaching resource that caters for at least **TWO** different learning styles

WRITE DOWN your own description of "how to" –

Ideally at least **SIX** steps and as if it is for someone doing it for the first time ever

Put together a list of any resources (equipment, materials, ingredients) required

Collect any images and write simple definitions to describe any resources

RESEARCH any existing instructions on the internet – **consider** how these might have catered for different learning styles

(VISUAL, AUDITORY, VERBAL, KINAESTHETIC) –

you will have two more lessons on developing this resource

WHAT DID I LEARN FROM LESSON SIX?

your **personal statement**

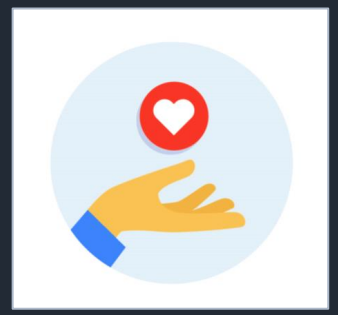
as an entry in your reflective journal (dated)

9 T D T . 2 0 2 3

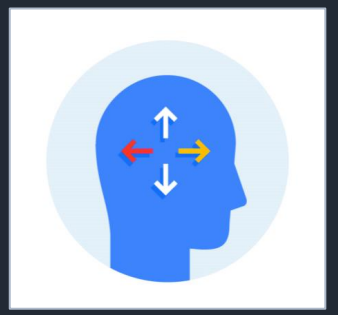
"HOW TO DO SOMETHING..."

LESSON SEVEN: LEARNING ACTIVITY II (b)

COLLABORATIVE RESOURCE



Empathy



Expansive Thinking

In GROUPS of 2 – 3 students*, continue with developing a learning resource that can teach others **how to do something**.

As a GROUP you are to:

- Finish **STEP TWO:** Draft plan for a teaching resource that caters for at least TWO different learning styles (VISUAL, AUDITORY, VERBAL, KINAESTHETIC)
- **STEP THREE:** Start the actual resource

* It would be beneficial to have a group that covers research done on two learning styles from Lesson SIX.

9TDT.2023 "HOW TO DO SOMETHING..."

Things to consider:

Can you take your own photos?

Will it be a poster; a series of slides; a video; a demonstration?

Can you add in another learning style?

How does your research link to the research you did on your learning style?

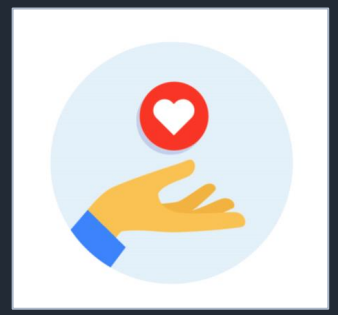
If you and another group have finished their first draft, you can test each other's resource and give feedback.
Final resource is to be finished at the end of the next lesson.

empathy

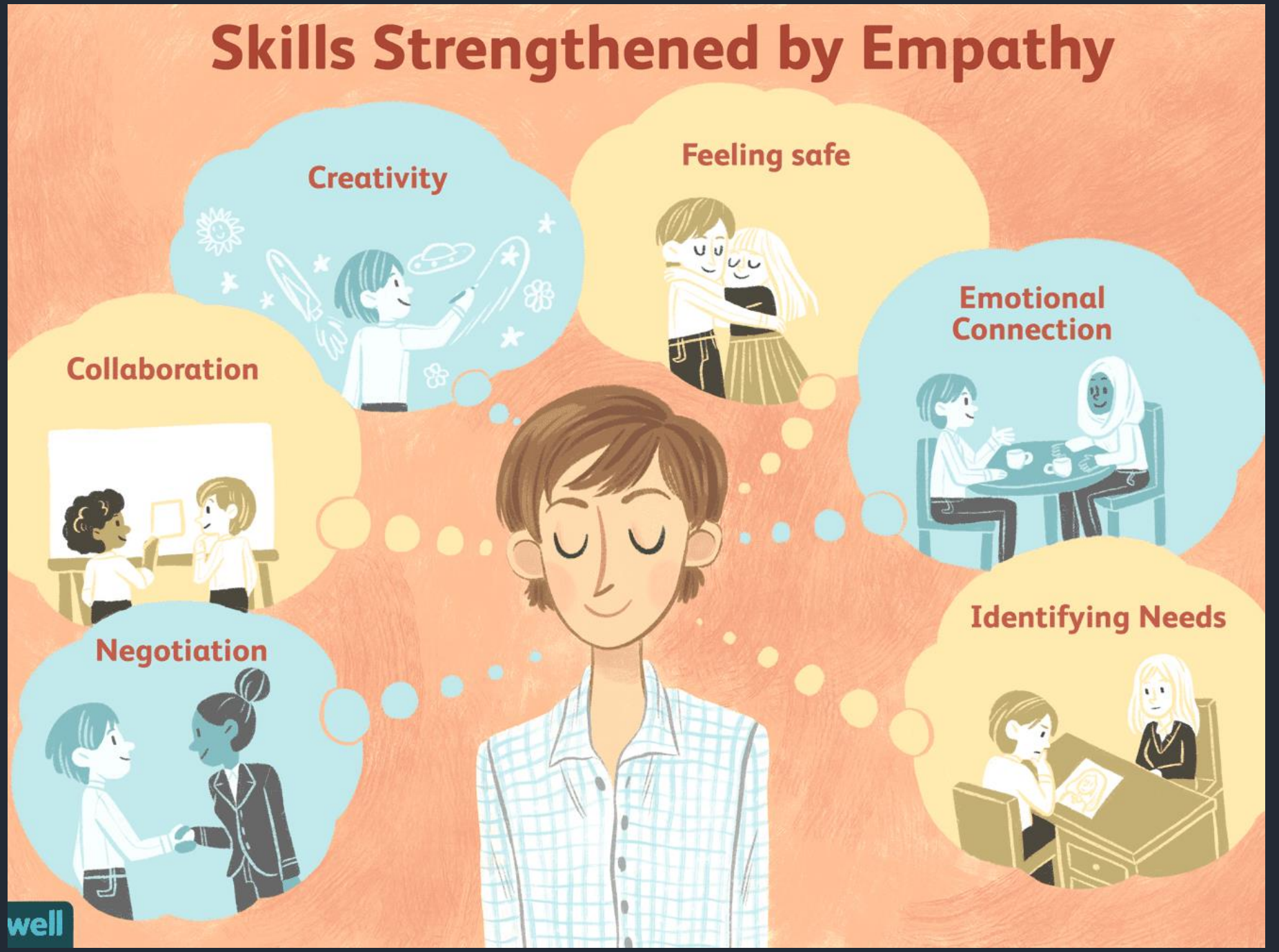
/ˈɛmpəθi/

noun

the ability to understand and share the feelings of another.



Empathy



WHAT DID I LEARN FROM LESSON SEVEN?

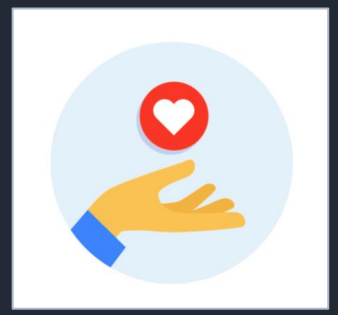
your **personal statement**

as an entry in your reflective journal (dated)

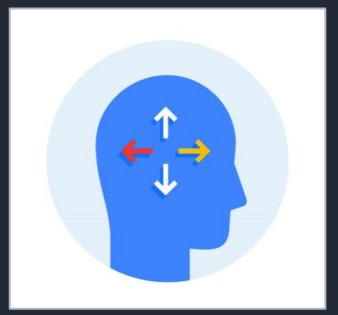
9TDT.2023 "HOW TO DO SOMETHING..."

LESSON EIGHT: LEARNING ACTIVITY II (c)

COLLABORATIVE RESOURCE



Empathy



Expansive Thinking

In GROUPS of 2 – 3 students*, continue with developing a learning resource that can teach others **how to do something**.

As a GROUP you are to:

- **Finish STEP THREE:** Finishing the actual resource

* It would be beneficial to have a group that covers research done on two learning styles from Lesson SIX.

9TDT.2023

"HOW TO DO SOMETHING..."

Things to keep considering:

Taking your own photos or your own video; finding any other supporting visuals

Will your resource be a poster; a series of slides; a video; a demonstration (or a combination)?

How are different learning styles catered for?

How it link to the research you did on your learning style?

If you and another group have finished the resource early, you can still test each other's resource and give feedback.

WHAT DID I LEARN FROM LESSON EIGHT?

your **personal statement**

as an entry in your reflective journal (dated)

(WHAT DID I LEARN ABOUT EMPATHY?)

9TDT.2023

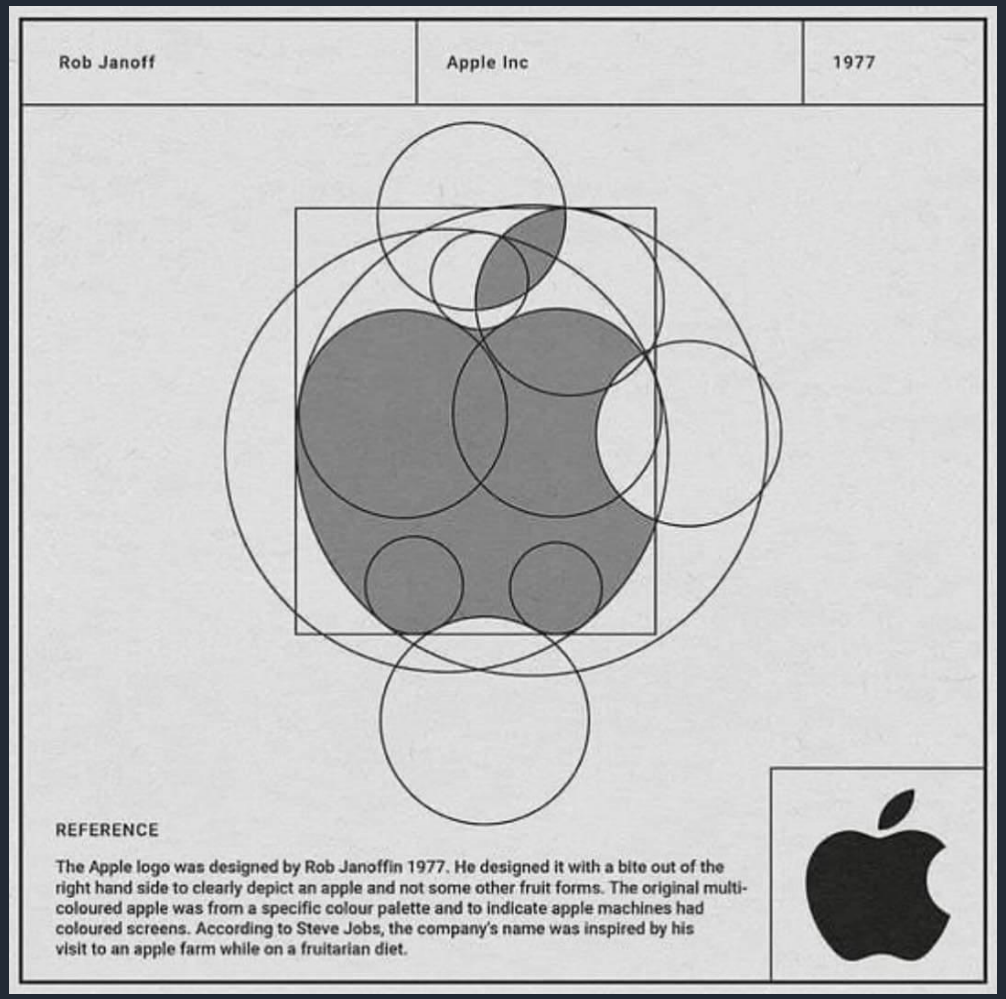
LESSON NINE: WHAT IS DESIGN THINKING?

What is Design Thinking and Why Is It So Popular?

*"Design Thinking is **not an exclusive property of designers** – all great innovators in literature, art, music, science, engineering, and business have practiced it. So, why call it Design Thinking? What's special about Design Thinking is that designers' work processes can **help us systematically extract, teach, learn and apply these human-centred techniques to solve problems in a creative and innovative way** – in our designs, in our businesses, in our countries, in our lives."*

- Rikke Dam and Teo Siang

Some of the world's leading brands, such as Apple, Google, Samsung and GE, have rapidly adopted the **Design Thinking approach**, and Design Thinking is being taught at leading universities around the world, including d.school, Stanford, Harvard and MIT.



SAMSUNG

optional extra

If you did want to know more about d.school …

https://www.youtube.com/watch?v=NSjezj7_6mc&ab_channel=Steelcase (a video)

https://dschool.stanford.edu/about (website)

d.

HASSO PLATTNER

Institute of Design at Stanford

A place for explorers & experimenters at Stanford University.

What We Do

How We Do It

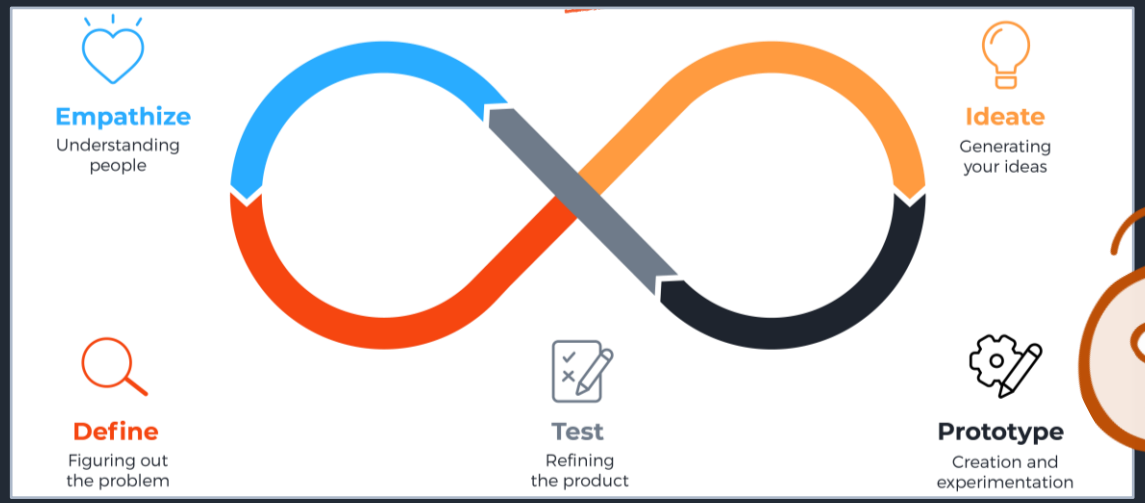
Our Impact

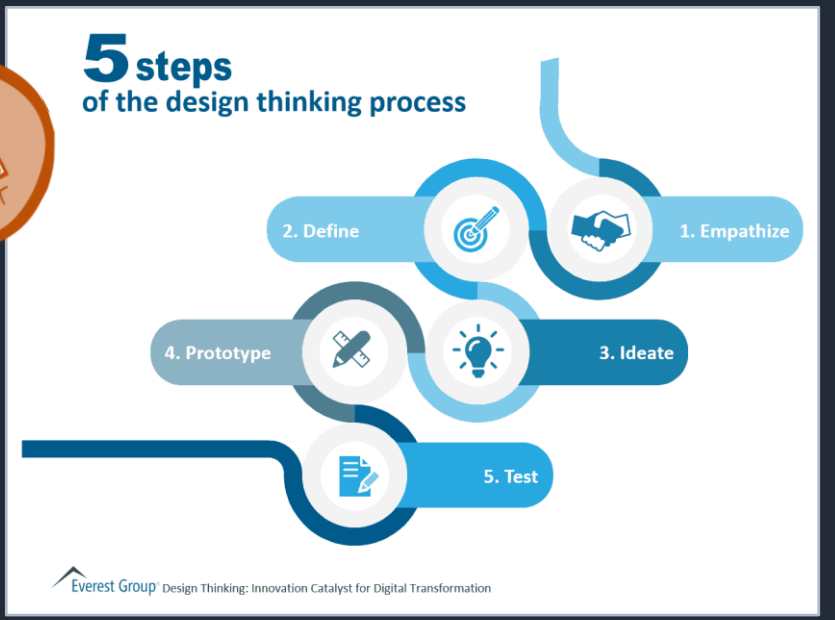
The Home Team

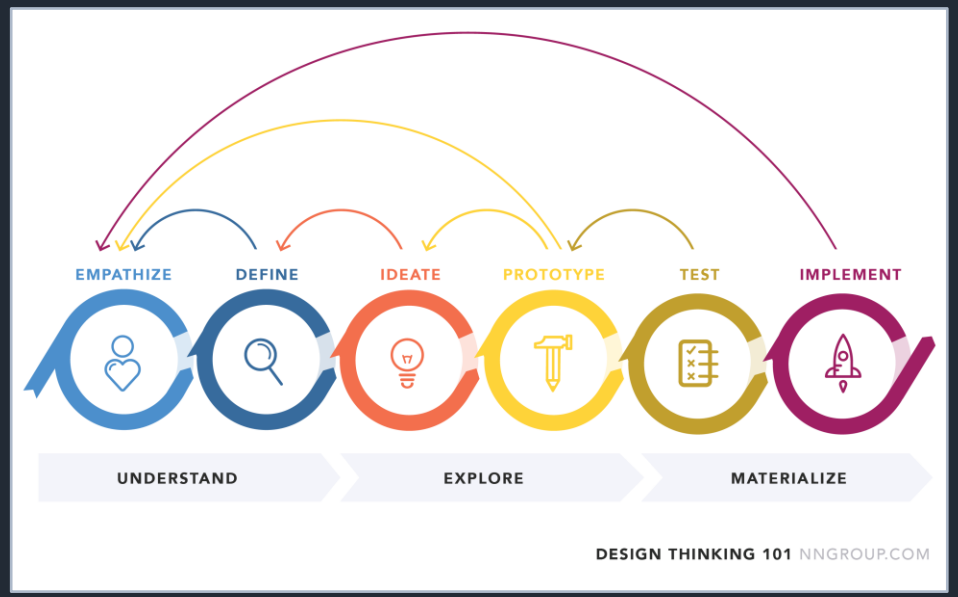
How to start a d.school

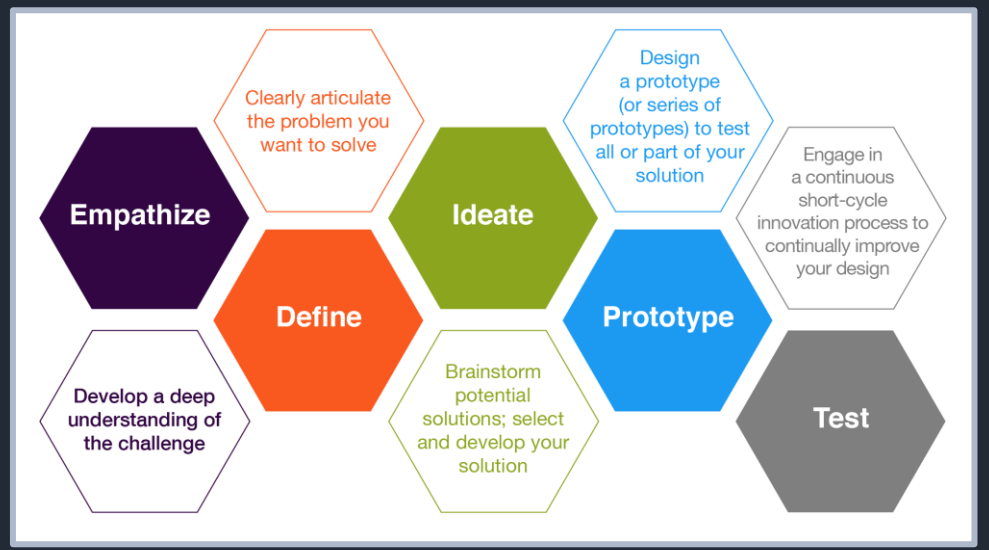
(WHAT IS SOMETHING COMMON ABOUT THESE MODELS?)

There are many models of Design Thinking:







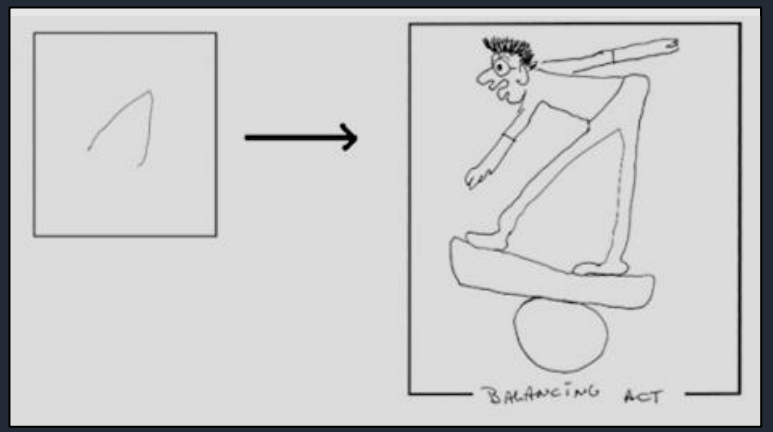


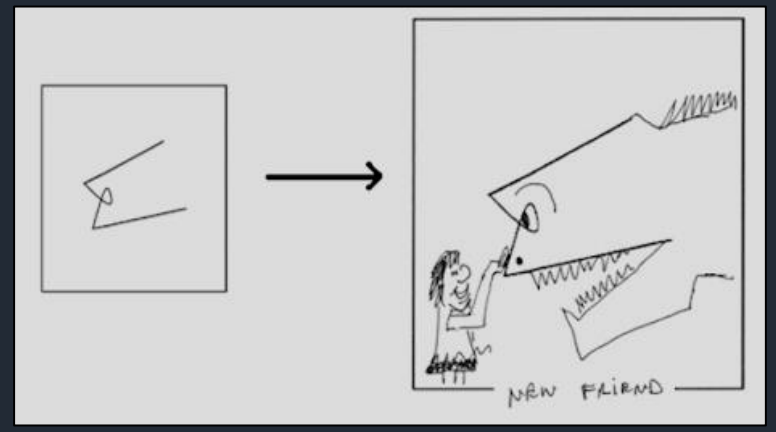
9TDT.2023

LESSON NINE: DESIGN THINKING ACTIVITY

LINES TO IMAGES

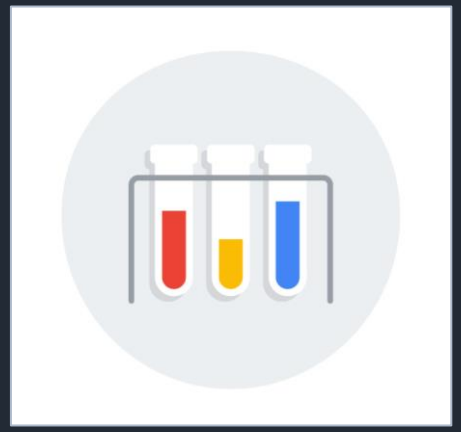
Experimentation



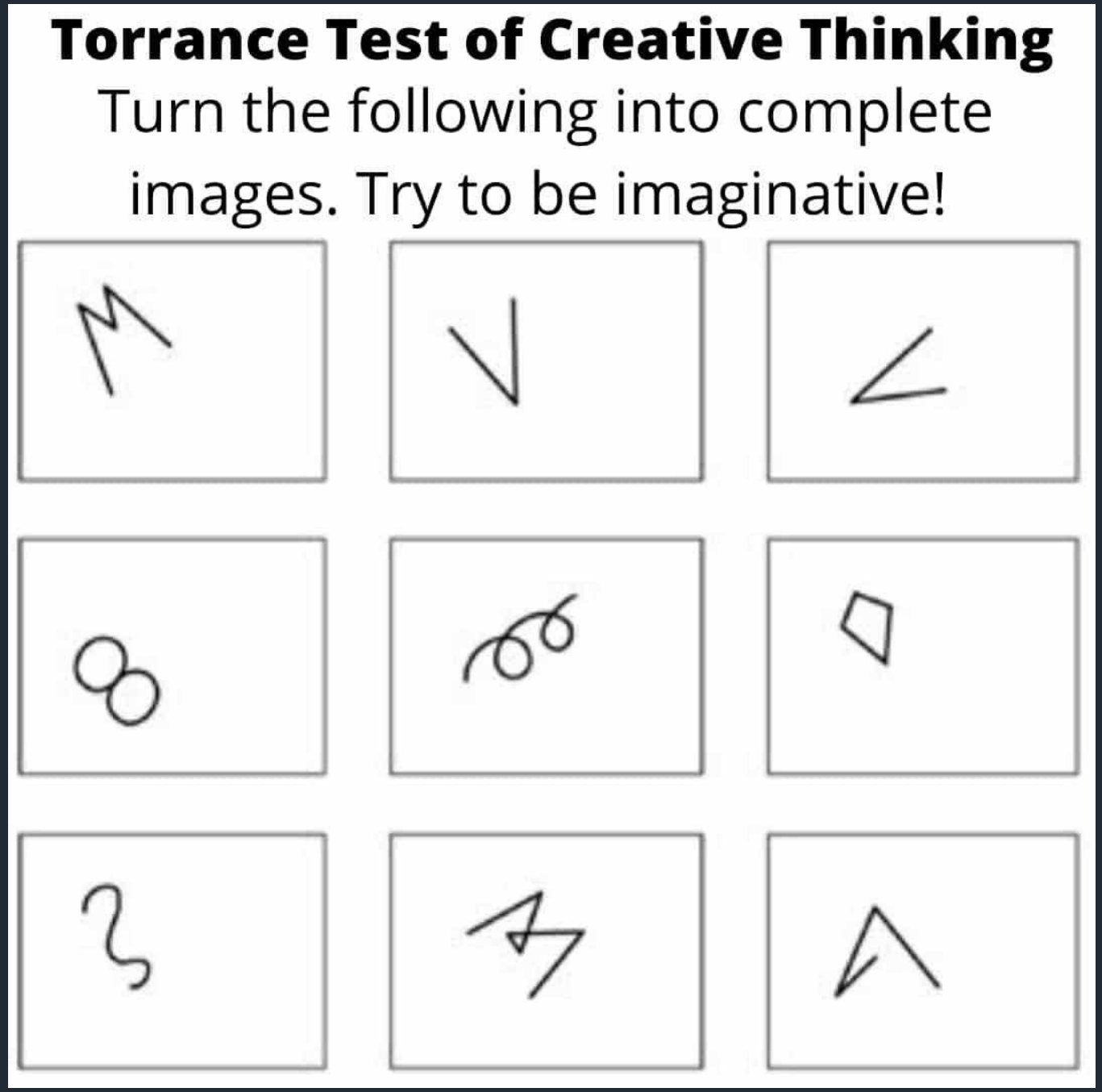


(Examples of **turning abstract lines into complete images**)

Starting with some abstract lines in a box, turn these into complete images.
You can also add shading or colour to your images.



Experimentation



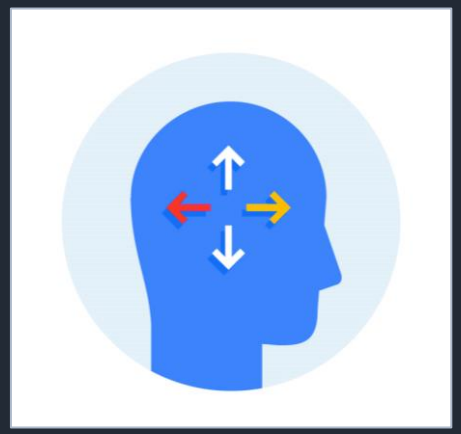
WHAT DID I LEARN FROM LESSON NINE?

your **personal statement**

as an entry in your reflective journal (dated)

9TDT.2023

LESSONS 10-14: WHAT IS THIS COURSE ALL ABOUT?



Expansive Thinking

A) This course is about your **PERSONAL PERSPECTIVE**

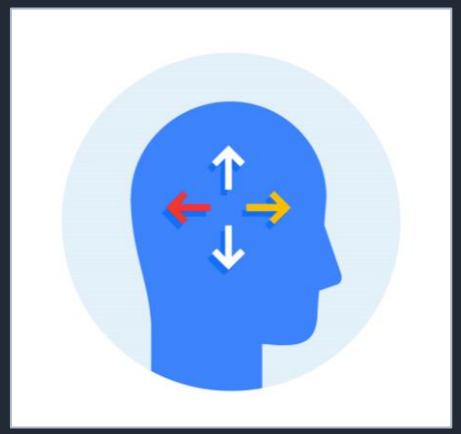
B) This course is about your **LEARNING**

C) This course is about your **THINKING** (critical & divergent)

D) This course is about your **DESIGNING**

E) This course is about your **FUTURE**

WE WILL FOCUS ON THIS

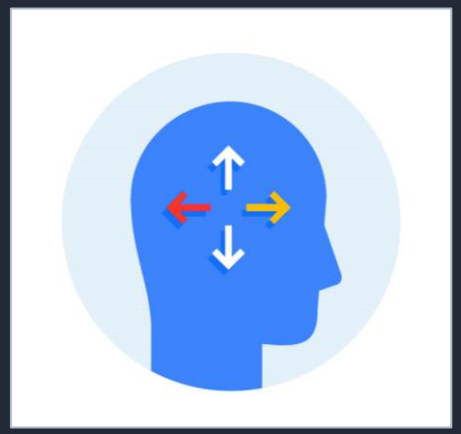


Expansive Thinking

WHAT IS CRITICAL THINKING

QUESTION ASSUMPTIONS

Try thinking of alternative methods for the same task



Expansive Thinking

Why is it important to question assumptions?

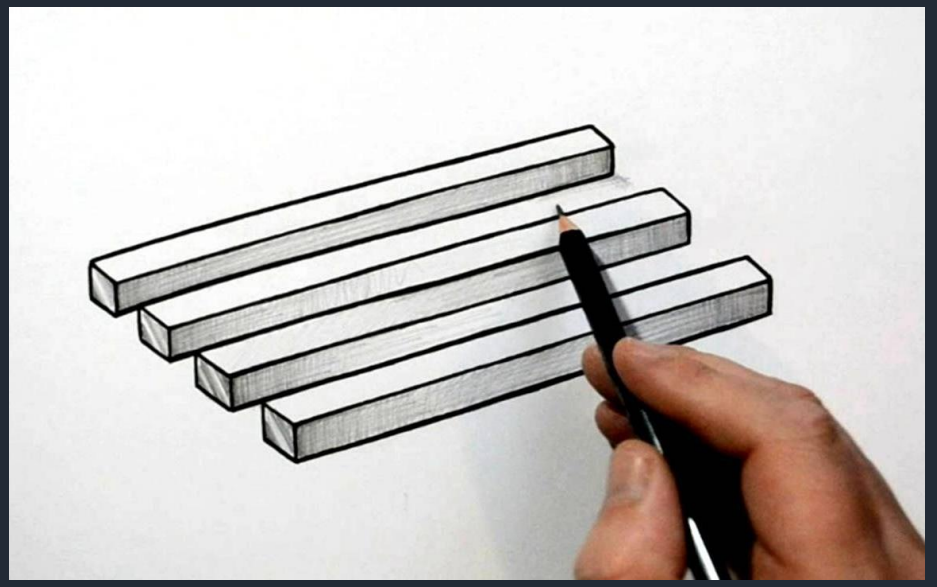
Your **assumptions** and beliefs will not only affect your decisions and what you do,

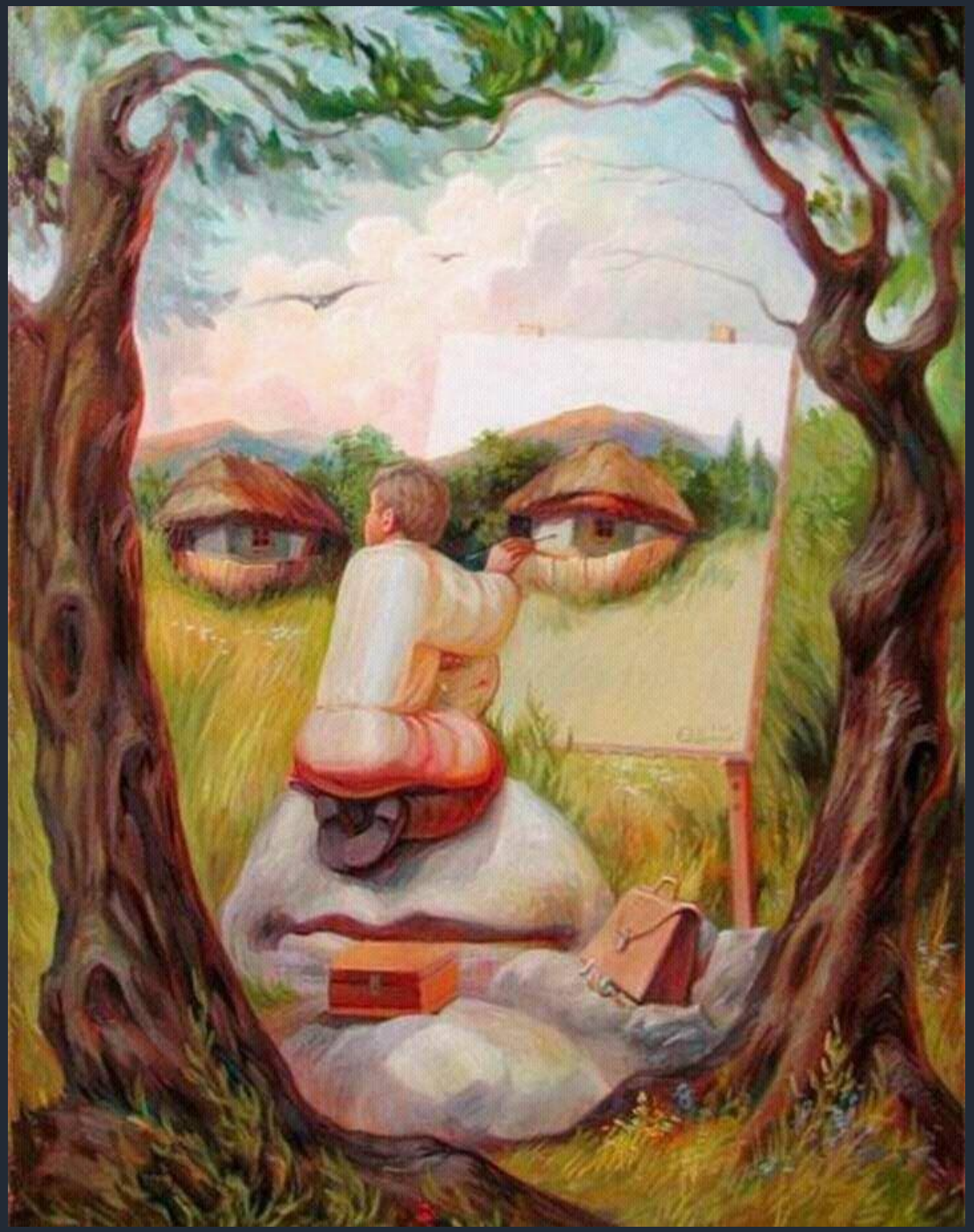
your **assumptions** can also affect how you;

- view the places and events you experience
- view school
- view each of your classes and classmates
- interact with people in general

seeing the alternatives

WHAT DO YOU SEE?

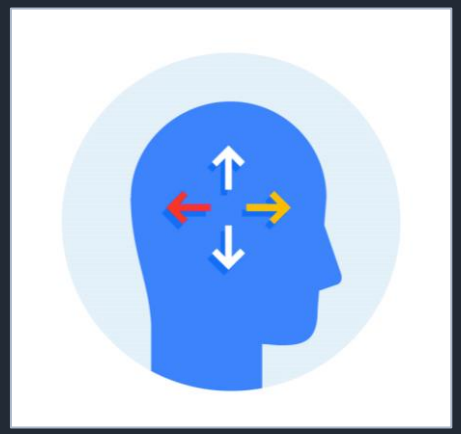




WHAT DO YOU SEE?

9TDT.2023

LESSON TEN: CRITICAL THINKING ACTIVITY I
OPTICAL ILLUSION DRAWINGS



Expansive Thinking

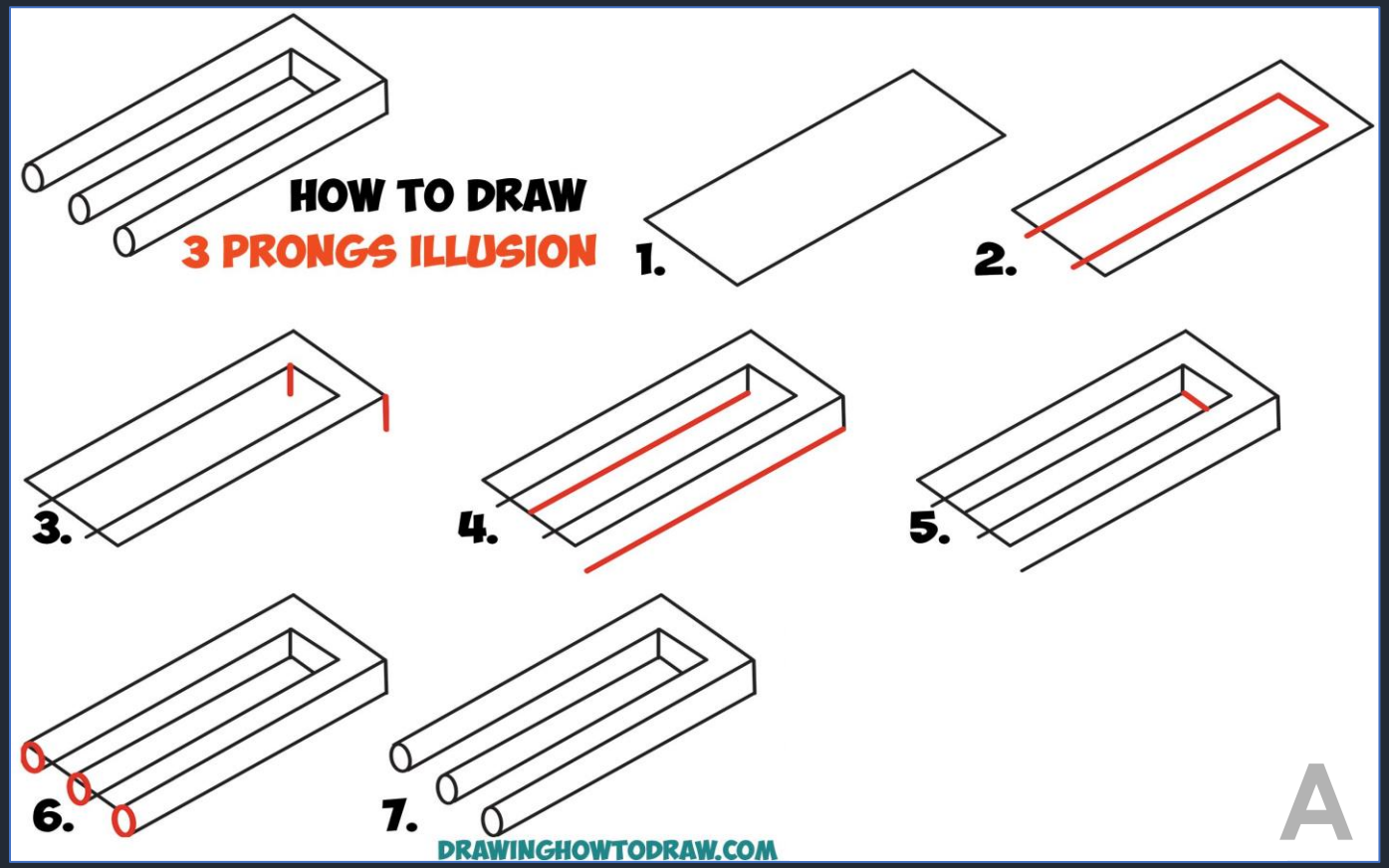
ACTIVITY:
Try to recreate each of the following images that have alternative ways of being interpreted (you can add shading)

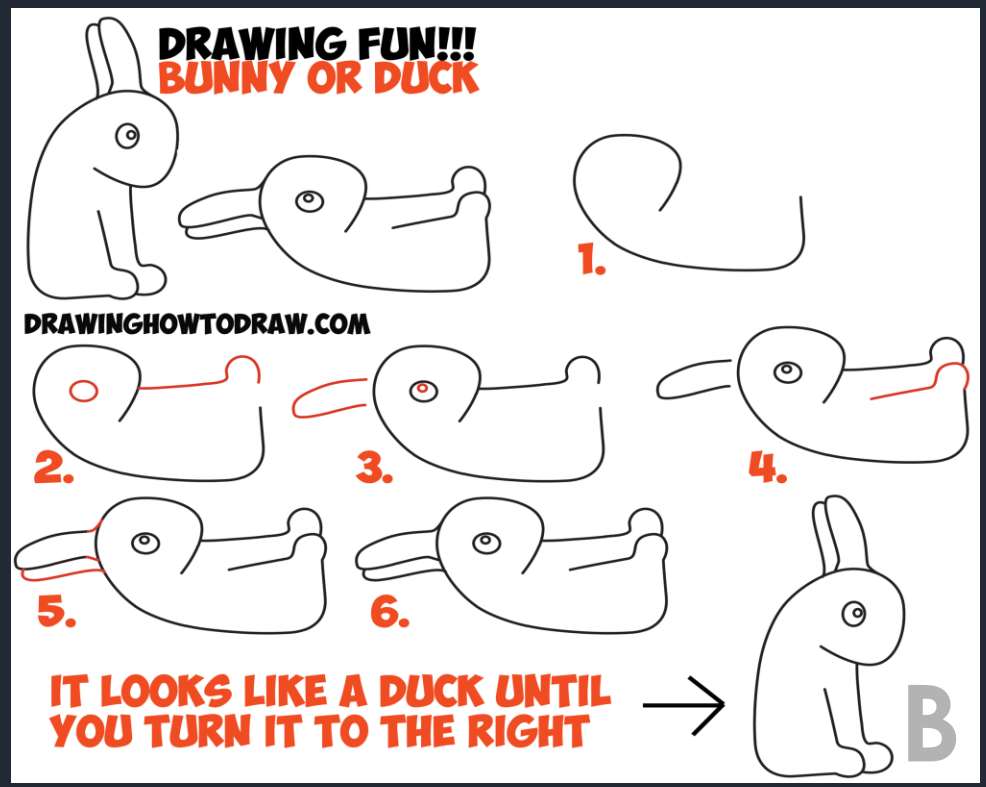
A: 3 PRONGS ILLUSION

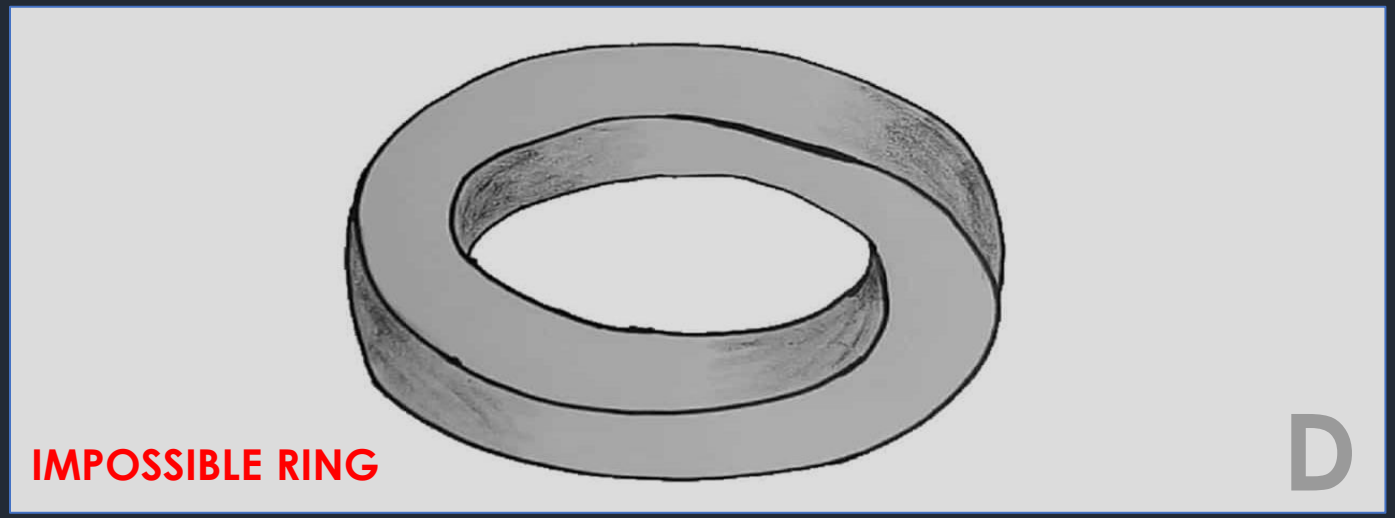
B: BUNNY OR DUCK

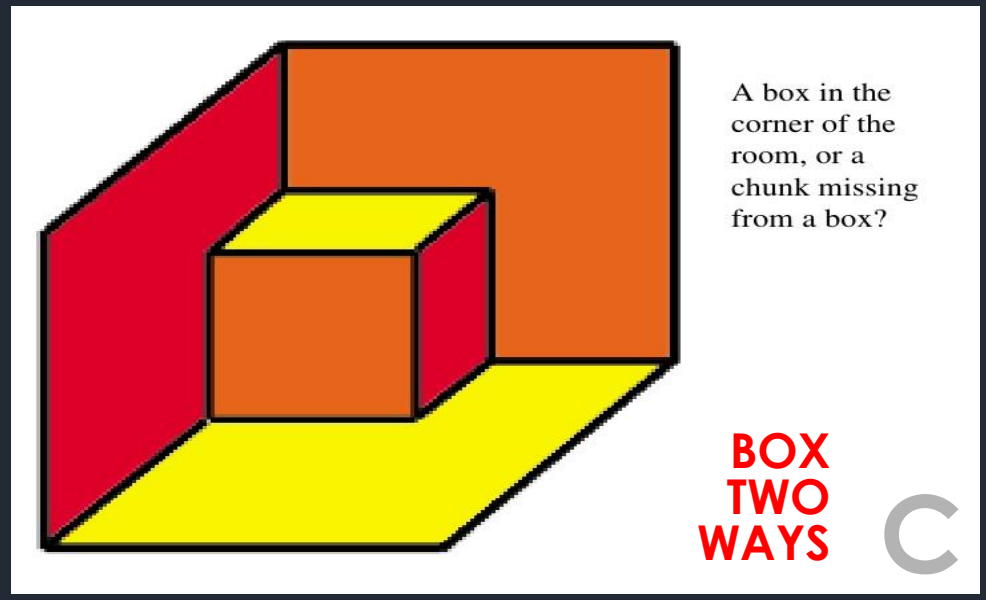
C: BOX TWO WAYS

D: IMPOSSIBLE RING


HOW TO DRAW
3 PRONGS ILLUSION
1.
2.
3.
4.
5.
6.
7.
DRAWINGHOWTODRAW.COM
A


DRAWING FUN!!!
BUNNY OR DUCK
1.
DRAWINGHOWTODRAW.COM
2.
3.
4.
5.
6.
IT LOOKS LIKE A DUCK UNTIL
YOU TURN IT TO THE RIGHT
B


IMPOSSIBLE RING
D


A box in the corner of the room, or a chunk missing from a box?
BOX TWO WAYS
C

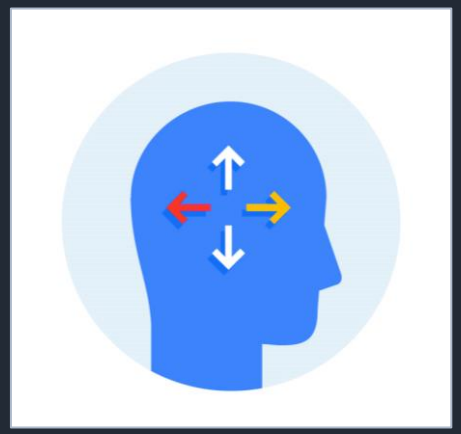
WHAT DID I LEARN FROM LESSON TEN?

your **personal statement**

as an entry in your reflective journal (dated)

9TDT.2023

LESSON ELEVEN: CRITICAL THINKING II
OPTICAL PHOTO + REFILL ART



Expansive Thinking

ACTIVITY 1:
Take your own photo that creates a real life optical illusion

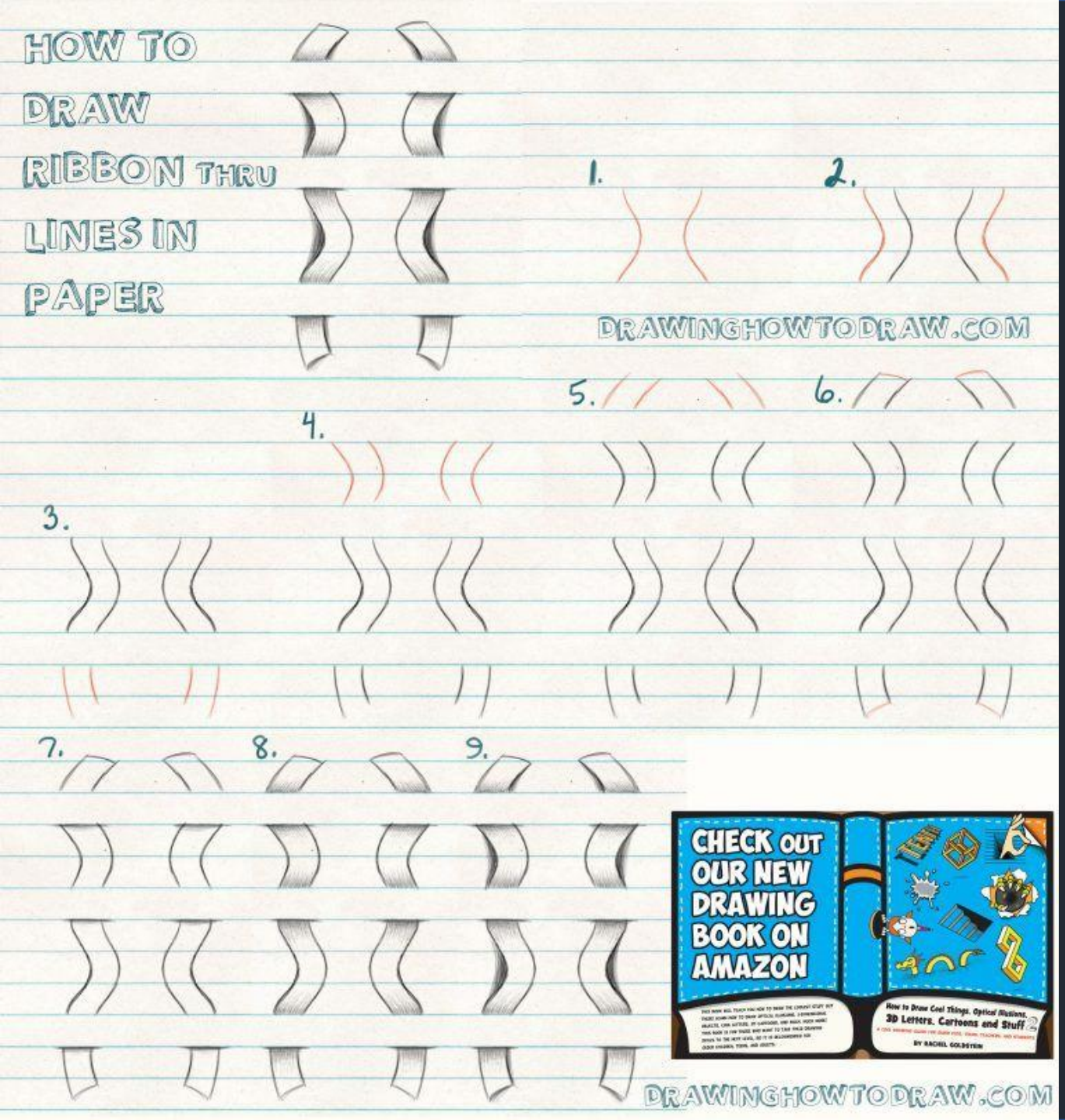
ACTIVITY 2:
Create an art work using a piece of refill (or similar lined paper)

seeing the alternatives

WHAT DO YOU SEE?

WATCH CLOSELY

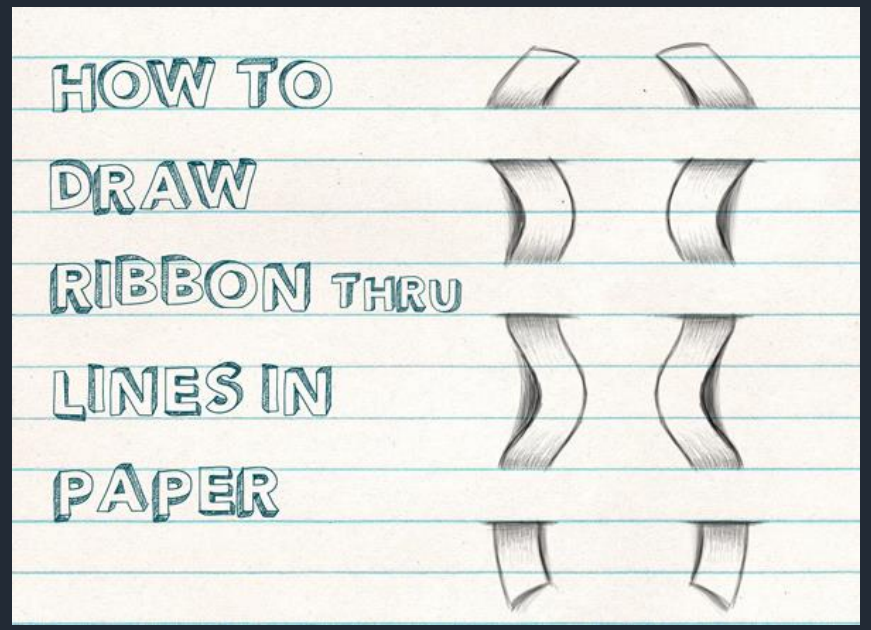
ACTIVITY 1:
Take your own photo that creates a real life optical illusion

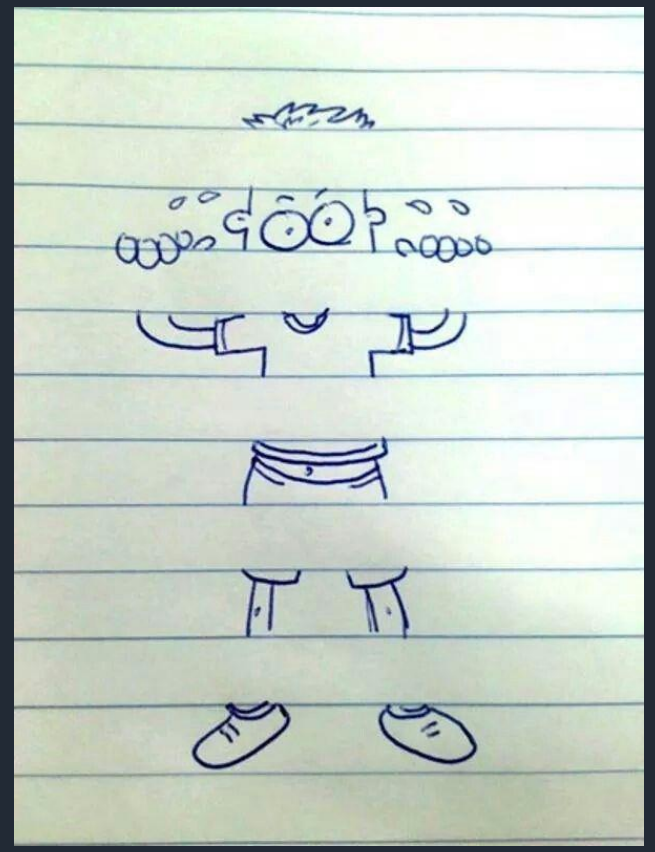


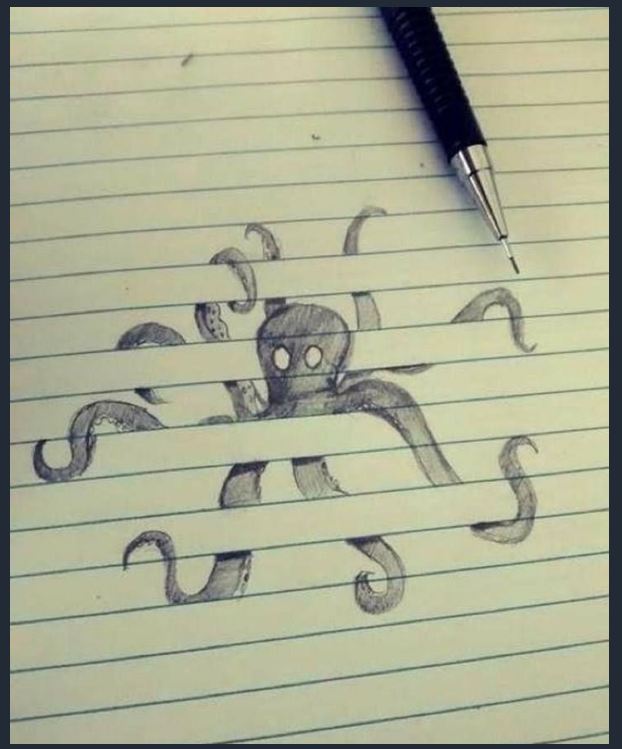
ACTIVITY 2:

Create an art work using a piece of refill (or similar lined paper)

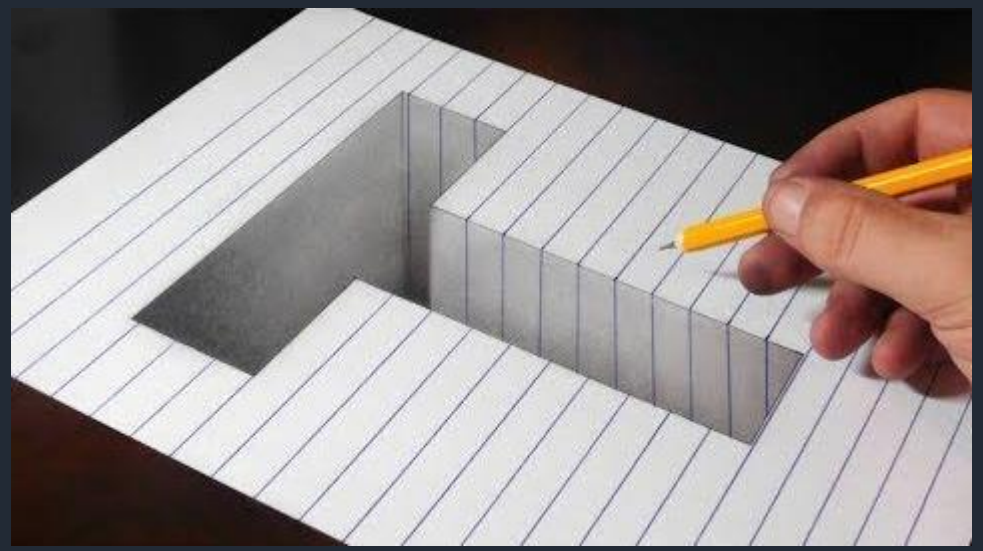
Refer to the next slide for some ideas – BE CREATIVE







some ideas for drawing through the paper lines



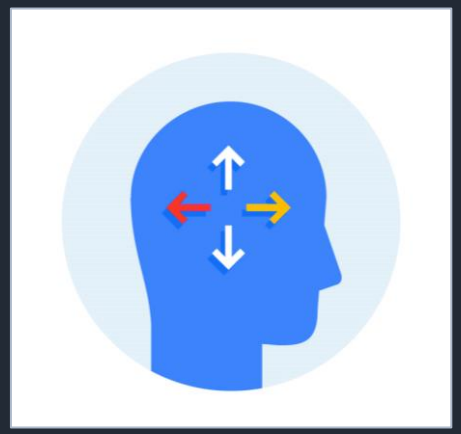
WHAT DID I LEARN FROM LESSON ELEVEN?

your **personal statement**

as an entry in your reflective journal (dated)

9TDT.2023

LESSON TWELVE: SEEING DIFFERENTLY SCHOOL

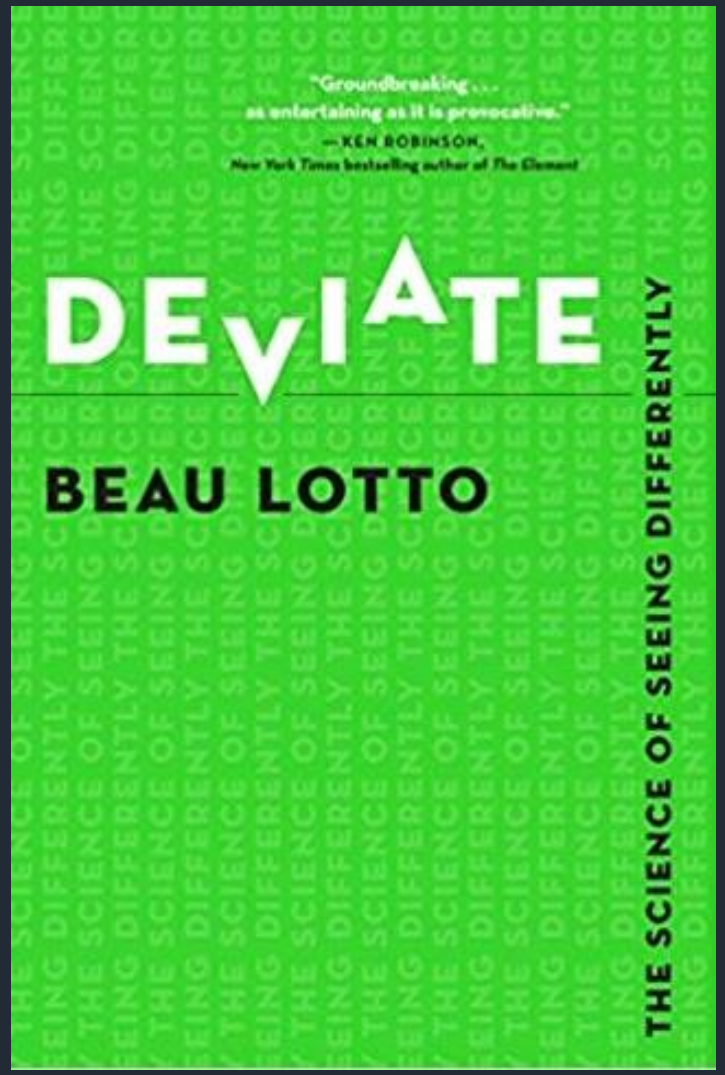


Expansive Thinking

"INFORMATION IS MEANINGLESS, CONTEXT IS EVERYTHING"
(Beau Lotto)

On separate slides, gather five different perspectives (different meanings from different contexts/people) on what school is about.

Y U
MA E
TH
EANI G



*'**To understand human perception**, you must first understand that **all information in and of itself is meaningless**. The information that falls onto our different senses could literally mean anything. It is nothing more than energy or molecules.*

The photons entering our eyes <SIGHT>,

the vibrations through the air that enter our ears <HEARING>,

the breaking of the bonds of molecules that creates friction across our skin <TOUCH>,

the chemicals that land on our tongues <TASTE>,

the compounds that enter our noses <SMELL>

*– all are just electro-chemical energy of one kind or another… We sense the changes in stuff, not the stuff itself … the "reality" that our perceptions see … is the meaning your ecology gives it. In other words, perception is similar to poetry: you are interpreting what it means, because it could mean anything. (In the end) **you are making the meaning**.'*

CHECK OUT THIS LINK – Beau Lotto: "Why past experience is dangerous"
https://www.youtube.com/watch?v=eLe0OJtct4M&ab_channel=BeauLotto-D%27AmelioNetwork

AND THEN https://www.youtube.com/watch?v=Do4KDhZppp8&ab_channel=BeauLotto-D%27AmelioNetwork

FOCUS on the POSITIVE EXPERIENCES *(your favourite things about school, favourite places, favourite experiences, favourite people …)*

SO THERE ARE **DIFFERENT POSSIBLE PROJECTED MEANINGS OF**

SCHOOL

BASED ON DIFFERENT PEOPLE'S INDIVIDUAL EXPERIENCES

ACTIVITY:

On separate slides, gather different perspectives (different meanings) on what school is about:

1. What does SCHOOL **mean to you**? *(one slide – description and image)*
2. What does SCHOOL **mean to someone else** in the class? *(one slide – description and image)*
3. What does SCHOOL **mean** or look like **in another country**? *(one slide – description and image)*
4. What does SCHOOL **mean in the dictionary**? *(one slide – description and image)*
5. What does SCHOOL **mean to an adult**? (e.g. parent, teacher) *(one slide – description) – AT HOME*

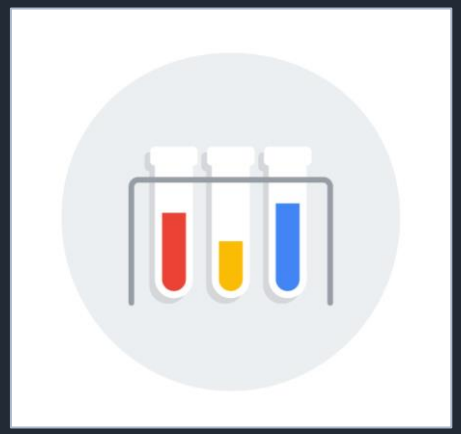
WHAT DID I LEARN FROM LESSON TWELVE?

your **personal statement**

as an entry in your reflective journal (dated)

9TDT.2023

LESSON THIRTEEN: DIVERGENT THINKING I
BLACK & WHITE



Experimentation

ACTIVITY:
Using only solid black tone (the negative shape) to interpret TWO of the following 'white' subjects visually:

CLOUDS
PAPER
POLAR BEAR
SALT
SNEAKERS
SNOW
STEAM
TISSUE BOX

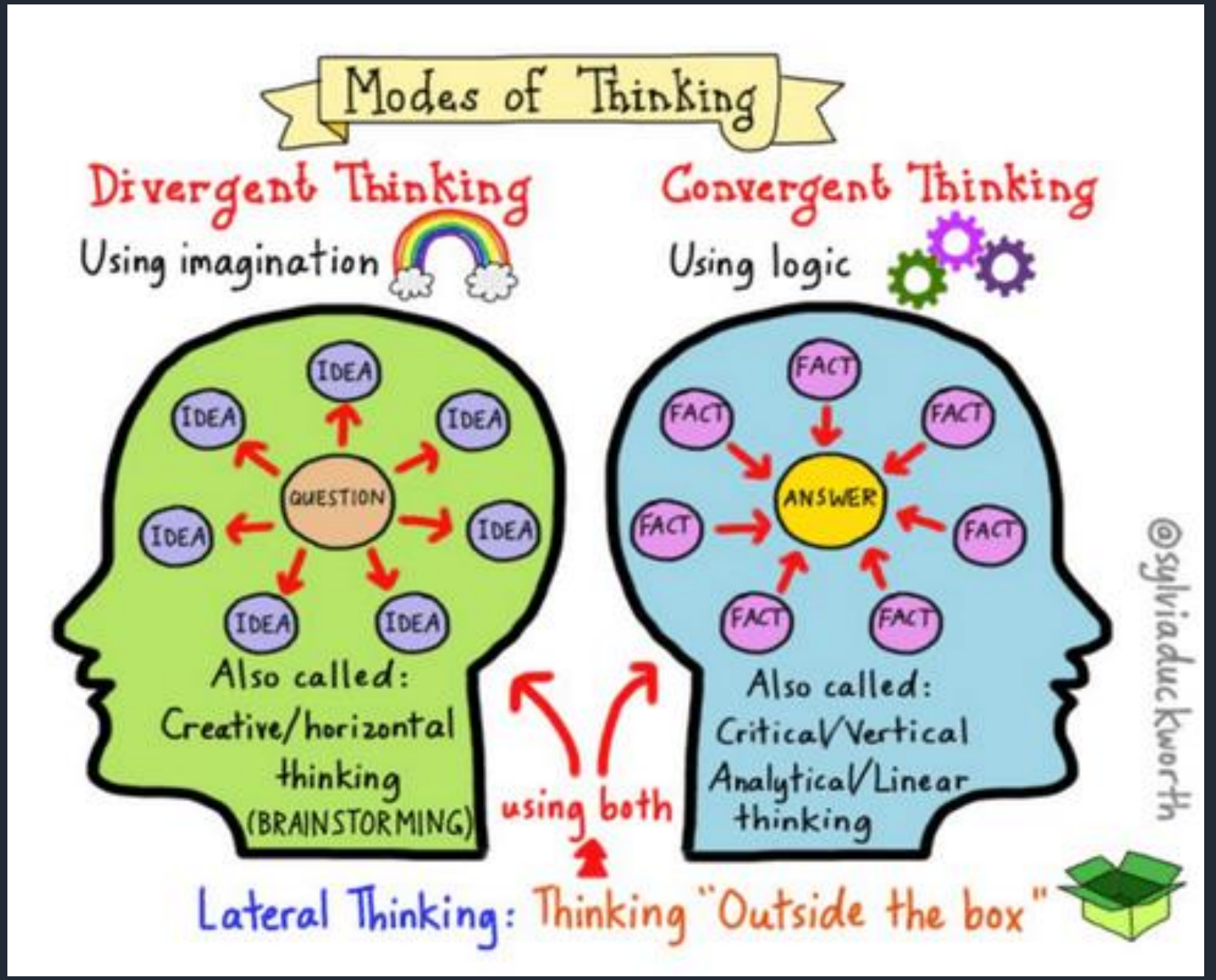
DESIGNING
engages
DESIGN THINKING

And
DESIGNING
involves both

DIVERGENT THINKING

and

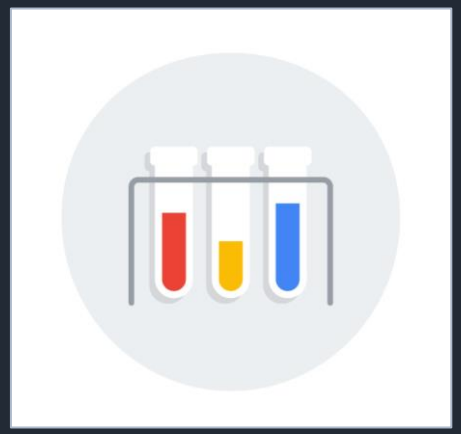
CONVERGENT THINKING



And while **DESIGNING** involves both
DIVERGENT THINKING AND CONVERGENT THINKING

we will focus on
the initial part of DESIGNING
which is more about **DIVERGENT THINKING**

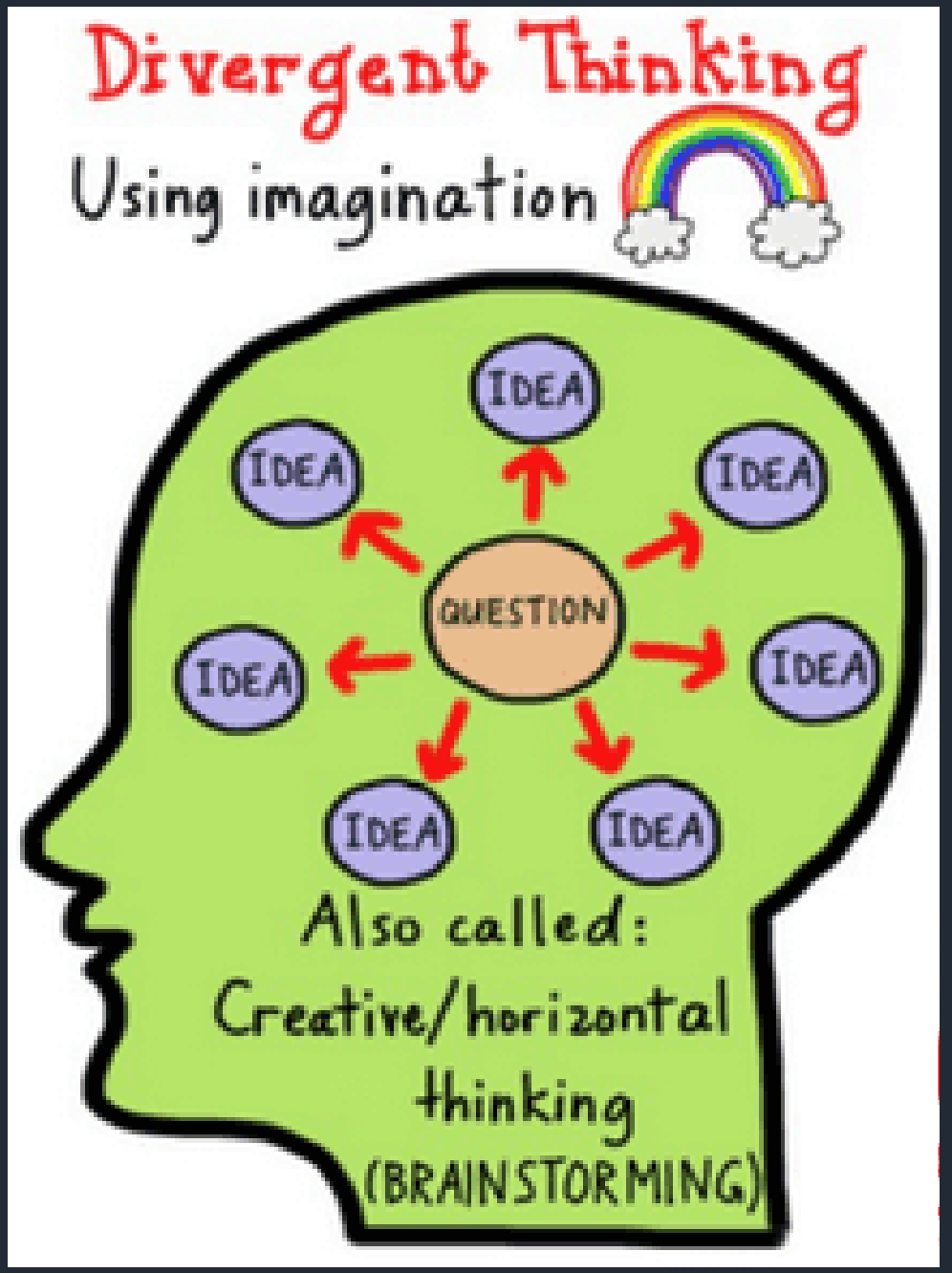
DIVERGENT THINKING is about
using your **imagination** and **experimentation**



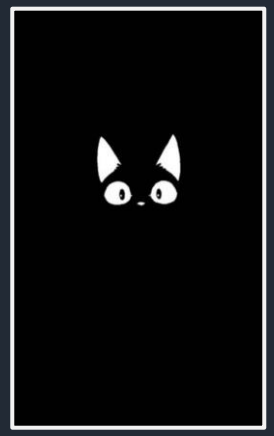
Experimentation

It is where you can **play**
and can be **risk takers**
because at this stage,
there are
no right answers

*(YOU CAN MAKE
YOUR OWN MEANING!)*



Using only solid black block tone only (for the negative shapes) interpret 'white' subjects visually:

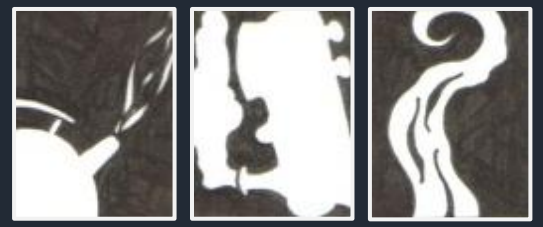


no shading!
(block black only)

Using only solid black block tone only (for the negative shapes) interpret TWO of the following 'white' subjects visually:

CLOUDS
PAPER
POLAR BEAR
SALT
SNEAKERS
SNOW
STEAM
TISSUE BOX

Three Draft Ideas for each subject



Start by exploring three initial options and then choose one to show as a refined final idea

One Final Ideas for each subject

no shading!
(block black only)

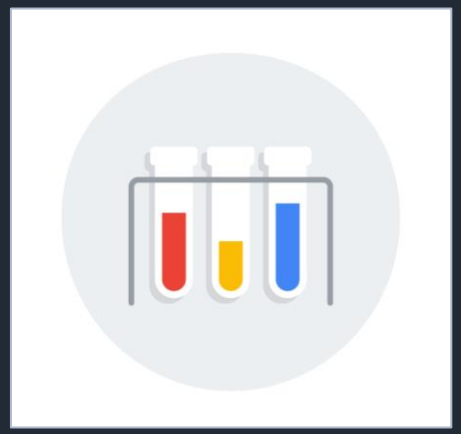
WHAT DID I LEARN FROM LESSON THIRTEEN?

your **personal statement**

as an entry in your reflective journal (dated)

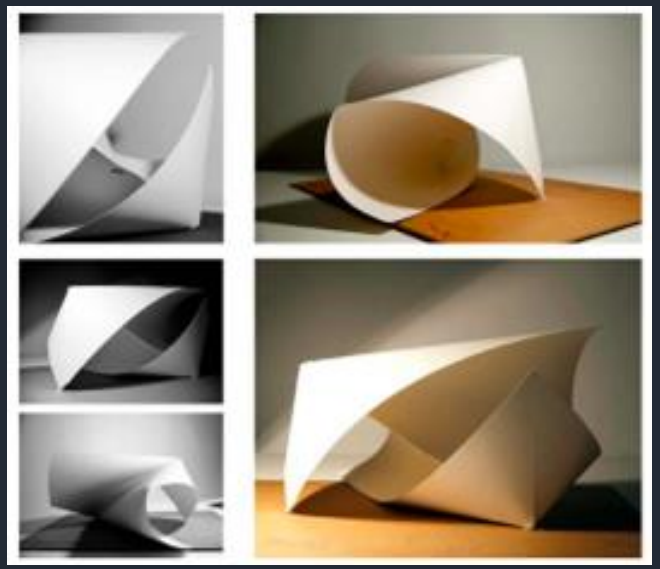
9TDT.2023

LESSON FOURTEEN: DIVERGENT THINKING II
PAPER SCULPTURES



Experimentation

ACTIVITY:
Using paper / card, you are to create TWO PAPER SCULPTURES inspired by two different collections of images

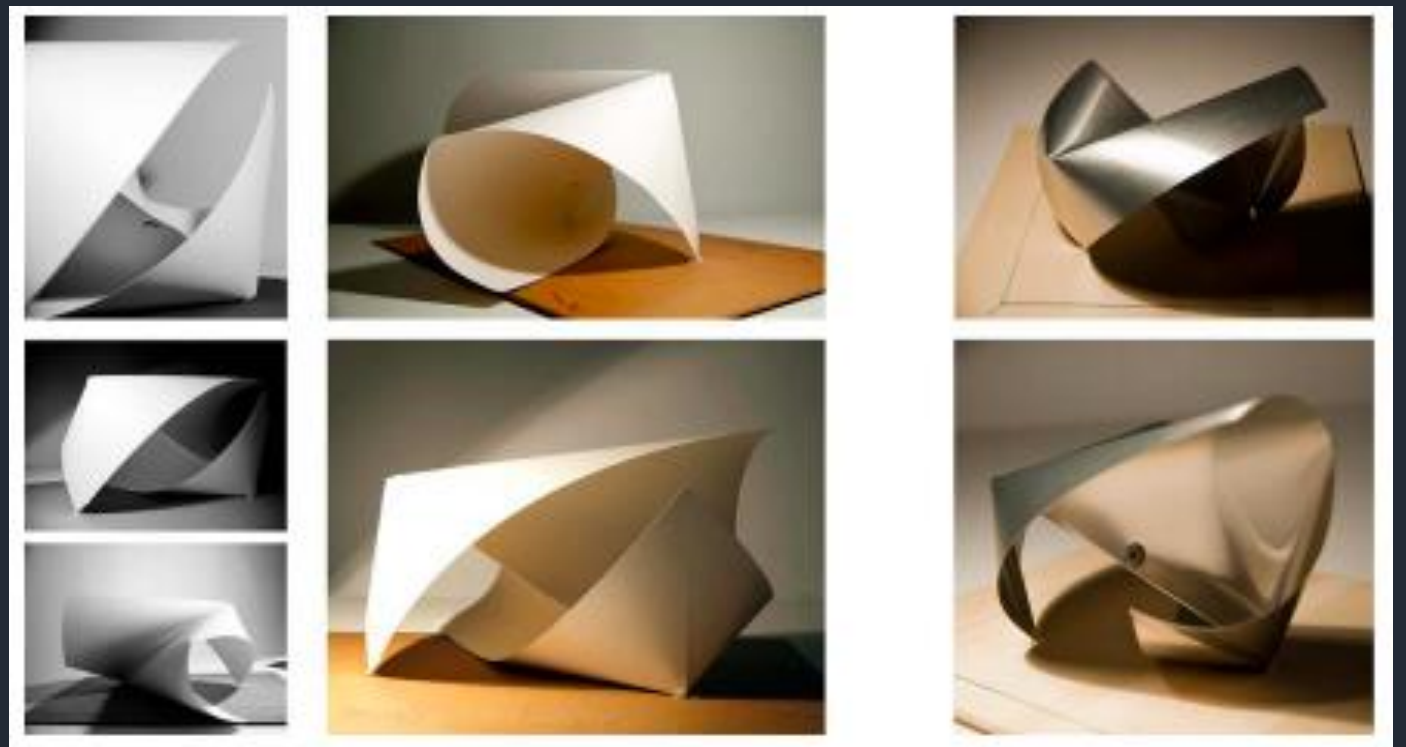


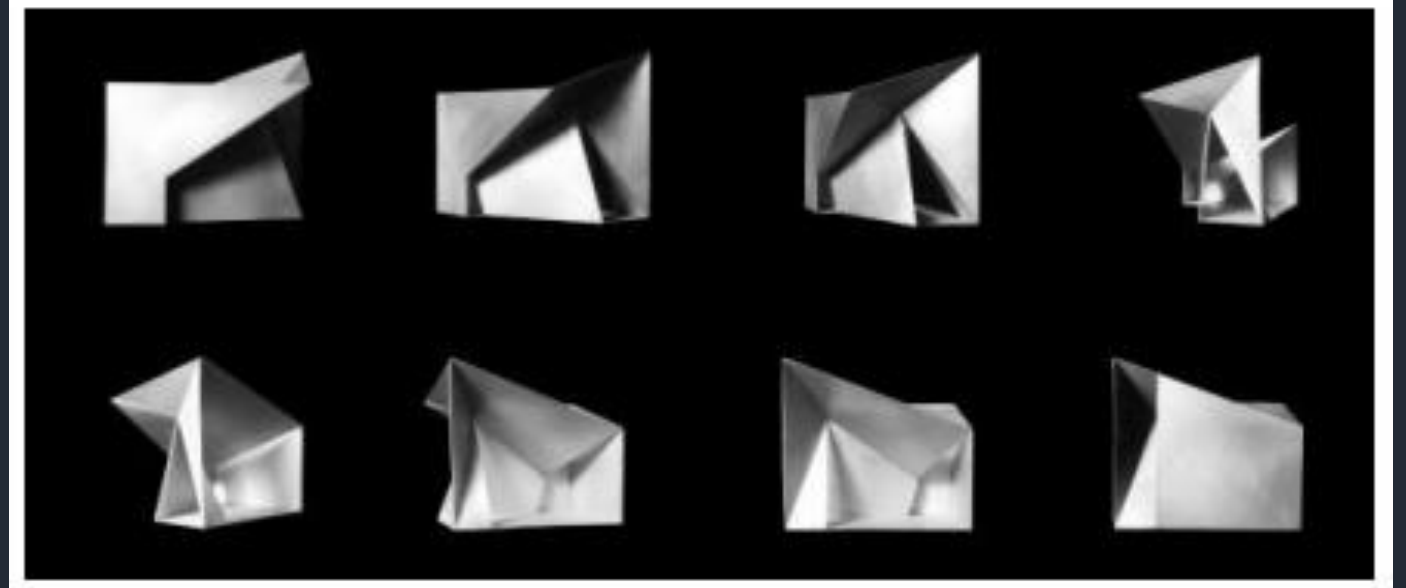
Using paper you have at home:
You are to create TWO PAPER SCULPTURES and photograph each of these from 2 or 3 different angles.

Paper Sculpture One:
inspired by the designs in the **FIRST** collection of images.

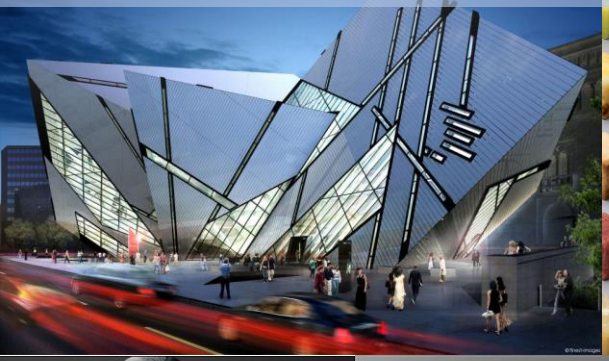
Paper Sculpture Two:
inspired by the designs in the **SECOND** collection of images.

You are to reflect the visual characteristics you can see in these designs in the paper sculptures you create.

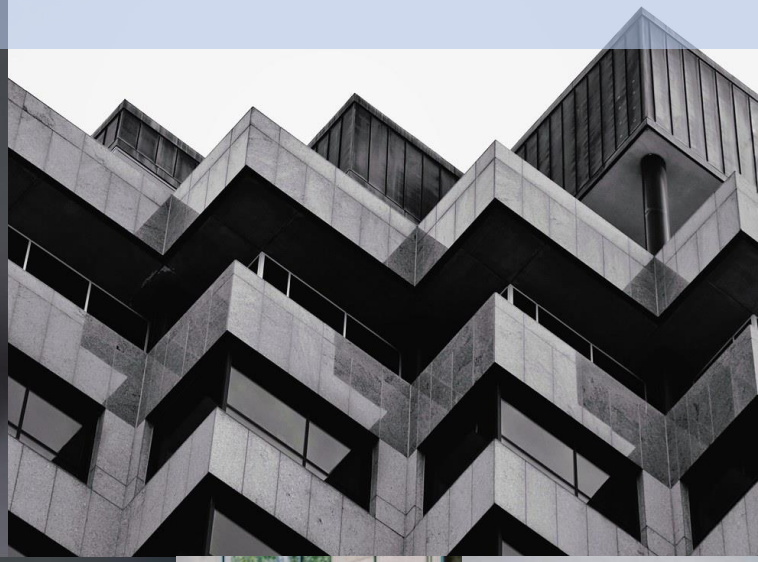




FIRST collection: Inspiration for sculpture ONE



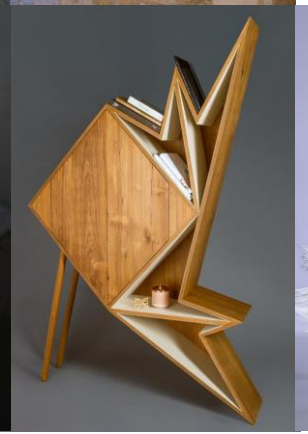






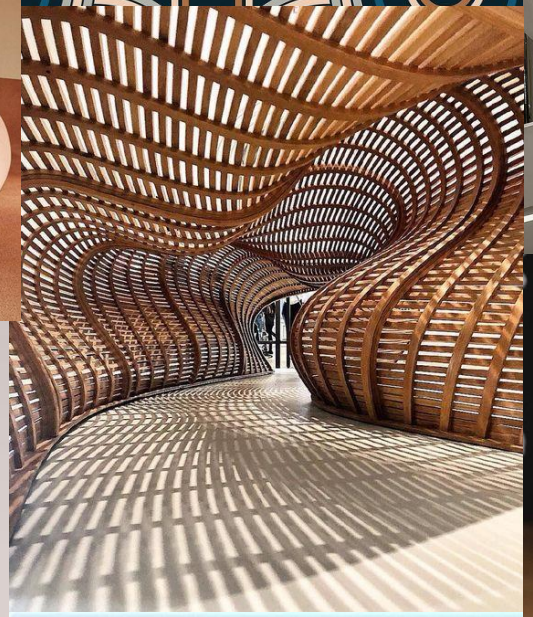


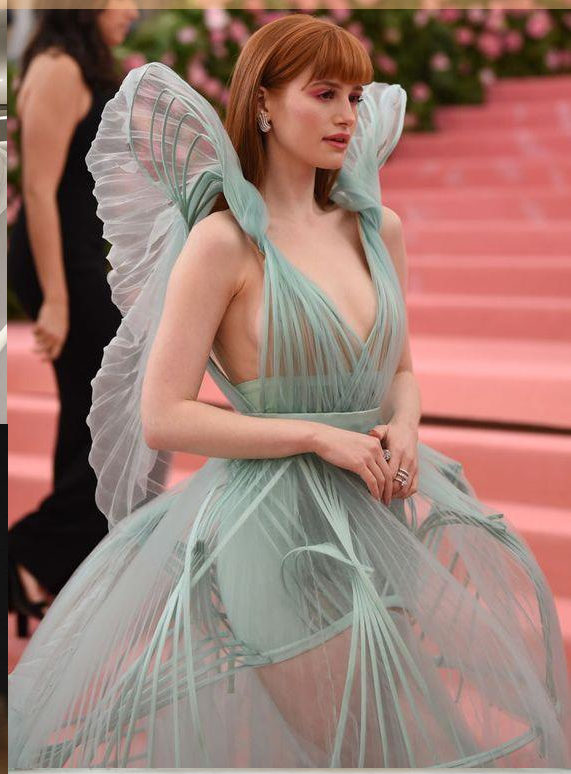



SECOND collection: Inspiration for sculpture TWO









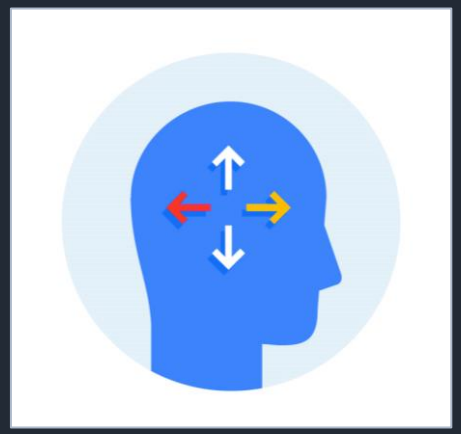
WHAT DID I LEARN FROM LESSON FOURTEEN?

your **personal statement**

as an entry in your reflective journal (dated)

9TDT.2023

LESSONS 15-20: WHAT IS THIS COURSE ALL ABOUT?



Expansive Thinking

A) This course is about your **PERSONAL PERSPECTIVE**

B) This course is about your **LEARNING**

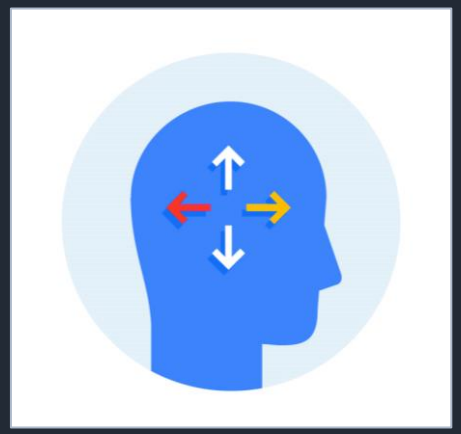
C) This course is about your **THINKING** (critical & divergent)

D) This course is about your **DESIGNING**

E) This course is about your **FUTURE**

9TDT.2023

LESSON FIFTEEN: DESIGNING I
DRAWING FROM NATURE



Expansive Thinking

ACTIVITY:
Find something interesting from nature and create THREE quick design ideas inspired your interesting find from nature

ACCESSORY

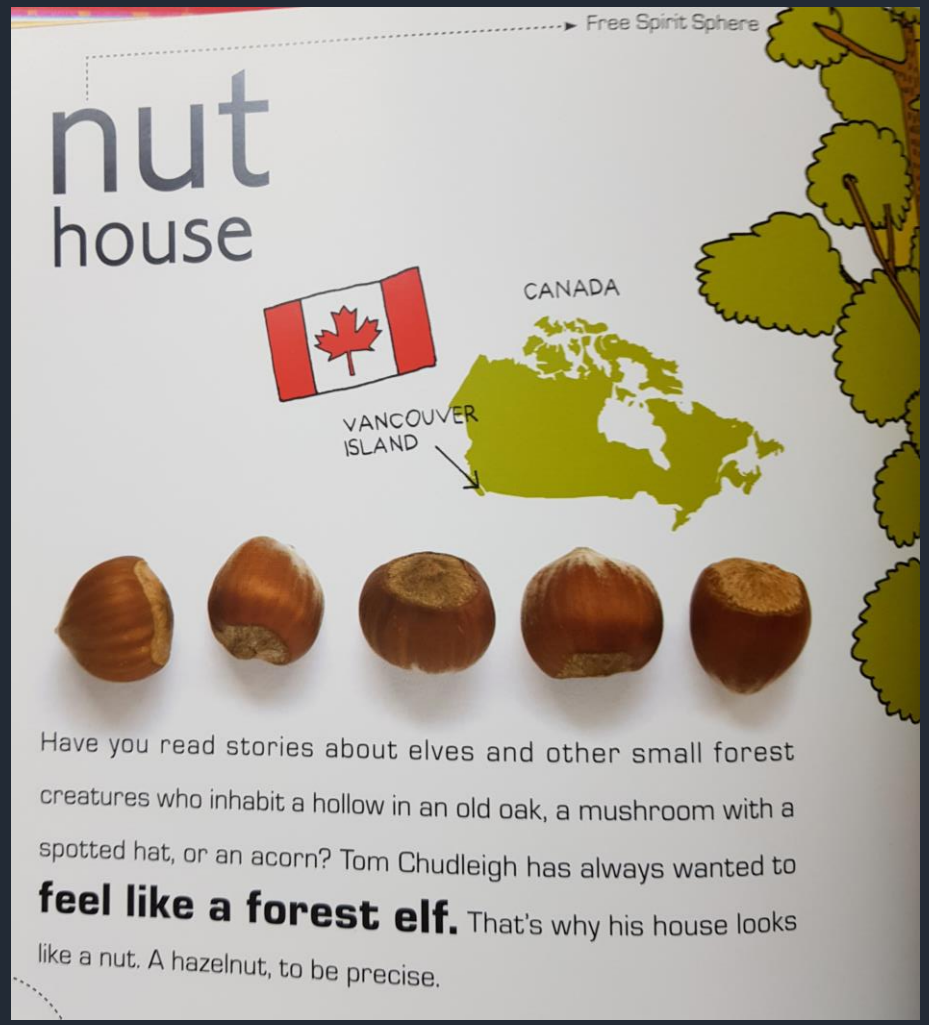
LIGHTING

FURNITURE

TRANSPORT

ARCHITECTURE

WHAT DO YOU SEE?



WHAT DO YOU SEE?

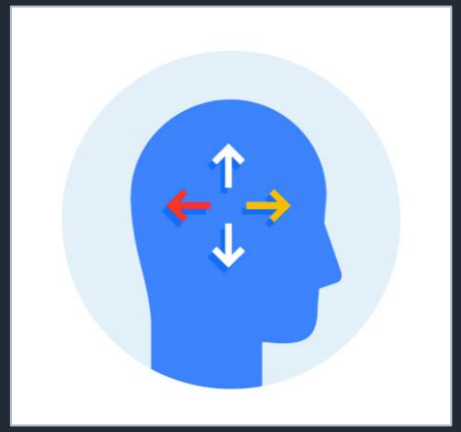
Go outside and find something interesting from nature.
It could be a leaf, a flower, a twig, a rock.

Divide a page into four quarters and in the first box, sketch your interesting find **from two completely different angles** – try to sketch as much detail as you can.

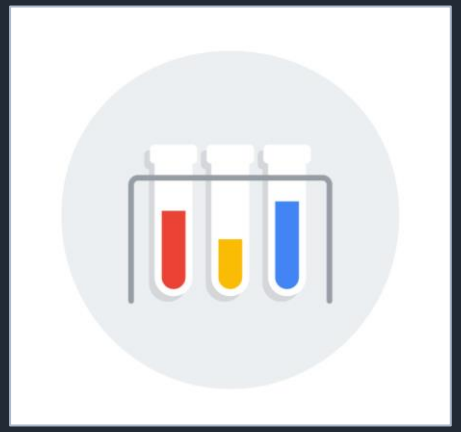
In the other three boxes, select **three** of the following:

- AN ACCESSORY (e.g. jewellery, watch, hat, glasses, etc.)
- A LIGHT (e.g. lamp, wall light, chandelier, garden light, etc.)
- A PIECE OF FURNITURE (e.g. chair, couch, table, bed, etc.)
- A FORM OF TRANSPORT (e.g. scooter, car, boat, bicycle, etc.)
- ARCHITECTURE (e.g. house, bus shelter, library, church, etc.)

and **create three design ideas** inspired by your interesting find



Expansive Thinking



Experimentation

Original (from two different angles)	Design #1 (drawings & notes)
Design #2 (drawings & notes)	Design #3 (drawings & notes)

WHAT DID I LEARN FROM LESSON FIFTEEN?

your **personal statement**

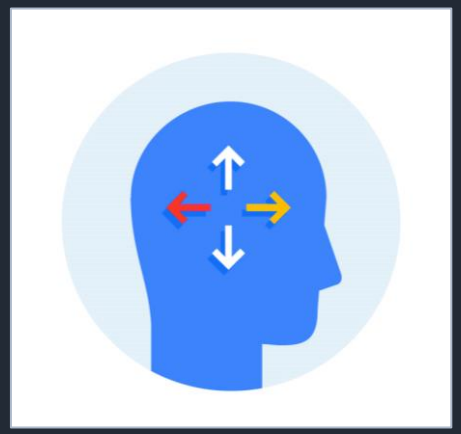
as an entry in your reflective journal (dated)

9TDT.2023

LESSON SIXTEEN: DESIGNING II

IDEA MACHINE

https://theideamachine.org/



Expansive Thinking

ACTIVITY:
Using the Idea Machine App, generate FOUR quick design ideas that respond to a user, an industry, and main sense

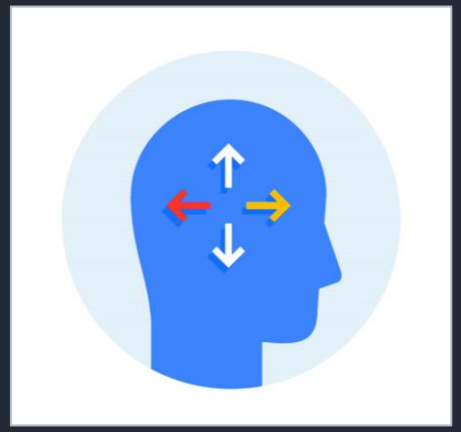
THE IDEA MACHINE

Go to the following link: https://theideamachine.org/

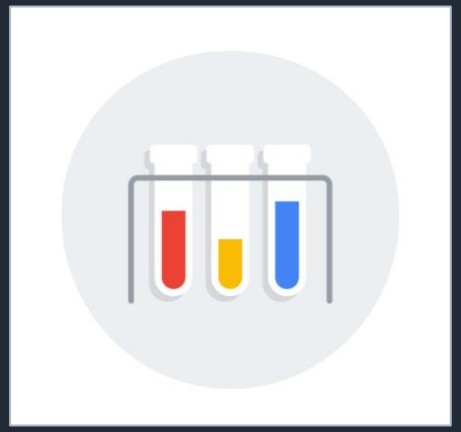
You can divide a page into four quarters and in each of the four spaces write down the

- USER – who is the idea be for
- INDUSTRY – how would your idea be used
- SENSE – what sense does your idea appeal to (sight, sound, taste, touch, smell, …)

For this exercise, you can have 5-10 MINUTES to DRAW each idea
– you can also add some brief notes to explain your idea



Expansive Thinking



Experimentation

IDEA #1 USER: INDUSTRY: SENSE: [DRAWING]	**IDEA #2** USER: INDUSTRY: SENSE: [DRAWING]
IDEA #3 USER: INDUSTRY: SENSE: [DRAWING]	**IDEA #4** USER: INDUSTRY: SENSE: [DRAWING]

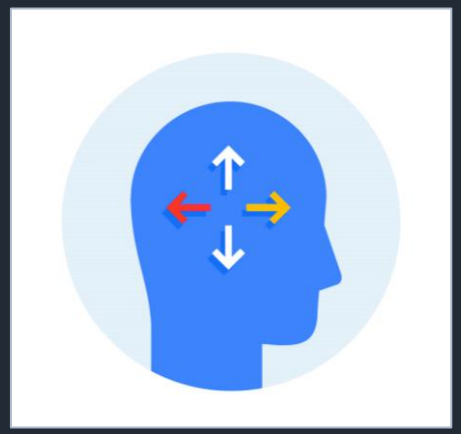
WHAT DID I LEARN FROM LESSON SIXTEEN?

your **personal statement**

as an entry in your reflective journal (dated)

9TDT.2023

LESSON SEVENTEEN: DESIGNING III
EVOLVING BRIEF

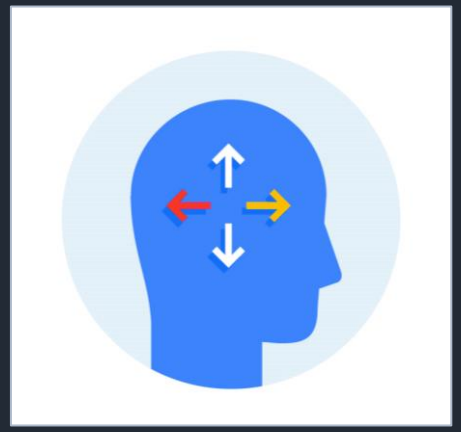


Expansive Thinking

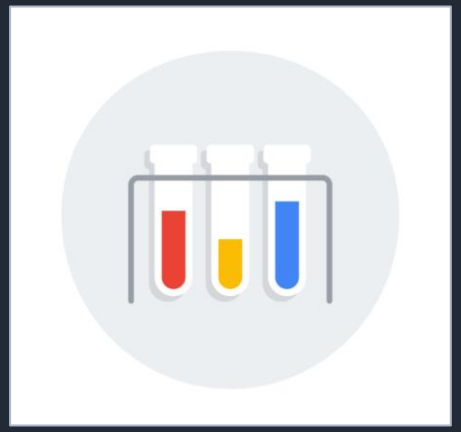
ACTIVITY:
You will be using a series of drawings to EVOLVE a unique design following a set of instructions that reveal ever increasing details one by one

DIVERGENT THINKING
[evolving brief]

[EVOLVE: means each new idea is linked back to the previous ideas]



Expansive Thinking



Experimentation

Individually:

You will use ‘hand drawing’ to EVOLVE a unique design following a set of instructions that are revealed one by one:

STARTING WITH DRAWING A CONTAINER?

(...for what you may ask?)

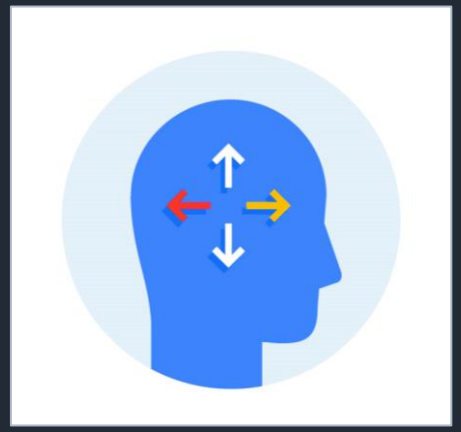
WHAT DID I LEARN FROM LESSON SEVENTEEN?

your **personal statement**

as an entry in your reflective journal (dated)

9TDT.2023

LESSON EIGHTEEN: LEARNING III
INTRODUCING SKETCHUP



Expansive Thinking

ACTIVITY:
You will learn to use the basic tools for generating 3D ideas using **'SketchUp for Schools'**

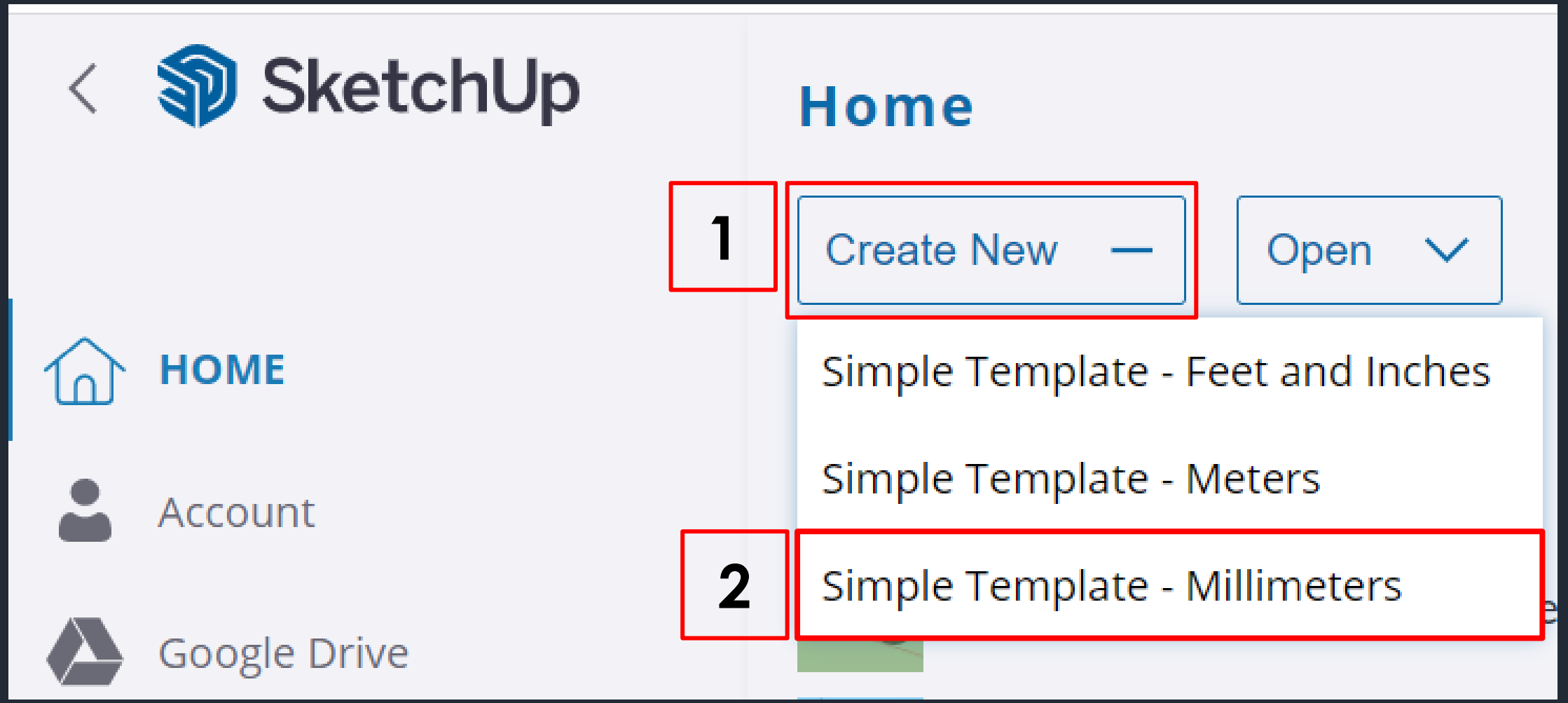
FREE VERSION OF SKETCHUP: SketchUp for Schools Link: https://www.sketchup.com/products/sketchup-for-schools

LEARNING BASIC TOOLS ON SKETCHUP: FOR SCHOOLS

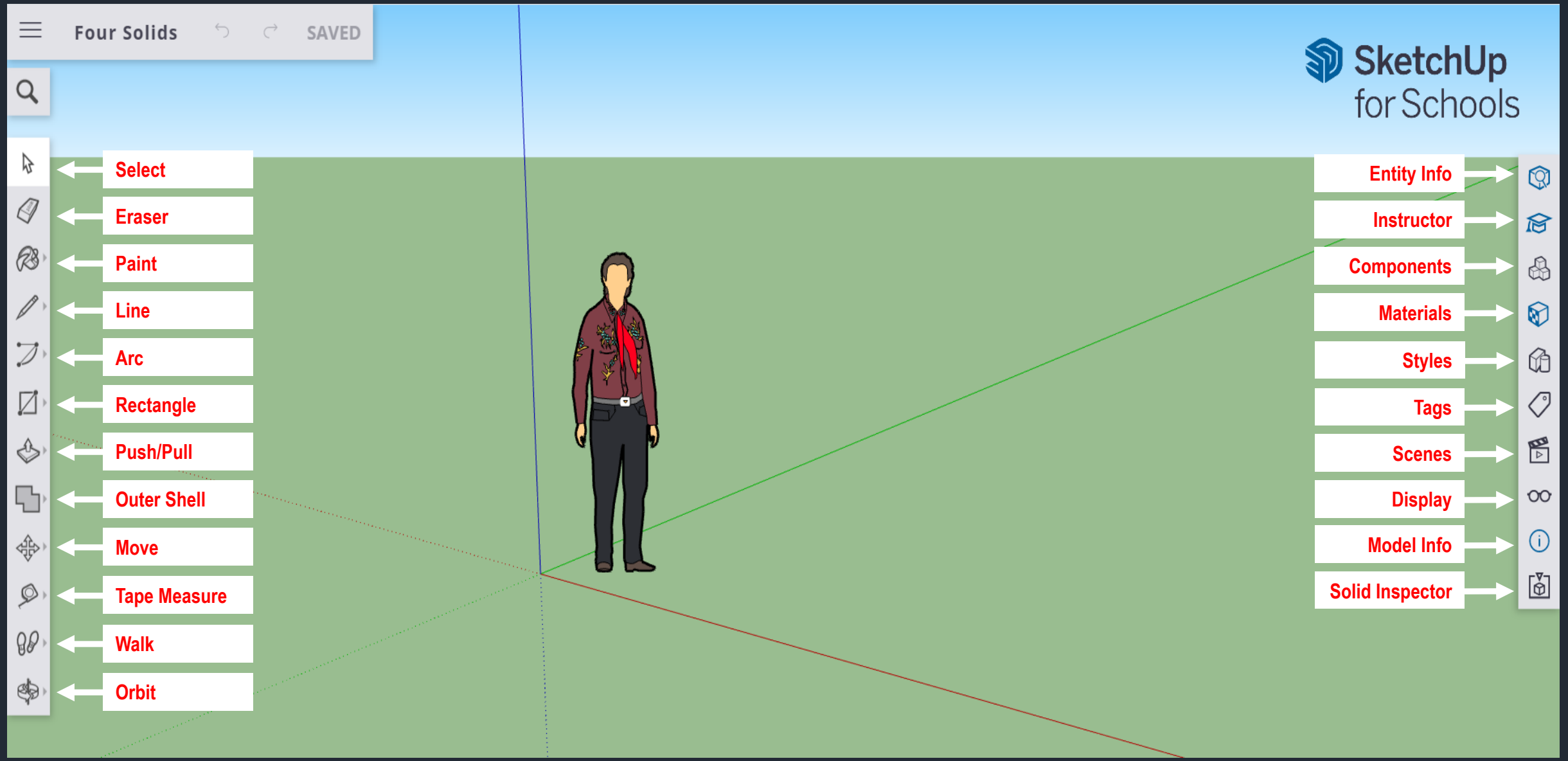
CONTENT LINKS:

1. Creating a New SketchUp File

DO NOT click “Start Modelling” - this automatically uses Feet and Inches as a form of measurement. We need to use **Millimeters**.



2. Tool List


Four Solids
SAVED
SketchUp for Schools
Select
Eraser
Paint
Line
Arc
Rectangle
Push/Pull
Outer Shell
Move
Tape Measure
Walk
Orbit
Entity Info
Instructor
Components
Materials
Styles
Tags
Scenes
Display
Model Info
Solid Inspector

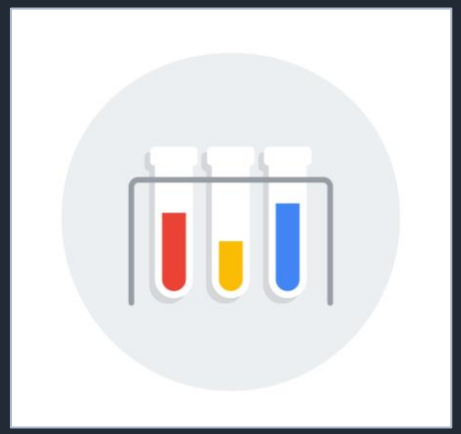
WHAT DID I LEARN FROM LESSON EIGHTEEN?

your **personal statement**

as an entry in your reflective journal (dated)

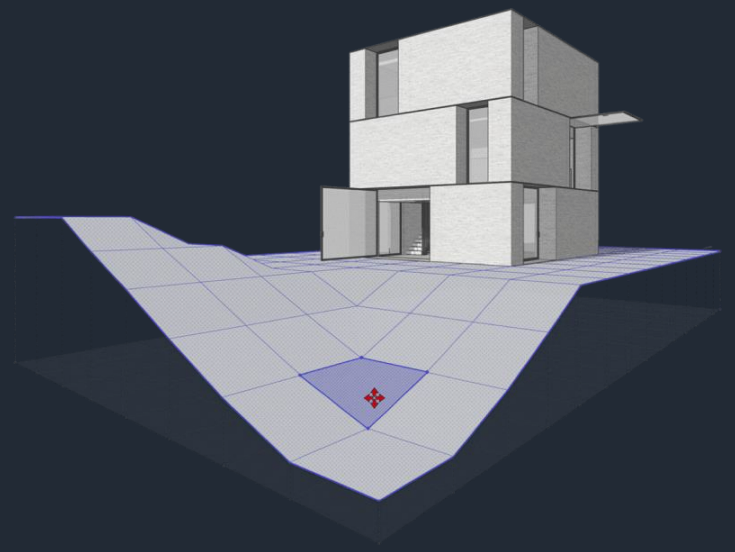
9TDT.2023

LESSON NINETEEN: DESIGNING IV(a)
SMALL HOUSE (starting design)



Experimentation

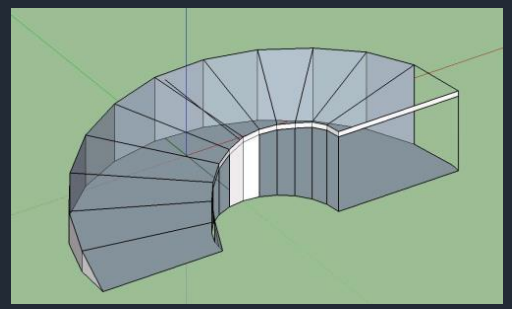
ACTIVITY:
Generate an interesting small house design (using SketchUp*) inspired by any of the cool ideas you have generated throughout 9TDT

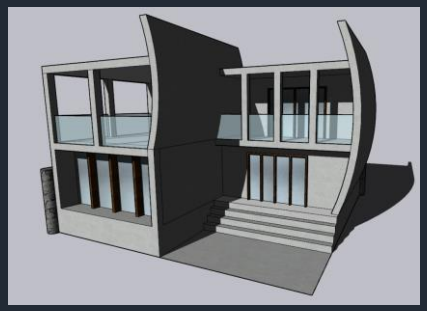


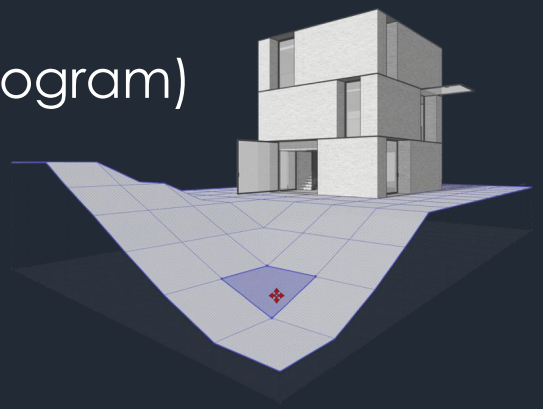
DESIGN EXERCISE:

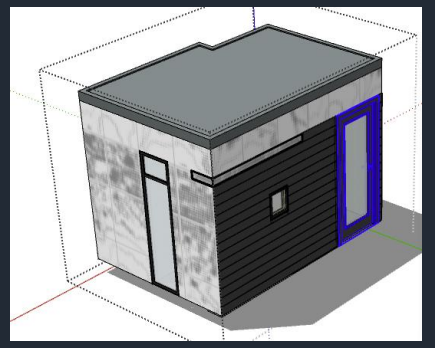
CREATE A SMALL HOUSE – USING SKETCHUP*

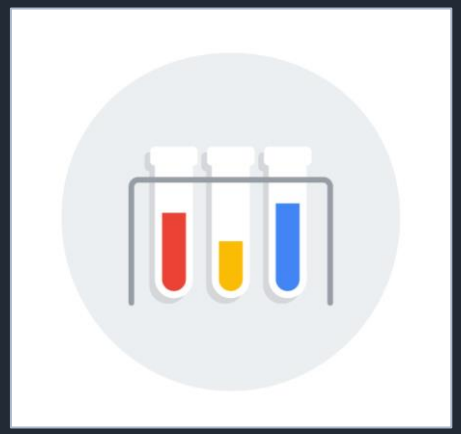
(*or similar digital modelling program)











Experimentation

Generate an interesting SMALL HOUSE DESIGN

inspired by any cool ideas you have generated throughout 9TDT:

- Letters from your name (LESSONS 3&4)
- Paper Sculptures (LESSON 14)
- Drawing from nature (LESSON 15)
- Evolving brief (LESSON 17)
- SketchUp cubes (LESSON 18)

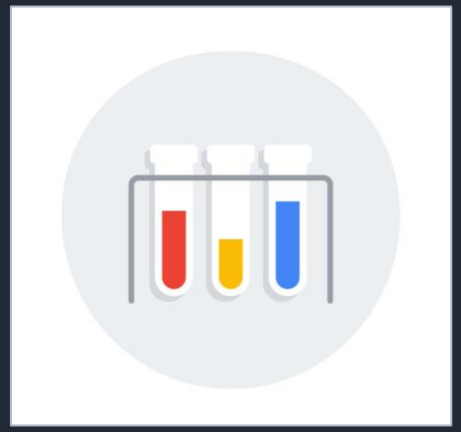
WHAT DID I LEARN FROM LESSON NINETEEN?

your **personal statement**

as an entry in your reflective journal (dated)

9TDT.2023

LESSON TWENTY: DESIGNING IV(b)
SMALL HOUSE (finishing design)



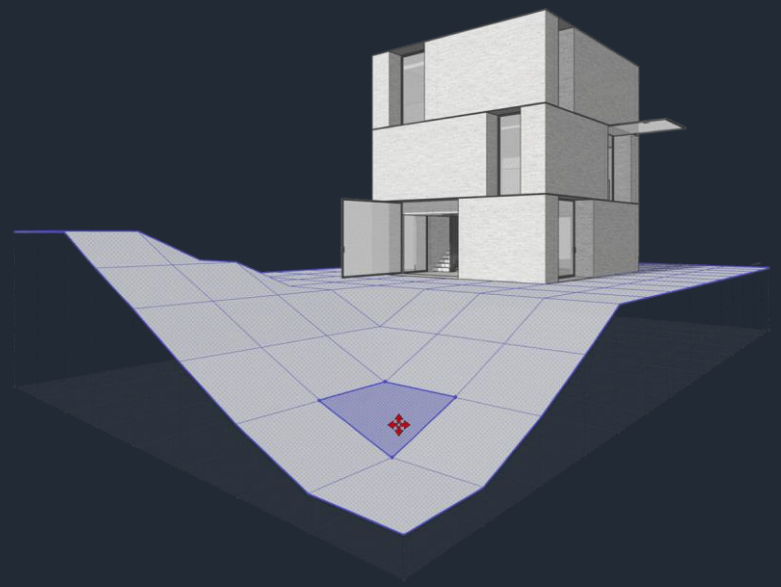
Experimentation

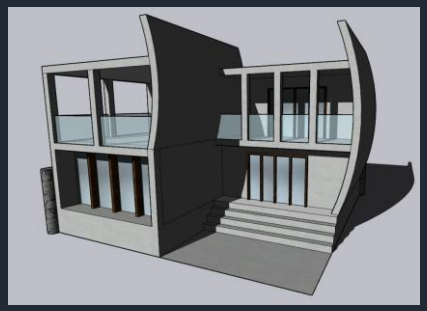
ACTIVITY:
Finish an interesting small house design inspired by any of the cool ideas you have generated throughout 9TDT

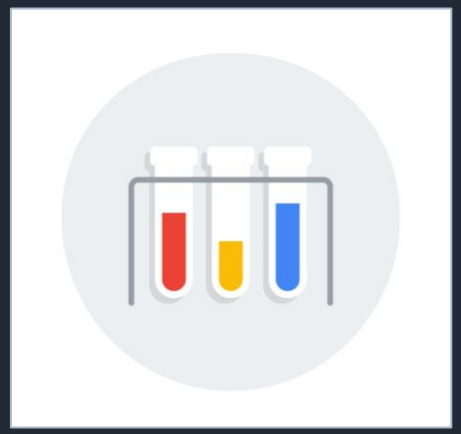
DESIGN EXERCISE: [part 2]

CREATE A SMALL HOUSE – USING SKETCHUP*

(*or similar digital modelling program)







Experimentation

FINISH your interesting SMALL HOUSE DESIGN

inspired by any cool ideas you have generated throughout 9TDT:

- Letters from your name (LESSONS 3&4)
- Paper Sculptures (LESSON 14)
- Drawing from nature (LESSON 15)
- Evolving brief (LESSON 17)
- SketchUp cubes (LESSON 18)

WHAT DID I LEARN FROM LESSON TWENTY?

your **personal statement**

as an entry in your reflective journal (dated)

9TDT.2023

LESSON TWENTY-ONE: DESIGNING IV(c)
SMALL HOUSE (presenting design)

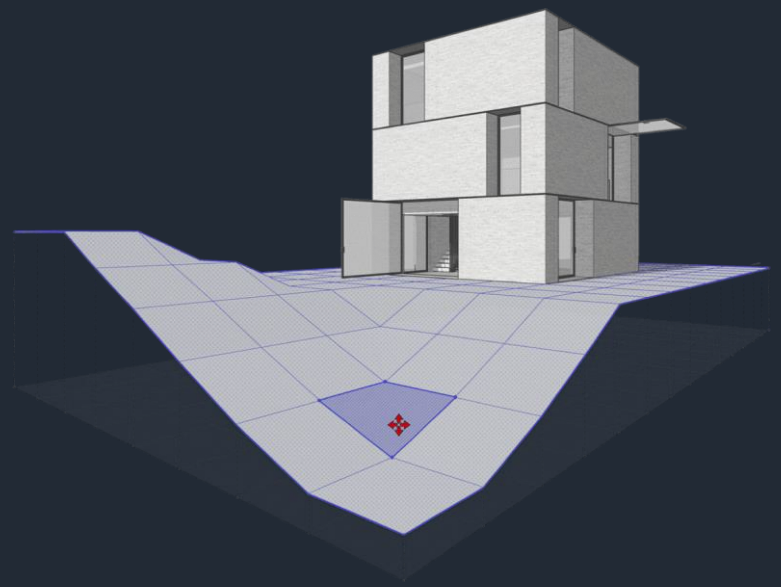
Experimentation

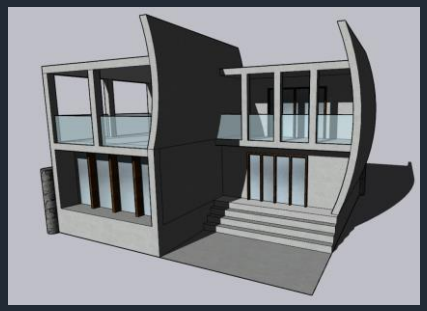
ACTIVITY:
Finish an interesting small house design inspired by any of the cool ideas you have generated throughout 9TDT

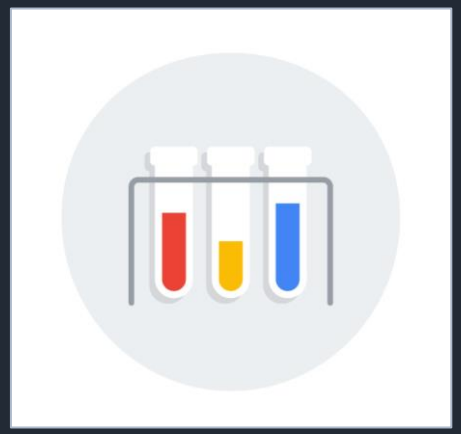
DESIGN EXERCISE: [part 2]

CREATE A SMALL HOUSE – USING SKETCHUP*

(*or similar digital modelling program)







Experimentation

FINISH your interesting SMALL HOUSE DESIGN

inspired by any cool ideas you have generated throughout 9TDT:

- Letters from your name (LESSONS 3&4)
- Paper Sculptures (LESSON 14)
- Drawing from nature (LESSON 15)
- Evolving brief (LESSON 17)
- SketchUp cubes (LESSON 18)

DESIGN EXERCISE: [part 3]

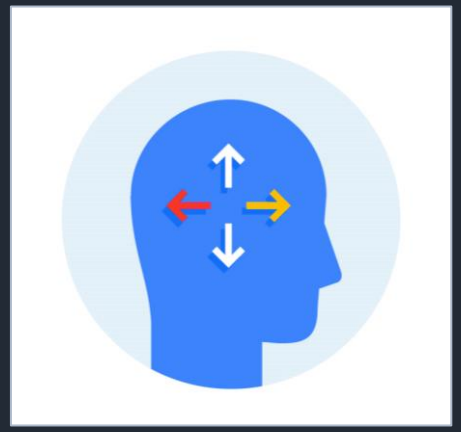
CREATE A SMALL HOUSE – USING SKETCHUP*

(*or similar digital modelling program)

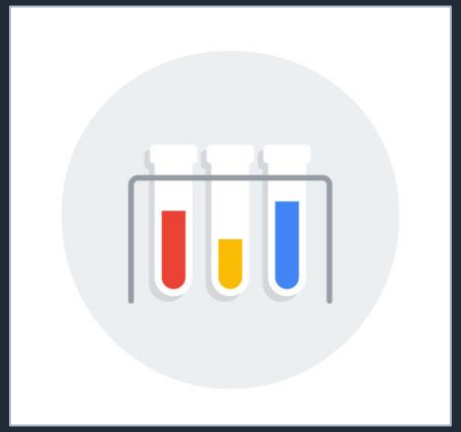
THINK ABOUT: HIERARCHY ALIGNMENT

PRESENT YOUR

interesting SMALL HOUSE DESIGN (that has been inspired by any of your cool ideas)



Expansive Thinking



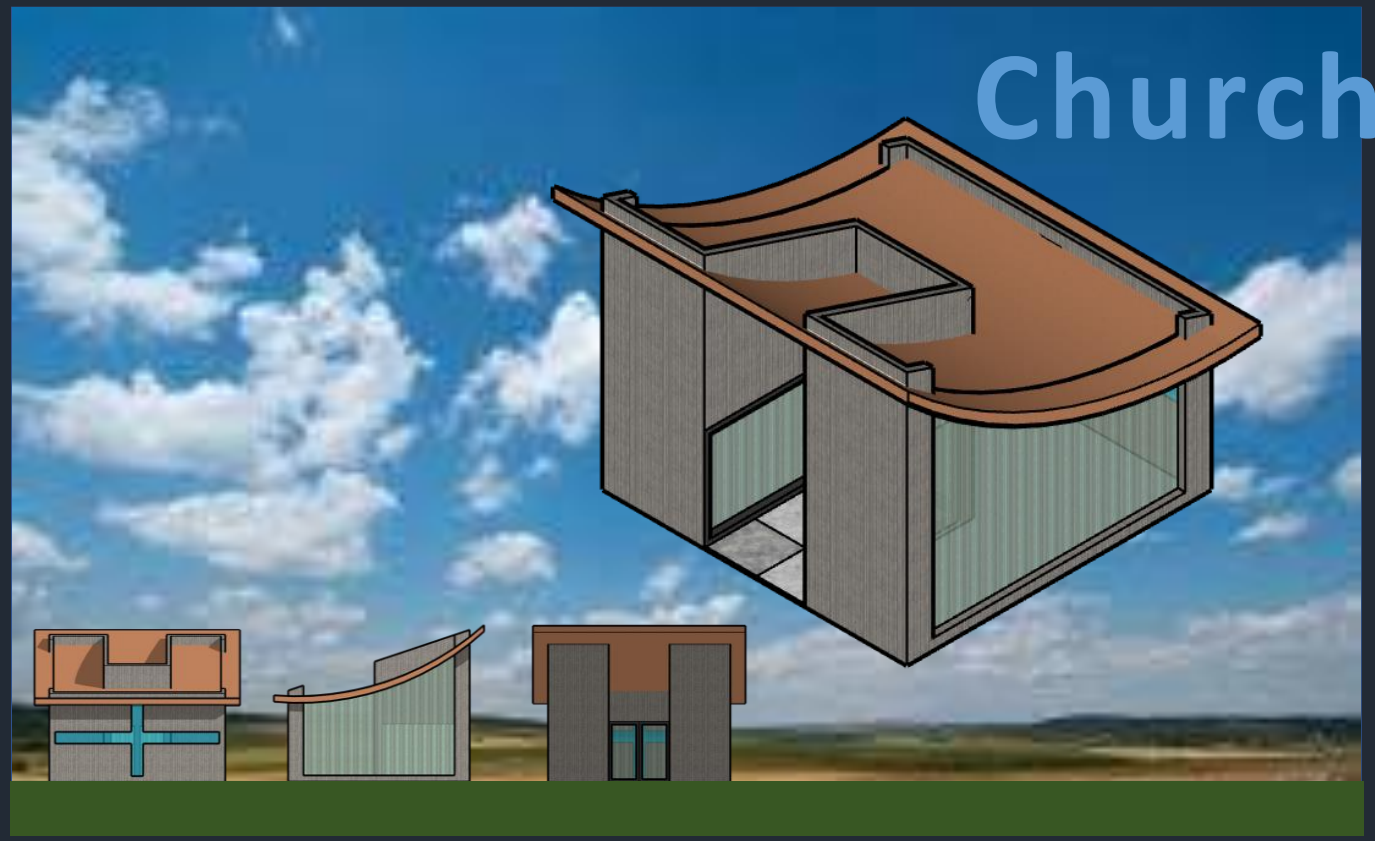
Experimentation

THINK ABOUT:

- The best **VIEWS** to show your House from (at least 3)
- A catchy **TITLE** or **QUOTE** that reflects your design
- Maybe add an interesting or effective **BACKGROUND**

  (and even some PEOPLE)

DESIGN
EXERCISE: [part 3]
CREATE A SMALL HOUSE



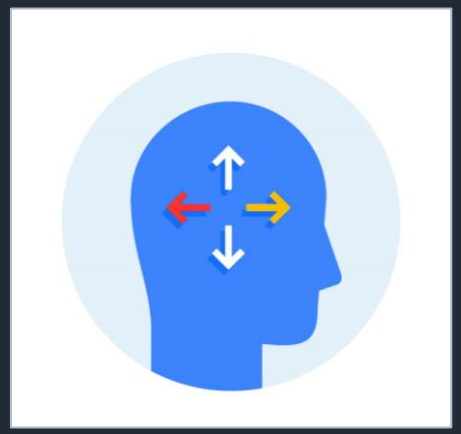
WHAT DID I LEARN FROM LESSON TWENTY-ONE?

your **personal statement**

as an entry in your reflective journal (dated)

9TDT.2023

FINAL LESSON: WHERE TO NEXT?



Expansive Thinking

A) This course is about your **PERSONAL PERSPECTIVE**

B) This course is about your **LEARNING**

C) This course is about your **THINKING** (critically)

D) This course is about your **DESIGNING**

E) This course is about your **FUTURE**

YEAR 10 OPTION COURSES
full year (5ppc)

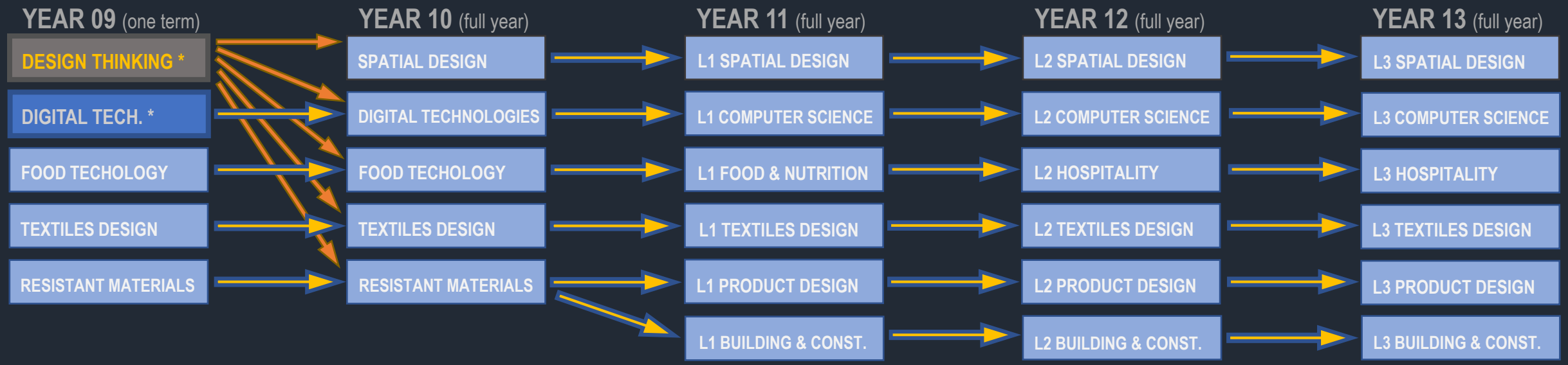
OPTIONS:		
[spatial design]	TSD	*spatial & product design; design thinking; modelling & drawing; visually communicate*
[digital technologies]	DGT	*computational thinking; coding; designing and developing digital outcomes*
[food technology]	TMF	*skills and processes in food technology & nutrition through hands-on practical work*
[resistant materials]	TMR	*develop outcomes using resistant materials; working with digital & manual technologies*
[textiles design]	TTD	*skills and processes in textiles technology through hands-on practical work & design*

From the Junior Course Information:

"Students ***should select a subject from three of the four learning areas***.
However, applications will be considered for students who want to study two subjects from the one learning area." (page 13)

LEARNING AREAS: Arts Business Languages Technology

* *Core course – for all year 9 students*

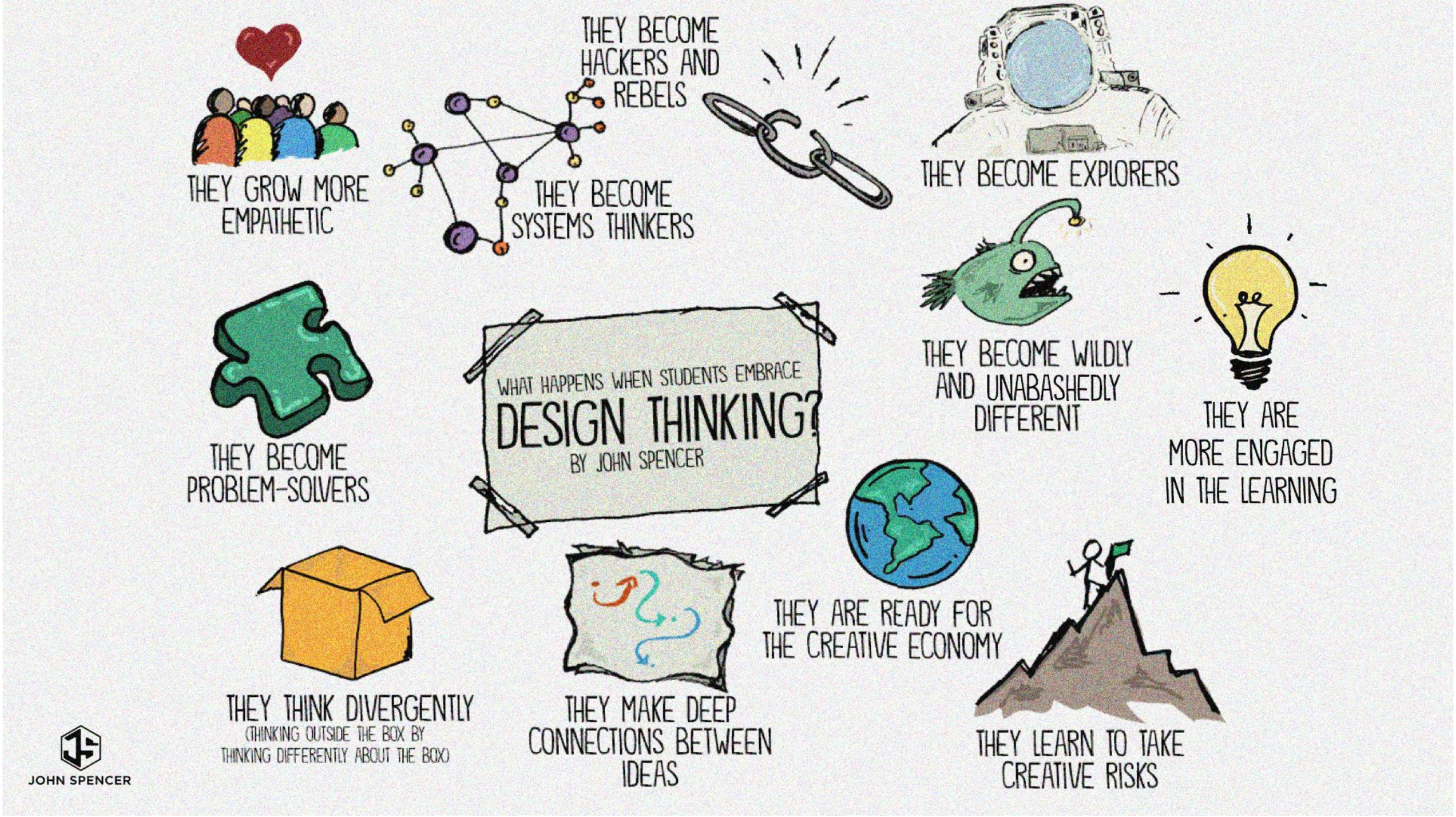


TGS TECHNOLOGY 2024

DEVELOPING PRODUCTS, SYSTEMS & ENVIRONMENTS – using creative problem solving + practical skills & knowledge

In Technology, students explore how people intervene in the world by developing products, systems, and environments to expand their possibilities. It is a creative and purposeful subject where students develop the skills, knowledge and confidence to create individual solutions to identified needs and opportunities. Students solve practical problems within society by encouraging risk taking, creativity, and lateral and divergent thinking. Students also work through focused practical tasks to develop and practise particular skills and knowledge that allows them to take ownership of their own learning in developing solutions.

The Learning Area of Technology is fundamentally about ***improving the lives of people and their places.***

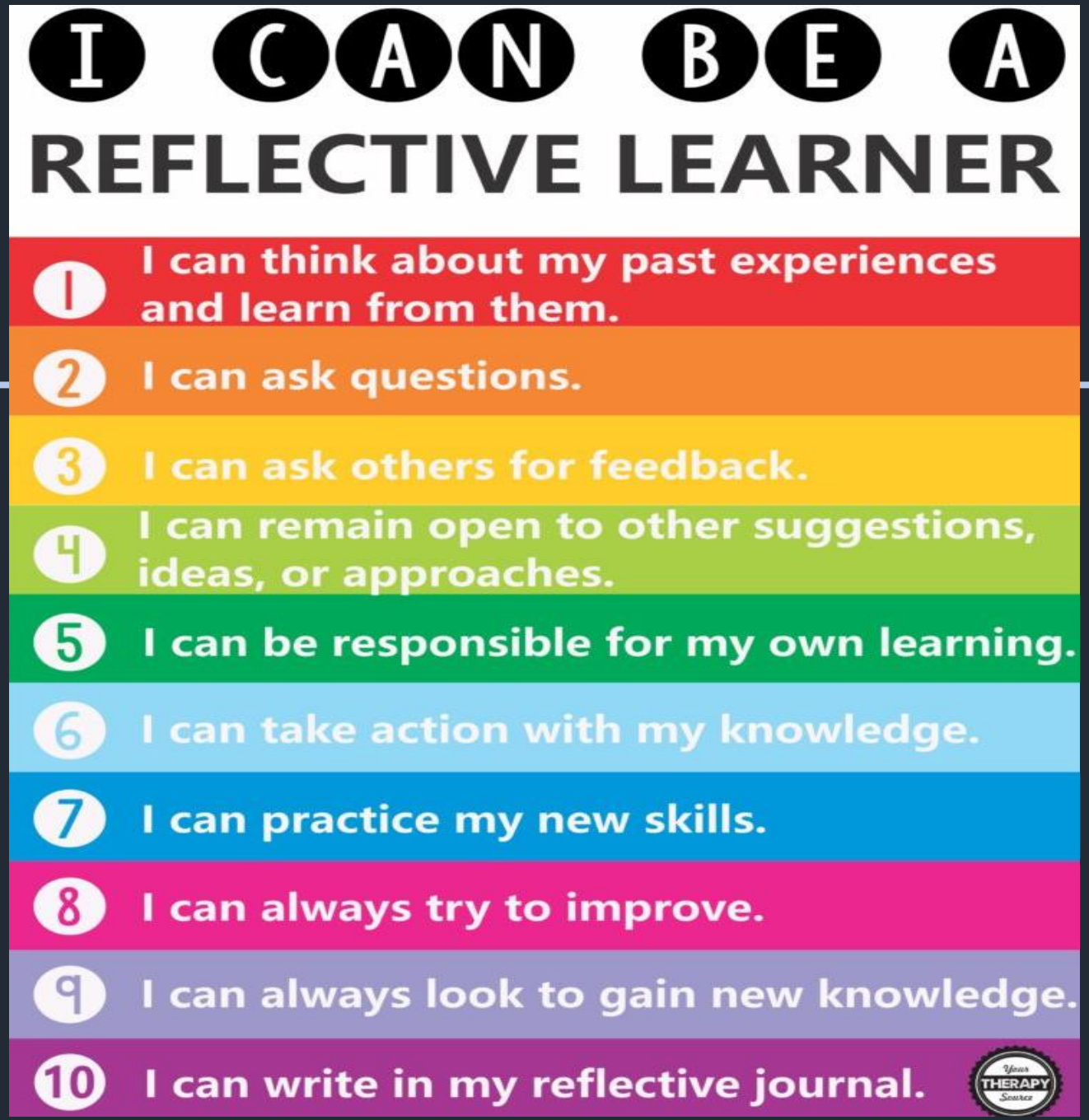


“imagine if …”

https://www.youtube.com/watch?v=covHhQgr5kU

9 T D T . 2 0 2 3

REFLECTIVE JOURNAL:



REFLECTIVE JOURNAL: THE HAND–IN

The Final Overall Reflection Responses

What activity did **you most enjoy** doing?

What would you regard as **your best work**?

What work would **you like to redo** if you had the chance?

If you were to **describe this course** to someone new, what would you say?

What was the **most important or useful thing you learnt** in this course?

What did you learn about **the way you prefer to do things**?

What would you **recommend as an update to the 4G version** of this course?