Technology Programme Plan

Materials Technology - Textiles
Year 9

Overview

Total Time

Term / Semester
30 Lessons
28.5 hours (2 x 60, 1 x 50)

Unit Breakdown

1. Bag it

Health & Safety Considerations

Staff capability
Specialist teacher
Rooming
all classes in Textiles specialist room

Inductions
Students will need.....
Specific machine training

Standard Operation Procedures
Past student experience

Unit 1

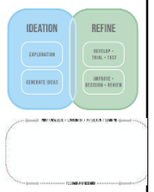
Context: Recycled Basic Bag
Time: 1 term
Indicative length: 10 weeks – 3 lessons p/w = 30 lessons
Possible resources / software: offcuts of materials, clothes to repurpose (use denims), bag patterns, components from existing garments, leftover components from other projects ……
Possible outcomes: design and construct a bag for a specified purpose with a unique quality

TIMEFRAME	PLAN What are they doing? E.g. look at K or P and what is happening in class	TEACH How & Why teacher prompts & student questions	FEEDBACK OR ASSESSMENT Student understanding & improvement for learning	CONNECTIONS **Capabilities coding:** Communication (Com) Collaboration (Col) Self-management and self-regulation (SMSR) Problem solving (PS) Creativity (Cr)	DMI Code	DT / F&P / MT / SPD / S&C / Code	Resources Required	Risk Management
Lesson 1 Lesson 2 Lesson 3		E.g. • What does authentic practice look like? • What does fit for purpose look like? • What is the Y9 student learning?		**SoL:** how does it make connections in the learning **Capabilities:** write stuff here **Reading:** write info here **Writing:** write info here **Maths:** write info here	DMI-K1			
Week 1&2 6 lessons  Prior Knowledge (PK) Community (C) Reflection (R) Learning (L)	Intro Research – Material use PK – engaging what I already know from my own use of bags/peer sharing/interesting ideas/discussion (opportunity/context/issue) C – creating a bag for a purpose and end user R – What do I need to know? Where can I get the information? L – What have I learnt,	Intro to issue – there are a lot of materials that end up in landfill – opportunities to work with existing materials Material exploration • What can I use – explore materials for use from the resources listed (ākonga can add their own from the material group) – denims (bag exterior/pockets/handles) and light cottons only (lining). • What can I not use - stress points on bags, and what materials can be used – where/how/compromises/impacts? • How can I join materials together? • Health & Safety - What do I need to think about? • Codes of Practice – explain – example – relate to bag Embellishment/closures/pockets exploration • Component exploration – standard use vs unconventional use – what can be done/ not done? • What makes a bag individual/unique - aesthetic vs function (keep this basic) How can I find out about different materials	Prior knowledge (PK) check What do they already know? Skill level? • limitations • extensions What materials do I know about now? What is new? Exit pass Post-it note– one thing I learnt today about existing materials Use the exit pass to pick up on any common themes next class.	**SoL:** connections to Prior Knowledge (PK) Multiple modes of discovery – tactile exploration, research, revisit, use consideration, AI use, critique – synthesis – drawing from all research and exploration for design phase. New Knowledge – retrieval of knowledge later in lessons Dual coding possibilities Elaboration of knowledge based on research experiences. **Reading** – research about materials Reading peer feedback/sharing	DMI-K1 DMI-K2 DMI-K3 DMI-K4 DMI-K5 DMI-K6 DMI-K7 DMI-K8 DMI-P1 DMI-P2 DMI-P3 DMI-P7 DMI-P8	MT-K1 MT-K2 MT-K3 MT-K4 MT-K5 MT-K6 MT-K7 MT-P2 MT-P3 MT-P4 MT-P5	**offcuts of materials** basic woven fabrics • denim (exterior) • light cottons (lining) • clothes to repurpose components • left over/repurposed etc existing bags - bag patterns – handles – component use Air tags Apps Ai use Designer bags (images- designs- unusual)	Limited Health and Safety related to testing

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Feedback & Research (F&R)	how can I use the information? Synthesis F&R – Understand -Research -AI summaries – use/ critique	Composition – basic – what this means Material use impact (environmental/sustainability – basic) (reuse vs new; breakdown of materials (simple), circularity (simple) The decisions I make have impacts Design decisions ● What is a design? What do designers do? Where do they get their inspiration? How do they make decisions – purpose of end user consideration (pick 1 or 2 designers to show and talk about/ask qu). Discuss both materials/components/unique features – are they aesthetic/functional? What could be done? How can technology be used in my bag – research – ● AirTag technology – use (mind map), who can see the AirTag? How do you know? Who else might be able to see the data? What is tracking? (Phone companies, apps – how might the information be used and to what end)? Adv/disadv to tracking my bag and therefore me. Do a pros and cons list. Discuss why an AirTag has to go in the hold on an airplane. Purposeful design – what is this? Fit for purpose Place of specifications/brief Identifying an end user Understanding a design framework – show- explain AI use in research – purposeful use – critique of what is generated Innovation – what it means for humans/environment/consequences-people/places/env. How might AI help check idea for innovation or unique qualities?	Teacher observations and conversations – pick ups – feed forward to individual/ groups/class	**Writing** – analysis of findings from research needs to be communicated Ākonga can dictate/write/create/annotate/list **Maths** – measurement/stress loading/ understanding use of fabric from existing garment – how to use what is available where and for what section of the bag – handles good example – stretch. Lining – can't sew if all denim and there are 8 folds of fabric. How to construct pockets – measurement – sizing, fabric choices. **Capabilities** – Com – different ways of expressing what they have found out – research Col & SMSR – ability to work with peers – divide tasks, share results, discuss ideas. PS & Cr – using materials creatively/ problem solving issues, thinking about bag design and who it is for, material use, aesthetic/function			Sewing machines Needles, scissors Measuring and marking tools - etc **Terminology** Aesthetic Function Brief Specifications Quality Unique Purposeful Feedback End user Components Woven Embellishment Innovation Codes of Practice	
(1 lesson)	Technical skill	What are the structural components of a bag - analysing existing outcomes for foundation learning and specific language ● bag, lining, straps, pockets ● gusset ● seams, reinforcing stitches (handle to bag) Clarify common phrases ● Form vs Function ● Aesthetic ● Fit for purpose ● Specifications		**Capabilities** - **Com/Col/ SMSR** Students make a shared research document or bus stop activity. **SoL** Prior knowledge check New knowledge introduced - terminology use/ bag parts				
(2 lessons)	Machine use Codes Of Practice	Parts of a machine Threading up Sewing introduction COP		**Capabilities** – **Col/ SMSR /PS** Student learn parts of machine, work together to learn threading up, practice several time, race the student next to you etc Folded line - sew lines - practice getting them straight using foot as guide or guideplate Sew a shape - pivot, back tack, different stitches, zigzag edge. **SoL** Check what can they remember from first lesson - names of bag parts Iterative learning based on retrieval of information over the 2 lessons, dual coding **Maths** - measurement - shape - drawing lines on shape to follow - accuracy				
Week 3 – 6 12 lessons	PK – drawing on all aspects of research to make decisions L & R – reflecting on	Write a basic brief & specifications Ideate/Design – using research design bag for an end user Test, research and learn – techniques ● different joining methods – seams – different materials have	Establish measurement accuracy – support as required	**SoL:** connections to PK – use of research in design phase	DMI-K1 DMI-K3 DMI-K4 DMI-K7 DMI-K8	MT-K1 MT-K2 MT-K3 MT-K4 MT-K5	Pattern making tools Sewing machines Needles, scissors Measuring and marking tools -	Limited Health and Safety related

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 Prior Knowledge (PK) Community (C) Reflection (R) Learning (L) Feedback & Research (F&R)	changes and improvements, accepting limitations (skills) or expanding opportunities (fast finishers, capable skill set), make compromises C – check design ideas with end user F&R – research new aspects as required, use research to inform ideas, being purposeful, make changes and design for an end user	different characteristics - annotate tests • working with different materials (as stated above) • working with different components - tools? • tools and equipment use – health & safety – needle use with materials • basic pattern making - annotate • pockets/lining/ handles – what and how – failure points – material use – annotate findings • scale model from paper • feedback – make decisions • share with peers (as required – help out others) • specification check • aesthetic/functional aspects of tests Decide on a unique feature • incorporate in design Decide on AirTag incorporation in bag – removal aspect, mini report on advantages and disadvantages of bag being able to be tracked. Test ideas with peers – gain feedback Reflect on improvements/changes/ revisit what designers do Designer engagement with community – how do they gain and use feedback? check brief after testing is complete amend design note changes as a result of testing gather materials/components compromises? Measure, mark & cut out pattern	Scaffolding for peer feedback – possible questions/mind map with ākonga questions	New Knowledge – testing for use and decision making about design choices for purposeful outcome Dual coding possibilities – feedback from own experiences can provide reflections for peer feedback, testing & trialling of materials and components for different purposes Elaboration of knowledge based on trialling and testing experiences, reflection on designer research for use in own design. **Reading** – read and provide feedback to peers **Writing** – design annotation Review of AI use in process Reflections – multimodal Air tag mini report – HW – scaffolding with sentence starters/ terminology as required Provide feedback to peers Ākonga can dictate/write/create/annotate **Maths** – measurement in design – accuracy; making a basic pattern Scale model of bag Measurement in testing Other testing uses timing, dimensional stability, equipment choices (needles) Measuring/marking/cutting with accuracy **Capabilities** – Com – different ways of showing designs, peer feedback, Col & SMSR – giving & receiving feedback, working efficiently within the space, with peers, with tools/equipment PS & Cr – aesthetic/function in design, unique aspect, creative use of materials/components, testing, ability to solve problems in real time as they occur, working out whom to ask	DMI-P1 DMI-P2 DMI-P4 DMI-P5 DMI-P6 DMI-P7 DMI-P8	MT-K6 MT-K7 MT-P1 MT-P2 MT-P3 MT-P4 MT-P5 MT-P6 MT-P7	Etc356 **Terminology** Ideation Bag pattern terminology (basic) Construction terminology (basic)	to testing, use of equipment
Week 7- 10 12 lessons  Prior Knowledge (PK)		Review brief Amend specifications Gather all materials/components Measure and mark out pattern on material Construct bag – problem solve as issue arrise Make minor changes as required to improve the outcome Gain feedback Reflect on the process		**SoL:** connections to PK – use of testing & trialling knowledge from design phase New Knowledge – dealing with problems as they arise whilst constructing, finding new approaches to issues Dual coding possibilities – feedback from own experiences can provide reflections for peer feedback, testing & trialling of materials and components for different purposes Elaboration of knowledge based on trialling and testing experiences,	DMI-K6 DMI-P2 DMI-P6 DMI-P8	MT-K1 MT-P1 MT-P3 MT-P6 MT-P7		

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Community (C) Reflection (R) Learning (L) Feedback & Research (F&R)				reflection on designer research for use in own design. **Reading** – read and provide feedback to peers **Writing** – design annotation Review of AI use in process Reflections – multimodal Air tag mini report – HW – scaffolding with sentence starters/ terminology as required Provide feedback to peers Ākonga can dictate/write/create/annotate **Maths** – Measurement/marking/cutting for construction Working with accuracy for construction of pockets/lining/handles/ bag **Capabilities** – Com – talk to teacher/peers as constructing bag Col & SMSR – giving & receiving feedback, working efficiently within the space, with peers, with tools/equipment PS & Cr – problem solving is part of construction				

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Technology Learning Area

NZC – Technology Phases 1–4 (Years 0–10)

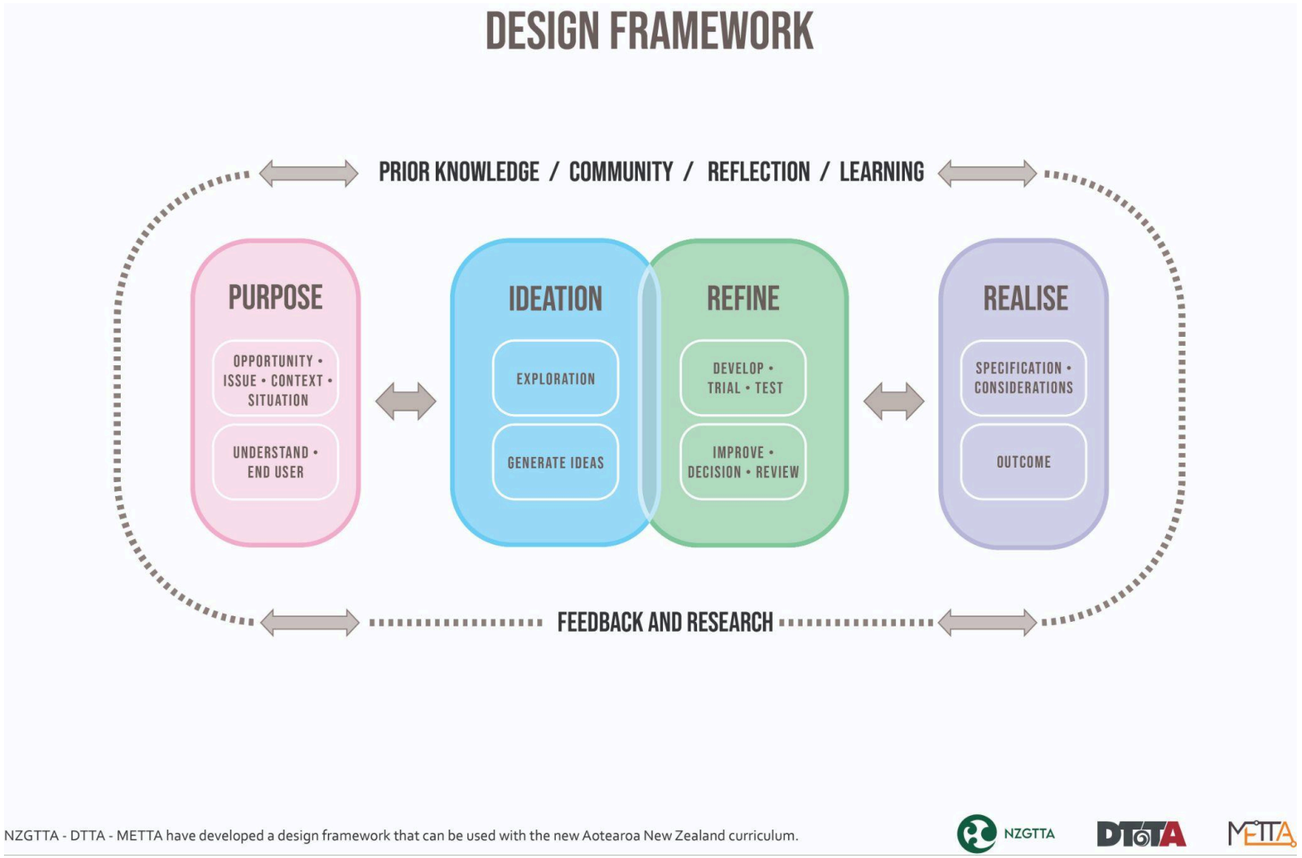
Y9 DMI STRAND

Code	Strand	Year 9 strand statement
DMI-K1	DMI INT Knowledge	Technological innovation extends human capability, and creates opportunities, risks, and unintended consequences for people, places, and environments. This is seen in the growing use of AI systems across education, business, health, and public service.
DMI-K2	DMI INT Knowledge	Technological change and evolution reshape society by influencing how people live, work, communicate, and interact with the environment.
DMI-K3	DMI INT Knowledge	Emerging technologies develop through design choices, materials, information, data, and processes that affect their performance and impact.
DMI-K4	DMI INT Knowledge	Technological outcomes can be influenced by the quality of information, evidence, testing, and design decisions used during development.
DMI-K5	DMI INT Knowledge	Digital systems, including AI, generate outputs from data, algorithms, models, and user inputs. The quality, accuracy, and reliability of those outputs are influenced by the quality of those inputs.
DMI-K6	DMI DDO Knowledge	Effective design integrates human and environmental considerations using design frameworks, stakeholder feedback, and evidence to justify decisions.
DMI-K7	DMI DDO Knowledge	Designers use design drawings, mock-ups, sketches and modelling to explore, communicate, and refine design possibilities.
DMI-K8	DMI DDO Knowledge	Responsible development of fit-for-purpose technological outcomes requires identifying the risks of an outcome, disclosing known limitations, and testing before release.
DMI-P1	DMI INT Practice	Analyse technological innovation to identify intended and unintended impacts on people, places, and environments.
DMI-P2	DMI INT Practice	Investigate how design decisions, materials, information, and processes influence the performance and impacts of technological outcomes.
DMI-P3	DMI INT Practice	Evaluate the quality of information, evidence, and testing used to support technological development.
DMI-P4	DMI INT Practice	Make evidence-informed judgements about opportunities and risks associated with emerging technologies.
DMI-P5	DMI INT Practice	Test how data quality, evidence, and user inputs influence the accuracy, reliability, and usefulness of AI-generated outputs.
DMI-P6	DMI DDO Practice	Develop innovative, user-centred outcomes that respond to real-world challenges through collaboration, stakeholder engagement, and iterative improvement.
DMI-P7	DMI DDO Practice	Apply design thinking, modelling, and structured processes to test, refine, and communicate ideas that meet specifications, and address stakeholder needs.
DMI-P8	DMI DDO Practice	Use a range of creative modes to generate a variety of design ideas and explore possibilities in response to a design context.
DMI-P9	DMI DDO Practice	Develop fit-for-purpose outcomes by selecting and integrating tools, materials, ergonomic principles, techniques, and processes.

Y9 MT STRAND

Code	Strand	Year 9 strand statement
MT-K1	MT Knowledge	Health and safety codes of practice set out how identified risks are to be controlled. They support industry practice and manage risk assessments.
MT-K2	MT Knowledge	Material characteristics (e.g. appearance, performance, function) affect user experience and user interaction with an outcome.
MT-K3	MT Knowledge	Unconventional materials are materials used in new, unusual, or unexpected ways to meet a design need or create an innovative outcome. These can be used alongside more conventional materials in an outcome.
MT-K4	MT Knowledge	Tools and joining methods are selected against materials and the loads the joins must carry. Different joins (e.g. mechanical fixings, adhesives, thermal joins) each fail in different ways.
MT-K5	MT Knowledge	Embedded technologies in wearable and non-wearable outcomes influence how data are gathered, stored, used, and shared in different contexts (e.g. smart clothing collecting biometric data, and smart products such as door locks or appliances recording usage information). *updated Nov 26.
MT-K6	MT Knowledge	Designers integrate wider values and considerations (e.g. situation, intended user, environment) in the development of material outcomes.
MT-K7	MT Knowledge	Section shape, join placement, and the distribution of material determine how a material outcome carries load and where it is likely to fail first.
MT-P1	MT Practice	Design and make an authentic, fit-for-purpose Materials Technology outcome.
MT-P2	MT Practice	Compare material characteristics to identify suitable materials for an outcome and make material selections that will meet specifications (aesthetic and functional).
MT-P3	MT Practice	Choose tools and joining techniques that suit the materials and loads the join must carry and test their effectiveness during construction.
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MT-P5	MT Practice	Test materials, tools and joining methods to determine their suitability for an intended outcome.
MT-P6	MT Practice	Measure and mark accurately, select materials based on their characteristics and performance properties, and consider environmental impacts.
MT-P7	MT Practice	Justify material selections by considering performance requirements, user needs, and environmental impacts.

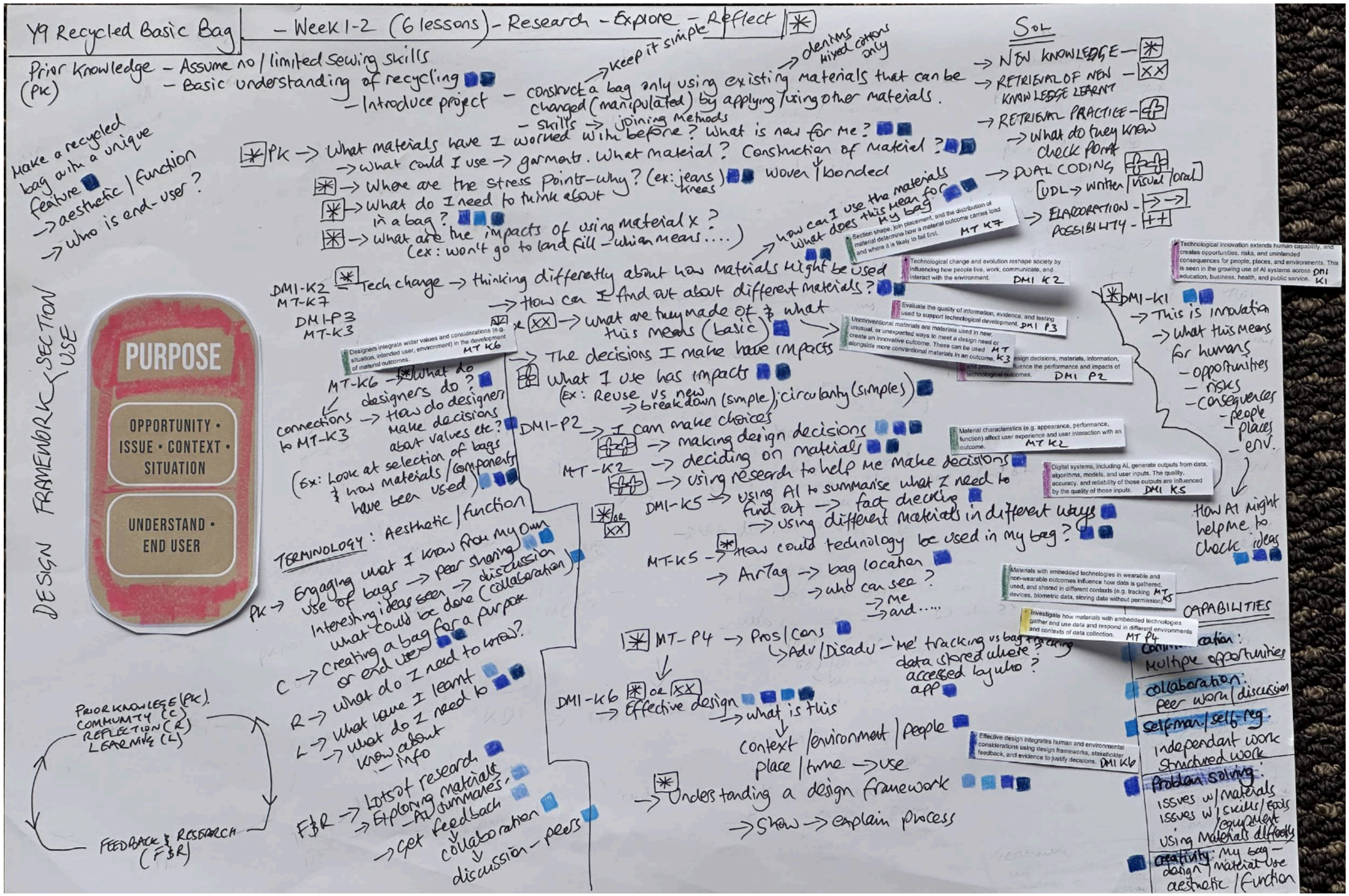
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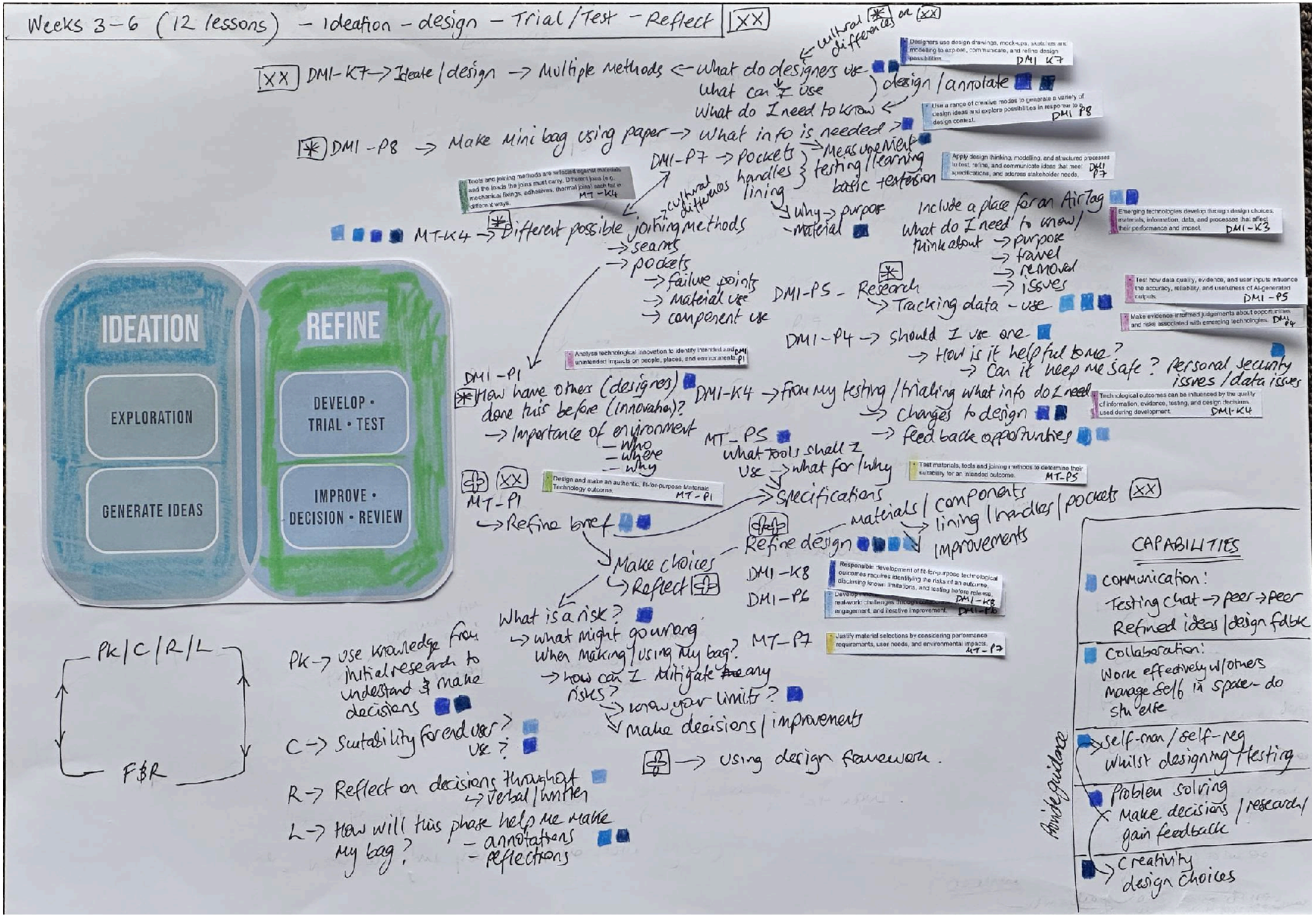
This is a design framework developed to support the implementation of Te Mātaiaho the New Zealand Curriculum.
It was developed by a wide team of technology specialists that have contributed to the Technology curriculum writing process and is based on industry related practices and what is possible in a school context.

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My Planning:



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Weeks 7-10 (12 lessons) – finalise design – construct – Reflect

REALISE

SPECIFICATION • CONSIDERATIONS

OUTCOME

MT-P6 Final brief → specifications

MT-P3 Construct / make / engineer / realise recycled bag.
MT-P6
DM1-P9

- → unique feature - incorporate - explain
- → draw from testing → techniques - materials
  - Choose tools and joining techniques that suit the materials and loads the joins must carry and test their effectiveness during construction. MT-P3
  - Measure and mark accurately, select materials based on their characteristics and performance properties, and consider environmental impacts. MT-P6
- → recycled bag
- → use codes of practice
  - → tools / equipment
  - → health & safety
  - Health and safety codes of practice set out how identified risks are to be controlled. They support industry practice and manage risk assessments. MT-K1
- → manage risk by making
- → choices about what they will do
- → use chosen materials / components techniques / processes
  - Develop fit-for-purpose outcomes by selecting and integrating tools, materials, ergonomic principles, techniques, and processes. DM1-P9

Explain choices → final feedback + reflection

Pk → using / retrieving what I already know
using experiences → Research
→ skills
→ capabilities → problem solving
→ Designing / ideation

C → Thinking about my environment, who my bag is for (even if it's me) (advocacy)
→ future impacts - where will my bag end up?
→ what am I making it from - why / how / implications
→ Result of making bag from existing materials
→ Changes?

R → The choices I make & why.

L → What will I take forward to Y10
→ how decisions I make have impacts / how AI can be a useful tool.
→ using research effectively & efficiently

F&R → Who I talk to what & why
→ what info did I gain → what did I do with it.
→ what else did I need to think about as I went through the process

Pk / C / R / L

F&R

CAPABILITIES

Communication:
Talk to a peer about choices (bag) & why you made them

Collaboration / self-man - self-reg / problem solving:
work with others throughout process
sharing of materials / components compromises

Creativity:
what was unique about the bag, how does creativity look

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Technology Curriculum

NZC – Technology Phases 1–4 (Years 0–10)

Y9 DMI Curriculum

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MT-K4	MT Knowledge	Tools and joining methods are selected against materials and the loads the joins must carry. Different joins (e.g. mechanical fixings, adhesives, thermal joins) each fail in different ways.
MT-K5	MT Knowledge	Materials with embedded technologies in wearable and non-wearable outcomes influence how data is gathered, used, and shared in different contexts (e.g. tracking devices, biometric data, storing data without permission).
MT-K6	MT Knowledge	Designers integrate wider values and considerations (e.g. situation, intended user, environment) in the development of material outcomes.
MT-K7	MT Knowledge	Section shape, join placement, and the distribution of material determine how a material outcome carries load and where it is likely to fail first.
MT-P1	MT Practice	Design and make an authentic, fit-for-purpose Materials Technology outcome.
MT-P2	MT Practice	Compare material characteristics to identify suitable materials for an outcome and make material selections that will meet specifications (aesthetic and functional).
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MT-P7	MT Practice	Justify material selections by considering performance requirements, user needs, and environmental impacts.

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Checking coverage of DMI Knowledge and Practices and MT Knowledge and Practices

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