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# Science Island

Research Report on Curriculum Mapping Software

Project code: SC



## Team Redback

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# Agenda

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System User Analysis (Personas)

Motivational Model (Who-Do-Be-Feel)

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**Part 1**

# Mechanism of Mapping Curriculum



# CMU Mapping Tool

Please see completion instructions A through E below (row 19).		A. Insert course names & #'s in columns and program outcomes in rows	Course 1	Course 2	Course 3	Course 4	Course 5	Course 6	
		A. Insert units							E. Indirect Measures
	Program outcome 1	B. Insert "I," "A," or "M,"							
		C. Insert instructional activities							
		D. Insert potential assessments							
	Program outcome 2	B. Insert "I," "A," or "M,"							
		C. Insert instructional activities							
		D. Insert potential assessments							
	Learning outcome (achieved by SC activities )	i.e. case-study, project, debate, group work, lab, lecture, presentation, essay exam etc.,							
	Program outcome 4	B. Insert "I," "A," or "M,"							
		C. Insert instructional activities							
		D. Insert potential assessments							
	Program outcome 5	B. Insert "I," "A," or "M,"							
		C. Insert instructional activities							
		D. Insert potential assessments							

# CMU Mapping Tool



Generic Public Policy Program	A. Insert course names & #'s in columns and program outcomes in rows	Micro-economics	Public Finance	Public Policy	International & Global Policy	Public Management	Data Analysis	Thesis Project	
Program Outcomes	A. Insert units	9	12	12	12	12	12	24	E. Indirect Measures
Describe organizational and bureaucratic structures involved in policy development	B. Insert "I," "A," or "M"		I	I	A	A	A	M	Employer survey, alumni focus group
	C. Insert instructional activities		Case-based policy memos	Case-based memos, bboard discussions	Classroom simulation and reaction papers	Group case study, management briefs	Bboard and class discussions	Weekly meetings w/faculty advisor	
	D. Insert potential assessments		Case-based policy memos	Final paper	Final exam	Midterm paper	Client project	Thesis and oral presentation	
	B. Insert "I," "A," or "M"	I	I	I	A	A	A	M	
Use knowledge and abilities to solve a problem in any context	C. Insert instructional activities	Case study analyses, problem sets	Case-based policy memos, problem sets	Case-based memos	Class simulation and reaction papers	Group case study, management briefs	Bboard and class discussions	Weekly meetings w/faculty advisor	Employer survey, alumni focus group
	D. Insert potential assessments	Case study analyses, problem sets	Case-based policy memos, problem sets	Final paper	Final exam	Midterm paper	Client project	Thesis and oral presentation	
	B. Insert "I," "A," or "M"	I	I	A	A		A	M	
Develop ethically defensible solutions to issues	C. Insert instructional activities	Case study analyses, problem sets	Case-based policy memos	Case-based memos, bboard discussions	Classroom simulation and reaction papers		Bboard and class discussions	Weekly meetings w/faculty advisor	Employer survey, alumni focus group
							Project	Thesis and oral presentation	
Formulate strategies to implement new policies	There may be other more suitable tools!								M
	C. Insert instructional activities		Case-based policy memos, problem sets	Case-based memos, bboard discussions	Classroom simulation, reaction papers	Management briefs	Bboard and class discussions	Weekly meetings w/faculty advisor	Employer survey, alumni focus group
	D. Insert potential assessments		Case-based policy memos	Case-based memos, bboard discussions	Final exam	Midterm paper	Client project	Thesis and oral presentation	
	B. Insert "I," "A," or "M"	I	I	A	A	A	M	M	
Effectively communicate ideas orally and in writing	C. Insert instructional activities	Case study analyses	Case-based policy memos	Case-based memos, bboard discussions	Classroom simulation, reaction papers	Management briefs	Bboard and class discussions	Weekly meetings w/faculty advisor	Employer survey, alumni focus group
	D. Insert potential assessments	Case study analyses	Case-based policy memos	Final paper	Reaction papers, final exam	Midterm paper	Client project and presentation	Thesis and oral presentation	
	B. Insert "I," "A," or "M"				I	I			
Work effectively as a member of a team	C. Insert instructional activities				Classroom simulation	Group case study			Employer survey, alumni focus group
	D. Insert potential assessments				Classroom simulation	Group case study			
	B. Insert "I," "A," or "M"								

Source: Carnegie Mellon University, "Curriculum Mapping Tool - Eberly Center - Carnegie Mellon University," [Cmu.edu](https://cmu.edu), 2021.  
<https://www.cmu.edu/teaching/assessment/assessprogram/tools/Curriculum%20Mapping%20Tool.html>.

# UNSW Mapping Tool



		Australian Qualification Framework (Australian F-10 Curriculum)								
AQF - Specifications		Knowledge Graduates of a Bachelor Degree will have:	Skills Graduates of a Bachelor Degree will have:	Application of knowledge and Skills Graduates of a Bachelor Degree will demonstrate the application of knowledge and skills:						
Bachelor of Arts Program/Stream Learning Outcomes		<ul style="list-style-type: none"> <li>a broad and coherent body of knowledge, with depth in the underlying principles and concepts in one or more disciplines as a basis for independent lifelong learning</li> </ul>	<ul style="list-style-type: none"> <li>cognitive skills to review critically, analyse, consolidate and synthesise knowledge</li> </ul>	skills to demonstrate a broad understanding of knowledge with depth in some areas	exercise critical thinking and judgement in identifying and solving problems with intellectual independence	present a clear, coherent and independent exposition of knowledge and ideas	<ul style="list-style-type: none"> <li>with initiative and judgement in planning, problem solving and decision making in professional practice and/or scholarship</li> </ul>	<ul style="list-style-type: none"> <li>to adapt knowledge and skills in diverse contexts</li> </ul>	<ul style="list-style-type: none"> <li>with responsibility and accountability for own learning and professional practice and in collaboration with others within broad parameters</li> </ul>	
Knowledge Graduates of a Bachelor of Arts Degree will be able to:	<ul style="list-style-type: none"> <li>Articulate disciplinary theories and practices, and integrate them with cross-disciplinary concerns and connections.</li> <li>Articulate a broad and coherent body of knowledge about foundational aspects of society, culture and/or the arts from local, national and international perspectives.</li> </ul>	X								
Skills Graduates of a Bachelor of Arts Degree will be able to:	<ul style="list-style-type: none"> <li>Undertake rigorous and engaged scholarly enquiry and analysis</li> <li>Collaborate effectively with others</li> <li>Communicate and debate ideas in a range of different contexts using a variety of suitable media</li> <li>Exhibit initiative and self-direction</li> </ul>	X	X	X						
Application of Knowledge and Skills Graduates of a Bachelor of Arts Degree will be able to:	<ul style="list-style-type: none"> <li>Critically and creatively employ disciplinary bodies of knowledge and appraise disciplinary perspectives in professional practice and/or scholarship.</li> <li>Justify a position in relation to foundational aspects of society, culture and/or the arts</li> <li>Engage proactively with complex problems in professional practice and/or scholarship.</li> </ul>		X	X	X	X	X	X	X	

Some inspiration comes!

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**Part 1**

# Science Island Mapping Logic



Only general capabilities shown in the detail page

# Australian F-10 Curriculum Structure

Learning areas	General capabilities	Cross-curriculum pr
➤ Overview	➤ Overview	➤ Overview
➤ English	➤ Literacy	➤ Aboriginal and Torres Strait Islander Histories and Cultures
➤ Mathematics	➤ Numeracy	➤ Asia and Australia's Engagement with Asia
➤ Science	➤ Information and Communication Technology (ICT) Capability	➤ Sustainability
➤ Humanities and Social Sciences	➤ Critical and Creative Thinking	
➤ The Arts	➤ Personal and Social Capability	
➤ Technologies	➤ Ethical Understanding	
➤ Health and Physical Education	➤ Intercultural Understanding	
➤ Languages		

**General capabilities**

- Numeracy
- Critical and creative thinking

**ScOT terms**

- Water resources, Human settlements
- Aboriginal and Torres Strait Islander Histories and Cultures
- Asia and Australia's Engagement with Asia
- Sustainability

**Filter**

- Curriculum filter

# Australian F-10 Curriculum Structure (AC)



Get Well  
Soon

PREVIEW

Map to

Elixir Institute

Source

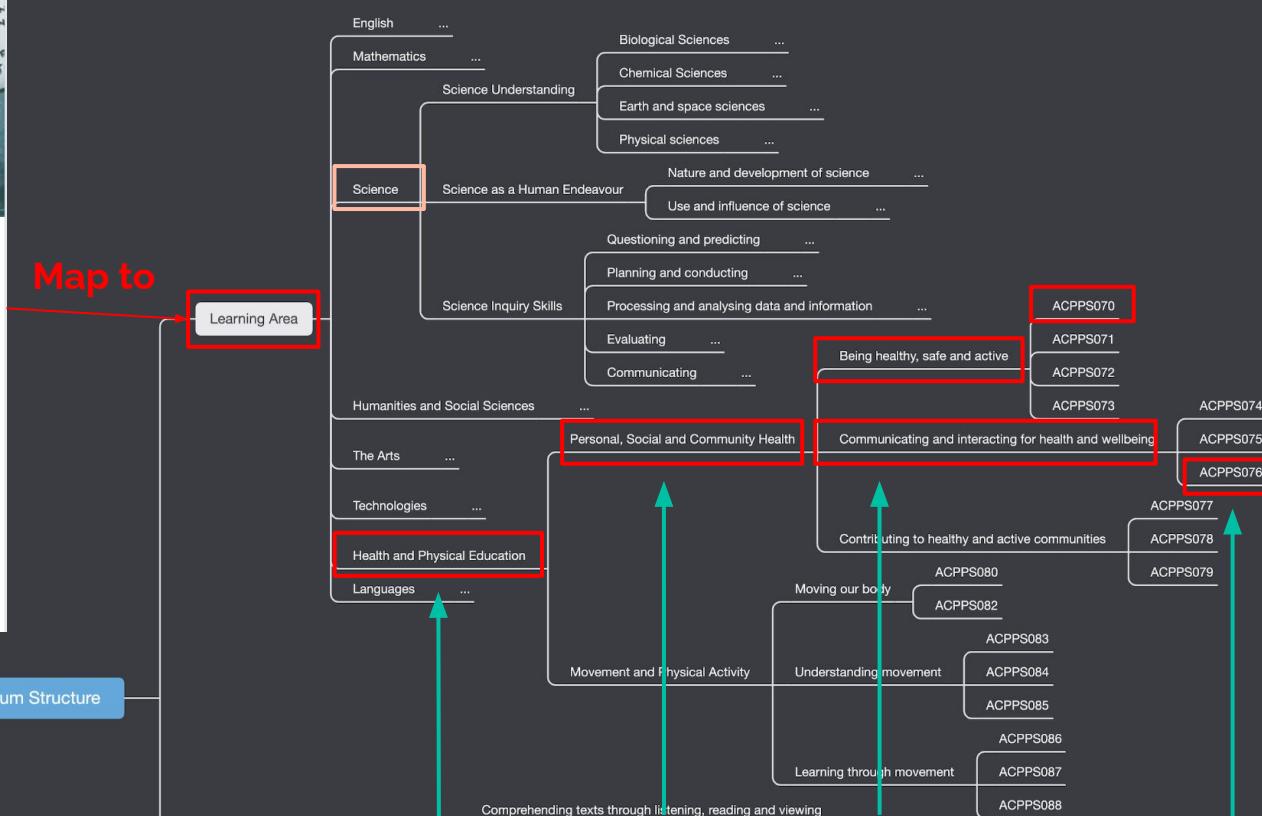
Year  
Level

Grade 4,5,6

Refine by resource type

- Online [1167];
- Interactive [1102];
- Text [861];
- Image [693];
- Video [513];
- Audio [113];
- Downloadable [8];
- Assessment [1];

Australian F-10 Curriculum Structure



Literacy	Grammar knowledge
	Word Knowledge

# Australian F-10 Curriculum Structure (AC)



Australian F-10 Curriculum Structure



Get Well  
Soon

PREVIEW

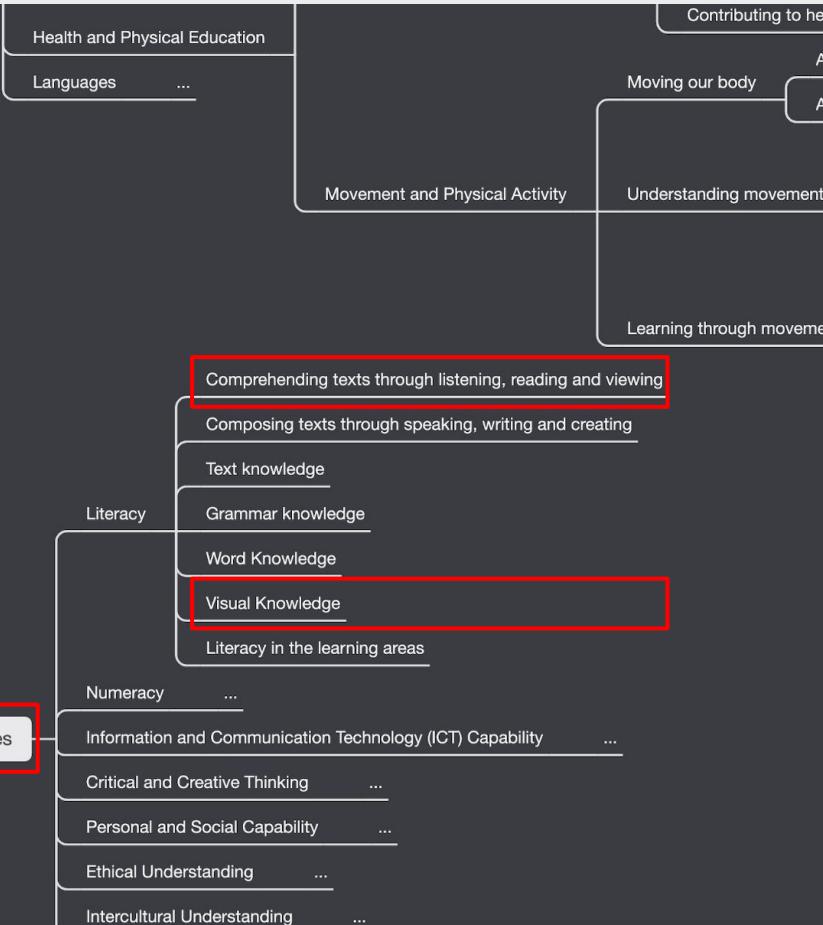
Elixir Institute

game

Grade 4,5,6

Map to

General Capabilities



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# Australian F-10 Curriculum Structure



Australian  
CURRICULUM

If we can get the API of AC website, the mapping can be automatically updated if some changes happened on the website side.

Otherwise the database is static. Once the website has been updated, the structure in our database would be updated manually

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**Part 1**

# Other Mapping Software Examples



# Coursetune

### Introduction to Coursetune

Courses in Demo: RN to BSN (Online)

Fully mapped

Unmapped

Half mapped

Whole courses (Activities) view

LEVELS: CU Division Program

VIEWS: LAYER CO Module

Help

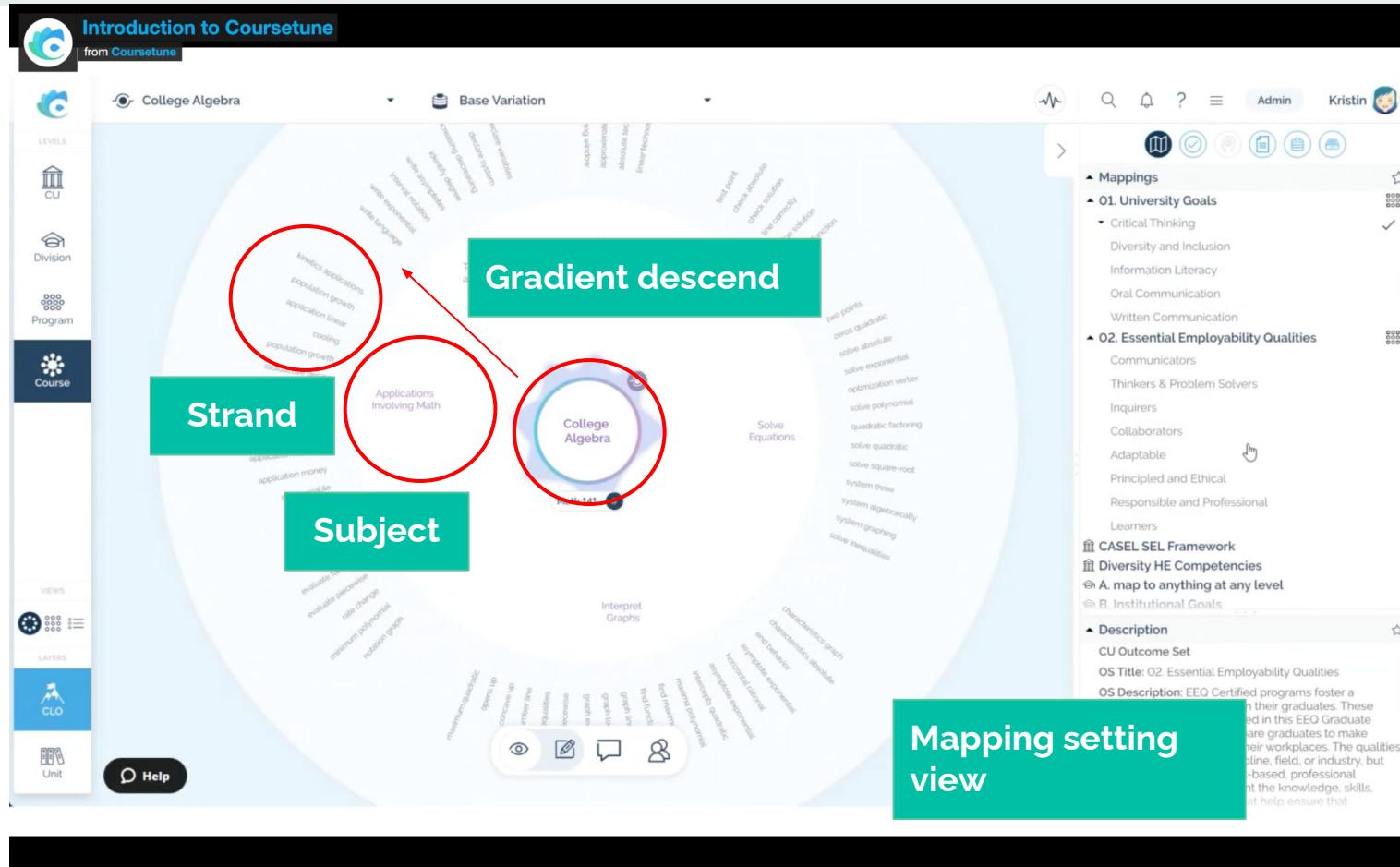
Filter by course #/tag, name or ID

Admin Kristin

Mappings AACN: Baccalaureate Essential I Essential II Essential III MAPPED Essential IV Essential V Essential VI Essential VII Essential VIII Essential IX New Outcome PLOs: SON RN to BS

Description Outcome Title: Essential III Outcome Description: Scholarship for Evidence Based Practice: Professional nursing practice is grounded in the translation of current evidence into ones practice. Outcome ID: AACN.III

# Coursetune



Source: M. Andersen, "coursetune." *CourseTune*, 2019. <https://coursetune.com/>



## Curriculum



### Grade 3 - Math

DRAFT UPDATED AUG 12, 2019 [Select Version](#)

[SHARE](#)[EXPORT](#)[PUBLISH](#)

#### Standards Coverage

#### FILTER STANDARDS BY

Covered Only

All Units

Unit 1: Fluency, Place Value and Time

Unit 2: Area and Perimeter

Unit 3: Multiplication and Division

Unit 4: Shapes and Their Attributes

Unit 5: Understanding Fractions

Unit 6: Measurement and Data

Unit 7: Geometry

Unit 8: Addition

Unit 9: Subtraction

#### National Common Core State Standards - Grade 3 - Mathematics

30 / 48 Covered

##### CCSS.Math.Content

.3.OA.A

Represent and solve problems involving multiplication and division.



Unit 1: Fluency, Plac...

Unit 4: Shapes and ...

Unit 3: Multiplication...

Unit 8: Addition

Unit 7: Geometry

Unit 2: Area and Per...

**Content with tag**

##### CCSS.Math.Content

.3.OA.B

Understand properties of multiplication and the relationship between multiplication and division.



Unit 1: Fluency, Plac...

Unit 4: Shapes and ...

Unit 3: Multiplication...

Unit 8: Addition



The screenshot displays the Ceatrix Curriculum Management System interface. On the left, a sidebar titled 'COURSES' shows a navigation tree with categories like All, Electronics & Communication, Dental Courses, Recently Added, Draft, Computer Science, Aviation Courses, Approved Courses, Core Papers, and Theory. A red box highlights the 'Approved Courses' section under Computer Science, which lists three courses: 'Architectures and Programming', 'Electrical Machines', and 'Power Generation'. Below this, another row of courses is shown: '1601-Fourier Series', '1604 - Web Technology', and 'ACA.120.'. The bottom row shows 'ACA.122.', 'Academic Setup', and 'Academic Setup'. Each course card includes a 'VIEW' button, an 'APPROVED' button, and a set of icons for edit, delete, and other actions. The top right of the screen features a search bar, notification icons, and a 'COURSES' button.

Content with tag



Part 1

# Science Island Mapping Software Prototype



# Prototype

The screenshot shows a prototype of a digital platform for curriculum mapping. On the left, a vertical sidebar lists navigation options: Activities (with a clipboard icon), Mapping (with a checkmark and dropdown icon), Mapped Activities (with a checkmark icon), and Unmapped Activities (with a crossed-out X icon). The main content area features a title "Let's do the mapping!" above a card for a "Get Well Soon" activity from "Elixir Institute". The card includes a preview button, a grade level of "Grade 4,5,6", and a "quiz" badge. A large blue "ADD TO ASSIGNMENT" button is at the bottom. To the right of the card are several filtering and selection panels:

- Learning Area**: Includes checkboxes for English, Mathematics, Science (which is checked), Health and Physical Education (which is checked), The Arts, and Technologies.
- Subjects**: A dropdown menu.
- Strands**: A dropdown menu.
- Substrand**: A dropdown menu.
- General Capabilities**: A dropdown menu.
- Curriculum Code**: Includes checkboxes for ACPPS070 (which is checked), ACPPS071, ACPPS072, ACPPS073, ACPPS074, and ACPPS076 (which is checked).
- Content Description**: A large text input field.

A prominent blue "CONFIRM" button is located at the bottom center of the main content area.

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**Part 1**

# Assignment Section Extension





## Assignments > Create Assignment



SEARCH

FILTER



Home



People



Groups



Assignments



Tracking

Search for an activity



Get Well Soon

PREVIEW

Elixir Institute

New tags should be shown up

game

Health & PE

Grade 4,5,6

ADD TO ASSIGNMENT



The Journey of Water Cycle

PREVIEW

Green Acres

game

Grade 4,5,6

ADD TO ASSIGNMENT

Activity Type

- quiz
- game
- book
- animation
- song

SEARCH



yes  
illy

PREVIEW

Add new filter window with the corresponding type, i.e.

Subject -

Strand -

Substrand -

Code -

Year -

Learning Area -

Grade 4,5,6

ADD TO ASSIGNMENT

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**Part 2**

# Requirement Analysis (User stories)





# User (Case) Stories

Epic	ID	As (role)	I want to (goal)	So that (benefit)	Priority
Mapping	1	Teacher/Admin	See all SC activities in one page	I can have an overview of all activities	Must Have
	2	Teacher/Admin	Select one of the activities	I can map that activity to the corresponding curriculum	Must Have
	3	Teacher/Admin	Map the activity based on the curriculum structure	I can map the activity in a hierarchical way	Must Have
	4	Teacher/Admin	Map one activity to multiple tags of the same hierarchical level	I can have the mapping satisfying multiple subjects, strands, codes and so on	Must Have



# User (Case) Stories

Epic	ID	As (role)	I want to (goal)	So that (benefit)	Priority
Mapping	5	Teacher/Admin	Map the activity with each possible category defined in AC	There is no missing tag for this particular activity	Must Have
	6	Teacher/Admin	Have two separate sections showing mapped and unmapped activities	I can understand which activity has or has not been tagged	Must Have
	7	Teacher/Admin	Enable this software applicable to other international curriculums	The activity can satisfy the requirement in other curriculums	Should Have



# User (Case) Stories

Epic	ID	As (role)	I want to (goal)	So that (benefit)	Priority
Assignment Extension	8	Parent/Teacher	Filter the activities by newly-built tags	I can sort all activities based on the AC	Must Have
	9	Parent/Teacher	See all the new tags with each activity	I know which AC category the activity is subject to	Must Have
	10	Parent/Teacher	Creating the assignment with newly tagged activities	I can know what AC my kids are going to learn and would have a chance to meet the requirement when it is finished	Must Have

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**Part 2**

# System User Analysis (Personas)



# Curriculum Mapping Software

Target User:

A small group of professionals  
(Teacher / Admin)



NAME  
**Sharon Montero**

TYPE  
**Experienced Teacher**

Demographic

Female 40 years  
Melbourne  
Married  
Professional Teacher

Skills

Curriculum Mapping: 100  
Teaching Competencies: 85  
IT Skills: 60

Goals

- To be proficient in designing curriculums for school students
- To be a better teacher in her teaching field
- To learn various skills for developing her educational skills

Quote

“One child, one teacher, one book, one pen can change the world”

Motivations

- Autonomy in designing curriculum
- Interested in mapping teaching content to Australian Curriculum
- Keen to take a further step to study the international curriculum
- Good time management
- Strength in coordinating and organizing program and curriculum
- Student and parent's feedback on curriculum is important to her

Frustrations

- Software in use does not support the mapping function
- IT professionals do not fully understand the curriculum design
- The teaching content need to be matched in Australia Curriculum
- Overwhelmed with daily school administration tasks, need a user-friendly interface for quick catch
- Shortage of technical skills (understand what she wants whereas hard to express in technological way)

Technology



Channels



TYPE

Student's  
Mother

# Teacher Portal

Target User:

The public user  
(Teacher/Parent/School)

A user profile interface for Maria Gorman, a student's mother. The profile includes a photo of a young man, a photo of Maria smiling while holding a smartphone, and various demographic and skill data.

**NAME**  
**Maria Gorman**

**Skills**

- Communication: 50
- Self-motivation: 50
- Teaching: 50
- Math: 50
- Coding: 20

**Demographic info**

- Female, 32 years
- Brisbane
- Married
- Undergraduate
- Bachelor of Commerce

**Position info**

- Marketing Manager
- Marketing Director
- A team of 10
- Professional Practitioner

**Goals**

- Balance with family and work
- Love kids, high expectation for her children
- Looking for a website could bring academic growth to my kids

**Drivers and motivators**

- Kids are very interested in this online teaching content
- Kids are willing to do the assignments that I give them
- The activity required to do is corresponding to the Australian Curriculum
- My kids are able to complete the Australia Curriculum by doing the assignments

**Fears and challenges**

- Difficult to find an online institution providing both learning content in games and mapped curriculum
- The existing parent portal is short of some function such as subject matching to the assignment
- No specific result showing my kids' progression

**Key Characteristics**

- Team Management: 85
- Resource Coordination: 85
- Availability: 20

**Preferred channels**

- Phone
- Email
- SMS

**Channels**

- Gmail
- Netflix
- Facebook
- Instagram
- LinkedIn

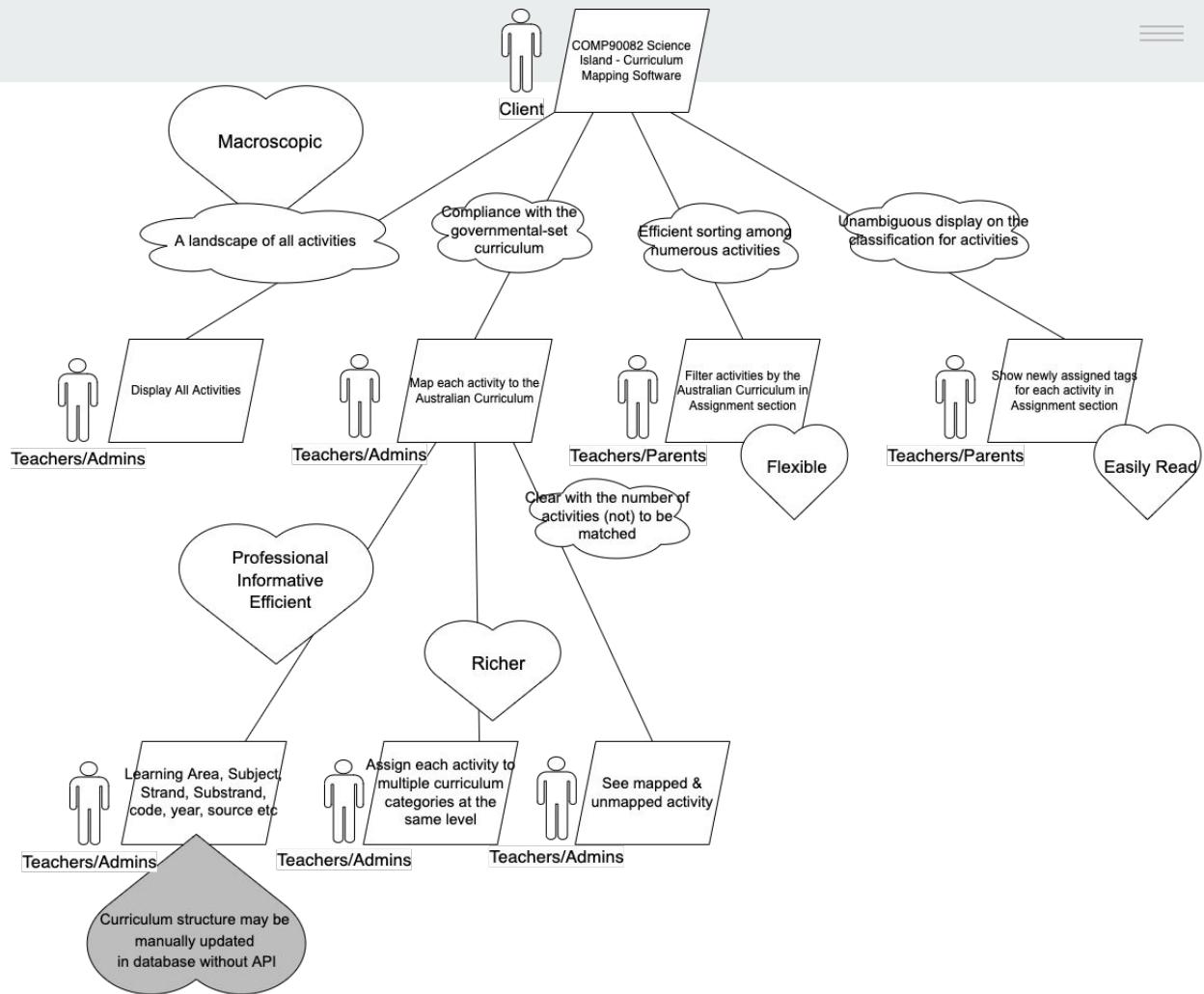
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**Part 2**

# Motivational Model (Who-Do-Be-Feel)



# Motivational Model





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Thank you.

