



Australian Government



Design Mini-Challenge Toolkit

Student Edition

2025

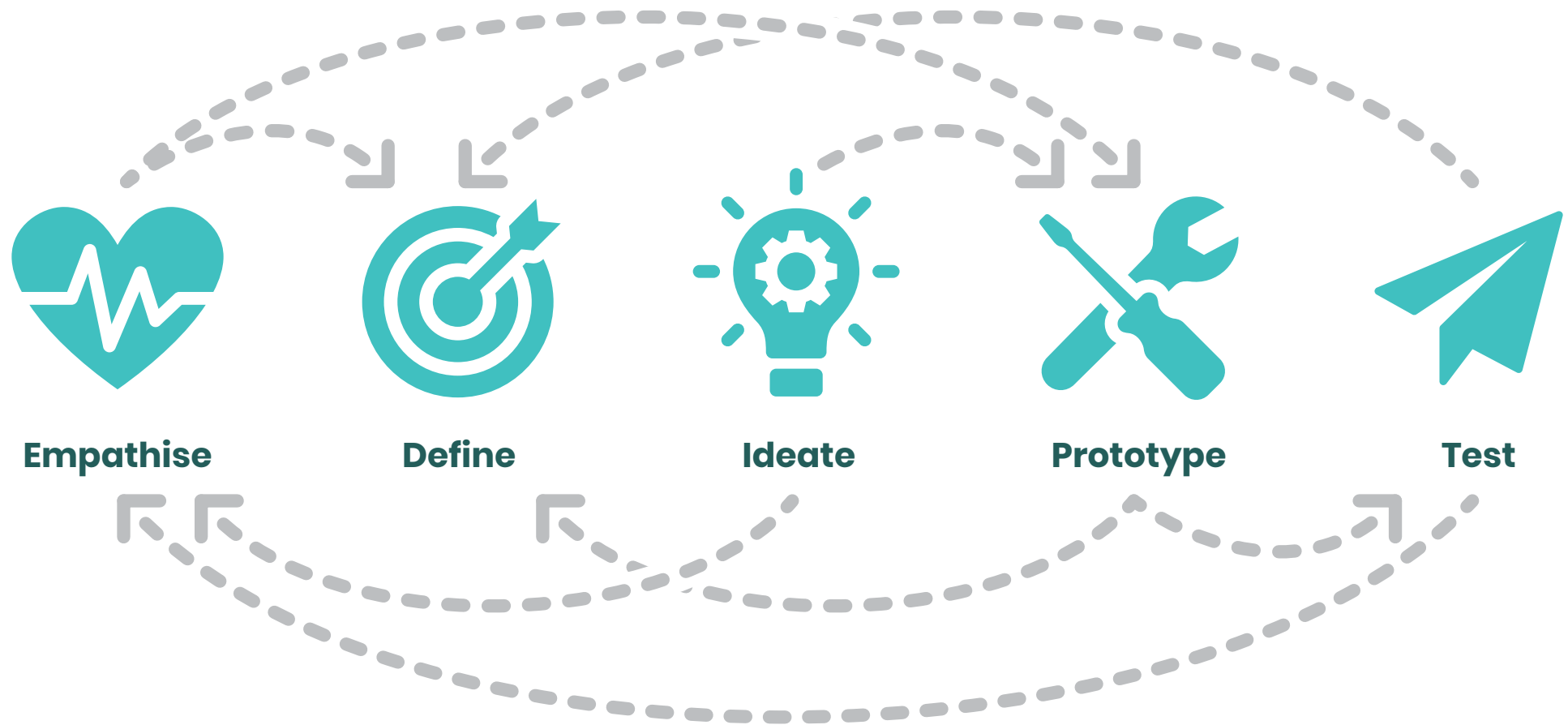
NATIONAL SCIENCE WEEK 2025 THEME

Decoding the Universe –

Exploring the Unknown with Nature's Hidden Language



The design thinking process



Empathise

Understanding your end users



EMPATHISE

Empathy mapping

You might want to do some online research and brainstorming, then fill out this table with insights that you have learned about your end-users.

WHO are our users?	What do they need to DO?
What do they THINK and FEEL?	What do they SEE?
What do they HEAR?	What do they SAY?

EMPATHISE

Personas

With the insights you found in your Empathy Mapping, create characters that represent some of your users.
Use one copy of this template for each user you are trying to represent

Details Name: _____ Age: _____ Occupation: _____ Gender: _____ _____	Image Sketch or paste a photo of your persona 	Quote Write down a quote that summarises your persona's feelings/experience “ _____ _____ ”
Background What is their life story? What was their journey before this moment? _____ _____ _____ _____		Motivations What drives your persona? What do they need? _____ _____ _____ _____
Frustrations What problems do they experience? How does this impact their life? _____ _____ _____ _____		Ideal experience What goals do they have? What would an “ideal” experience look like? _____ _____ _____ _____

Define

Uncovering the real problem



DEFINE

The 5 why's

Write your idea of a possible problem your users might be facing. Then ask “why” questions five times until you reach the “AHA!” moment. Then identify the deeper/root problem.

Starting problem statement:
Why?
Why?
Why?
Why?
Why?
Aha! So the root problem is:

DEFINE

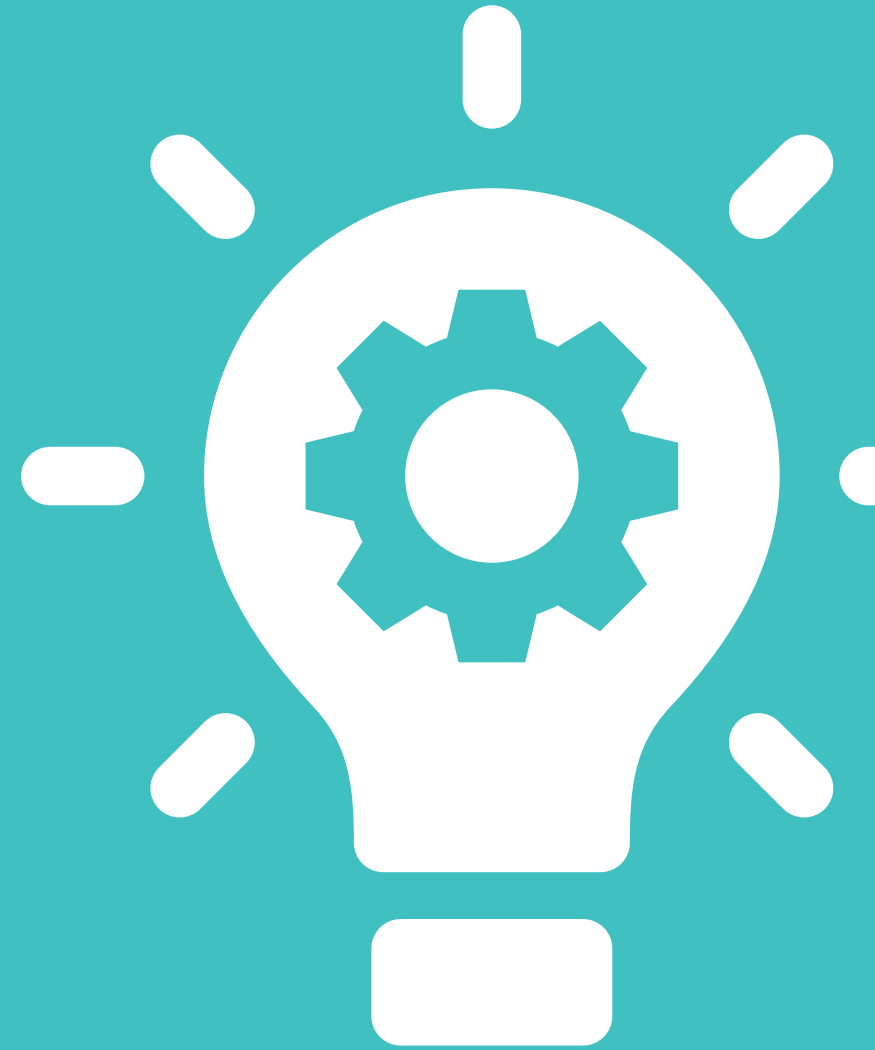
WWWWWH

Now that we have a basic idea of what the problem might be, let’s consider it from all angles to make sure it is fully uncovered.

WHO is involved? 	WHAT happens? 	WHEN does it happen?
WHERE does it happen? 	WHY does it happen? 	HOW does it happen?
What does this say about our problem statement? What further information or questions are required? 		

Ideate

Challenge assumptions
and generate ideas



IDEATE

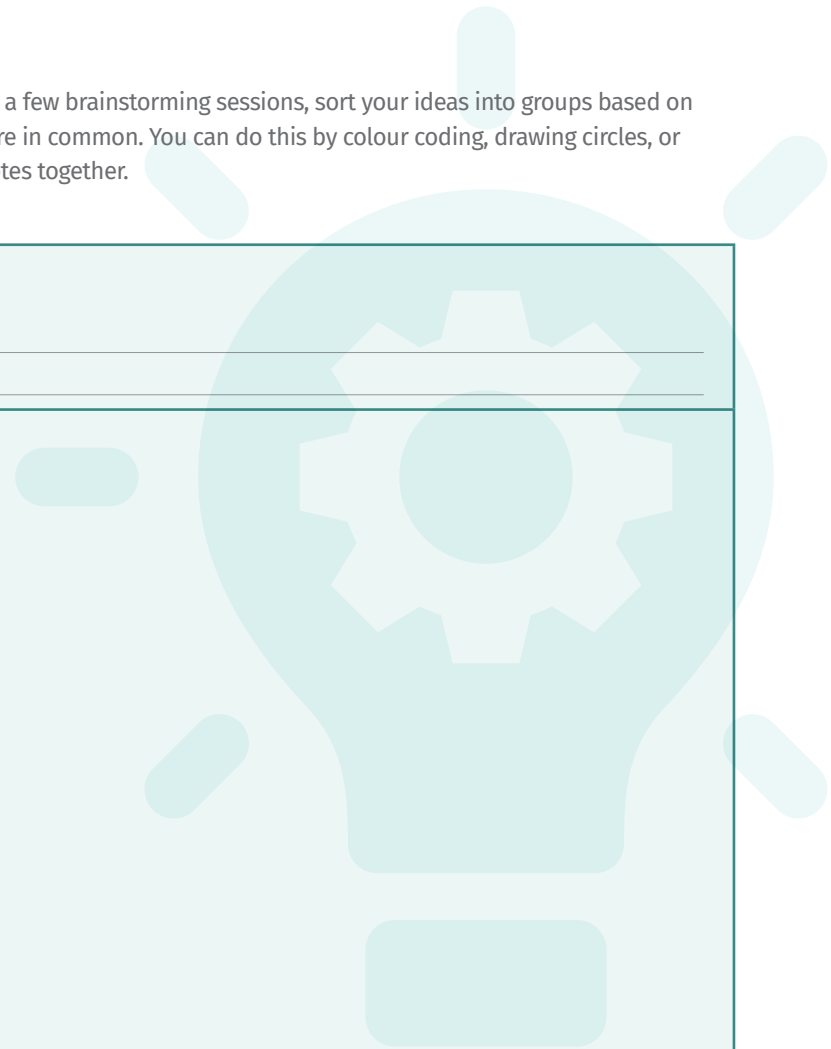
Brainstorming ideas

Use this mind-map to write down all your ideas – the crazier the better! Don't worry about choosing ideas at this stage, just write everything down. You can also do this activity with your team using some post-it notes.

Once you have had a few brainstorming sessions, sort your ideas into groups based on what the ideas share in common. You can do this by colour coding, drawing circles, or grouping post-it notes together.

Problem:

Mind-map:



Prototype

Make and break solutions



PROTOTYPE

Sketching

Draw a few sketches of how you will make your ideas a reality. You might also like to draw your idea within the context of how it fits into your end-user's journey, or make a storyboard.



PROTOTYPE

Planning for prototyping

Use this space to brainstorm what you will need for successful prototyping before making it happen.

What are the key **features** of your idea?

How does your idea solve/address the **problem**?

What **shift in the user journey** do you want your solution to create?

How will you make your idea **tangible**?

What types of prototyping will you use?

E.g. 3D models, collage, sketches, role-playing, paper/craft prototypes

Test

Bring it to users for feedback



TEST

Test Option 1: “The Mini-Pitch”

Three-minute time limit

Who is your user(s)?	What problem are they experiencing?
What is your solution?	How will you measure success?

TEST

Test Option 2: “Pitch Outline”

Team name: 	Big picture: What is the problem context? What is the main idea? What problem statement did you address?
Members: 	
School: 	
Your end user: Who is your end user? How do they experience the problem? 	Your solution: What is your technology/product/service/solution? How are you prototyping/demonstrating this?
Design journey: How did you reach your solution? Did you have any pivots? How did you prototype and test your idea? What did you learn along the way? You are encouraged to refer to the five stages of the design thinking process. 	Future directions/call to action: What are the future directions for your solution? How is your solution sustainable?

©ANSTO 2025. No part of this publication may be reproduced without the express permission of ANSTO.

To request ANSTO's permission to reproduce this publication for educational purposes, contact education@ansto.gov.au



www.ansto.gov.au/hackathon