

# SCHOOL OF

## DIY Design Toolkit

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Your hands-on guide to designing  
solutions to real-world challenges





The School of X has been established by DesignSingapore Council to help people from all walks of life build human-centred design skills while they work with others to tackle shared challenges.

**We use design to make the world a better place, one small project at a time.**

# DO YOU EVER WONDER, HOW WE MIGHT...

**bring the  
kampong spirit  
back to our  
housing estates?**

**reduce loneliness  
amongst seniors  
who live alone?**

**reduce the  
amount of food  
we waste at  
home?**

**improve the  
emotional wellbeing  
of children in  
schools?**

**stop people  
littering in the  
local  
playground?**

**encourage  
people to  
exercise more  
each day?**

# WELCOME!

This is a step-by-step guide to using **design thinking activities** to tackle a challenge you wish to solve.

Design thinking is a way of solving problems that do not have an obvious answer, and which could have many possible solutions.

- Design thinking is all about **people**. We start by understanding the different points of view and experiences of people affected by the challenge.
- Design thinking is **creative**. We generate ideas that could tackle the challenge in a way that those people would find easy and intuitive.
- Design thinking is **experimental**. We build mock-ups of our ideas and we test them out with people who have experience of the problem, to find out if they work, and how to improve them.



# STEP 1

## WHAT'S THE CHALLENGE?



# WHAT DO WE NEED TO FIND OUT?









**You may not yet fully understand the challenge you'd like to tackle.**

**Let's start by setting out what you know and what you don't know about it.**

**Your aim is to work out what is at the heart of the problem you'd like to solve.  
Why does it matter?**

**This will help you plan the research you need to carry out, so you can make sense of the issue.**

# WHAT DO I KNOW ABOUT THIS CHALLENGE?

-  Why is this a problem that needs addressing?
-  Who does this problem affect?  
Who is disadvantaged by it? Does anyone benefit from it?
-  Who contributes to, or causes it?  
What motivates the people who are contributing to the problem?
-  Where does it happen?  
When does it take place? How often does it happen?
-  How is the problem being addressed at the moment?
-  What else do I know about this issue that might help me make sense of why it happens?



# TEMPLATE WHAT DO WE NEED TO FIND OUT ?

Use the template below to capture what you know and what you don't know about the challenge

What do I know about this challenge?



What don't I know about this challenge?





# LOOK AT THE PROBLEM WITH FRESH EYES

Now that you know what the gaps in your knowledge are, let's find out more about the challenge: **from the perspective of those involved in it.**

Go to the place where the problem occurs so that you can observe people in action as they experience the problem.

Your aim is to see and experience the problem from the point of view of the people who contribute to it or are impacted by it.

This will help you understand why it happens, & what needs to change.

The aim is not to look for solutions. Yet.



# LOOK AT THE PROBLEM WITH FRESH EYES

What do I observe? Take time just to watch what happens.

Note down what you see in the place the problem occurs. These prompts can help guide you.



## Habitat

What are the surroundings like? Do they contribute to the problem?



## Users

Who is using the space?  
Why are they there?



## Materials

What are the things that people use here?  
Machinery?  
Digital devices?  
Furniture?  
Utensils?



## Activities

What are people doing in this place?  
What task are they trying to get done?



## Needs

Who & what do people interact with here, to get their jobs done? Are they taking shortcuts?



## Senses

How does it feel there? Is it hot? Cold? Noisy? Unsettling? Friendly? Chaotic? Do people seem relaxed? Angry?

# TEMPLATE LOOK AT THE PROBLEM WITH FRESH EYES

What do I want to know more about?



H

Habitat



U

Users



M

Materials



A

Activities



N

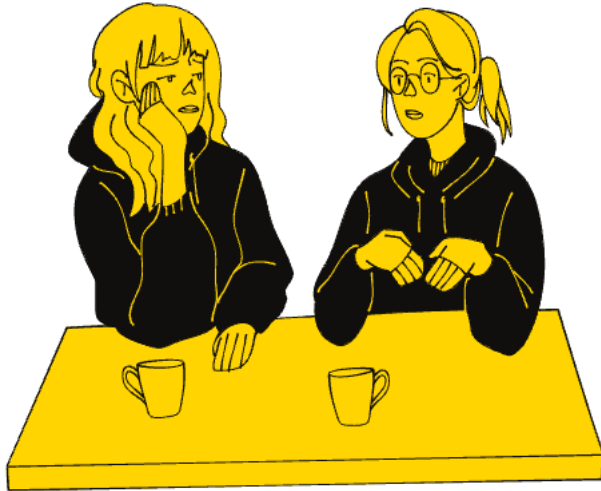
Needs



S

Senses

# LISTEN TO THE PROBLEM WITH FRESH EARS



**To get beneath the headlines of the problem you need to talk to the people involved in it.**

**Your aim is to have informal chats with people to help you understand why they do what they do.**

**Be curious and open-minded.**

**It's helpful to remember that people behave in certain ways as the result of many things: what they did before they arrived, what they will be doing afterwards, how they are feeling, the environment they're in, the task they're trying to get done, and so on.**

**Reach out to some of the people who are part of the situation. Ask them about their experiences. Do not be judgemental when they answer. Ask why they do what they do. How they feel about it. Try to find out about their frustrations and motives.**

# IDEAS FOR RESEARCH QUESTIONS

Think about phrasing your questions like this:

- “could you tell me about your experiences with this issue?”
- “what is it usually like?”
- “can you tell me about how you currently get this done?”
- “how does it make you feel?”
- “what are the things you like best about this experience?”
- “have there been times when you felt frustrated or found this challenging in some way?”
- “who else is involved in this situation?”
- “how easy do you find this to do? Can you describe what makes it easy/hard?”
- “how important is this issue to you/ your organisation?”

Remember to use follow-up questions like:

Why? How? Why? When? Why? Who? Why?

Our aim is to get beneath the headlines of their answers.





Can I ask you about (*describe the problem*)

1. Can you describe your experience of this situation?

2. Why do you come here or get involved?

3. How does it make you feel?

What do you enjoy about it, and what makes you frustrated? Why?

3. How important is this issue to you? Are there other issues that affect you?

4. What do you wish could be improved about this situation? How would you like it to be?

Describe the person you talk to:

Name

Age

Role

*Do a little sketch, to help you remember them.*

## DESCRIBE YOUR CHALLENGE

What were the **top three trends** that came from your research?

This might relate to the motives people have for doing what they do, or the pain points and frustrations they're trying to overcome.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

The most important information to make sense of, after all of your research, is to understand the underlying motivations of the people involved in the situation. Why do people do what they do in this situation?

You are now ready to describe your challenge as a **Design Statement**.



# TEMPLATE DESCRIBE YOUR CHALLENGE

To help you generate ideas to solve the challenge, you need a **Design Statement** that allows you to be open-minded and start from the point of view of the people you are designing for.

## How Might We...

take an action



e.g. How Might We  
create job opportunities

for a specific  
group of people



for single mothers  
so they

to achieve a  
desired outcome



can increase their  
earnings without  
increasing childcare  
costs?

## How Might We...

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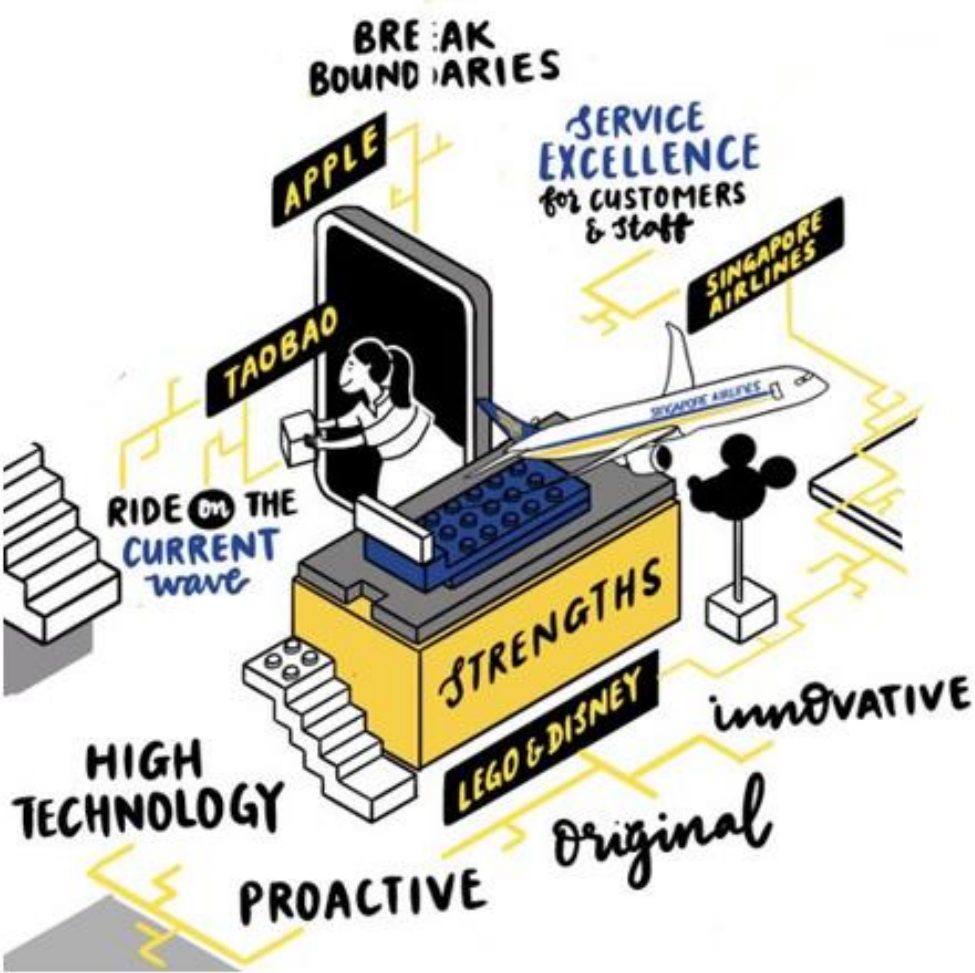
# STEP 2

## LET'S GET CREATIVE!



# THE GREAT BIG IDEA MACHINE

Before you narrow in on your solution, you need to crank up your Great Big Idea Machine and **generate as many ideas as you possibly can** to tackle your Design Statement.



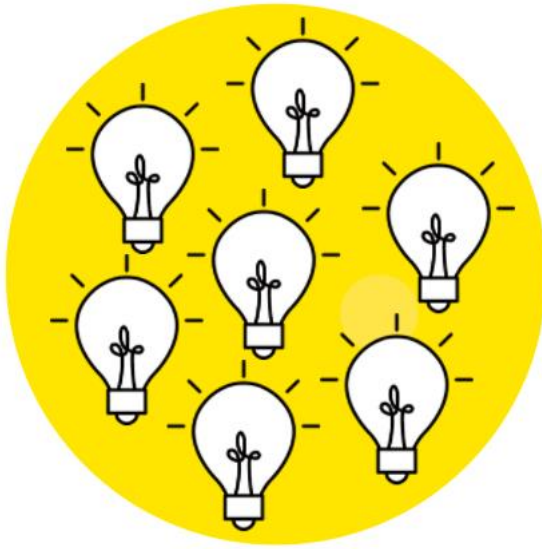
Everyone has an abundance of ideas within them, but we often bury those ideas beneath:

- embarrassment (this is a silly idea),
- lack of confidence (I'm not sure if this could work),
- lack of evidence (I have no proof to validate this), &
- efficiency (I don't have time to waste on ideas that aren't relevant).

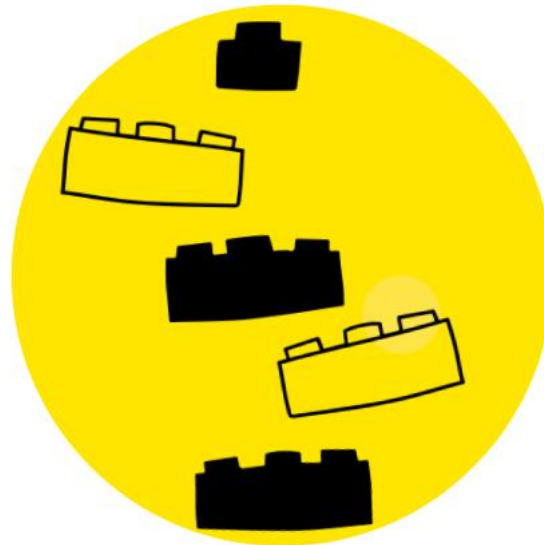
However, the more ideas you come up with, the more diverse and unexpected they are, the more likely you are to find a new way of solving your challenge.

# THE GREAT BIG IDEA MACHINE

To allow your creative ideas to flow, you need to power your Great Big Idea Machine with the following fuel:



**Aim for quantity,  
not quality.  
The more the  
merrier!**



**Add to each  
other's ideas, &  
turn them into  
something new**



**No judgement!  
All ideas are  
welcome at this  
stage**



**Be imperfect.  
Your ideas can  
be messy and  
rough**

# TEMPLATE THE GREAT BIG IDEA MACHINE

In a group of friends or colleagues who want to tackle this challenge, write down as many ideas as possible. Consider some of these prompts to help you generate lots of different and unexpected ideas.



**Race against your friends to see who can generate the most ideas in 2 minutes – can you add to each other's ideas?**



**Combine experiences from other environments – what if a hawker centre and a beauty salon were combined?**



**What are the worst ideas you can come up with for this problem?  
Sometimes its easier to think of terrible ideas, & flip them**



**How would your favourite business solve this problem?  
What promise does that big business offer?**

# THE IDEA SORTER

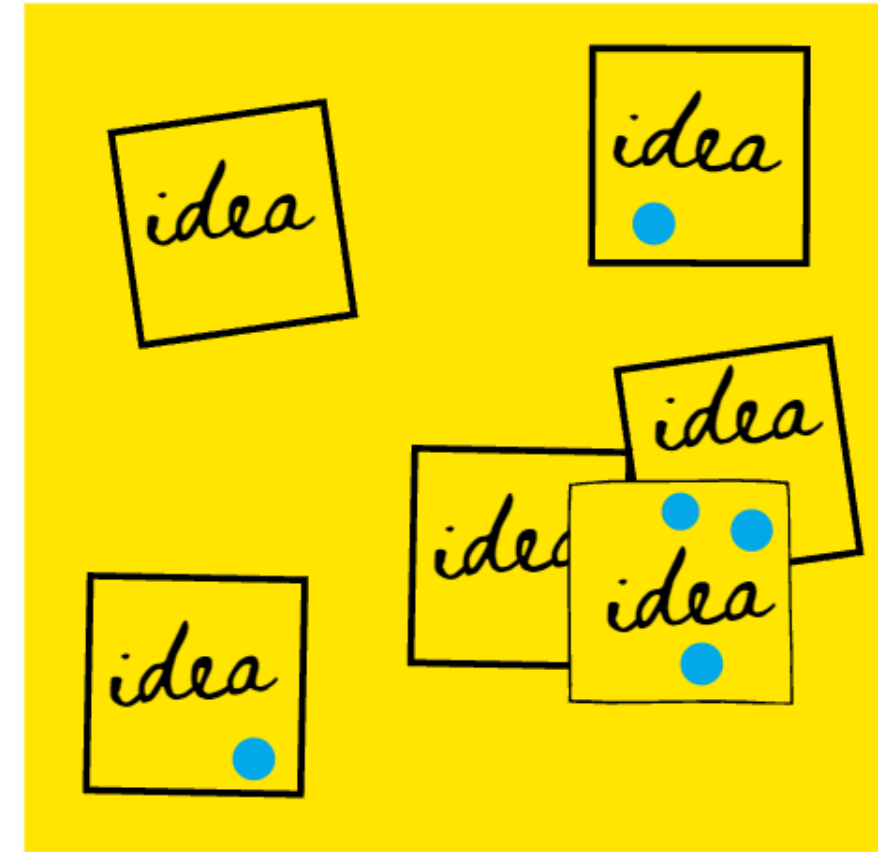
Let's make sense of all the ideas you've generated.

Everyone in the group should start by finding 3-5 favourite ideas, writing them down on a long, shared list. Tell each other why these are your favourite ideas.

Once you have heard everyone's ideas, put similar ideas together in a cluster.

Now everyone has 2 votes to choose their favourite ideas from the long list. You can indicate your vote with a sticker or by marking it with a coloured pen.

**Shortlist your team's favourite ideas** (no more than five).

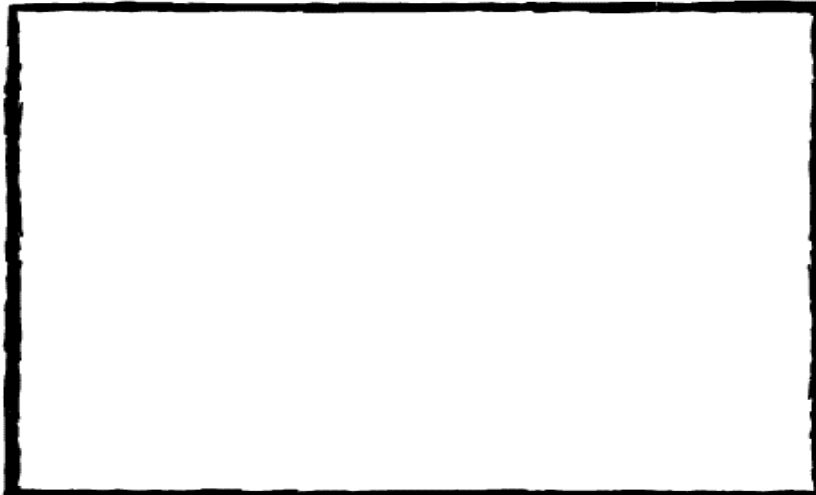




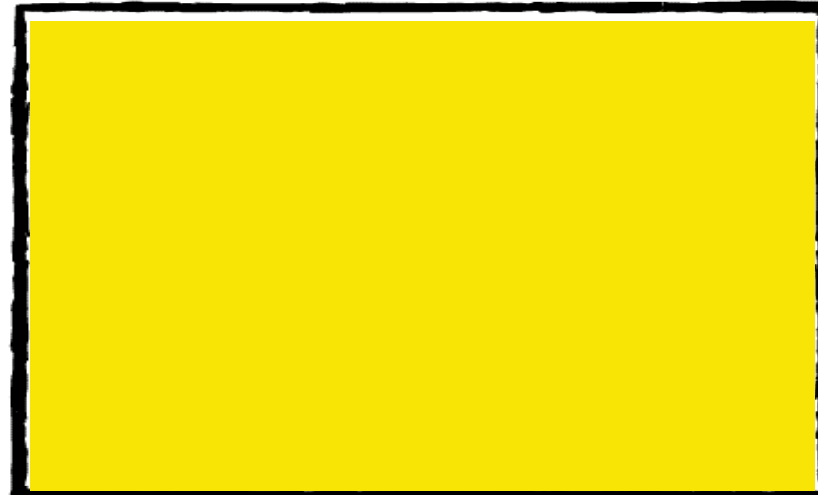
# TEMPLATE THE IDEA SORTER

Shortlist your ideas even further, by prioritising the ones that will create the biggest impact in the most achievable way. Map each idea against the matrix below, in terms of how easy it is to do, and how much impact it could make against this challenge.

Easy to do  
Low Impact

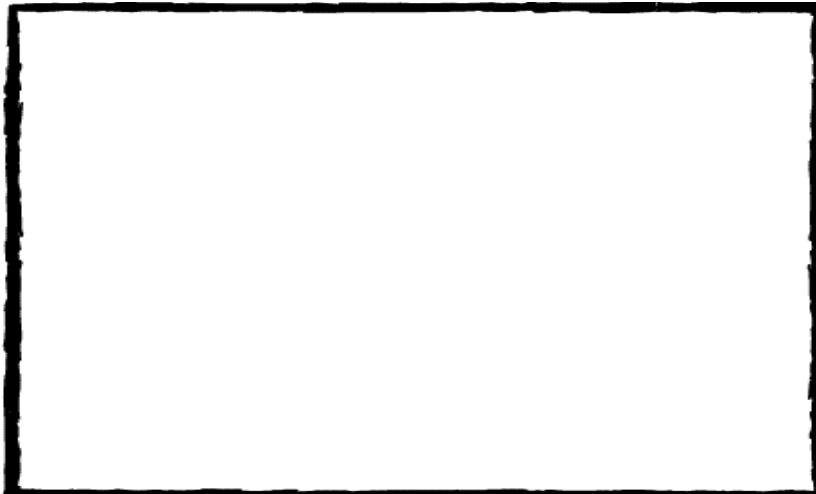


Easy to do  
High Impact

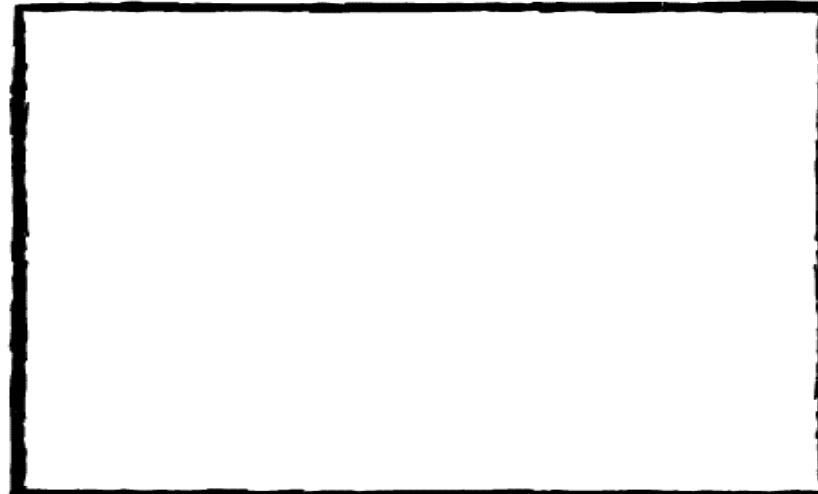


these are your  
winning ideas!

Hard to do  
Low Impact



Hard to do  
High Impact





# STEP 3

# TEST IT OUT



# PUTTING IDEAS INTO ACTION

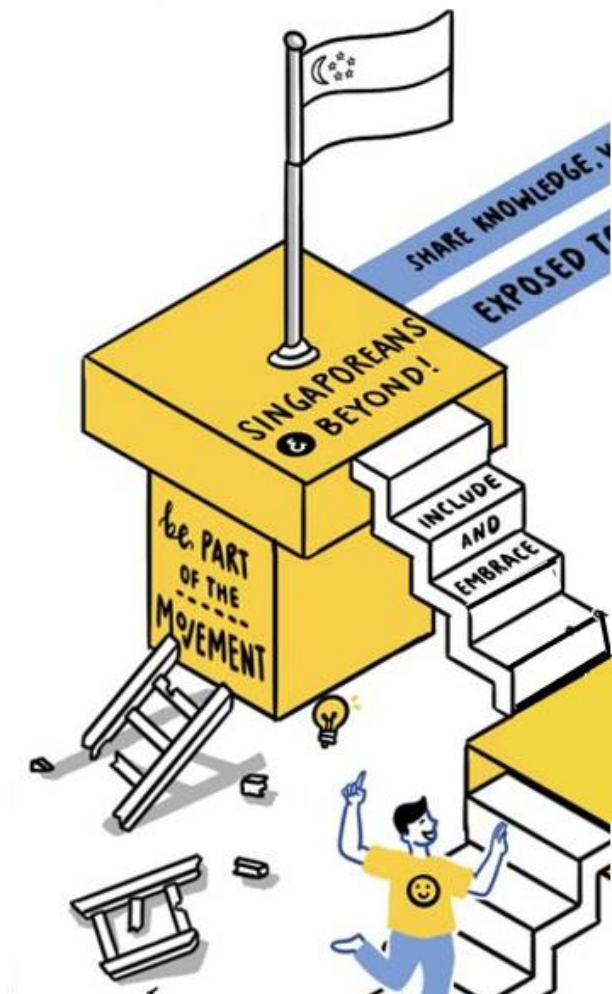
**Building, doing, and experimenting help us find out if our ideas work in practice.**

**We create mock-ups of our ideas so that people can try them out in very simple ways.**

**This allows us to see the strengths and weaknesses of our ideas, and improve them quickly and easily, before testing them out again.**

**Designers call this prototyping.**

**Our aim is to find as many weaknesses in our ideas as possible, as early as possible. This allows us to design the weaknesses out, and make the ideas stronger before spending too much time, effort or money on the idea.**



# PUTTING IDEAS INTO ACTION

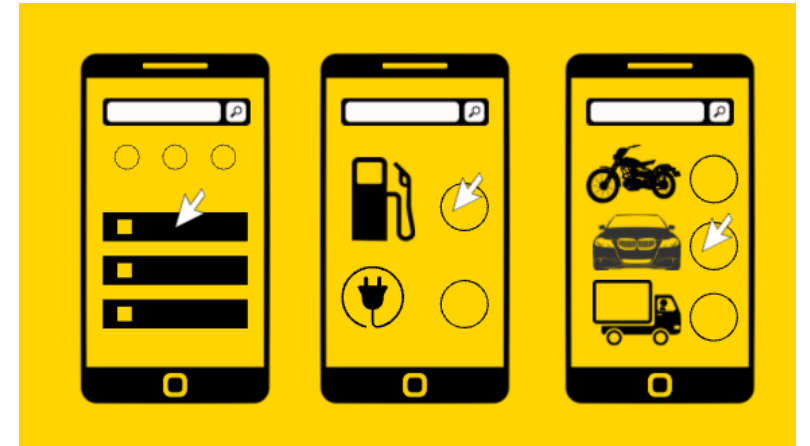
**There are lots of different ways to build a simple mock-up of your idea, using things you can find around you.**



**Draw your idea:**  
What is the journey someone would experience if they interacted with it?



**Build your idea:**  
Cardboard boxes, ping pong balls, aluminium foil, sticky tape...get creative with the things around you to build a basic model of your idea



**Create a paper wireframe:**  
Draw each screen of a digital app so that people can imagine what it would be like to use

# TESTING YOUR IDEAS

To find out if our ideas are relevant and might work, we need to test them out with people who are familiar with the problem.

Show them your mock-up and explain how it works.

Ask them to imagine using it.  
Encourage them to ask questions about it.

You want to find out:

1. What they think of the concept
  - Does it appeal to them?
  - Can they imagine it fitting into their way of life?
  - Do they use anything similar?
2. How easy they find it to use
  - Is it easy to navigate?
  - Is anything missing?



# TEMPLATE TESTING YOUR IDEAS

To help people give useful feedback you can ask them the following questions.

What do you  
like best about  
this idea?

What do you like  
least about this  
idea?

Do you have any  
suggestions to  
make it better?

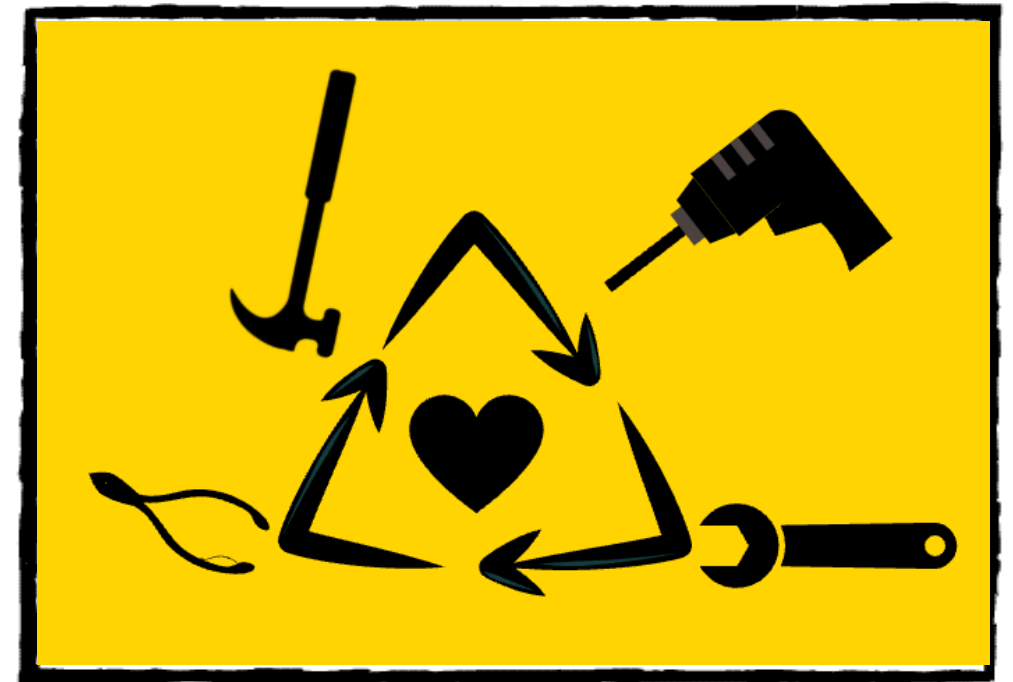
Is there anything  
you're unsure or  
confused about?

## IMPROVING YOUR IDEAS

Once you've shared your idea with several people, you should reflect on the feedback and make improvements to your design.

You can **repeat the process of testing and improving** over and over again until you are ready to roll out your idea.

In this way, you have developed a solution that the people involved see the value of, and are willing to use.





Breakthrough ideas do not need to be complicated or expensive.

The best ideas grow from a deep **understanding** of the problem, strong involvement of the **people** associated with it, and an **experimental** approach to testing and improving the design.





# SCHOOL OF

**Keep in Touch**

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