

'LIFT ME UP'




THE PROBLEM

There has been an accident in the science lab!

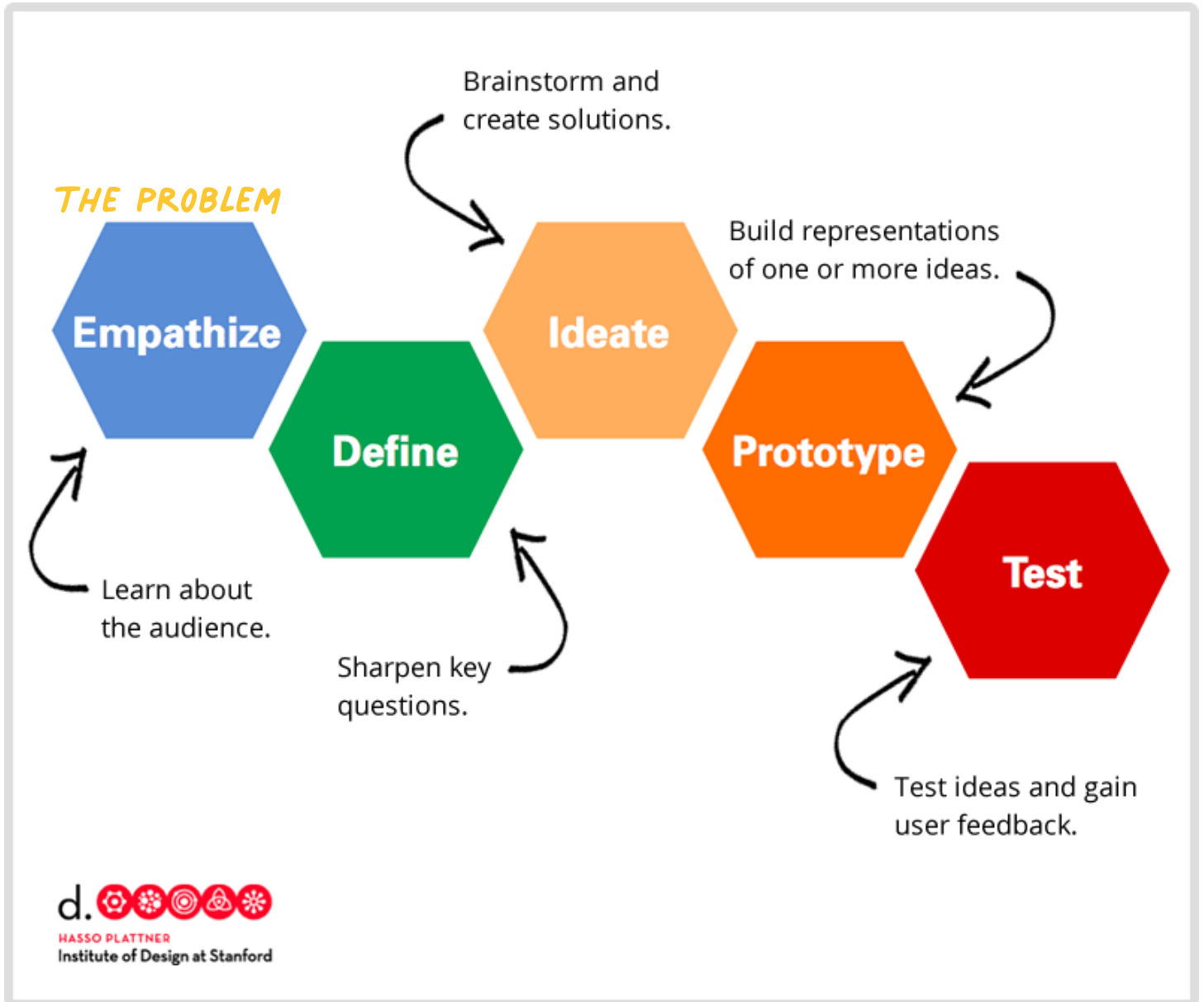
Everyone has had to evacuate and no one can go back in until all the dangerous materials have been cleared away. The science equipment and materials can't be picked up by hand so we will have to create something to grab, lift scoop up or carry the items out of the lab to safety. Some items are very small others are quite heavy. The scientists need our help!

YOUR GOAL	Use Makedo resources and recycled materials to create a lifting device to help clear away items in the science lab.
YOUR ROLE	You are part of the elite cleanup crew for dangerous materials.
YOUR AUDIENCE	Scientists who need help creating a safe place to work after an accident.
THE SCENARIO	A science laboratory handling dangerous chemicals and materials.
THE PRODUCT	The product will be a functioning prototype of a grabbing and lifting device which moves.

HOW TO USE THIS PROJECT SHEET

-  As a class, inquire into the design problem. Use this sheet to guide students through the Makedo design thinking process to create your designs.
-  Work with students to inquire, generate ideas, create prototypes and test their designs.
-  Depending on your group's age and ability use the "Go Further" section to extend the challenge.

THE DESIGN THINKING PROCESS



USING THE DESIGN THINKING PROCESS

- When starting out you can work through each section step by step. As you get more experienced, you can rearrange the sections or jump back and forth between stages to get a more authentic design experience. For example you could test an idea before making the final prototype!

EMPATHISE

OBSERVE: What are the different parts of the problem?
Where is the problem happening?
What can we observe that will help us to design our own solution to the problem?
Who is involved; the users, clients and designers. These people are our stakeholders.

ENGAGE: Ask questions and learn everything you can about the design problem.
Why are we solving this problem?

CONNECT: What connections did you make between what you have found out and what you observed?
Talk to other designers about the problem.

DEFINE

FOCUS: What exactly is the problem we will solve?
How could you begin to solve the problem?
What things do we need to be aware of as we move forward?

PATTERNS: What connections and patterns did you see while you investigated the problem?
What areas should you focus on when you start to create ideas?

NEEDS: What do your stakeholders need from a solution?
What are the essential things our solution must have?
How will we know if we have succeeded in solving the problem?

IDEATE

CREATIVITY: How can we represent different parts of the problem or initial ideas for solutions?
Are some ideas best represented with... Mind-maps? Sketches? Models?

FLEXIBILITY: How many different ideas can we come up with to solve the problem?
Do our ideas need to solve all aspects of the problem or just some?
How can we get feedback on our ideas?

DEVELOPMENT: How can we move from our first idea to the final design?
What rationale will we use to choose the best idea(s)?
How can we represent our final idea(s)?

PROTOTYPE

BUILD: Even if you are not sure of all of the details, begin to create your design using Makedo tools

OPTIONS: Make sure to create multiple options or different versions of your ideas.
Remember these are prototypes, not final products.

RESOURCES: Using Makedo tools allows you to work with any kind of recycled cardboard and paper.
What can you find to work with?

USERS: Remember who you are designing for.
What are the needs and preferences of the users we identified earlier?

TEST

SHOW, DON'T TELL: Will we learn more about our prototypes by describing them to others or by showing them off?
What different perspectives will users have of our prototypes?
What can you learn from observing and listening to users while they experience your prototypes?

EXPERIENCES: Does your prototype create an experience for the users that explains how the product would work?
Is it good if our prototype breaks or fails during testing?

COMPARE: Did you create multiple prototypes which can give users multiple options to compare and contrast?
Can we compare to other designers' prototypes to assess our own success?
Can we compare our prototype to existing real products?

KEYWORDS

Here are some keywords and terms you can explore to help you understand the design thinking process.

Design	User	Mechanism
Empathise	Engineer	Observation
Define	Design solution	Programming
Ideate	Sketching	Perspective
Prototype	Modeling	Load
Testing	Resources	Forces

GO FURTHER!

LEVEL 1: Can you design a lifting device to carry tiny objects as well as big heavy objects?

LEVEL 2: Could you use any robotics or technology to make your design better?

LEVEL 3: Can your design lift & carry objects while being operated remotely or by being pre-programmed?

SHARE YOUR CREATIONS!

Share your Makedo Design Challenge adventures
with our Makedo community!

Upload here to be considered for our HUB

Post on Instagram and tag us @makedo

