BRIGHT SPARK
ignite creative confidence

# DESIGN THINKING

## WHAT IS DESIGN THINKING?

"Design Thinking is about accelerating innovation to create better solutions to the challenges facing business and society. It starts with people - what we call human centered design - and applies the creative tools of design, like storytelling, prototyping, and experimentation, to deliver new breakthrough innovation."

– Tim Brown, CEO, IDEO. *Change by Design.*

## THE 5 PHASES OF DESIGN THINKING.

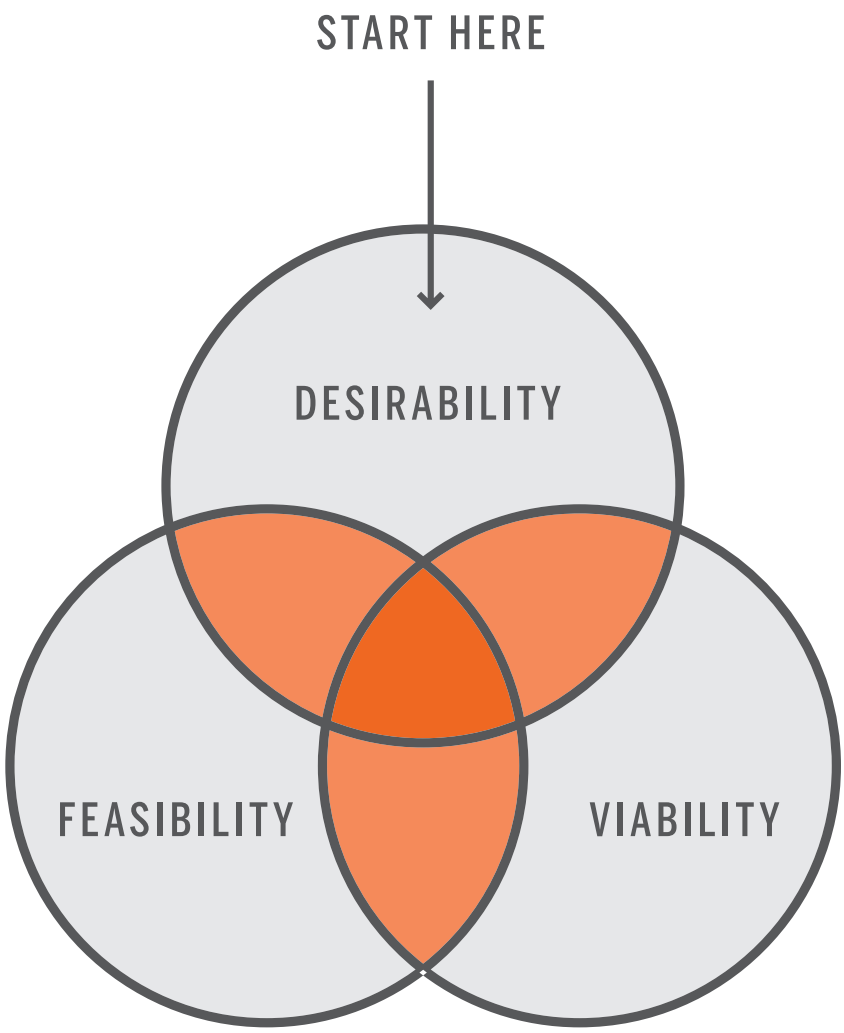

These worksheets take you step by step through Design Thinking.

*Teacher Note: This packet was not designed to be printed and handed to students in its entirety. Some sections may be better to do as a class, on flip chart paper, or another way depending on the Design Challenge identified. We recommend using your professional discretion prior to printing all worksheets.

## HOW DO YOU KNOW YOU HAVE A GREAT DESIGN?

Great design meets three essential criteria.
1. Desirability: Is this what people want?
2. Feasibility: How easily can we do this? Is this affordable? Do we have personnel[1]? Do we have enough time?
3. Viability: Is this sustainable[2]? Can we keep it going for a long time? Who will keep it going?

**Great innovation is where desirability, viability and feasibility come together.**




1. Personnel: people employed in an organization
2. Sustainable: able to be maintained at a certain rate or level

CHALLENGE

Phase 1

## Defining the challenge often begins by noticing problems.

Sometimes it comes out as wishes ("I really wish we had...")
Sometimes it comes out as complaints ("It annoys me that we're not...")
Either starting point is fine.

**Problems we see:** _____

_____

**Select a problem from above to be your design challenge:** _____

_____

| **My dreams:** | **My concerns:** |
| --- | --- |
| | |

Now lets turn this into a How Might We Challenge (HMW) Question:

How might we design a _____ that
[INSERT DESIGN CHALLENGE]

_____

_____ for _____ ?
[USER]

Try this with a friend...Share your dreams and concerns about the design challenge.

Now we will look for opportunities by first seeking inspiration.

INSPIRATION & EMPATHY

Phase 2

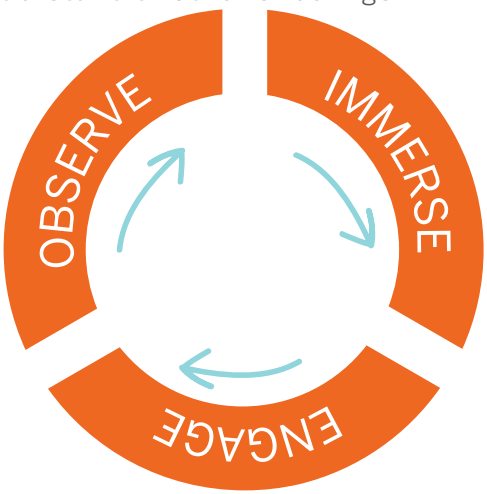
## Tools for building empathy

Design Thinking is **human-centered**. Human-centered design starts with understanding the perspectives of the people who will use the design. We seek inspiration through research and developing user **empathy.** External research helps us find new trends or key information to inspire new ideas. Gathering information from users develops **empathy** and shapes our understanding of their needs and values. This helps us define insights. We will learn three tools to help you become more empathetic—ability to understand another's feelings.

**Observe:** Watch what people do. Video or sketch your observations. Take note of these things: What are they doing? How are they doing it? And Why are they doing it?

**Engage:** Interact with the people through talking with them. Conduct an interview.

**Immerse:** Become the user. Use the design yourself. How does it work for you? How do you feel using it? What would you do differently? How would you want it to change? You can also learn about external trends and practices by doing online research.




To experience all three tools divide your team into three small teams and rotate through each tool. Document your observations to build inspiration for your design.*

*Teacher Note: It might be helpful to group students prior to doing this phase, use your professional discretion on how to pace your students through using each of these tools.

INSPIRATION & EMPATHY

Phase 2

## Observation Plan

Take a video, photograph or sketch 3 different people engaged in an activity related to your challenge or search online for what others are doing in this area. You can sketch or write down descriptions to help you remember. Answer the questions below as you observe.

What are they doing?

How are they doing it?

Why are they doing it this way?

**Sketch**

INSPIRATION & EMPATHY

Phase 2

## Engage

1. Create an interview guide with open ended questions.
2. Interview a person about their experience related to the design challenge.

Example Question: Ask users, “What are your needs, wants, fears and concerns?”

**Questions:**

Question: _____

Question: _____

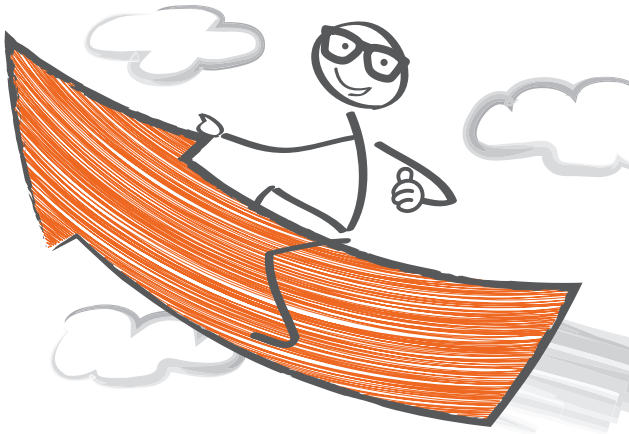
Question: _____

**Answers:**

Answer: _____

Answer: _____

Answer: _____



INSPIRATION & EMPATHY

Phase 2

## Immersion Experience

Be a user. 'Walk in their shoes' and gain their perspective. Example: What does it feel like to be a person doing this activity? What 3 things will YOU do to experience your challenge? As you go through each process, be sure to write down or sketch your reflections on the questions below. You can also learn about trends and practices by doing online research.

What did I do?

What was enjoyable?

What would I change or add to this experience?

**Sketch**

INSPIRATION & EMPATHY

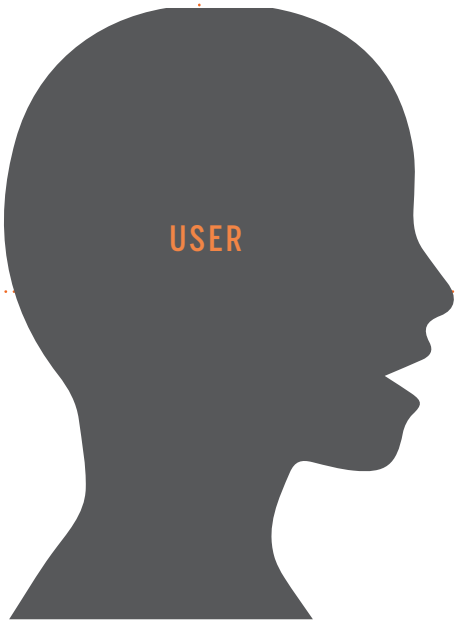
Phase 2

## Reflect

**Now, as a design group, reflect on all the data you have collected to document this empathy map.***

Feelings & Emotions

Thoughts & Beliefs




Actions

Say

*Teacher Note: It may be helpful to put this on a large flip chart and use post-its to fill in student input.



Example of the Empathy Map


Phase 3

## Insights

**Based on the data from the Inspiration phase, we define key insights, the things people most value or need. From these insights we define the key opportunities related to our challenge question. We refine our challenge question (HMW) to address the opportunities we uncovered in the Inspiration and Empathy phase. Remember insights are non-obvious and authentic.***

**Questions:**

Based on your research and empathy exercises what have you learned?

People seem to value…..

People are motivated by …

People need ….

**Now put your opportunity into your new How Might We challenge question. Something like this...**

How might we design a _____ that
[INSERT DESIGN CHALLENGE]

_____
[OPPORTUNITY]

_____ for _____ ?
[USER]

*Teacher Note: This may be the time to refer to the Vin-diagram page. Depending on the Design Thinking knowledge and age of your group. You may also want to talk about feasibility or constraights, and how this may play into their final designs. However, be cautious of discouraging wild ideas, some of the best designs are scaled back wild ideas.

IDEATE

Phase 4

## Brainstorming

**Through brainstorming we generate as many ideas as possible, then we use tools like storyboarding to iterate[3] the idea.**

**Ideate.**
To brainstorm, provide each person a set of Post-its and a sharpie pen. Read your HMW challenge question again. Now, each person should brainstorm as many ideas as possible to solve your design challenge. Review the brainstorm tips below to help.

**After brainstorming, vote and identify your top 1-3 ideas to take forward.**

1. _____

2. _____

3. _____

TIP

Remember:

**Don't judge!**
There are no bad ideas at this point.

**Encourage wild ideas**
Innovation begins with the impossible.

**Build on the ideas of others**
Think, "Yes, and...:" and try to build on each idea.

**Be visual!**
Try a quick sketch.

**Stay focused of the topic**

**One conversation at a time!**

**Go for quantity**
Get LOTS of ideas down. Let it flow quickly!

3. Iterate: make repeated use of.

IDEATE

Phase 4

## Storyboarding

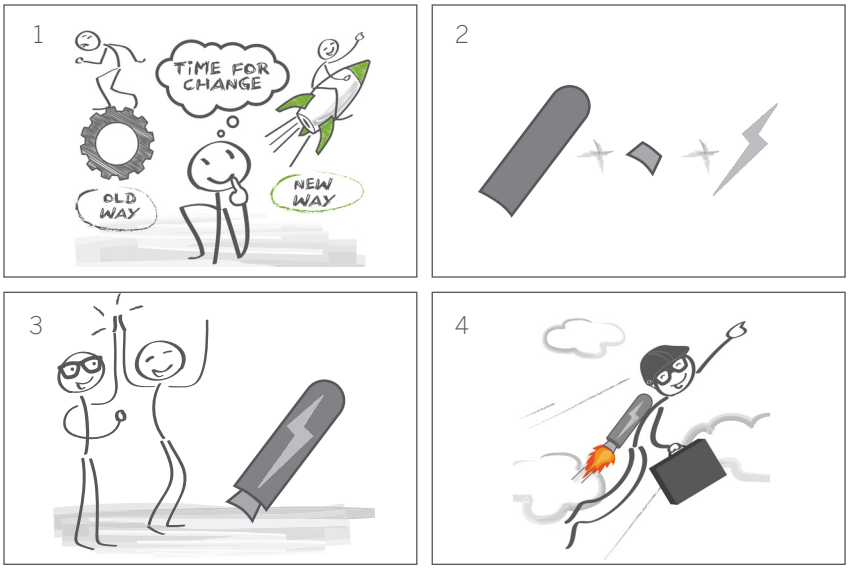
**We use simple drawings, called storyboards, to explain how our top idea works. Sharing the story with others gives us feedback to improve and refine our idea.**

1. Working individually, create a first draft storyboard on how you see the top idea working. Storyboarding is simple. Create a four frame box on a blank piece of paper and draw the story of how your idea works. Keep it simple.

2. Each person pitches their idea to the team. Use the feedback grid to help you. Vote to identify the top 1-2 ideas to storyboard as a team.

3. Then, as a team select from the top ideas to take on to the next step experimenting.

### Example Storyboard




Harry wants a faster way to get around.

First he makes the parts to a jet pack he can wear on his back.

He screws them together with his friend Will and they fill it up with the magic formula.

Finally Harry straps it on his back and fires it up – It works! Yay!

*Teacher Note: It may be helpful to create a few storyboards as a class to learn the storyboarding process.

IDEATE

Phase 4

## Feedback Grid

When sharing sketches and storyboards this feedback grid helps to gather input. Give one of these feedback grids to each person you share the design with and ask them to complete it.

Good

Change

Questions

Ideas

**Based on your votes what has your team decided to prototype?** _____

EXPERIMENT

Phase 5

## Prototype & Test

Experiment with prototyping and testing. Design a prototype using maker supplies. Now, plan and conduct a test for your design to see if it accomplishes your goal.*

## Prototyping

**1. Draft a solution prototype description:** _____

_____

**2. Sketch or insert a picture of your prototype model:**

**3. Build your prototype with maker supplies.**

## Testing

Example Test: A library was about to implement a glass walled quiet room. Instead of spending thousands of dollars to build the idea, the library tested the idea by sectioning off the proposed space with tape and visibly marking it a quiet zone. This allowed the library to conduct a low-cost and quick scaled test to see if their idea would be practical prior to spending money on full-scale construction.

**2. What assumptions need to be tested?** _____

_____

**Test activities:** _____

_____

**Test success criteria:** _____

**Desirable:** _____

**Feasable:** _____ **Time:** _____

*Teacher Note: It may be helpful to explain how to scale a test. Scaling a test will ensure that you are testing an idea that may succeed later, better yet it may fail early with a low-cost quick test.

EXPERIMENT

Phase 5

## Design Pitch

The design pitch shares the challenge, idea description, storyboard, prototype and test plan. Create a display of information to pitch your idea. Check the tips below to make sure you include everything.

After your pitch, gather feedback on the grid and iterate your design again.

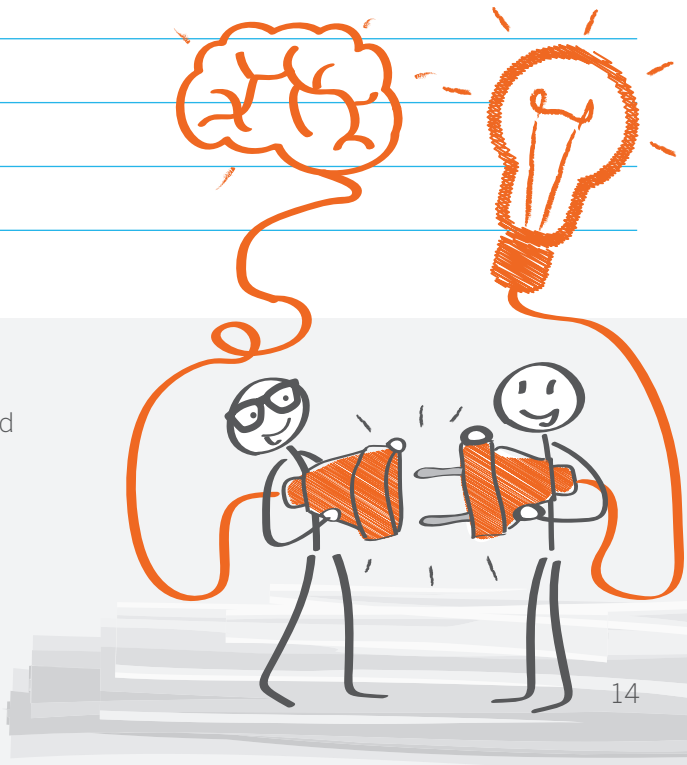
**Challenge:**

**Idea Description:**

**Storyboard:**

**Prototype Model:**

**Test Plan:**



TIP

Be sure these elements are represented in your design presentation:

- How Might We Challenge
- Idea Description
- Storyboard
- Model or sketch of prototype
- Test Plan

## Join the Design Thinking Revolution!

**Website:** bridgeinnovate.com/brightspark

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**Congratulations, you have applied all the phases of Design Thinking to solve a challenge.**