

Solve for Tomorrow

# Design Thinking Toolkit

WORKBOOK



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# About Samsung Solve for Tomorrow

Launched in 2010, Samsung Solve for Tomorrow program is a unique competition that encourages innovative thinking, creative problem-solving, and teamwork to nurture social innovation ideas that address the community's most pressing problems.

Samsung Solve for Tomorrow was designed to increase interest and proficiency in Science, Technology, Engineering, and Math (STEM) education. Samsung Solve for Tomorrow encourages young people to apply STEM to find creative solutions, to solve challenges, and to address risks faced in their local communities. As of 2020, the Samsung Solve for Tomorrow program reached over 1.5 million contestants in more than 20 countries around the world.

Young minds have the power to create positive change in society, and Samsung Solve for Tomorrow helps participants develop skills that go far beyond the technical. In addition to developing a deep understanding of their local context, Samsung Solve for Tomorrow participants develop critical thinking, creative thinking, communication, and collaboration: skills that will define the future of our workforces, our industries, and our societies.

The Samsung Solve for Tomorrow contest emphasizes three levels of problem solving: reframe, ideate, and realize. The design thinking process helps us address each of these levels in a structured, thoughtful, and engaging way.

Teams have the opportunity to receive mentorship from Samsung employees who act as volunteer advisors. Contestants who make it to the finals get an opportunity to pitch their ideas to Samsung panelists with the potential to win Samsung technology for their schools.

# Workbook

## introduction

### What's in this workbook?

This workbook contains step-by-step activities that align with the *Samsung Solve for Tomorrow: A Design Thinking Toolkit* Facilitator's Guide.

### Who should use this workbook?

This workbook is designed for teams of students who are working on a design thinking challenge under the mentorship of an advisor who has read the Facilitator's Guide. This workbook can also be used without mentorship as a tool to apply the design thinking process independently.

### How should you use this workbook?

Activities can be completed in sequence as they become relevant to the project or they can be used individually as appropriate. Some sections include advanced activities, so users with more experience can get even more out of the process.

Have fun and enjoy the design thinking journey!

# The 5 steps of design thinking

**Design thinking** is a powerful tool for solving problems. It's a 5-step process that leads you to creative and actionable ideas.

No problem is too big for design thinking. You can use this process to tackle problems at home, at school, in your community, and more.

This workbook will help you complete a design thinking project using the 5 steps of the design thinking process: **empathize, define, ideate, prototype, and test**. Each step is useful on its own, but combining all 5 steps delivers the most impactful solutions.

The design thinking process also builds personal skills like **creativity, collaboration, communication, and critical thinking**, which will help you long after your project is over!

What are you waiting for? Let's get started!

# The design thinker's mindset

Design thinking is just as much a mindset as it is a process. That's why it's called design thinking rather than design doing. When you embark on the design thinking journey, you think critically about who you want to design for, what problem you want to solve, and how you want to solve it.

As a participant in the Samsung Solve for Tomorrow program looking to make a change in your community, it's especially important that you learn and embrace the design thinking process. Design thinkers identify and solve for real human needs. For this project, you will look carefully at your community to see where your friends, your peers, your family, your schools, or your local governments are struggling, and come up with innovative solutions.

Design thinking is important because it puts the people we want to design for, our **users**, first.

Sometimes we might feel like we know an answer to a problem just by looking at it. But oftentimes the problems we want to solve are much more complicated than we think. Design thinking is a structured and widely-used process that allows us to both hear and act upon the needs of our users.

Design thinking has been adopted by thousands of students, teachers, employees, companies, and more around the world. Learning the design thinking process will give you a new way to look at the world, a new ability to solve challenging problems, and a new vocabulary to discuss your work like a professional designer.

# Think like a designer

As you go through the design thinking process, refer back to the following principles of design thinking:

**Focus on human values:** Identify real user struggles and create solutions that meet those needs.

**Radical collaboration:** Listen to everyone-no matter who they are or where they come from-and work together.

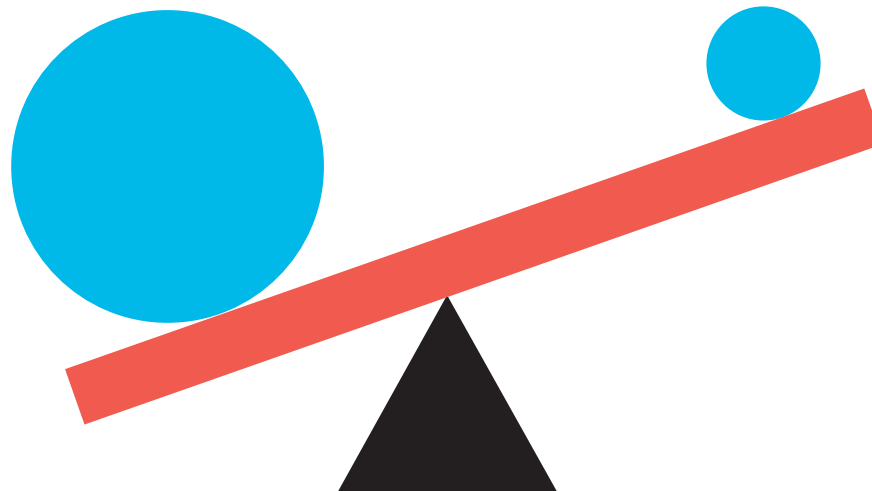
**Be visual:** Scribble, sketch, and draw whenever possible. Visualize your ideas whenever you can.

**Bias towards action:** Rather than talk about doing something, do it! It's better to test an idea and fail than to not offer up an idea at all.

**Defer judgment:** Have trust in your users, in your teammates, and in your mentors. Be imaginative and open.

**Embrace experimentation:** You may not totally understand where you want to go next, and that's ok! Embrace the ambiguity and experiment with new ideas or points of view whenever you can.

Even if you are familiar with a topic, it's important to approach every design challenge as if you are seeing it for the first time. Designers often refer to this as **a beginner's mindset**. When working to understand a problem and the people affected by it, you should be open and ready to learn. You want to keep stereotypes out of your work so that you can see the world as objectively and empathetically as possible.



# Talk like a designer

Working well with others is one of the most important aspects of the design thinking process. You must always treat your teammates, your mentors, and your users with respect. Part of treating others with respect is knowing how to give and receive constructive feedback while working in a team. Use the “I like...,” “I wish...,” “I wonder...,” **framework** to do so.

**“I like...”** When offering feedback, start by giving a compliment. Tell your teammate something you like about their idea.

**“I wish...”** Once you’ve offered a compliment, offer a suggestion that you wish your teammate would consider. Your wish may be based on your experience interacting with your teammate’s design or your own personal experience.

**“I wonder...”** Now give constructive feedback about how your teammate can make their idea even better. Suggest an idea that steers your teammate in a direction you believe in.

## **For example:**

I really like how you decided to make the background of our app so colorful. That said, I wish the color wasn’t so bright on my eyes. As someone who wears glasses, it’s hard for me to read the words on the screen when the background is so bright. I wonder if we can keep the background colorful but choose a lighter, softer color.

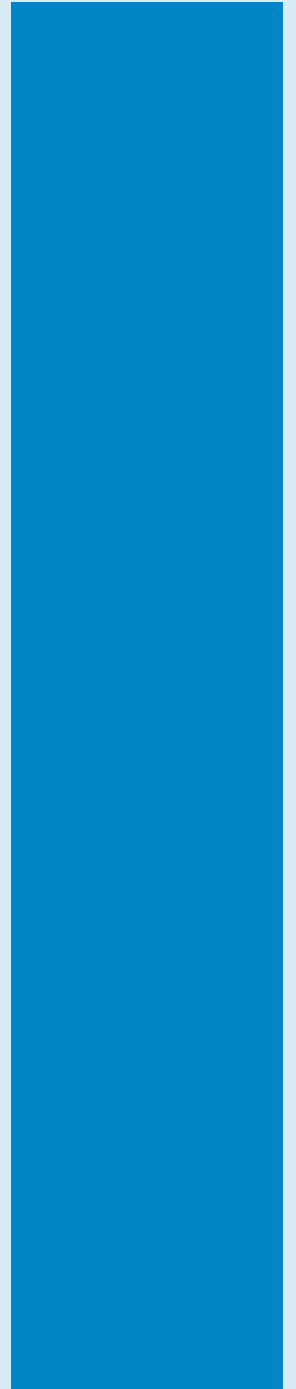
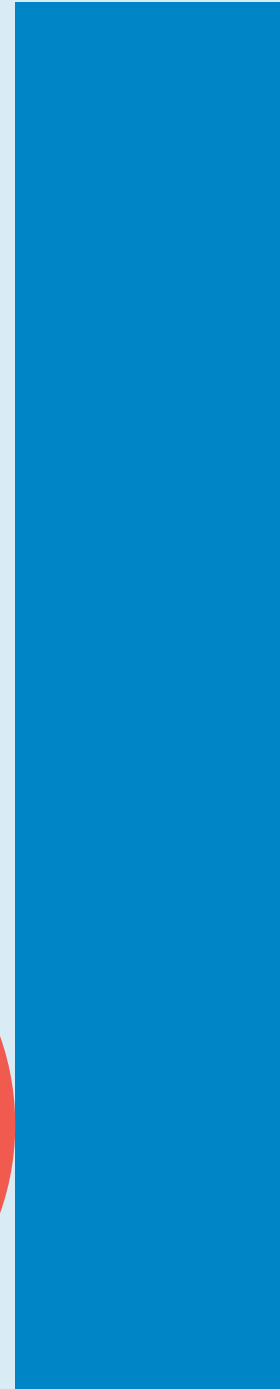
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# Prepare

ACTIVITY

Build a team



# Build a team [1/2]

Time: Minimum 10 mins  
Players: Full team  
Materials: Pen

When working on a complex, creative project, a team is stronger than any individual.  
Build a team of 3-5 people. Spend some time thinking about how you will work together and assign specific roles for each team member.

## 1. Skills & interests

What are some skills that you have?  
What skills do you want to get better at?

**Example:** drawing, writing, organizing, building, meeting new people, interviewing, working with computers...

## 2. Roles & responsibilities

List all roles and responsibilities for this project and assign team members to each role.  
Will your responsibilities rotate over time?

**Example:** coordinator, enthusiast, nagger, process leader...

## 3. Goals

What do you want to get out of this project?  
Try to list at least three goals.

**Example:** learn design thinking, get an idea out in the world, win a competition, have fun, learn new skills...

# Build a team [2/2]

Time: Minimum 10 mins  
Players: Full team  
Materials: Pen

When working on a complex, creative project, a team is stronger than any individual. Build a team of 3-5 people. Spend some time thinking about how you will work together and assign specific roles for each team member.

## Communication

Will your team meet regularly? Where and when?  
How will you communicate when you're not together in person?

## Team name

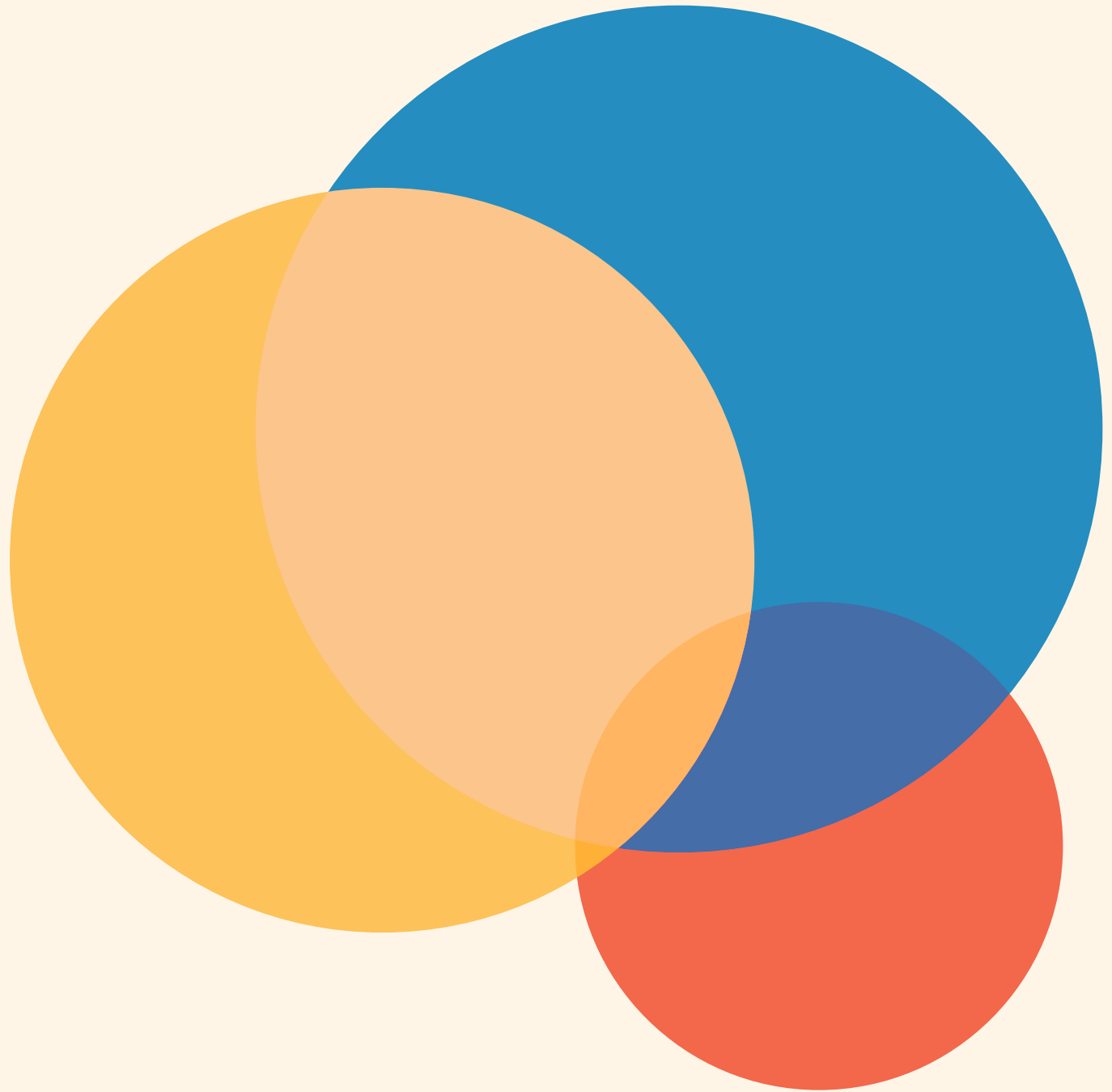
Spend five minutes as a team and come up with as many team names as possible. Aim for a minimum of 30. Vote on the best team name and capture it here. Bonus if you can create a team logo!

## Step 1

# Empathize

### ACTIVITIES

- Do background research
- Look for analogies
- Choose the right participants
- Find extreme users
- Write a discussion guide
- Prepare for the interview
- Interview participants
- Decide what to observe
- Observe an event



# Do background research

Time: Minimum 20 mins  
Players: Full team  
Materials: Pen and notepad, online and offline research materials like newspapers, books, magazines etc.

Browsing the internet, reading books and articles, and watching videos are all great methods for deepening your understanding of a problem. Spend some time learning more about your topic from different perspectives and sources.

## What did you learn?

Write down compelling stories from your background research.

## What are other people doing?

Write down 3 existing solutions that address the problem your team is working on.

## How big is this problem?

Write down a few statistics from your background research that seem important to you.

Example questions to think about:

- How many people are affected by this problem?
- How big is this problem? Are there any statistics showing the current status?

# Look for analogies

ADVANCED

Time: Minimum 20 mins  
Players: Full team  
Materials: Pen and notepad, online and offline research materials like newspapers, books, magazines etc.

Analogous research is a method for finding inspiration from other industries. Learning how problems like yours are solved in other industries can help you more effectively address your own challenge.

**What is one experience of your challenge** that you could explore through analogous research?

**Example challenge:** Redesign the waiting room experience at a health clinic  
**Example experience to explore:** Having to wait until it is your turn

**Where is one specific place** that you could see the analogous experience in action?

**Example experience:**  
Having to wait until it is your turn  
**Example place:**

- The line at a fast food restaurant
- Long lines at a theme park

**What did you learn from your analogous experience?**  
How do other industries solve this problem?

# Choose the right participants

Time: Minimum 20 mins  
Players: Full team  
Materials: Pen

When selecting who to interview, it is important to choose participants who represent your user population and participants who can provide expert perspectives. Select a few people who you think represent your main users and a few experts.

## Who are you designing for?

Write down at least three specific characteristics of your main user.

**Example:** If you're redesigning a grocery store experience, your main user might be someone who shops once a week.

## Who are your experts?

Write down experts in your field who could provide specialized insight into your problem.

**Example:** If you're redesigning a grocery store experience, grocery store managers would be good experts to chat with.

## Who will you meet?

Write down 3-5 users and a couple of experts who your team wants to talk to and learn from.

# Find extreme users

ADVANCED

Time:

Minimum 10 mins

Players:

Full team

Materials:

Pen

Interview people at the extremes in addition to people in the mainstream. Extreme users are great at giving a voice to problems that those in the mainstream might also feel but have a harder time expressing. Extreme users are people who experience the same problems that your main users experience but in a more particular way or to a more extreme degree.

## What activities might all of your users experience?

**Example:** In a grocery store, a user will likely search for items in the store, wait in line, pay for groceries, and take groceries home.

## Who are potential extreme users?

Write down 3 examples of users who might have more extreme experiences with your challenge.

**Example:** A user who only shops for groceries online or a user who visits the store more than four times a week.

## Who will you meet?

Write down a couple of extreme users your team wants to learn from.



# Write a discussion guide

Time: Minimum 15 mins  
Players: Full team  
Materials: Pen

Discussion guides are documents where you collect all of the questions you want to ask participants in the order you want to ask them. Select one team member who feels comfortable leading discussions to lead each interview.

## Starting the interview

Fill in the blanks to introduce your team to your participant and to get permission for documenting the process.

Hi! Thank you for participating in today's interview.

I am \_\_\_\_\_, and I will be leading the interview today. These are my teammates, \_\_\_\_\_.

We want to talk to you today because we are designing a solution to \_\_\_\_\_

and we want to learn more about \_\_\_\_\_

\_\_\_\_\_

During the interview, our team may want to take notes, record the interview, and take photos.

Is that OK with you?

## Gathering information

Write down 10 detailed questions you want to ask your participant about their experiences, processes, reasons, and feelings.

### KEEP IN MIND

- Include lots of "Why?" questions.
- Ask only open questions.
- Do not ask leading questions.
- Ask for reasons, do not assume.

### Warm up questions

- Tell me about the last time you...
- Briefly describe your role at...
- What does your daily routine look like?

### Probing questions

- What did you have to go through in order to...?
- How did you feel at that time? Why?
- What was your reason for making that decision?
- What is the biggest challenge you are facing in relation to...?
- What was your experience like before / after...?

# Prepare for the interview

Time: Minimum 10 mins  
Players: Full team  
Materials: Pen

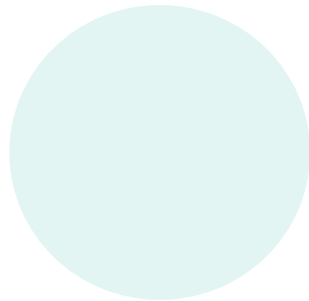
The day before the interview, prepare everything you need. Give each team member a role, confirm the interview time and location, and check that you have all of your necessary materials.

## Who will take which roles?

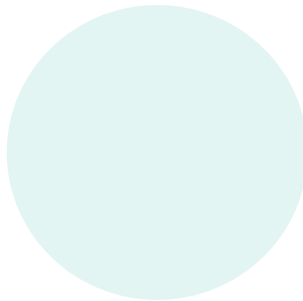
Assign roles by writing down a teammate's name for each role.



Prepare necessary  
equipment



Lead the interview



Take photos  
during the interview



Confirm date, time, and  
location before the interview



Take notes  
during the interview



Observe the participant's  
behavior and environment

## When and where will you meet?

Make and confirm your meeting time and place with your participant.

DATE, TIME

LOCATION

PARTICIPANT NAME

## What will you bring?

Make sure that you have everything you need for the interview!

☐

Discussion guide

☐

Contact details of the participant(s)

☐

Notepad and pens

☐

Camera or mobile phone

☐

Voice recorder or mobile phone

☐

Thank you gifts for participants (if needed)

# Interview participants

Time:	Minimum 30 mins
Players:	Full team
Materials:	Pen, camera, other materials you need to bring

It is now time to interview participants! Bring this paper to the site and take notes.  
Remember that a discussion guide is just a guide; you don't need to ask every question.

Name of the participant:

---

## Quotes

Write down any interesting or surprising comments that the participant says. Aim for at least 5 quotes.  
Use a second sheet of paper if you need to.

## Observations

Write down any interesting observations that you make during the interview. Aim for at least 5 observations. Use a second sheet of paper if you need to.

## KEEP IN MIND

- Talk as little as possible.
- Learn from your user; don't teach.
- Stay open; don't judge.
- Go with the flow.
- Ask open questions.
- Allow breaks in the conversation.

## INTERVIEW DOS & DON'TS

### Dos

- Ask details about their experience and how they felt. "Please explain what you experienced and how you felt when you..."
- Ask about context. "What was your experience before/after...?"
- Ask for reasons. "Could you explain why...?"

### Don'ts

- Don't ask questions with a yes or no answer. "Do you like...?"
- Don't ask leading questions to back up your team's theory. "Isn't it uncomfortable to...?"
- Don't assume. "Is it because of...?"

# Decide what to observe

Time: Minimum 10 mins  
Players: Full team  
Materials: Pen, camera, other materials you need to bring

Observation is a technique where we watch participants go about their daily routines in their own environments. It is especially helpful to use observation to understand how our participant interacts with a complicated process, a unique environment, or a lived reality.

## What actions or activities are common to your user?

Write down at least 3 actions or activities your user does and when/where these actions happen.

## What do we want to observe?

Write down 10 things you want to observe - processes, environments, experiences, etc.  
From your list, choose up to 5 things your team will observe.

# Observe an event

Time: Minimum 30 mins  
Players: Full team  
Materials: Pen, camera, other materials you need to bring

It is now time to observe. Bring this paper to the site and take notes.

Name of the participant:

---

## What is the user doing?

Write down 5-10 observations.

## KEEP IN MIND

- See and hear with an open and curious mind.
- Try to be as inconspicuous as possible.
- Ask "why?"

## How is the user doing it?

Write down 5-10 observations.

## Why is the user doing it?

Understand the "why" by observing their context and listening to what they are saying.

## How does the user feel when they are doing it?

Understand their feelings by observing their facial expressions, gestures, and language.

## Step 2

# Define

### ACTIVITIES

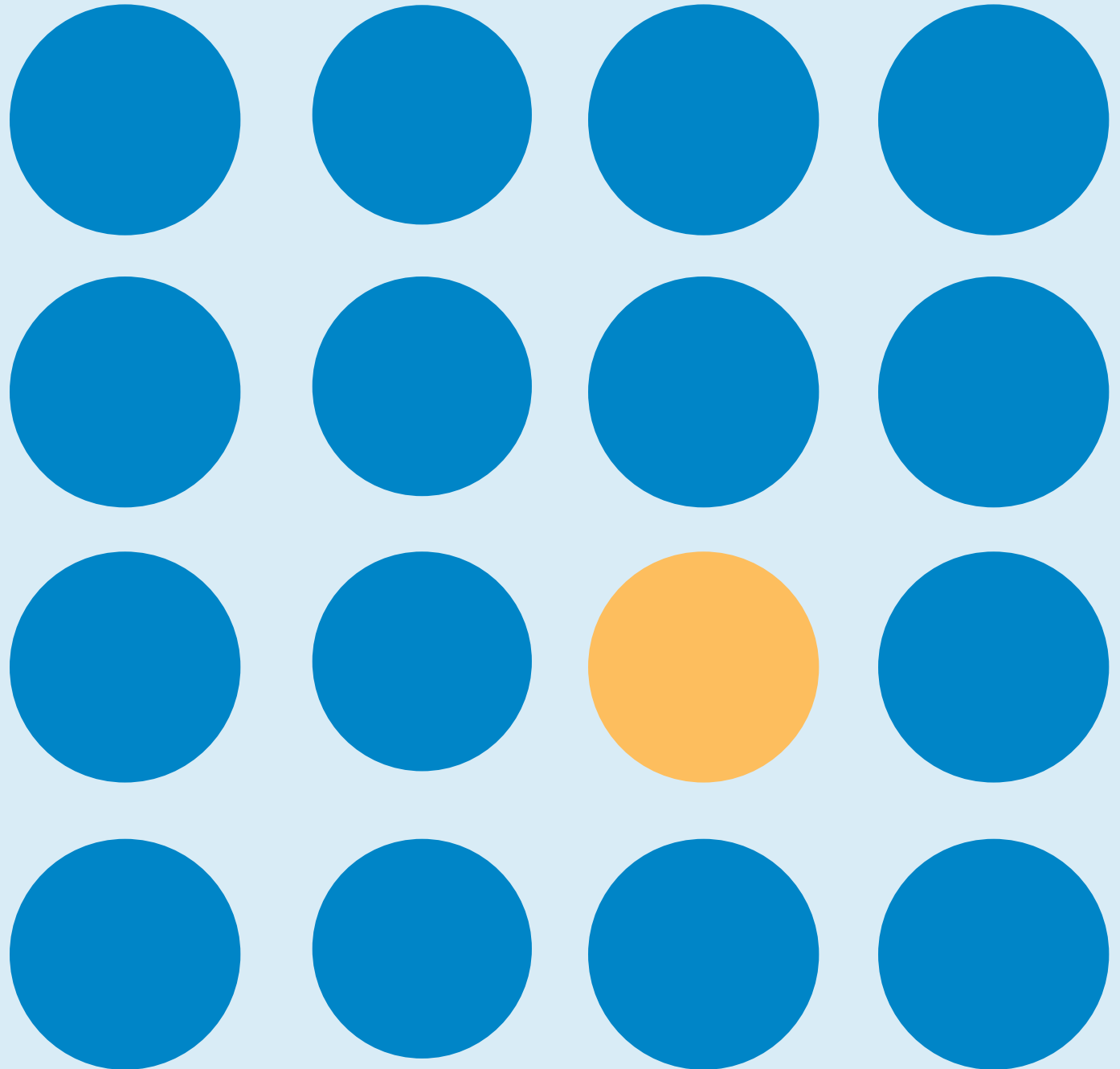
Review your findings

Look for patterns

Craft insights

Identify a point of view

Write "How might we..." questions



# Review your findings

Time: 10 mins each  
Players: Individual, full team  
Materials: Pen, sticky notes , materials from interviews or observations like notes, transcripts, videos, etc.

Reviewing findings allows your team to process, organize, and make sense of all the information you gathered in the empathy phase. If possible, review findings immediately after each interview or observation.

## Step 1: What moments stood out to you?

Go through notes, images, etc. from interviews and observations. What surprised you? What did you learn? Did you have a new idea? Write down at least 5 of these moments or quotes on the blanks below or on sticky notes.

INDIVIDUAL: 10 MINS

## Step 2: What moments stood out to your team members?

Share what you wrote with your team members. Are your teammates' moments the same as yours? Write down any of their moments or quotes that were different from your own.

FULL TEAM: 10 MINS

# Look for patterns

ADVANCED

Time: Minimum 20 mins  
Players: Full team  
Materials: Pen, findings, and data (notes, etc.)

Looking for patterns is one way to bring order and structure to the chaos of your inputs.  
Collect all of your sticky notes with quotes and observations in one place like a wall or a table.

**Cluster sticky notes that are related to each other, that are in conflict with each other, or that you think are interesting together.**

Make at least 3 groups. Feel free to make multiple copies of this page as your number of clusters increases. As you go through the clustering process, specific categories or topic areas will start to emerge. Create simple headlines for each cluster to help you remember why you put those inputs together.

Headline:

---



Insights are simple statements that explain your understanding of each cluster of notes. Insights are more than observations; they explain why you think people act and think in the ways that you observed. Crafting insights can be tricky - remember that it may take multiple attempts to get them right! Use this exercise to evolve your headlines into insights.

Is it a headline or an insight?

Write down your headlines on the left. Look at the **questions to consider**. Do your current headlines check off all of the questions? If so, it is probably an insight! If not, try to revise your headline using the “Questions to consider” as guidelines.

Headline	→	Insight
Headline	→	Insight
Headline	→	Insight
Headline	→	Insight

Questions to consider

☐

Does the headline capture multiple observations or quotes?

☐

Does the headline explain a root cause for the behavior?

☐

Does the headline explain why this finding is important to users?

# Identify a point of view

Time: Minimum 20 mins  
Players: Full team  
Materials: Pen, headlines, and insights

A point of view framework turns your design challenge into an actionable statement that you can generate ideas with. A point of view considers the user, their needs, and your insights. Use this sheet to write down your point of view statement.

Write down a point of view statement by circling the appropriate terms and by filling in the blanks. See the example on the left for reference.

## Point of view example

During / When / After / At / ...

the airport waiting space ,

parents

need(s) a way to

entertain their young, playful children

because / but / surprisingly

they do not want to irritate already frustrated

fellow passengers.

## Point of view

During / When / After / At / ...

Context (when or where) ,

User

need(s) a way to

User's need

because / but / surprisingly

Insight

# Write “How might we...?” questions

Time: Minimum 20 mins  
Players: Full team  
Materials: Pen, insights, and POV your team has made

You can break down point of view statements into more specific questions called “How might we...?” questions. Written in the form of “How might we....[achieve/do/allow/help] X, Y, or Z?” these questions will help you come up with concrete ideas in Step 3: Ideate.

Write down your team’s challenge, your point of view statements from the previous exercise, and three “How might we...?” questions.

## Your team’s challenge

Example: Redesign the airport waiting space.

## Your team’s point of view

Example: Parents need to entertain their young, playful children without irritating already frustrated fellow passengers.

## “How might we...?” questions

Example:

- How might we separate kids from fellow passengers?
- How might we make the wait time the most exciting part of the trip?
- How might we remove wait times altogether?
- How might we make the airport like a spa? Like a playground?
- How might we make playful, loud kids less annoying?

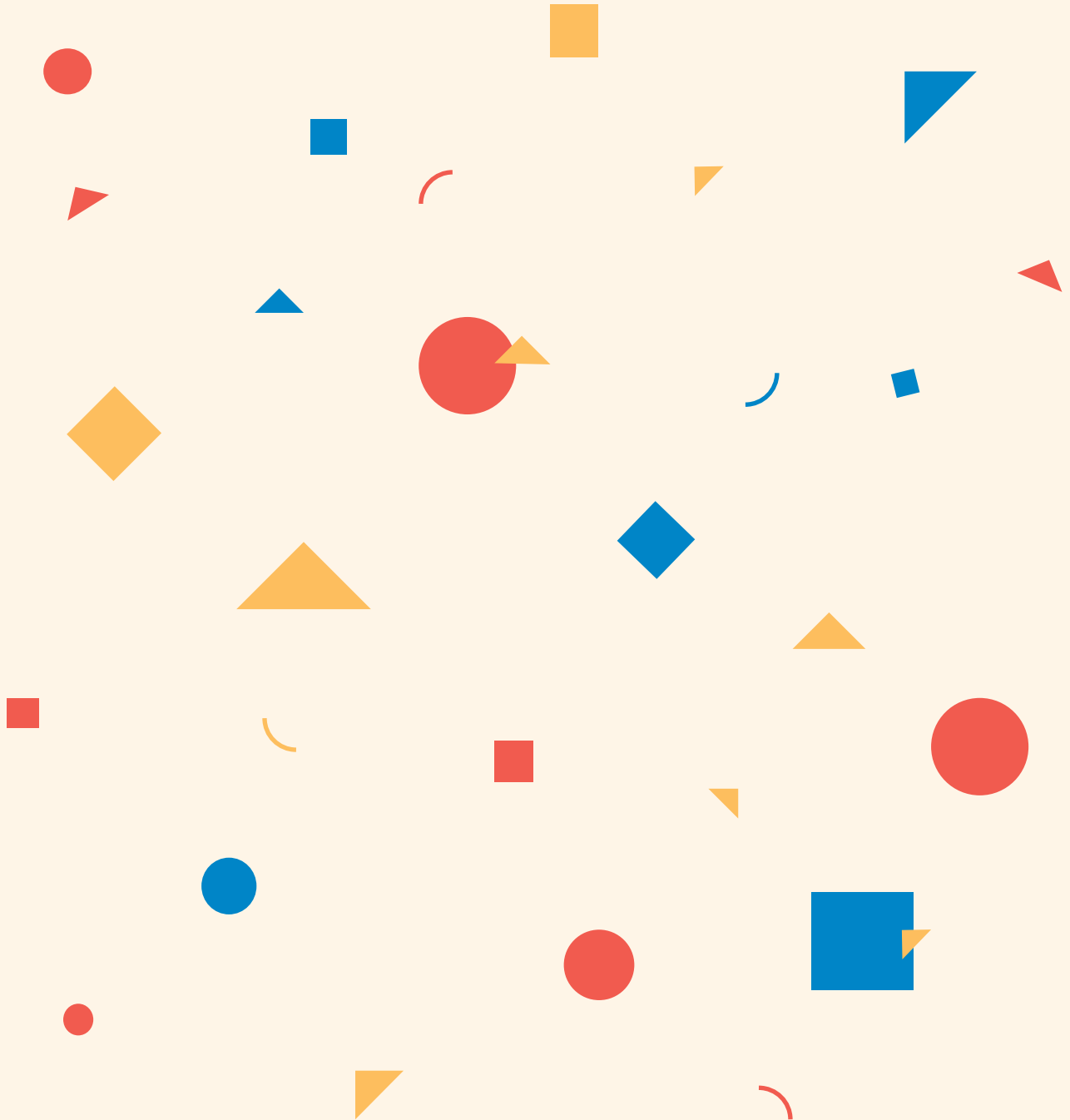
## Step 3

# Ideate

### ACTIVITIES

Brainstorm

Evaluate ideas



# Brainstorm

Time: Minimum 20 mins  
Players: Full team  
Materials: Sticky notes, markers, stickers, papers, snacks, timer

The best way to have a good idea is to have lots of ideas. Brainstorming helps us think freely about possible solutions. Turn your creative mode on, pick one "How might we...?" (HMW) question, and generate as many ideas as possible that respond to that question. After 20 minutes, jump to the next HMW question and come up with ideas again.

## Which topics will you focus on?

Write down 4-5 HMW questions that you want to address in a brainstorm.

## Who will be the facilitator?

Decide who will facilitate each brainstorm. Teammates can take turns facilitating.

## Generate as many ideas as possible!

Write or draw one idea per sticky note. As you go, share your ideas aloud with your team!

Name:

---

### FACILITATOR'S ROLE

- Remind the team of the brainstorming rules.
- Present the brainstorming topic (HMW) to the team. The facilitator also participates in idea generation.
- Keep the mood high and bright.
- Change topics (HMW questions) every 20 mins.

## Count how many ideas you have!

We have \_\_\_\_\_ ideas!

---

### BRAINSTORMING RULES

- Don't judge.
- Go for quantity.
- Encourage wild ideas.
- Build on the ideas of others.
- Stay focused on topic.
- One conversation at a time.
- Draw, sketch, scribble your ideas. Be visual.

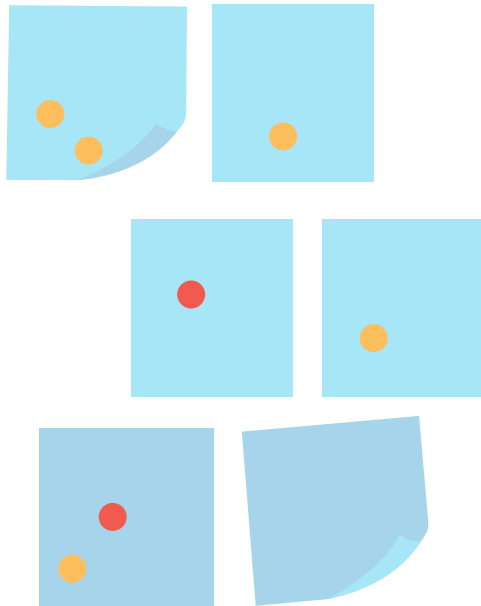
# Evaluate ideas

Time: Minimum 10 mins  
Players: Full team  
Materials: Pen, sticky notes with ideas, dot stickers

After brainstorming, it's time to select a few ideas for prototyping. Evaluate your team's ideas from the perspective of your users. At this point you don't need to think too much about feasibility. Use stickers or dots to vote for your favorites.

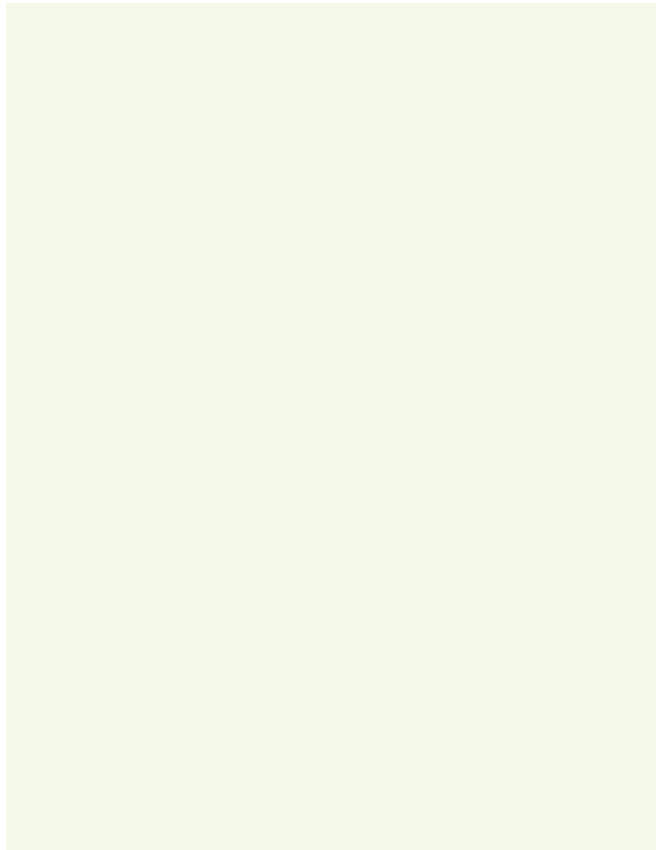
## Which ideas do you like the most?

Give each team member 5 stickers and vote for your favorite ideas.



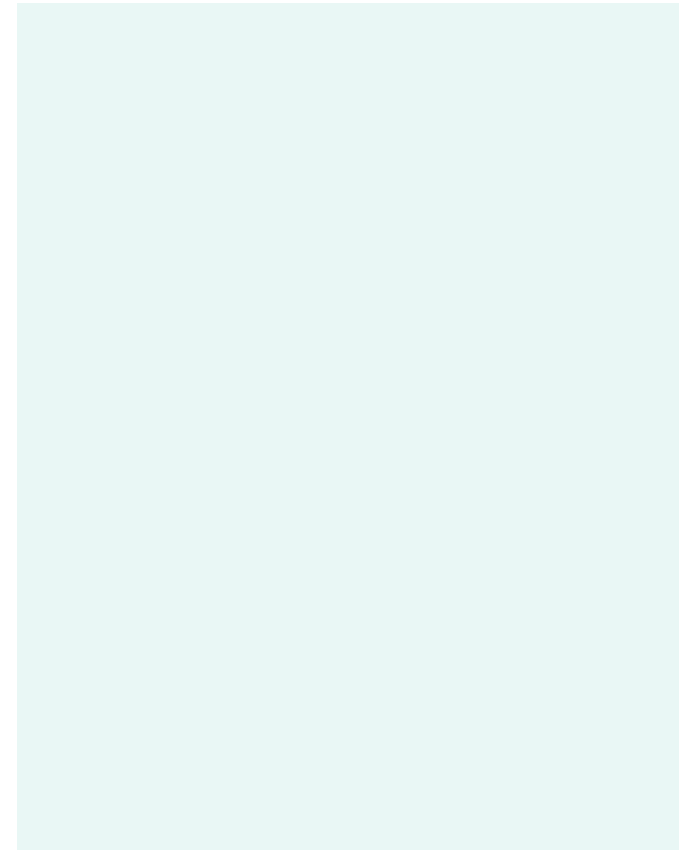
## Which ideas got the most votes?

Write down the 5 ideas that got the most votes from team members.



## Which ideas does your team want to prototype?

Choose and write down 2 ideas to prototype. If there are similar ideas, can any of them be combined?



## Step 4

# Prototype

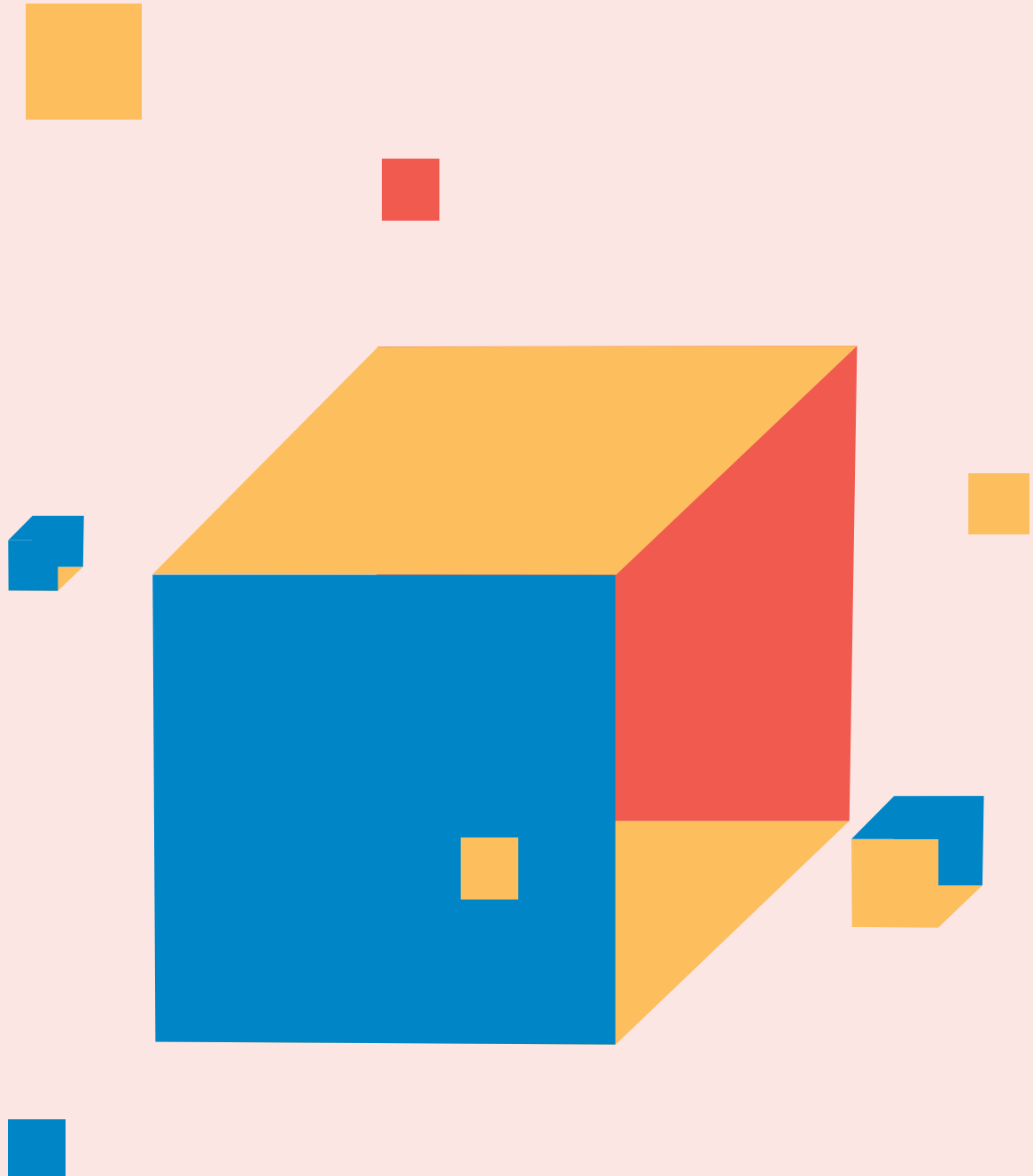
### ACTIVITIES

Map the user journey

Make a paper prototype

Make a digital prototype

Make a physical prototype



# Map the user journey

ADVANCED

Time:

Minimum 15 mins

Players:

Full team

Materials:

Pen

User journeys are one way to tell a story from the user's perspective and to bring your concept to life. How and when does your user interact with your concept? Use this prototyping method to highlight the overall benefits and the key moments of your idea.

**Where and how will a user interact with your team's solution or concept?**

Use the questions below as prompts to create a compelling story.

AWARENESS	FIRST USE	ONGOING USE	ADVOCACY
How does your user find out about your concept? What are they feeling? What do they need?	When and where does your user use your concept for the first time? What do they think?	When and why does your user use your concept again?	When and why does the user recommend your solution to others?
<hr/> <hr/> <hr/>	<hr/> <hr/> <hr/>	<hr/> <hr/> <hr/>	<hr/> <hr/> <hr/>
		How does your concept change your user's behavior? What problems does your concept solve?	What are the other key moments of the experience? When and where does the user experience these moments?
		<hr/> <hr/>	<hr/> <hr/>



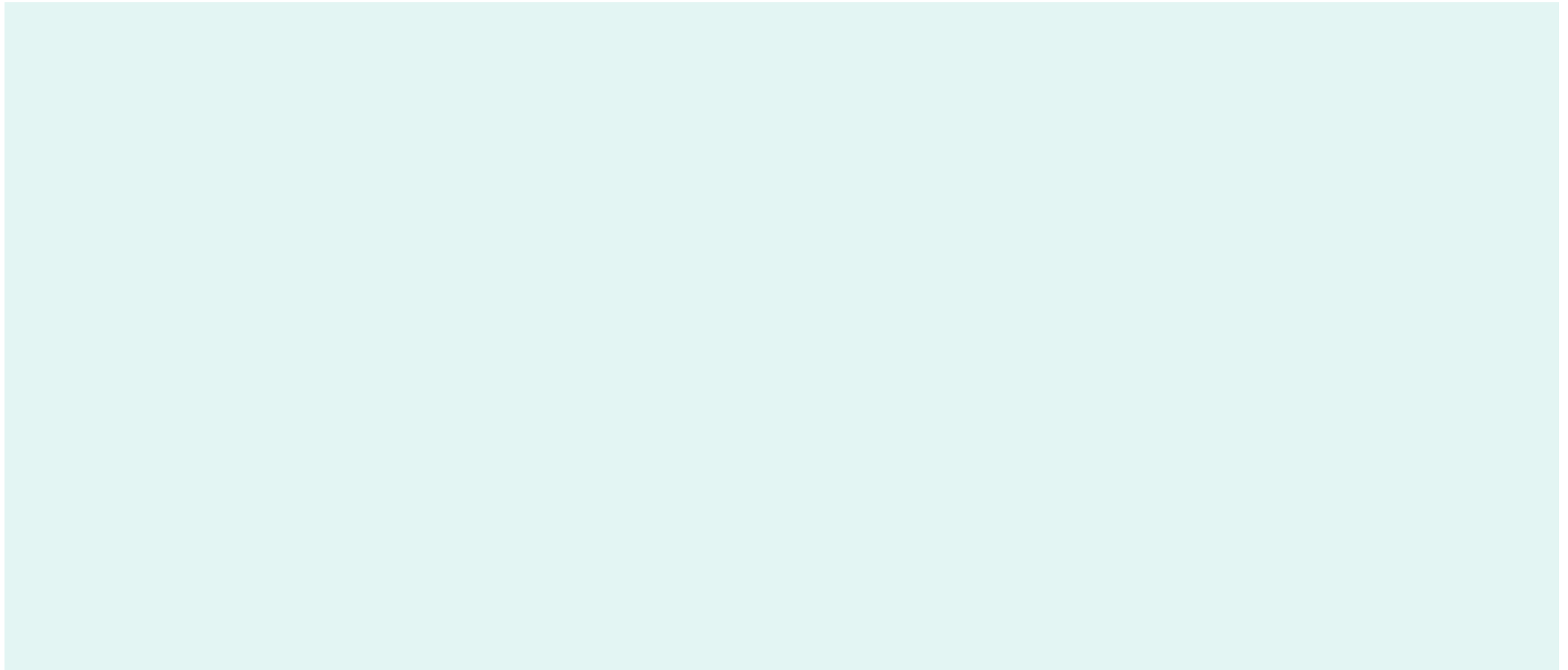
# Make a paper prototype [1/2]

Time:	Minimum 20 mins
Players:	Full team
Materials:	Papers, sticky notes, pens

Paper prototyping is a fast and inexpensive way to visualize your key concept. Sketch out the key elements of your idea. Avoid using too much detail. Use lines, shapes, and headlines.

**How does a user interact with your concept? What does your concept look like?**

Sketch your prototype below. Explore variations of the same idea and feel free to use multiple sheets of paper as needed.



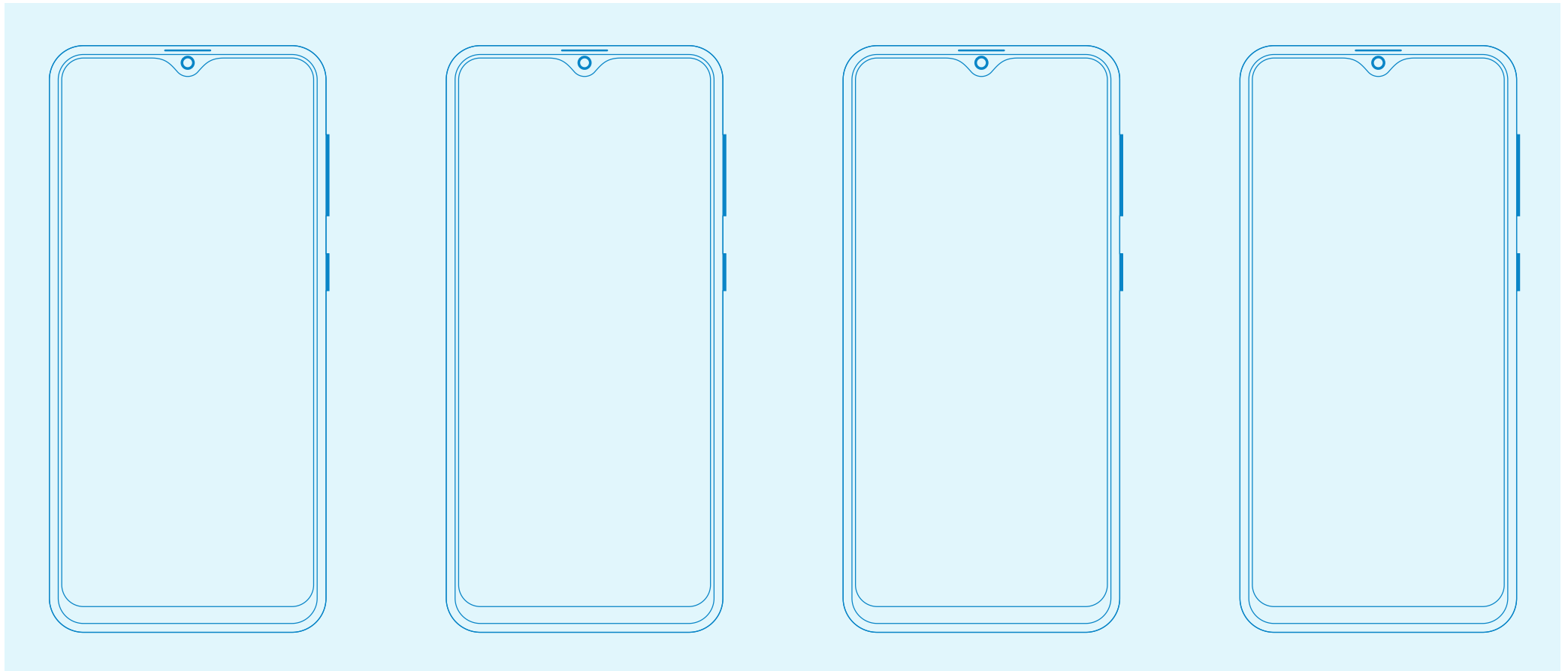
# Make a paper prototype [2/2]

Time: Minimum 20 mins  
Players: Full team  
Materials: Papers, sticky notes, pens

If your team is considering making an app, a paper prototype will help your team align on and define core functions and flow. A paper prototype will save you time and effort before going digital!

## What are the key screens of your digital experience?

Sketch your prototype's key screens below. "Key screens" are screens that are essential to completing core functions in the app. Explore variations of the same idea and feel free to use more sheets of paper as needed.



# Make a digital prototype

ADVANCED

Time:

Minimum 45 mins

Players:

Full team

Materials:

Computer, prototyping software

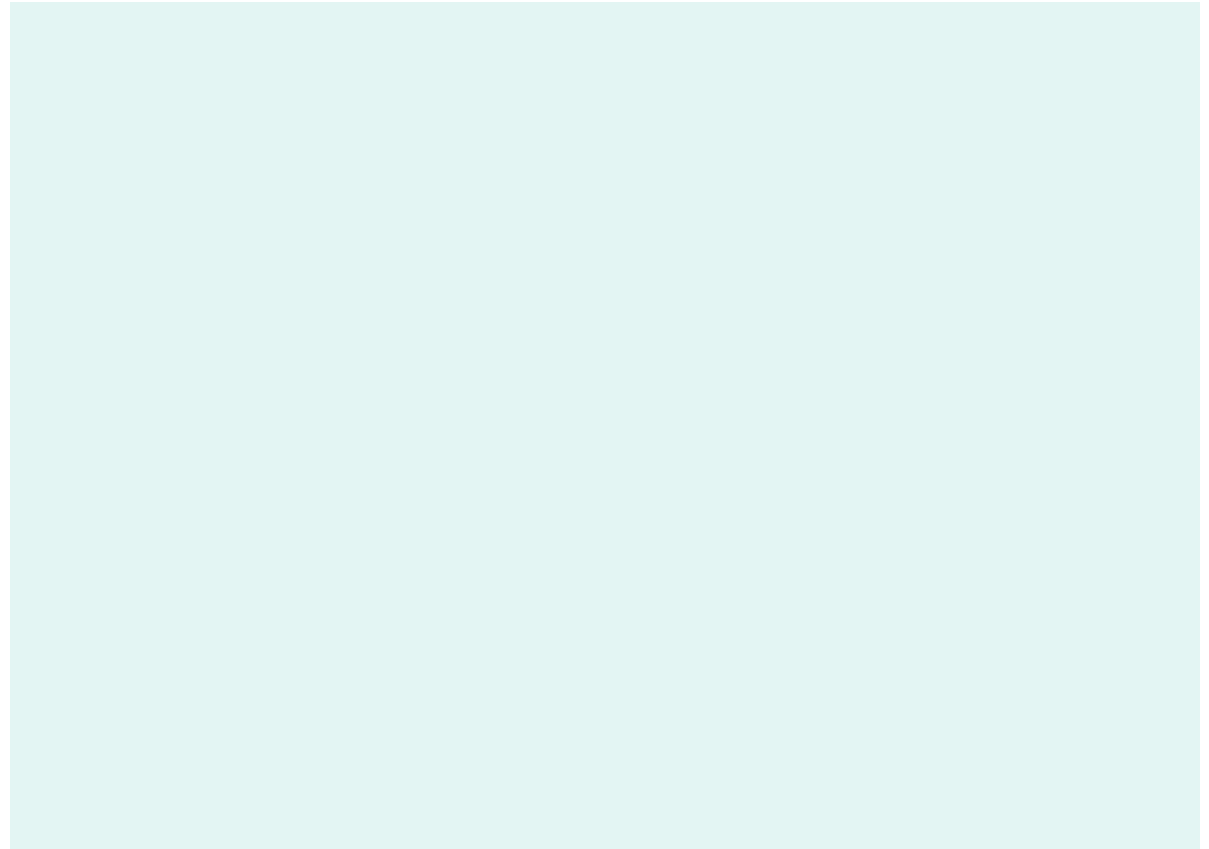
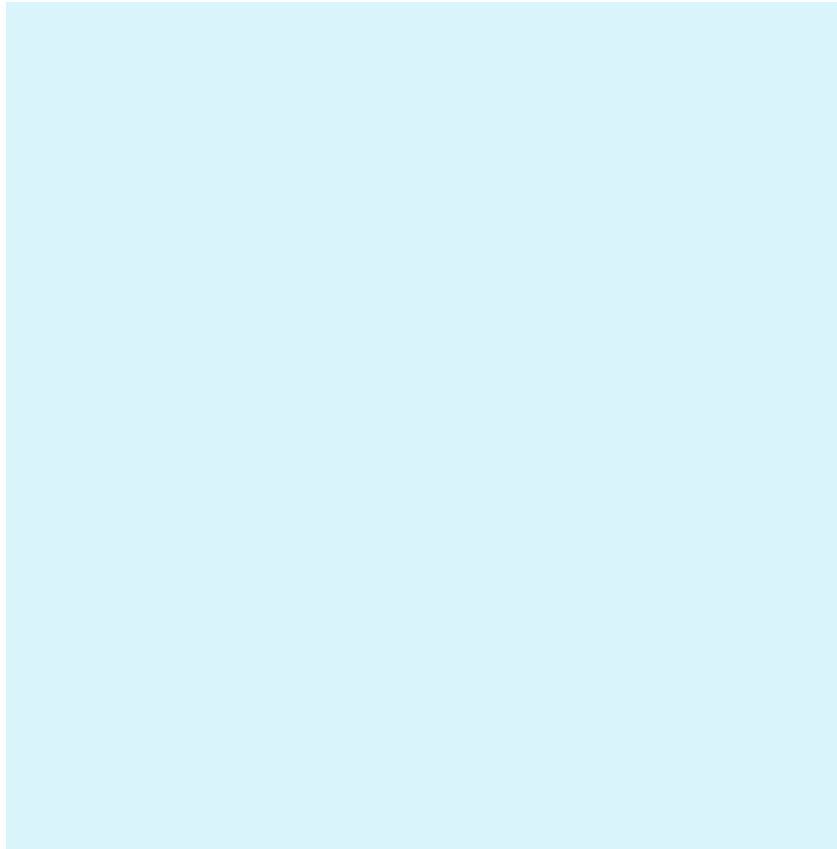
Digital prototypes are a great way to simulate how someone moves through your digital product. Create digital prototypes with software tools such as PowerPoint, Marvel, Figma, InVision, Adobe XD, etc. Remember that you are prototyping to learn, not to design the final product!

## What key moments or features do you want to prototype?

Write down a few moments or features that you want to prototype. Consider the order and flow of your experience. Use the previous exercise to sketch your screens before going digital.

## Create a digital prototype with your key screens.

Attach photos or images of your prototype below.



# Make a physical prototype

Time: Minimum 20 mins  
Players: Full team  
Materials: Pen, paper, any other possible materials

Physical prototypes are tangible models that allow users to see and to physically interact with your idea. Find different materials to create a model of your idea. Depending on your product, useful materials could be: paper, cardboard, foamcore, clay, wood, fabric, or metal.

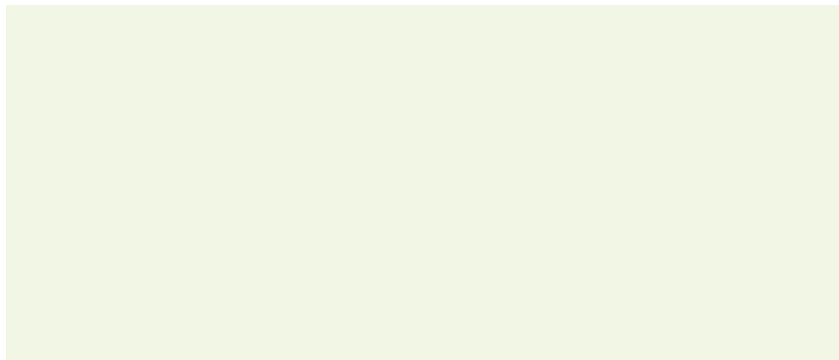
## What features or functions do you want to prototype?

Pick a few aspects of your idea to prototype. Write them below.



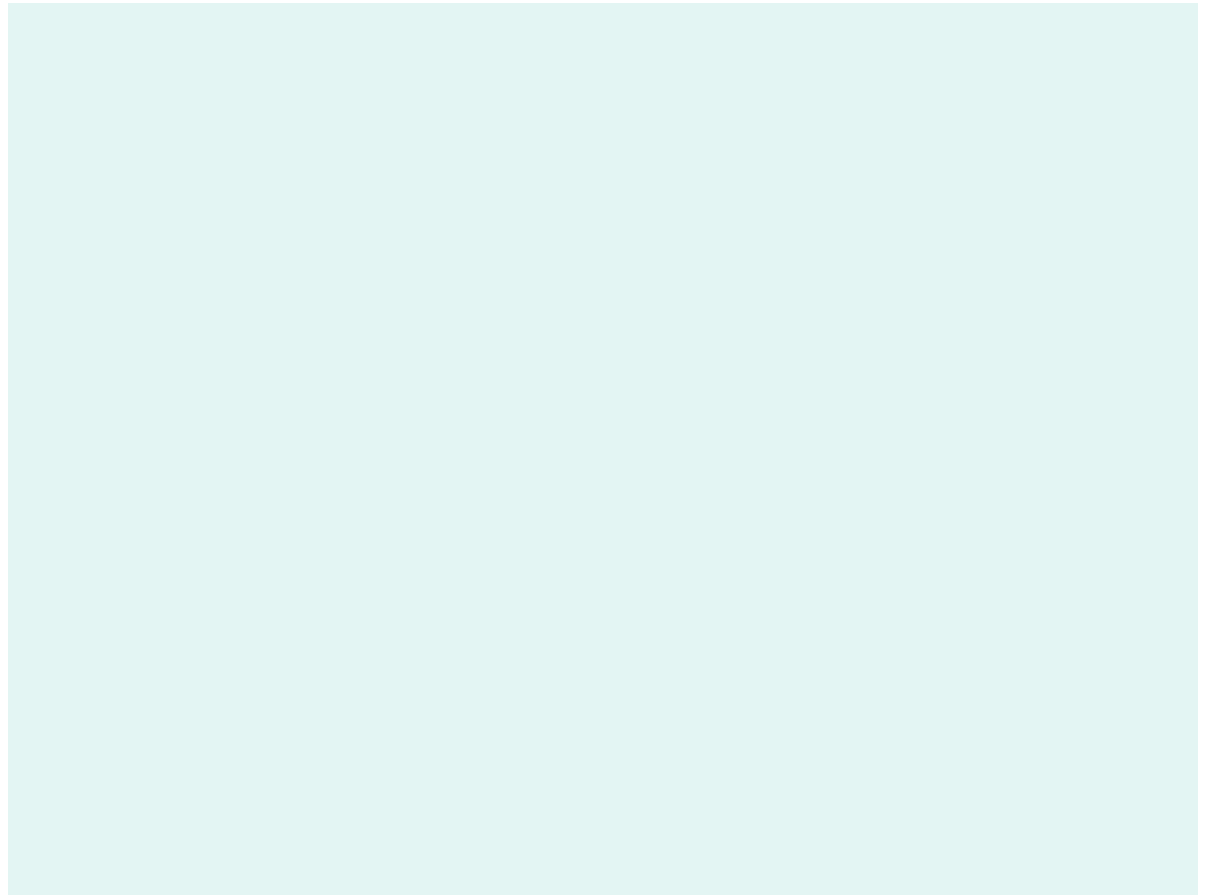
## What kind of materials will you use?

Think about the materials your team can use to make your idea tangible.



## Make your physical prototype.

Attach photos or images of your prototype below.



# Make a physical prototype

ADVANCED

Time:

1 day

Players:

Full team

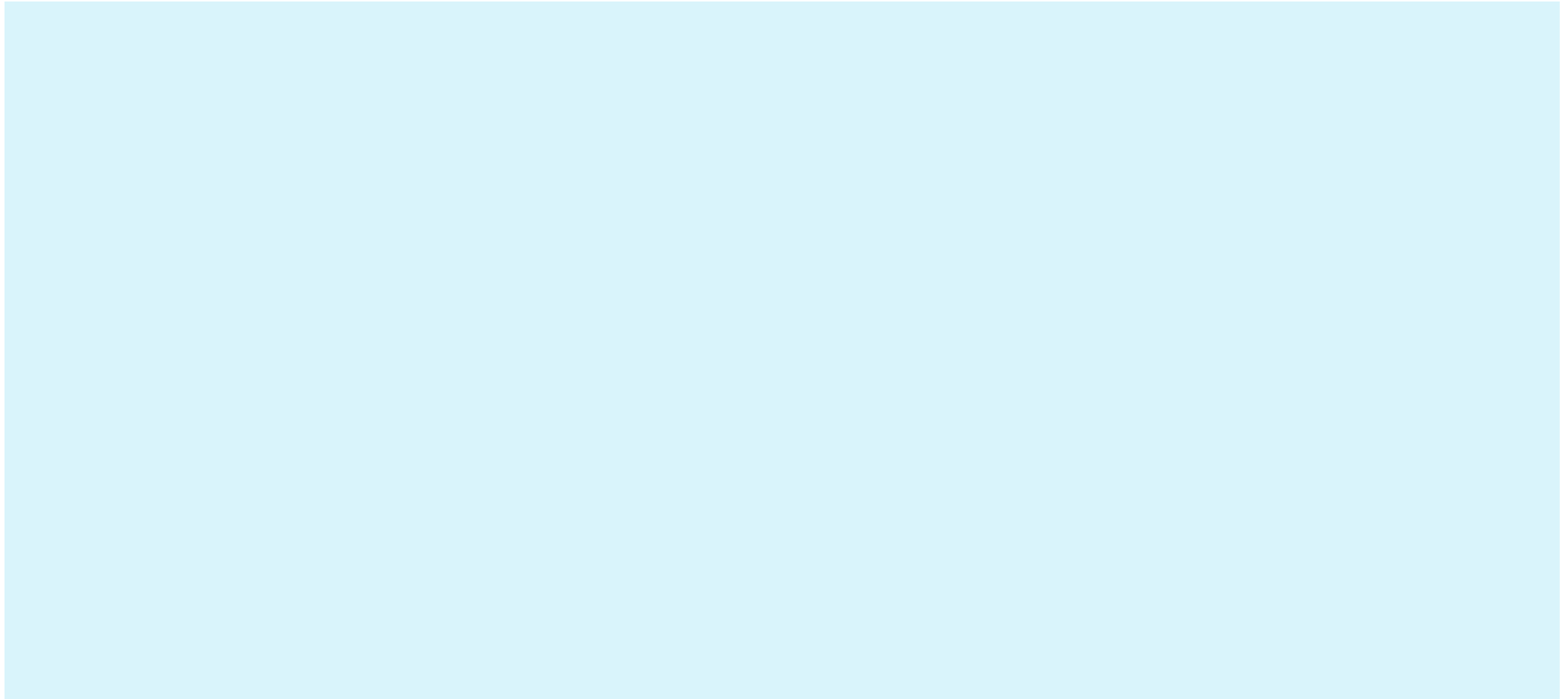
Materials:

Computer, 3D modeling tool,  
3D printer

3D modeling and 3D printing are effective tools for testing the size, shape, or functionality of a physical product. That said, try not to spend too much time and effort making a perfect model. You want your prototype to be just real enough to learn from.

**Make your prototype into a 3D modeled and/or printed shape.**

Attach photos or images of your prototype below.

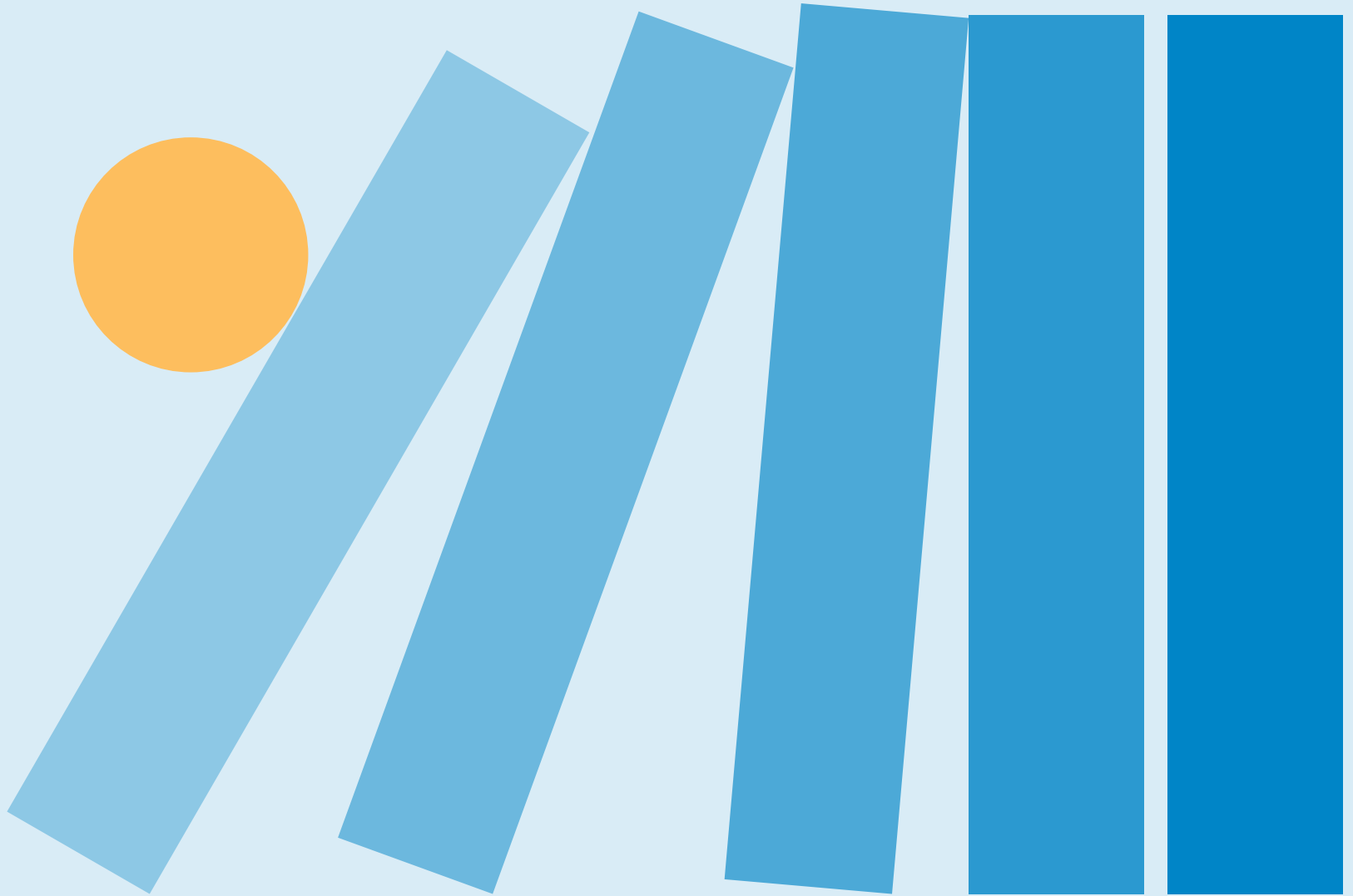


## Step 5

# Test

### ACTIVITIES

Write a discussion guide  
Share with users  
Iterate



# Write a discussion guide

Time: Minimum 15 mins  
Players: Full team  
Materials: Pen

Sharing prototypes with users and experts allows you to test your prototype and improve your concept. Before testing your prototype with users, write a simple script that you can follow and a specific set of questions that you want participants to answer.

## Starting the test

Fill in the blanks to write an introduction to the conversation.

Thank you for testing our prototype today.

My name is \_\_\_\_\_,  
and I'll ask you a few questions to help guide  
you through using our prototype.

As you use the prototype, tell us your honest  
opinions. It may feel awkward, but talk aloud as  
you go! This will help us understand which parts  
of the prototype are successful and which  
need more work.

## What do you want to ask?

Write down 5-10 detailed questions that you want to ask each participant. Think of a range  
of questions that will nudge the user to interact with different parts of your prototype.

### Example:

- How do you feel at this point in the experience? Why do you feel that way?
- What do you think this feature is for?
- Show us how you would go about completing this task.
- Did the prototype behave as you expected? Why or why not?
- Would you use this product or feature? Why or why not?
- Have you used any products like this? How does this compare to other products you've used?

# Share with users

Time: Minimum 30 mins  
Players: Full team  
Materials: Prototype, pen, camera, other materials you need to bring

Time to share your prototypes with users and experts!  
Bring this and the previous page ("Write a discussion guide")  
to the user test and take notes on what you learn.

Name of the participant:

---

## Quotes

Write down any interesting or surprising comments that the participant says.

## KEEP IN MIND

- Present your prototype neutrally. Don't try and sell it!
- Listen carefully. If the participant gets stuck, take notes on where they get stuck and why.
- Remember you are there to learn, not to teach.
- If the participant says something positive or negative about the prototype, ask "Why?"
- Ask if the participant identifies with the need you are solving for.

## Observations

Write down a few observations (participant behaviors, gestures, etc.) that you find interesting during the user test.



# Iterate [1/2]

Time: Minimum 10 mins  
Players: Full team  
Materials: Pen

To iterate on your concept, create a new version of your prototype that addresses the feedback you heard during user testing. You can repeat the iteration process multiple times throughout your project. As you continue to learn, you can continue to modify your prototype, to add new features, or to refocus your point of view.

## What did participants like most?

Write down a few positive pieces of feedback you heard.

## Where did participants get lost or confused?

Write down a few moments where participants got stuck using your prototype.

## What can be improved?

Look at the box titled "Questions to consider." Does your prototype check off all of the questions? If not, write down a few possible ways to improve your solution based on the "Questions to consider."

## Questions to consider

☐

Is the value proposition for our product solid?

☐

Do users understand when and how to interact with our prototype?

☐

Is the level of complexity of our concept appropriate?

☐

Have we made the right assumptions about how the user journey unfolds?

# Iterate [2/2]

Time:

Minimum 10 mins

Players:

Full team

Materials:

Pen

To iterate on your concept, create a new version of your prototype that addresses the feedback you heard during user testing. You can repeat the iteration process multiple times throughout your project. As you continue to learn, you can continue to modify your prototype, to add new features, or to refocus your point of view.

Write down how to revise your concept by filling in the blanks.

We originally thought that Original point of view

From the prototype testing, we observed Quotes, observations from the test

From that we learned Learnings

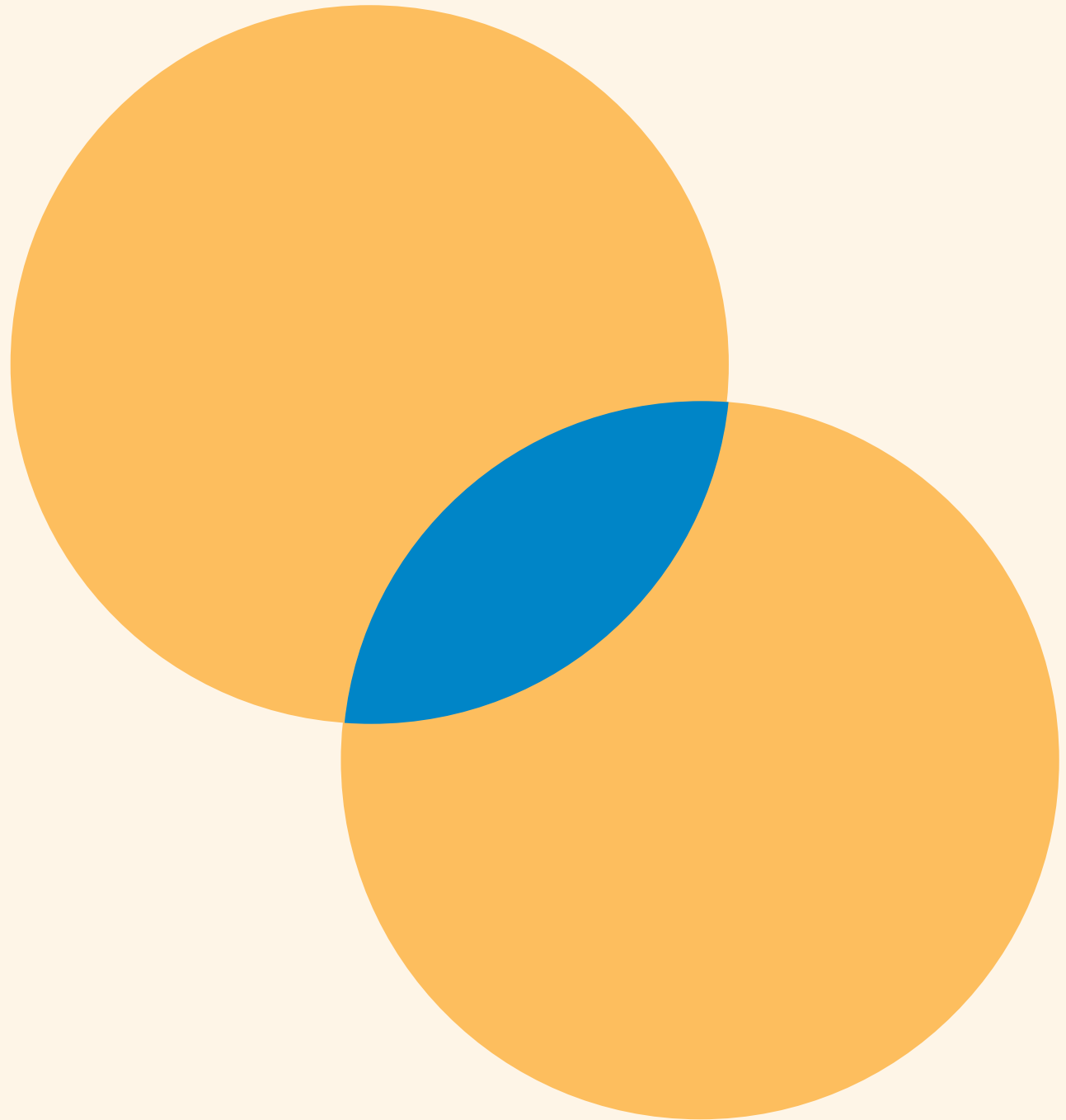
Therefore, we will Decisions and actions for iteration

# Share

## ACTIVITIES

Tell your story

Make a video



# Tell your story [1/2]

ADVANCED

Time:

Minimum 20 mins

Players:

Full team

Materials:

Pen

Telling the story of your project in an effective way helps convince and motivate others to see the value of your concept. Think back to each step of the design thinking process to create a step-by-step storyline that explains how your team developed your idea.

Fill in the blanks to create a script that introduces your team, your challenge, and your solution.

## Introduction

Hello, we are

---

---

Our roles were

---

---

---

---

## Empathize

The challenge we wanted to solve was

---

---

To better understand the problem, our team met with

---

From our research / interviews / observations, we learned

---

---

---

## Define

We formulated the following point of view

---

---

## Ideate

Our solution is

---

---

It works by

---

---

---

It helps

---

---

# Tell your story [2/2]

ADVANCED

Time:  
Players:  
Materials:

Minimum 20 mins  
Full team  
Pen

Telling the story of your project in an effective way helps convince and motivate others to see the value of your concept. Think back to each step of the design thinking process to create a step-by-step storyline that explains how your team developed your idea.

Fill in the blanks to create a script that explains your prototype, your results, and your impact. Think about what you learned and what you want to improve in the future.

## Prototype

To bring our solution to life, we made

---

---

Based on user feedback, we revised our concept to

---

---

## Plans for the future

In the future we hope to

---

---

## Test

To test our prototype, our team met with

---

---

## Impact

Our solution is expected to

---

---

From testing with users, we learned

---

---

---

---

## What we learned

From this project we learned

---

---



# Make a video [1/2]

ADVANCED

Time: Minimum 20 mins  
Players: Full team  
Materials: Pen

Video is a powerful tool for sharing your ideas and stories with others. Once you've outlined your story in the previous exercise ("Tell your story"), develop and sketch key frames to craft your video.

Example from:  
Team Cosoros, Samsung Tomorrow Solutions  
[https://youtu.be/DY\\_Zw2JUhr8](https://youtu.be/DY_Zw2JUhr8)

Frame	Time (sec)	Narration	Roles
	5 sec	[ Interview ] "Since October 2015, wolves have started attacking our livestock. At that time, wolves ate 10 cows and 36 donkeys."	Chu: Find appropriate interview photos and quotes by September 22nd Yoon: Add this frame to the video by September 30th
	7 sec	[ Insight ] "The fundamental cause of these 2 problems is that the exact location of the livestock cannot be identified."	Choi: Draw solution diagram by September 22nd Yoon: Add this frame to the video by September 30th
	7 sec	[ Solution ] "The transmitter attached to livestock transfers the location information to the smartphone through the receiver."	Choi: Draw the graphic by September 22nd Yoon: Add this frame to the video by September 31st

# Make a video [2/2]

ADVANCED

Time: Minimum 20 mins  
Players: Full team  
Materials: Pen

Sketch out key frames that you want to include in your video. Refer back to your the storyline to identify potential key frames. Feel free to make multiple copies of this page as your number of frames increases.

Frame	Time (sec)	Narration	Roles Who will shoot the video or make the graphics for each frame? Write down the teammate's name, their role, and the due date.

Frame	Time (sec)	Narration	Roles
			Who will shoot the video or make the graphics for each frame? Write down the teammate's name, their role, and the due date.



# Acknowledgements

## Content references

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Daylight Design Legal Empowerment Education Workshop

IDEO's Design Thinking for Educators

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Stanford University dschool's Design Thinking Bootleg

*Design Thinking Bootleg* by Scott Doorley, Sarah Holcomb, Perry Klebahn, Kathryn Segovia, and Jeremy Utley at Stanford dschool is licensed under CC BY-NC-SA 4.0

Stanford University K12 Lab Network's d.tech Playbook

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