

2021 FIRST California Workshop Series:
PRODUCT DEVELOPMENT +
DESIGN THINKING

Session 2: Ideation

January 16, 2021



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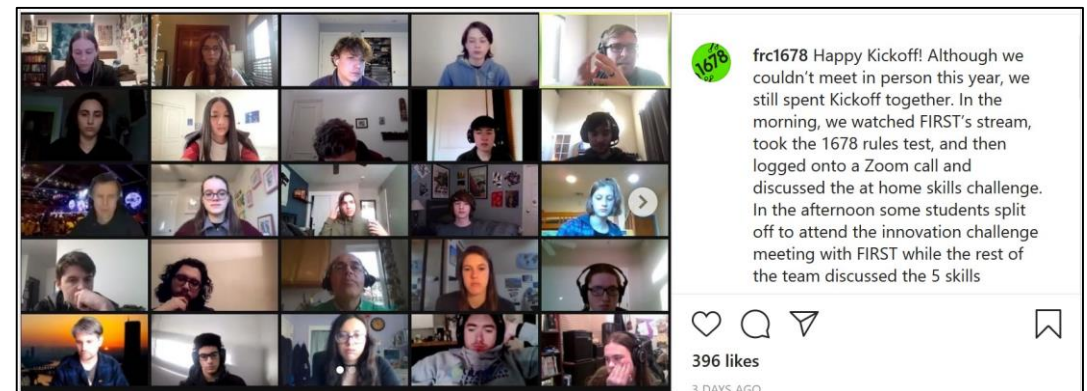
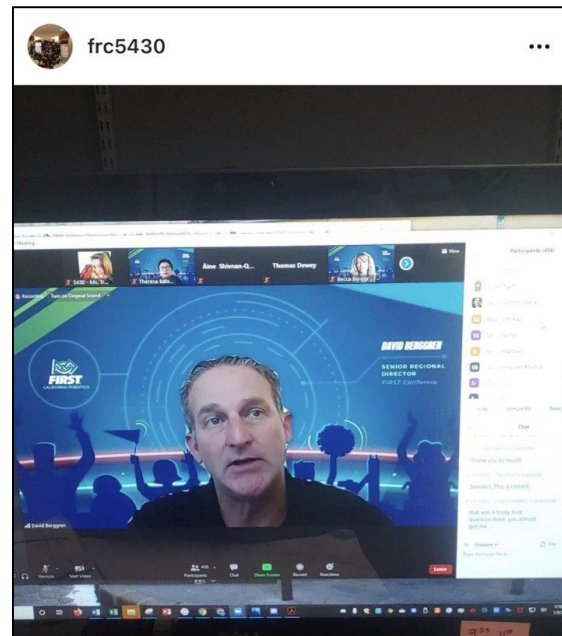
| Identify the Opportunity | Generate Ideas | Evaluate Ideas & Filter | Determine Business Strategies | Develop the Idea | Product Trial |
|--|---|--|---|---|---|
| <ul style="list-style-type: none"> Evaluate the Innovation Challenge Criteria Design Thinking - Empathy & Define Problem Statement Intellectual Property intro | <ul style="list-style-type: none"> Design Thinking - Ideate Brainstorming Diversity & Inclusion of Ideas | <ul style="list-style-type: none"> Product Design Specification Concept Sketches Pugh Analysis Matrix SWOT Analysis Market Analysis | <ul style="list-style-type: none"> Strategy for Startups Product-Market Fit Value Proposition Innovation S-curve Prepare the Pitch | <ul style="list-style-type: none"> Design Thinking - Prototype Design Engineering Manufacturability & Reliability Ergonomics & User Experience Patents | <ul style="list-style-type: none"> Design Thinking - Test Small Group Feedback A/B Testing Refine the Pitch |
| Jan 9 th , 1-3pm | Jan 16 th , 10am-Noon | Jan 23 rd , 10am-Noon | Jan 30 th , 10am-Noon | Feb 6 th , 10am-Noon | Feb 20 th , 10am-Noon |

Teams are also invited to join a *Pitch Party* tentatively planned in March - date finalized after judging schedule is announced.

Session 2: Ideation

| Time | Agenda Item | Presenter |
|-----------------|--|--|
| 10:00 - 10:10am | Intro and Session 1 Recap | Theresa Bateman, FIRST |
| 10:10 – 11:00am | Ideation Techniques, Diversity & Inclusion | James Cooper, Raytheon Fazlul Zubair, Raytheon |
| 11:00 – 11:45am | Design Thinking – Ideation, How-Might-We Exercise | Amelia Traylor, Stanford Avidesh Marajh, Stanford |
| 11:45 - 12:00pm | Wrap up & Prep for Session 3 | Theresa Bateman, FIRST |

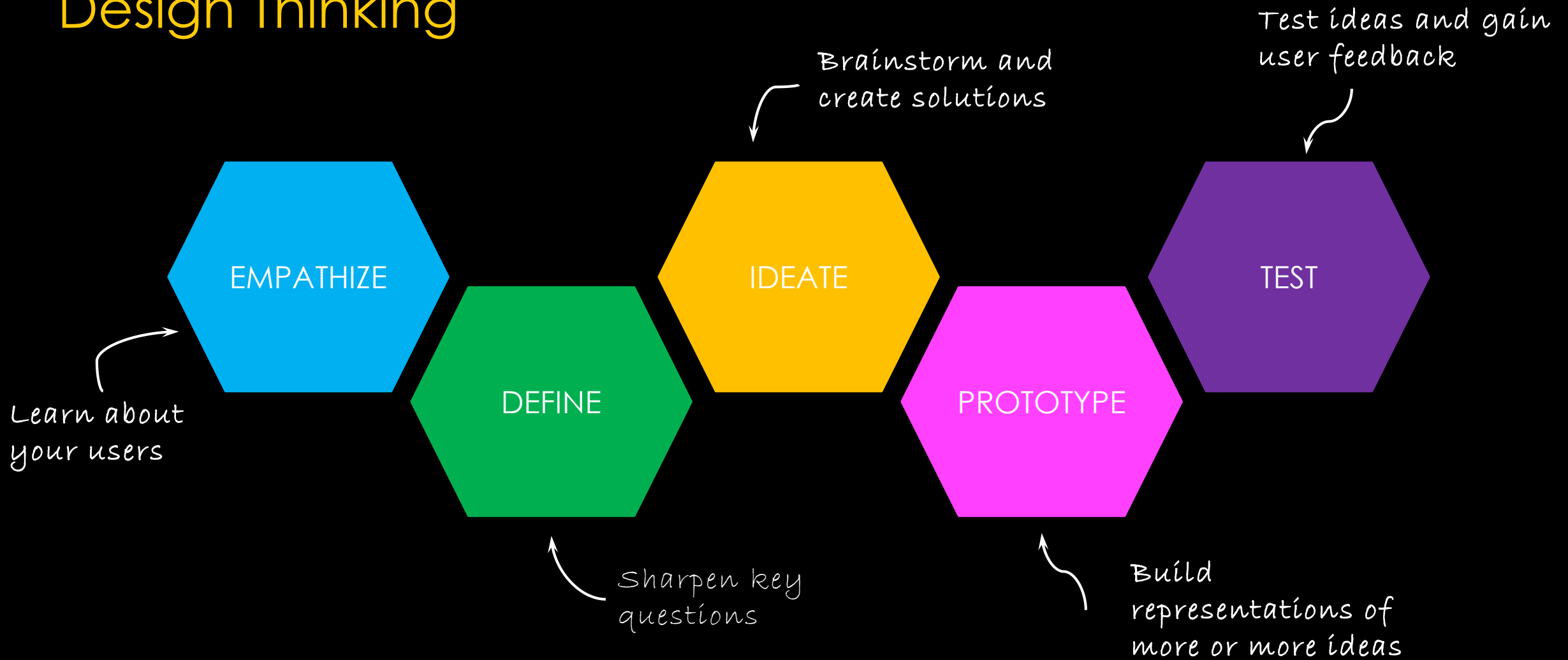
Session 1 Fun & Feedback



What is Design Thinking?

- Design Thinking helps us understand the people we are designing for
- A solution-based approach to solving problems
- Way of thinking and working, and a collection of hands-on methods
- An iterative process in which we seek to understand the user, challenge assumptions, and redefine problems to identify alternative strategies and solutions that might not be instantly apparent

Design Thinking



<https://www.youtube.com/watch?v=jajduxPD6H4>











Session 1 Recap

Strategy & Navigation

Identify the Opportunity

- Evaluate the Innovation Challenge Criteria
- Design Thinking - Empathy & Define
- Problem Statement
- Intellectual Property intro

Jan 9th, 1-3pm

- **Design Thinking – Empathy**
 - Foundation of human-centered design.
 - To empathize, you must **Observe**, **Engage** and **Immerse**
 - **What-How-Why** tool to develop insightful interview questions
- **Design Thinking – Define**
 - Translate Empathy findings into compelling needs & scope a specific challenge
 - To define you, **Focus**, **Understand** and **Develop**
 - Explicitly express a **Problem Statement** from your user's **Point Of View**
- **Strategize & Navigate**
 - Innovation Challenge info and Q&A
 - Intellectual Property and Provisional Patent 1-year timeline from going public
- **Homework – Problem Statement defined**
 - Interview techniques to develop your Problem Statement from the user's POV



<https://www.youtube.com/watch?v=wwQmKsRm9eY>

Session 2: Ideation

wrap-up and prepare for

Session 3: Filtering & Evaluation

Additional Resources

- Opportunities **designed for *FIRST* students**
 - *FIRST* Innovation Challenge Content Series episodes:
<https://info.firstinspires.org/innovation-content-series>
 - Product Design: Form meets Function – January 19
 - Designing for Impact – February tbd
 - Product Development Life Cycle – March tbd

Thanks for joining us & see you next Saturday!

| Ideation | Filtering & Evaluation |
|---|--|
| Generate Ideas | Evaluate Ideas & Filter |
| <ul style="list-style-type: none">• Design Thinking - Ideate• Brainstorming• Diversity & Inclusion of Ideas | <ul style="list-style-type: none">• Product Design Specification• Concept Sketches• Pugh Analysis Matrix• SWOT Analysis• Market Analysis |
| Jan 16 th , 10am-Noon | Jan 23 rd , 10am-Noon |

- **Homework**

- Try a stoke activity with your team
- Develop HMW questions for the problem you identified
- Brainstorm solutions to a set of HMW questions and consider user diversity

- **Session 3: Filtering & Evaluation**

- Saturday Jan 23rd, 10am – 12pm
- Brought to you in partnership with

