

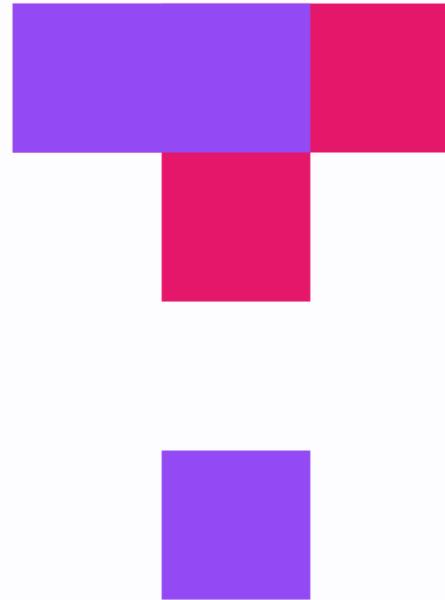
Design Thinking

CS571: Building User Interfaces

Cole Nelson

TopHat

What year are you?



TOP HAT

cs571.org

All course content will be cross-posted here.
If you are on the waitlist, you can use this instead!

GitHub

Now uses personal
access tokens -- **start
the assignment early!**

[More Info](#)



CS571 "Access" Tokens

Prefaced with "bid_"

Be on the lookout late this/early next week!

Will not include any links.

If you are not enrolled but would like one, email me!

TopHat

Did you take this class...



TOP HAT

What will we learn today?

- What is design thinking?
- How do we empathize with users?
- How can we turn this empathy into insight?
- How can we evaluate our designs?



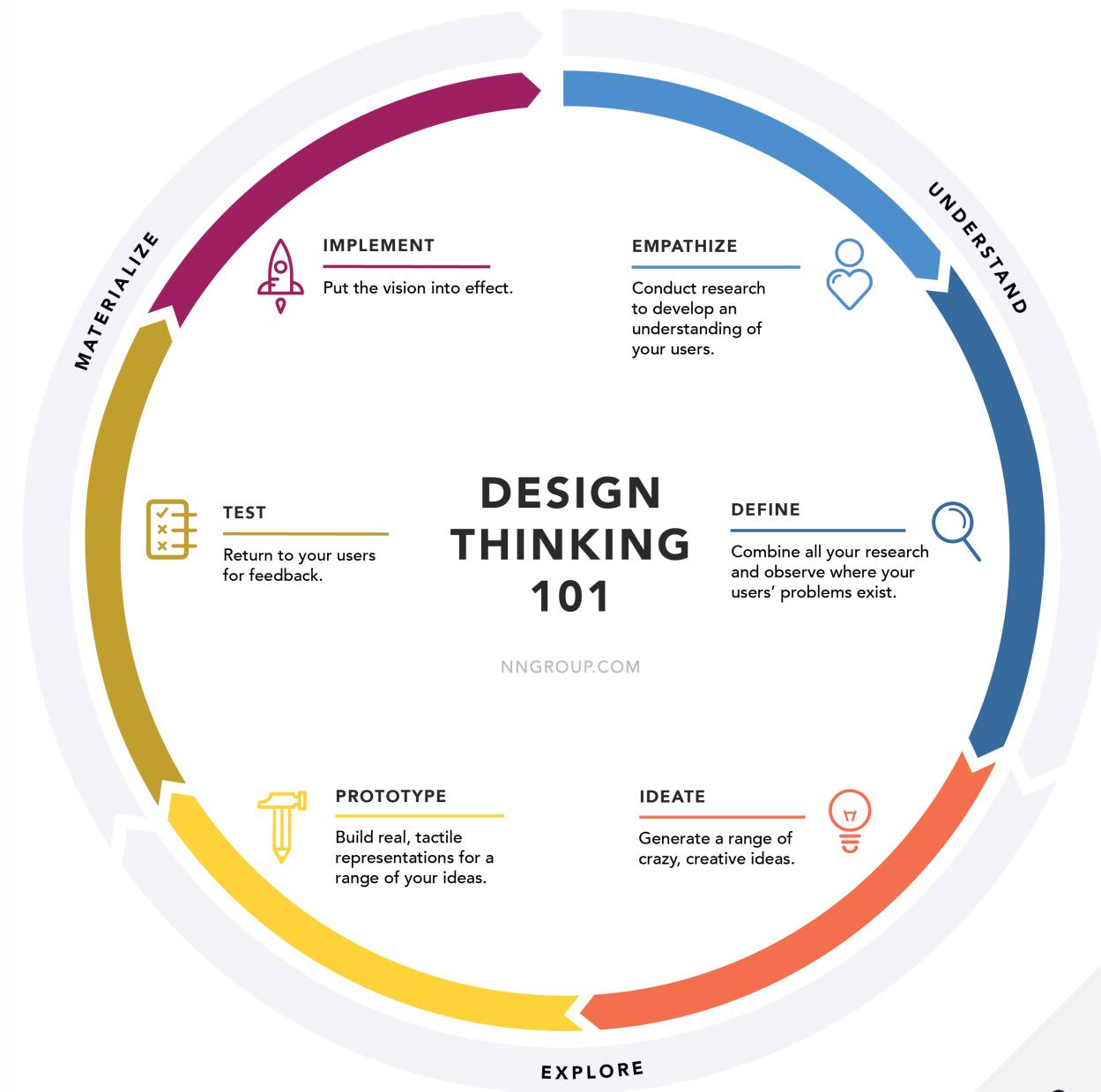
NN/g Design Thinking 101

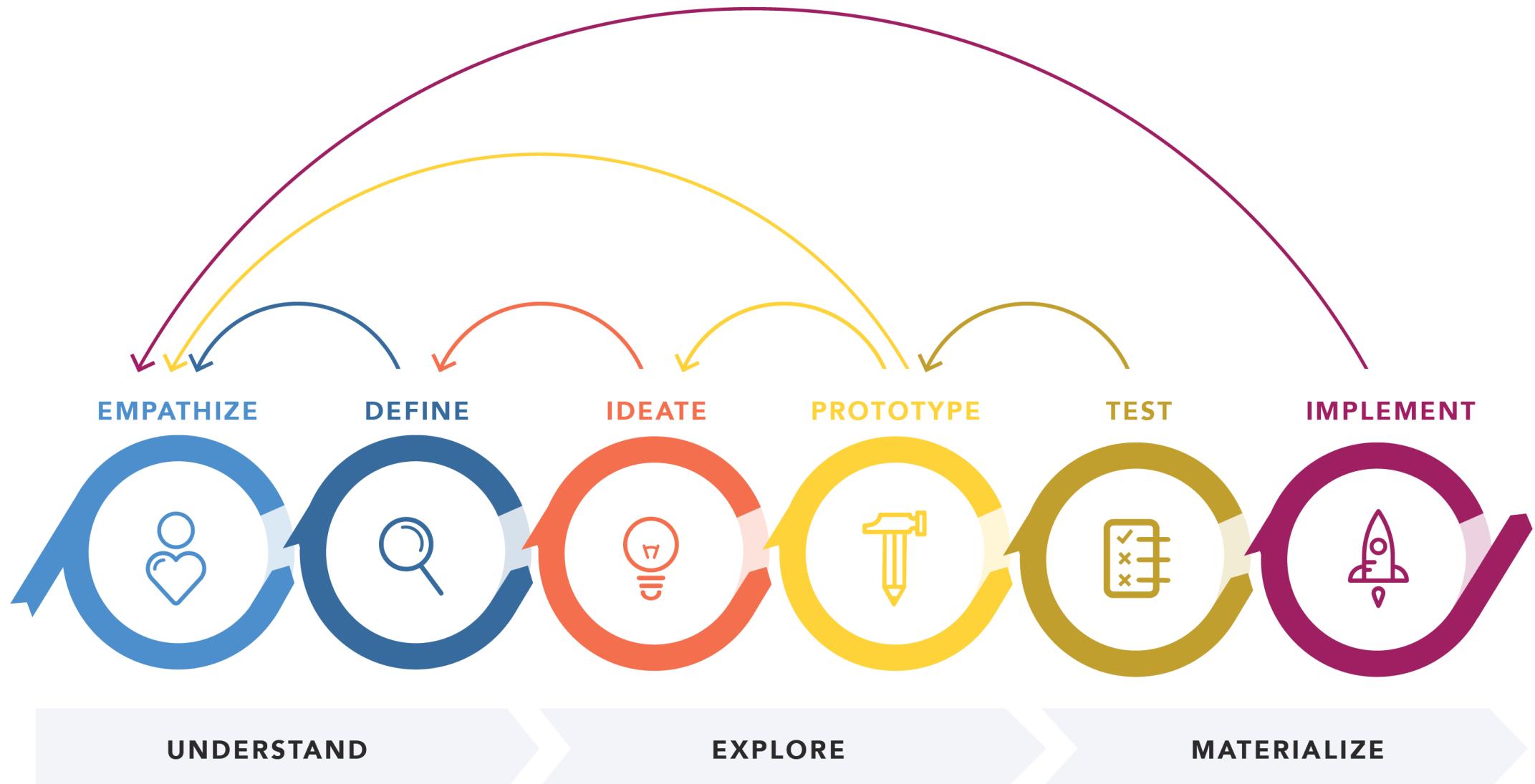
Design Thinking

1. An **approach**: a hands-on, user-centric approach to innovative problem solving
2. A **process**.

NN/g Design Thinking

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02: Design Thinking





Empathize

Conduct research to develop an understanding of your users.

How do we empathize with users?

Understanding user needs, preferences, and expectations by studying what users do, say, think, and feel.

There are many methods to build empathy: we will explore using **contextual inquiries**.

Others may include: ethnography, diary studies, cultural probes... See CS570!

Conducting a Contextual Inquiry

A contextual inquiry is a method for gathering and representing data about the user and his/her work.

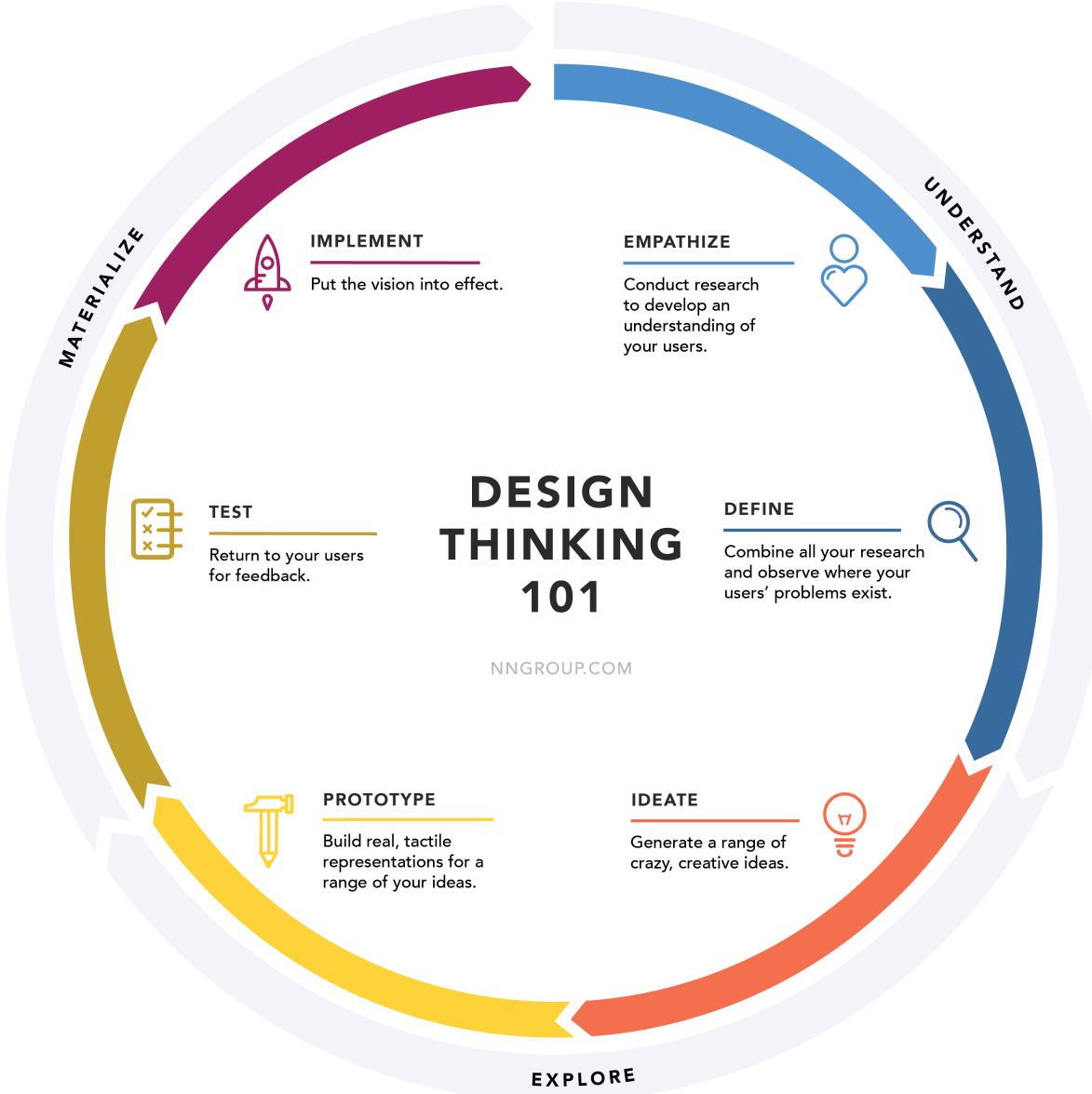
1. Go where the customer works or lives.
2. Observe the customer as he or she works.
3. Talk to the customer about their work.



Contextual Inquiry: Grocery Shopping

Contextual Inquiry Tips

- This is an inquiry, not an interview.
- The client is the master, you are an apprentice.
- Ask questions, but don't distract from the task.
- Focus on the context in which the user acts.



Define

Combine all your research and observe where your users' problems exist.

What does that mean?

- Gathering all findings — **gather**
- Consolidating, categorizing, distilling — **analyze**
- Translate into insight — **recommend**

But how do we go about this?

- Again, there are many methods for analysis.
- The simplest and most powerful method is *affinity diagramming*.

Affinity Diagramming

- **Definition:** Organizing data into clusters based on "affinity."
- It helps you make sense of qualitative, messy data.
- Also known as *affinity mapping, collaborative sorting, snowballing*.
- Used across the board in creative, generative industries.



NN/g Affinity Diagramming

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NNGROUP.COM NN/g

How do we go about it?*

- **Step 1:** Start with an initial set of categories
- **Step 2:** Sort notes into these categories
- **Step 3:** Add subcategories/consolidate as needed.
- **Step 4:** Present each category
- **Step 5:** Rank categories in *severity*, combining importance, prevalence, frequency

*Alternatively, start with no category names, but group notes by likeness.

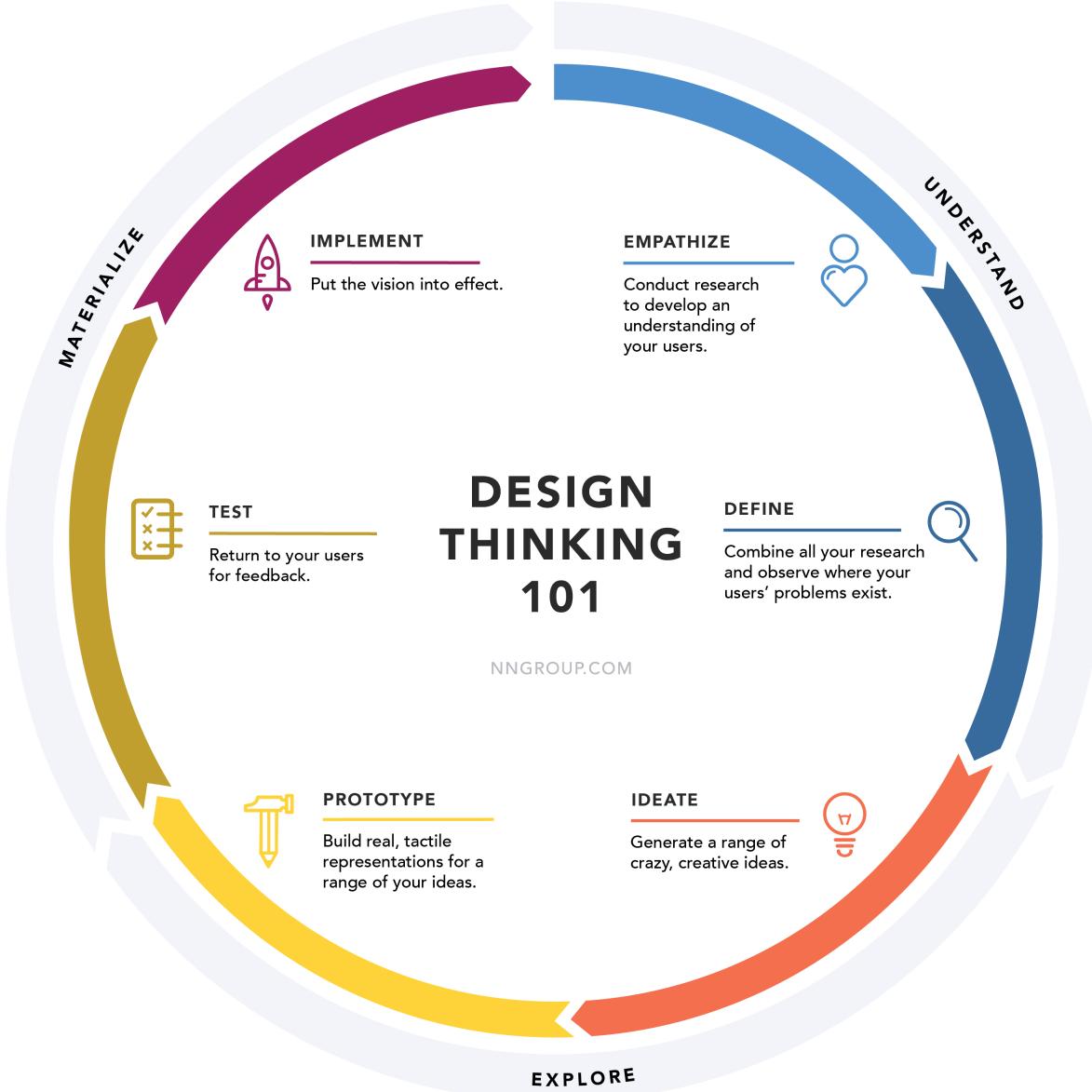
After sorting is complete, name these categories and subcategories.



In-Class Exercise!

Affinity Diagramming

Your findings will serve as *design insight*.



Ideate

Generate a range of crazy, creative ideas.

Ideation

Definition: An active, creative, exploratory, highly iterative, fast-moving collaborative process for forming ideas for design.

Ideation can be done *individually or collaboratively*.

Key Considerations

- Workspace
- Team
- Process
- Rules of engagement
- Method of capturing ideas

GlassDoor



IDEO's Rules of Engagement

1. Defer judgement.
2. Encourage wild ideas.
3. Build on the ideas of others.
4. Stay focused on the topic.
5. One conversation at a time.
6. Be visual.
7. Go for quantity.

What do we do with ideas?

Sketching. Storyboarding.

Sketching & storyboarding exhibit *conceptual designs*.

What is Conceptual Design?

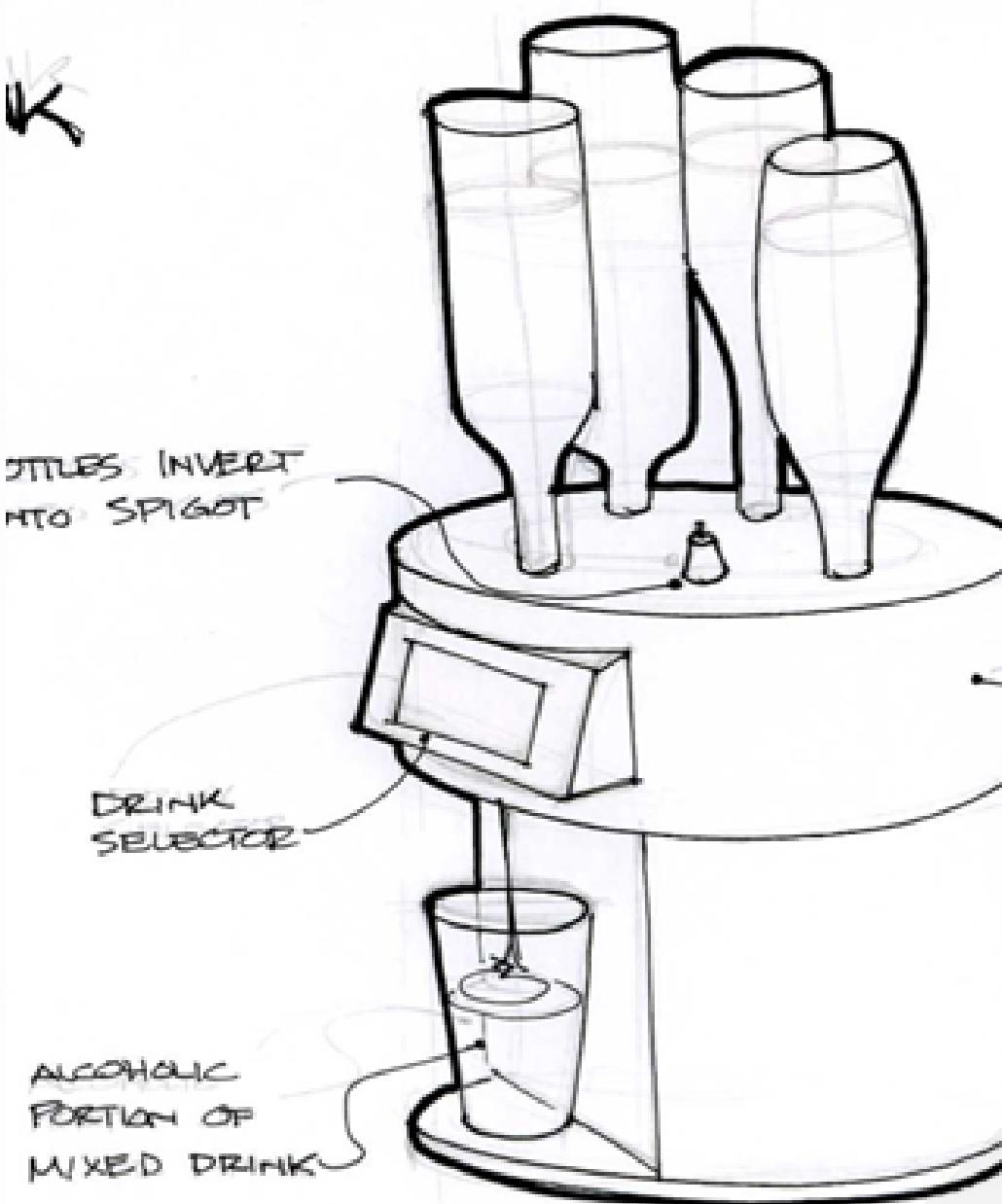
Definition: An abstract characterization of the context, use, or experience with an envisioned design solution that highlights the main premise of the solution.

Sketching

- Everyone can sketch.
- Sketching is more effective than words for most ideas.
- Quick and inexpensive sketches do not inhibit exploration.
- Sketches are disposable.

Buxton, 2007

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Sketching

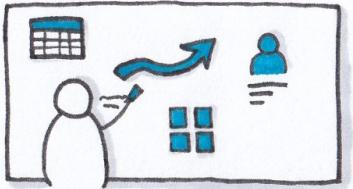
- Sketches are made just-in-time, in-the-moment, when needed.
- Sketches should be plentiful, entertain a large number of ideas, and include multiple sketches of each idea.
- Textual annotations can explain what is going on in the sketch.

Buxton, 2007

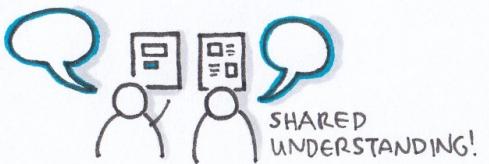


YOU CAN DRAW,
IT IS NOT ABOUT
BEING ARTISTIC!

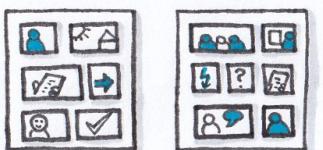
JUST START IT, YOU'LL
BECOME MORE CONFIDENT
OVER TIME!



① FACILITATING MEETINGS &
DESIGN WORKSHOPS,
PROJECT PLANNING



⑤ TEAMWORK, ANY KIND OF
COLLABORATION
(E.G.: „TALKING SKETCHES“)



Medium
⑨ STORYBOARDING
VALIDATING
ASSUMPTIONS

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UX Knowledge Base Sketch #52

SKETCHING

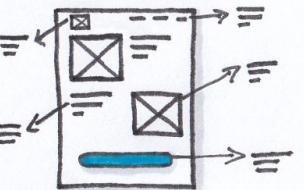
FOR UX DESIGNERS

TOOLS:
JUST GRAB THE NEAREST
PEN & PAPER!

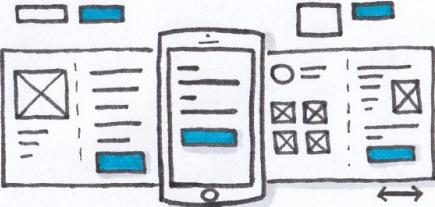


IN CASE OF USER INTERFACES:
VARY THE FIDELITY /
DETAIL LEVEL BASED ON
YOUR GOAL
(DELIVERABLE?
QUICK CONCEPT?)

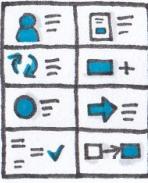
YOUR
AUDIENCE
(CLIENT? TEAM?
YOURSELF?)



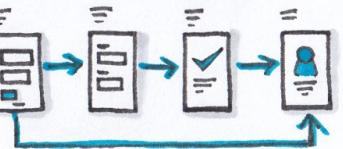
② WIREFRAMING
DON'T FORGET:
ANNOTATIONS ARE GREAT!



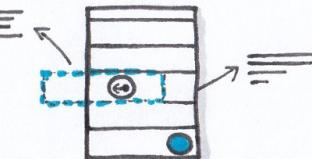
③ PAPER PROTOTYPING -
VALIDATING IDEAS,
TESTING OUT CONCEPTS



④ IDEATION
QUICK IDEA GENERATION
(E.G. DURING A DESIGN SPRINT,
OR JUST ON YOUR OWN)

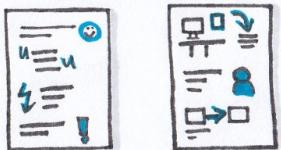


⑥ USER FLOWS
SITEMAPS
INFORMATION ARCHITECTURE

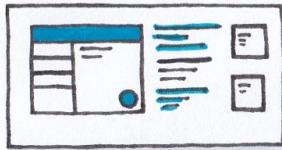


⑦ MAPPING: EMPATHY MAP,
JOURNEY MAP,
PRODUCT ROADMAP ETC.

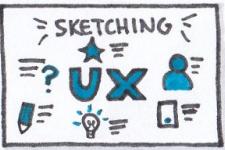
CREATED BY KRISTINA SEROVAY
www.sketchingforux.com



⑩ APPLYING ICONS, VISUALS
IN UX RESEARCH NOTES
(E.G. USER INTERVIEW,
CONTEXTUAL INQUIRY)



⑪ DOCUMENTATION,
PRESENTATION
TO CLARIFY &
TO MAKE IT MORE ENGAGING



⑫ SKETCHNOTING
-CONFERENCE TALKS
-BOOKS
-MEETINGS

Storyboarding

Definition: A sequence of visual frames that illustrate user interaction with the envisioned system, capturing social, environmental, and technical factors that shape user experience.

Take your sketches (in context!) and impose them on a storyboard.

STORYBOARD



- MAKES NOTE OF SUPPLIES NEEDED ON CLIPBOARD
- PHYSICAL INVENTORY

PERSONA:
CORPORATE BUYER,
JAMES



- SELECTS ITEMS FROM FAVORITES LIST
- USES DESKTOP & SUPPLY LIST AS TOOL

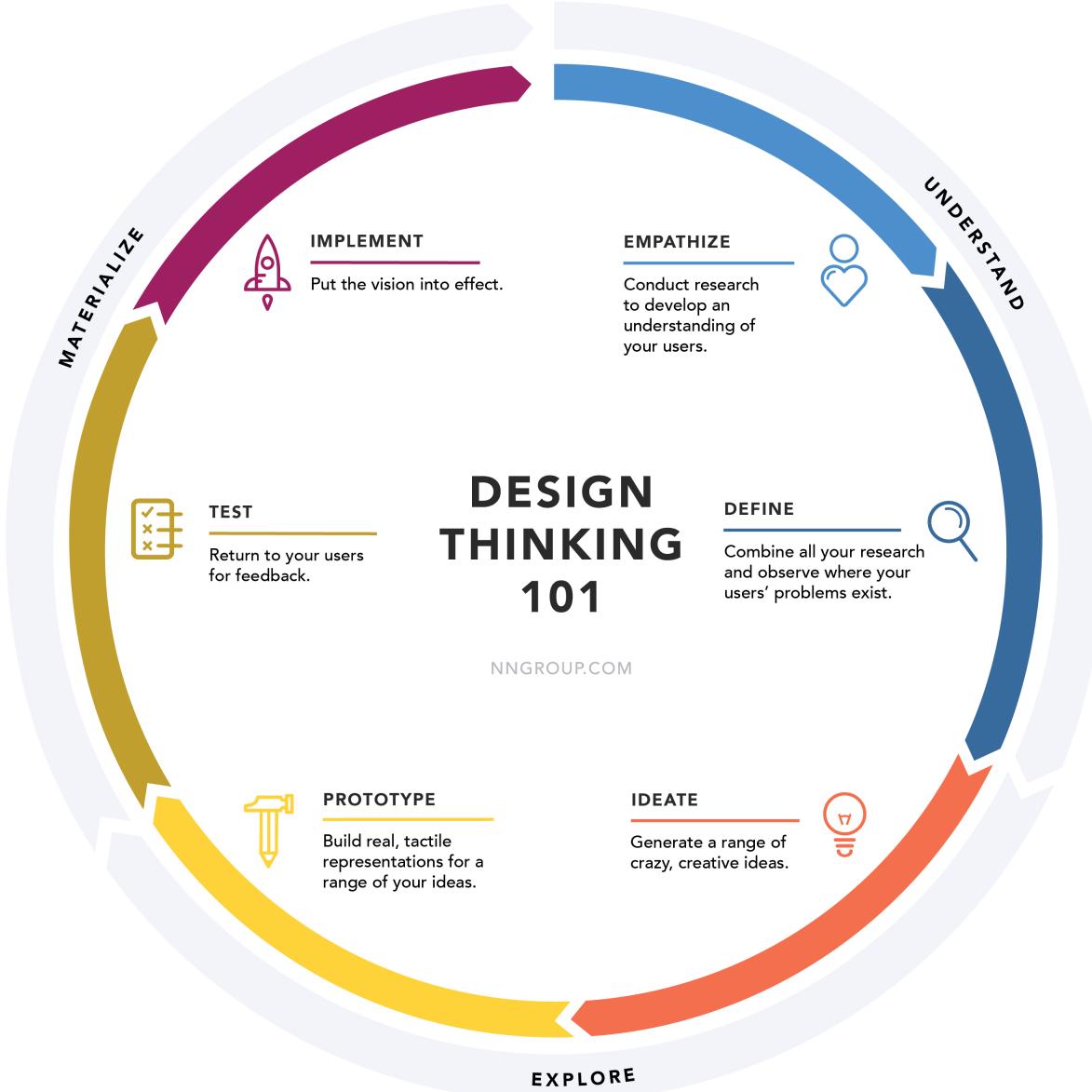
SCENARIO:
REPLENISH OFFICE SUPPLIES



- RECEIVES SHIPMENT WINDOW W/ ORDER SUBMISSION
- SETS PLAN FOR RESTOCK

NN/g: Storyboards Help Visualize UX Ideas

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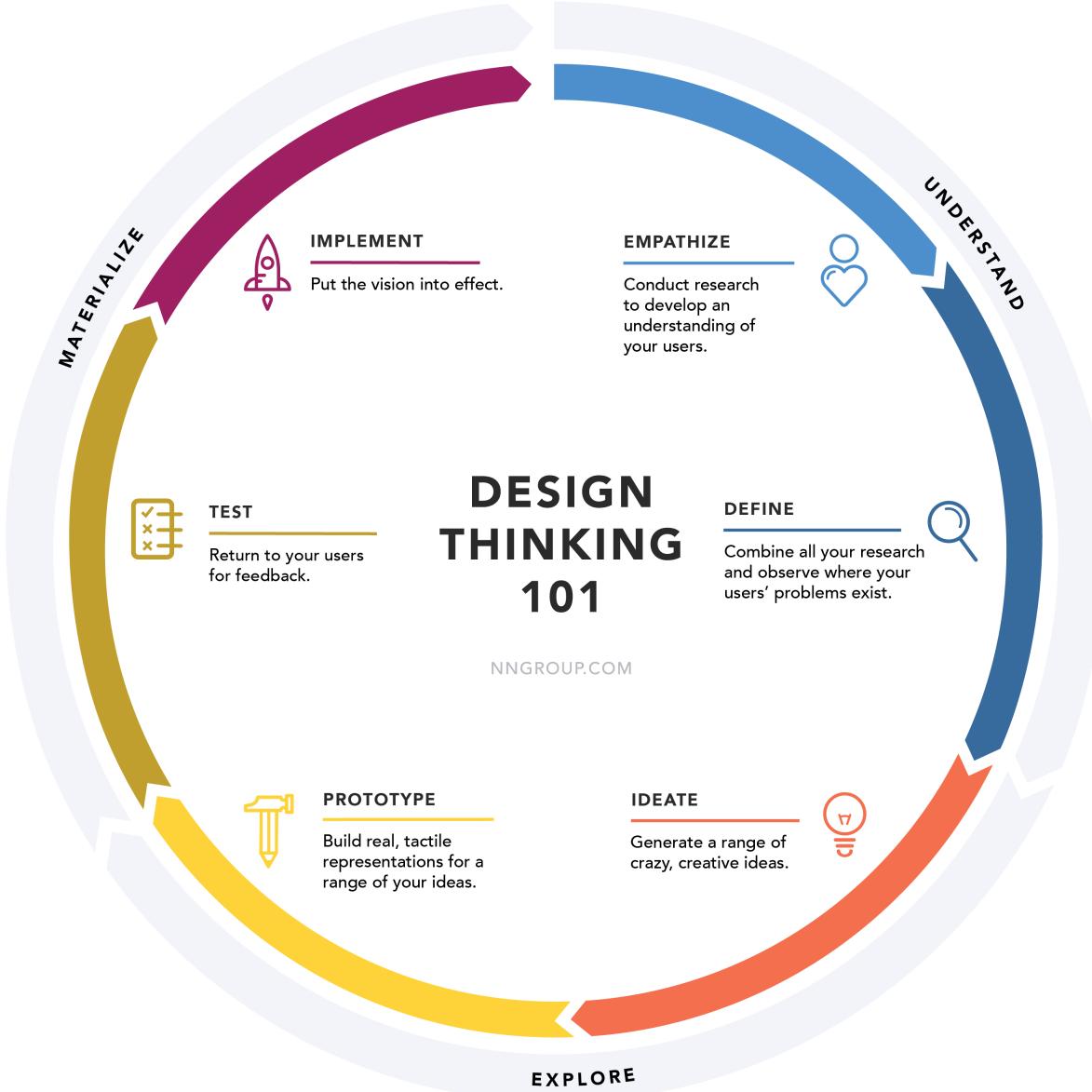


Prototype

Build real, tactile representations for a range of your ideas. We'll visit this in detail in a future lecture.

Key ideas:

- scope
- fidelity
- interactivity



Test

Return to your users for feedback.

Testing Methods

1. **Expert-based** review
2. **User-based** testing

Today we'll visit one form of *user-based testing* called a *think-aloud usability test*.

In future lectures, we will explore other methods..

Conducting a Think-Aloud

1. Identify representative users.
2. Ask users to perform representative tasks.
3. Observe and record what they say and do, noting obstacles, pain points, and failures.

A think-aloud can be *moderated* or *unmoderated*.

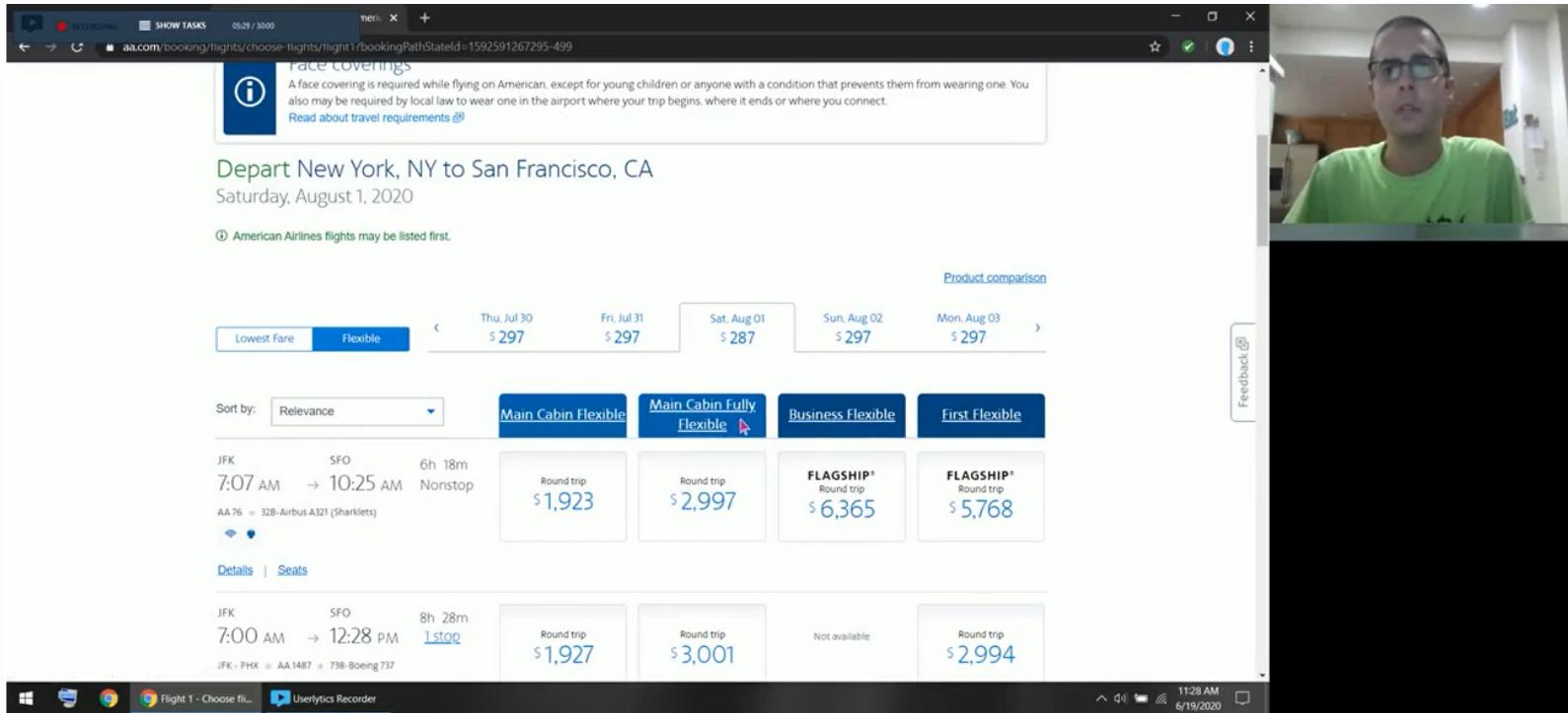
A think-aloud can be done in *field* or in *lab*.

A think-aloud can be done *presently* or *retrospectively*.

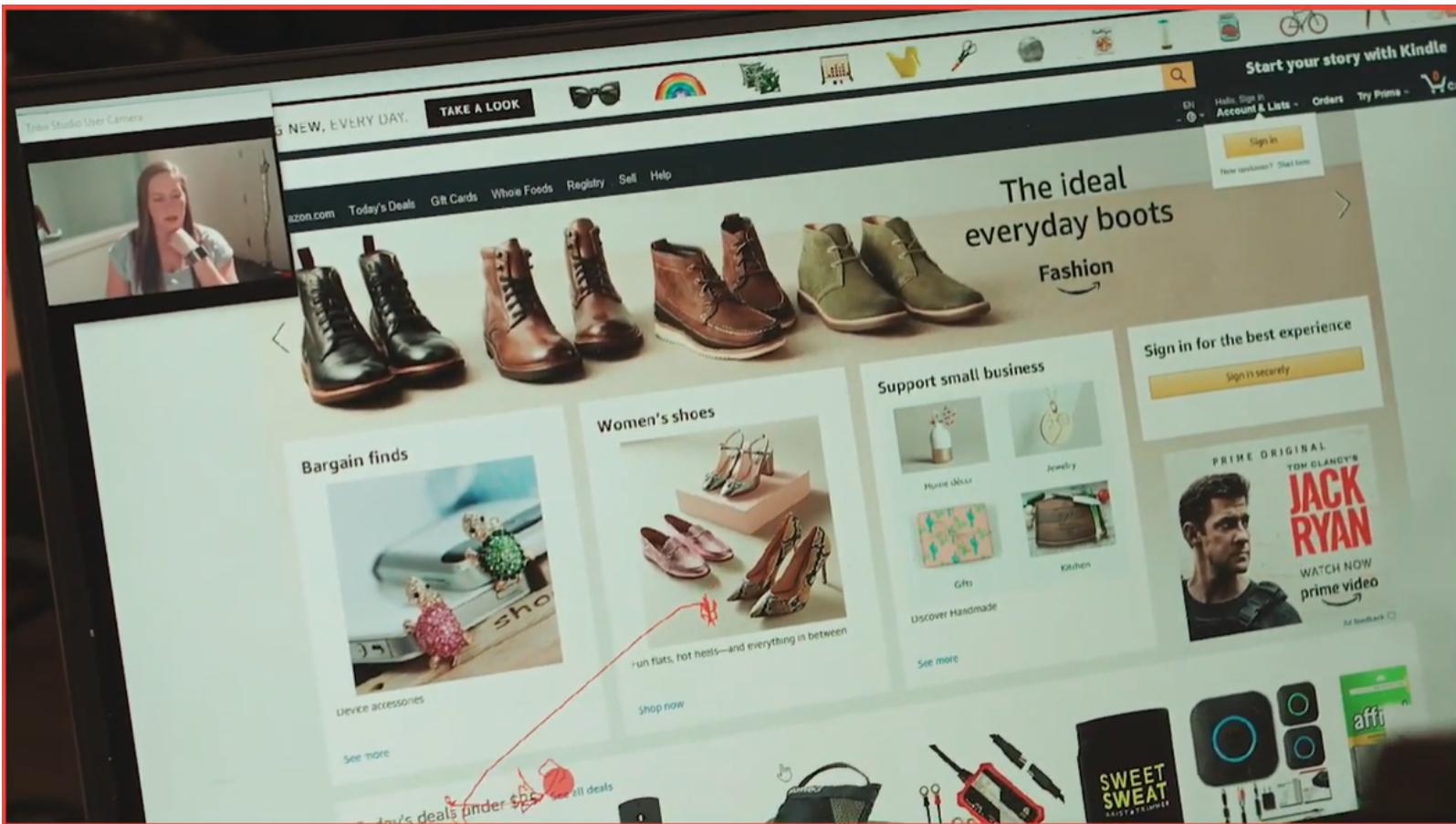


-...and try and say it outloud
as much much as you can.

Think Aloud: Factory (Moderated, Field, Presently)



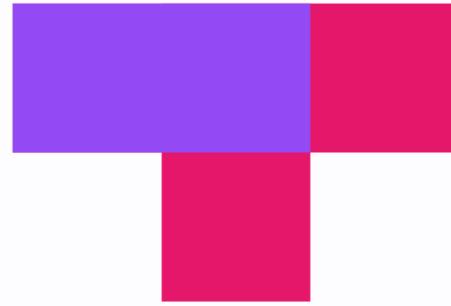
Think Aloud: Airlines (Unmoderated, Lab-ish, Presently)



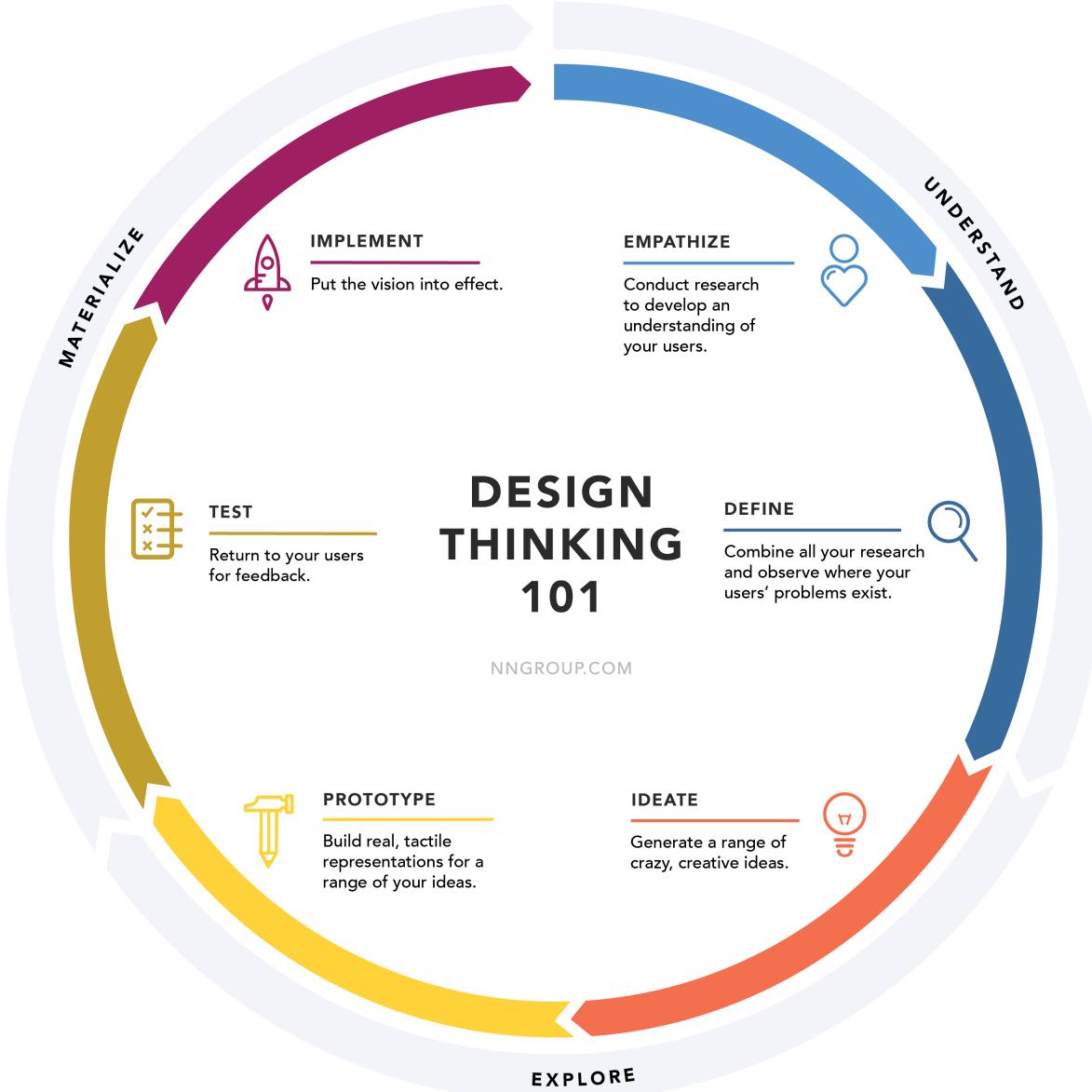
Think Aloud: Tobii (Moderated, Lab, Retrospectively)

TopHat

What are the pros/cons
of using the Think
Aloud Protocol (TAP)?

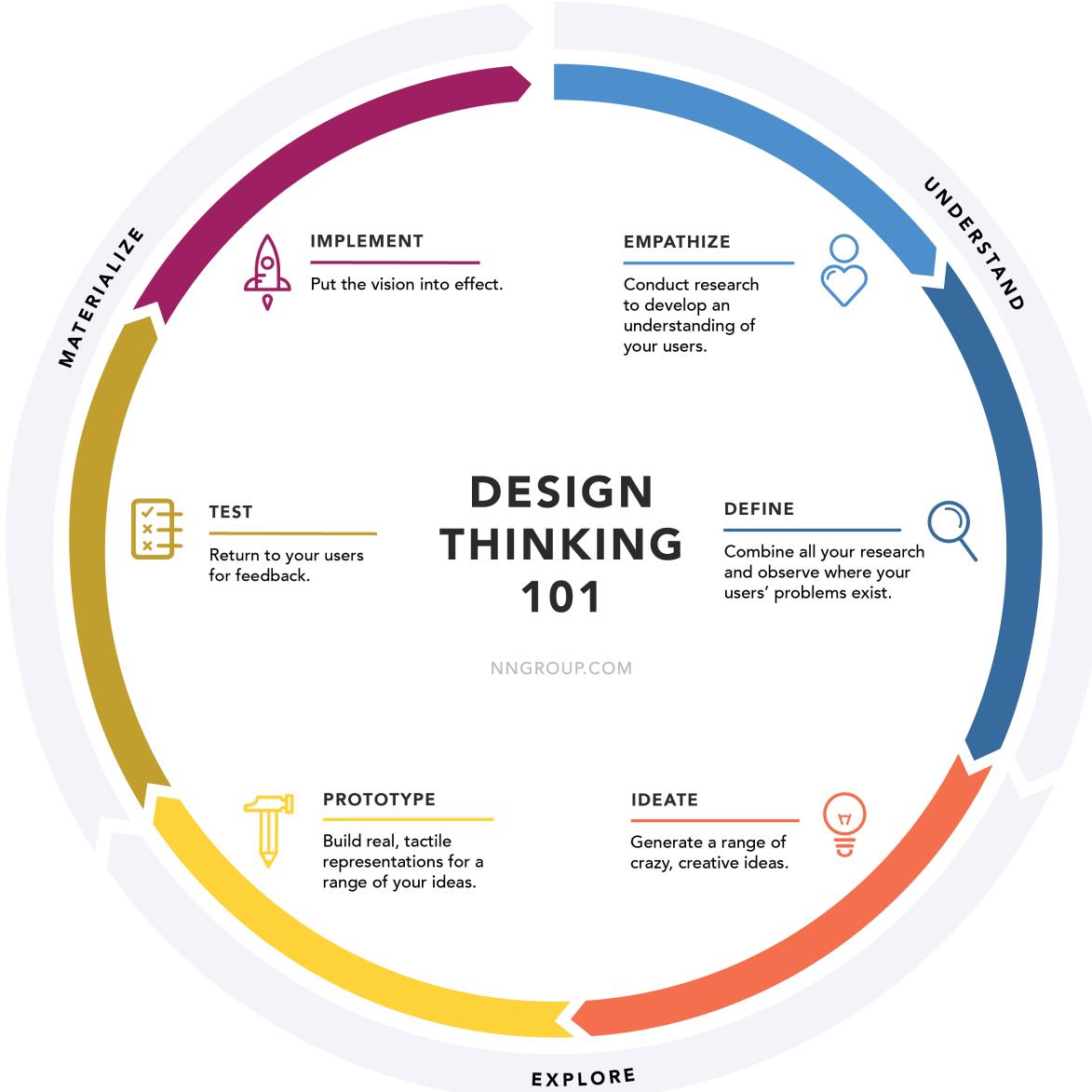


TOP HAT



Implement

Put the vision into effect.



What did we learn today?

- What design thinking is.
- How we can empathize with users.
- How we can turn this empathy into insight.
- How we can evaluate our designs.

Next Week

JavaScript Bootcamp!

Questions?