Ideation
Digital Modeling
Floating Inputs

```java
void setup(){
    //start serial connection
    Serial.begin(9600);
    //configure pin2 as an input
    pinMode(2, INPUT_PULLUP);
    pinMode(13, OUTPUT);
}
```
Brainstorming

- Defer Judgment
- Encourage Wild Ideas
- Build on the Ideas of Others
- Stay Focused on Topic
- One Conversation at a Time
- Be Visual
- Go for Quantity
Brainstorming

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Turn off natural filter

Don’t worry about practicality / feasibility
Brainstorming

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- One Conversation at a Time
- Be Visual
- Go for Quantity

Collective ideas (not individual)
Be polite

Get idea up quickly and move on
Brainstorming

- Defer Judgment
- Encourage Wild Ideas
- Build on the Ideas of Others
- Stay Focused on Topic
- One Conversation at a Time
- Be Visual
- Go for Quantity

Keep ideas visible (sharpies, one idea per sheet)

Quantity -> quality
Exercise: Brainstorming

What would be the worst Valentines gift ever?
Exercise: Brainstorming

What would be the **worst** Valentines gift ever?
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7 minutes
Exercise: Brainstorming

How many ideas did your group come up with?
Exercise: Categorize

What categories exist?

As a group, rearrange your ideas into potential categories.

Label each categories with a post-it note.

3 minutes
Turning observations into brainstorming prompts
messy multipurpose personalized
Turning observations into brainstorming prompts

<table>
<thead>
<tr>
<th>messay</th>
<th>How can the space encourage organization?</th>
</tr>
</thead>
<tbody>
<tr>
<td>multipurpose</td>
<td>In what ways can the space transition from work to recreational activities?</td>
</tr>
<tr>
<td>personalized</td>
<td>Are there other means to support personalization in the space?</td>
</tr>
</tbody>
</table>
Exercise: Generate Brainstorm Questions

Share additional insights from observation assignment within your group

Use these insights to generate 4+ brainstorming questions

10 minutes
Composite Character

Synthesize insights from observations

Highlight characteristics and needs your group wants to focus on
Name: Tiffany Tseng
Age: 27 years old
Occupation: Grad Student

Rarely cleans room

Primarily works outside of room (desk used as storage)

Likes to decorate space with memorabilia (restaurant cards collage)
Exercise: Create Composite Character

Generate 3 composite characters based on insights from your observations.

Post each character profile on a separate 8.5x11 sheet and pin it up.

7 minutes
Exercise: Brainwriting

Individually, come up with 3+ ideas based on the brainstorming questions you generated.

Use black sharpie
One idea per sheet

5 minutes
Exercise: Brainstorm

Go around and share your ideas. Pin each to the wall.

If you want to build on any idea, feel free to do so after its introduced (small add-ons on post-its)

Go through each of your brainstorming questions and generate as many ideas as you can

Use black sharpie
One idea per sheet

15 minutes


Exercise: Brainstorm

How many ideas did your group come up with?

What are ways you can categorize the different ideas?
Exercise: Categorize

Using colored post-its, create categories and sort your ideas according to these categories

3 minutes
Exercise: Vote

Each person on the team gets 3 votes.

Place a vote on the idea you’re supporting

3 minutes
Assignment

Generate at least 3 more ideas and create sketches for each idea. Post them and a description to Build in Progress.
Switching gears...
Digital Fabrication

3D Printing

Laser Cutting
Digital Fabrication

Digital Model

Physical Part
Digital Fabrication

Laser Cutting
Digital Fabrication

Laser Cutting

Safe Materials
- Paper
- Foamcore
- Wood
- Acrylic
- Fabric

Unsafe Materials
- ABS
- Vinyl
- Polycarbonate

NOTE: We have 1/8” acrylic and 3/16” foamcore you can use
**Digital Fabrication**

High resolution components

For LP, your part must be no larger than 2”x2”x2”

(Bed size is 11.57” x 7.72” x 5.9” WxHxL)

Digital models must be turned in and approved by 7PM Thursday evening
Assignment: Due Tomorrow

On your own, brainstorm and sketch an additional 3 ideas and post them on BiP.

Use SolidWorks to design any 2D or 3D models you may want to fabricate tomorrow using the laser cutter or 3D printer.

* Note: 3D printed part may be no larger than 2”x2”
* 3D printed part must be received and approved by a TA by 7PM Thursday night
Digital Modeling
Using SolidWorks

Department Laptops with SolidWorks pre-installed

Must be used in class or during office hours