



DESIGN THINKING UNIT 3B

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PROTOTYPE PHASE

Students take their ideas and make them a reality, producing a prototype – an experimental model – that the end user can experience.



PROTOTYPE PHASE

Few critical goals during prototyping:

- Communicate clearly how the solution will solve the problem
- Test, elicit feedback, identify new insights, and find unexpected failure points that can lead to improvements and refinements
- Provide opportunities to problem-solve and think through ideas that may arise through the act of making



PROTOTYPE PHASE

Few RULES during prototyping:

- Do not get attached to your prototype
- Do not consume too much time for making a prototype



PROTOTYPE PHASE – RAPID PROTOTYPING

Create low-resolution prototype, and create it quickly

This enables you to gain feedback and learn failure points by building multiple prototypes



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PROTOTYPE PHASE – RAPID PROTOTYPING

https://youtu.be/d5_h1VuwD6g

TedYouth presentation, 2012 – Tom Chi, The
co-founder of X



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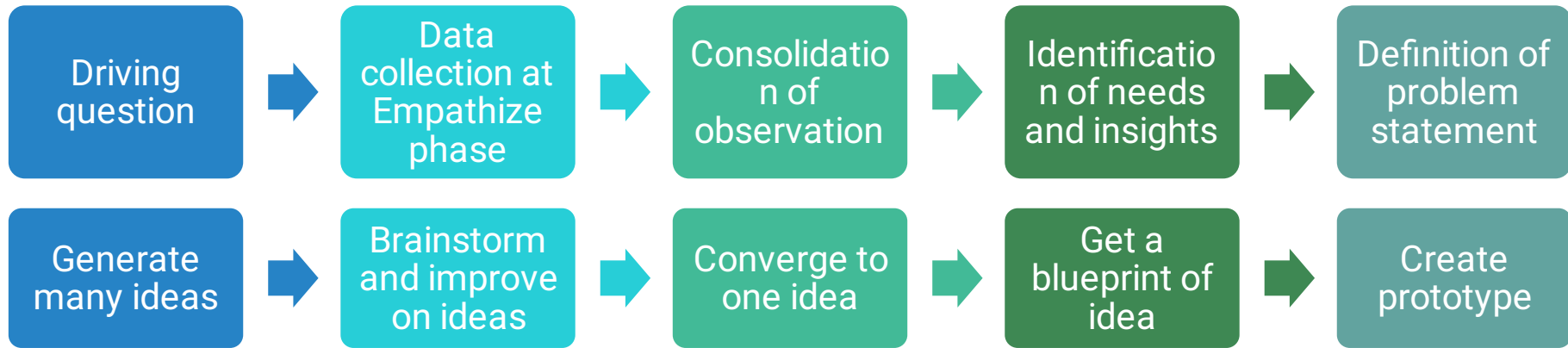
PROTOTYPE PHASE – RAPID PROTOTYPING

Chi's three rules for prototyping

1. Find the quickest path to experience.
2. Doing is the best kind of thinking.
3. Use materials that move at the speed of thought to maximize your rate of learning.



PROTOTYPE PHASE – PROTOTYPING IN ACTION



1. Decide on materials and tools
2. Decide on what user experience you are testing
3. Design control parameters and failure tests

PROTOTYPE PHASE – FACILITATION AND MENTORSHIP

Work in a team, and look for mentors who

1. Have time to spend with you
2. Are experts in the field
3. Are passionate about your problem statement
4. Has confidence in your design solution



PROTOTYPE PHASE – TOOLS & MATERIALS

- a. Hardware – Manufacturing tools, Electronic components, Wood/ plastic/ other materials
- b. Software – Microcontroller programming, 3D design software
- c. Remember safety is paramount! Cost restriction is practical!

PROTOTYPE PHASE – TOOLS & MATERIALS

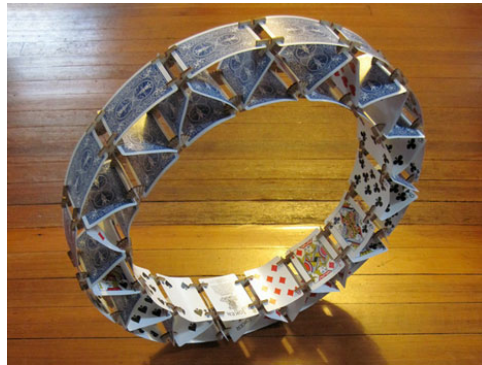
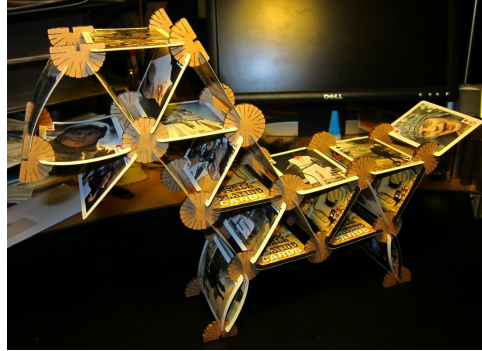
- a. 3D printing - <https://youtu.be/-TDn25K-Jh4>
- b. User Interface designing - <https://youtu.be/1c9LsuN3zVY>
- c. Electronics prototyping - <https://youtu.be/HUVbGxMgu3E>
- d. Arduino for prototyping



PROTOTYPE PHASE – ACTIVITY

Don't make any changes in the card.
Design and prototype a connector and make 10 pieces of it.

In the next class we'll test whose design is best by having a competition



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