Design Thinking and Project-Based Learning: Adventures in STEM

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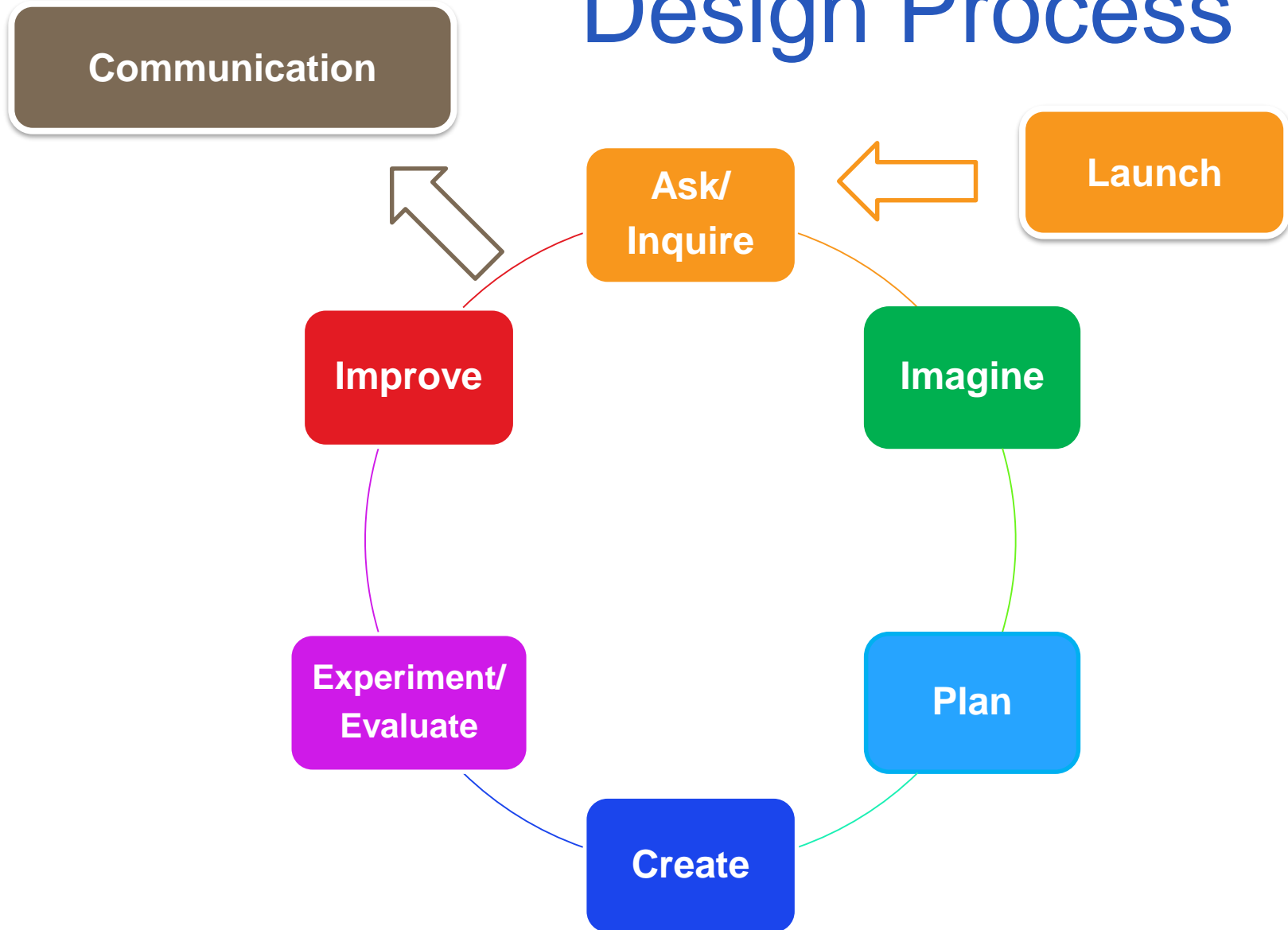# How do you want your students to think?

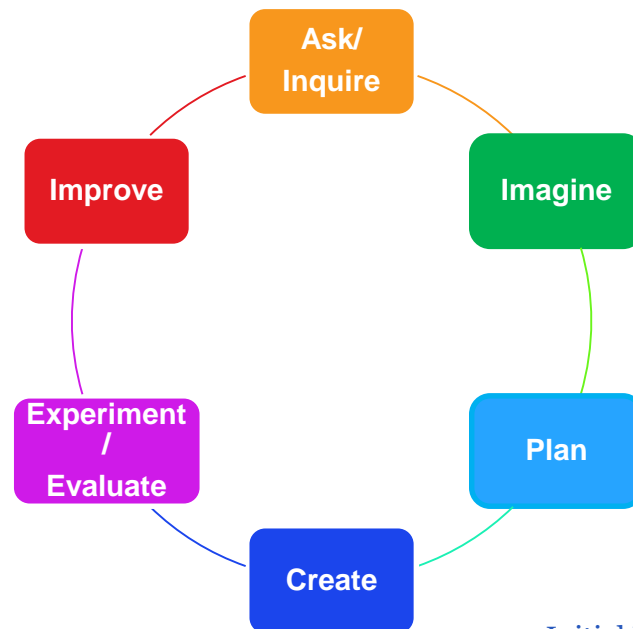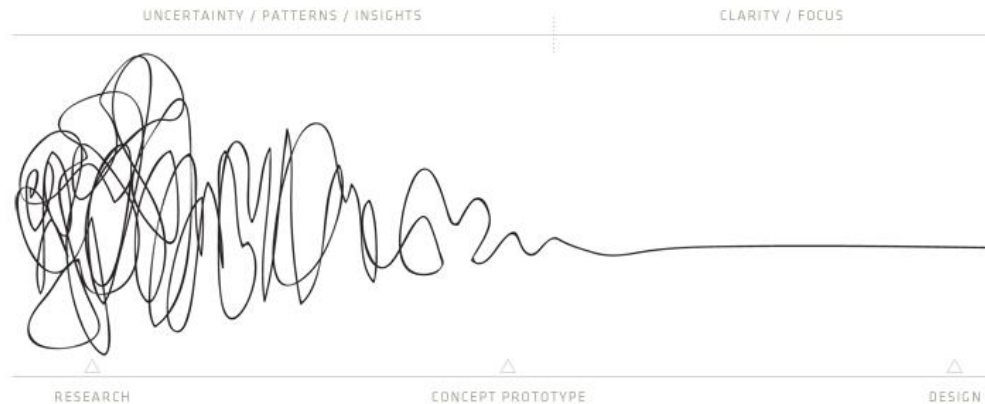**Diagram the process of how you solve problems?**

Using the cards provided, connect the process we will use to the one you are familiar

What thinking skills do you use in each phase of the process?

Design Process

Communication

Launch

Ask/ Inquire

Imagine

Improve

Plan

Experiment/ Evaluate

Create

Design Process

UNCERTAINTY / PATTERNS / INSIGHTS   CLARITY / FOCUS

RESEARCH   CONCEPT PROTOTYPE   DESIGN

- Ask/ Inquire
- Imagine
- Plan
- Create
- Experiment / Evaluate
- Improve

SREB

What is a problem you would like to solve? Who would benefit from this problem being solve?

Understanding our Students

say | think
do | feel

- For your students
  - Quotes and defining words (SAY)
  - Actions and behaviors (DO)
  - Thoughts and beliefs (THINK)
  - Feelings and emotions (FEEL)

- Be creative
  - Imagine what it is like to be your students

For more information:
https://dschool.stanford.edu/wp-content/themes/dschool/method-cards/empathy-map.pdf

SREB

Understanding our Students

- What insights do you gain during the process?

- ***What are your students curious or passionate about?***

For more information:
https://dschool.stanford.edu/groups/k12/wiki/3d994/Empathy_Map.html

SREB

Problem Statement

<user> needs a way to

<users need>

because (or "but …" or "Surprisingly…")

<Insight>

Ask/Inquire

Revisit your chart: What more can you add to the type of thinking you did in this phase?

How did the protocol support your thinking?

Ladder Storming

Imagine

Brainstorm ideas to solve your problem

2-3 people start at chart paper (one writes)

2-3 people join 4-6 people at paper)
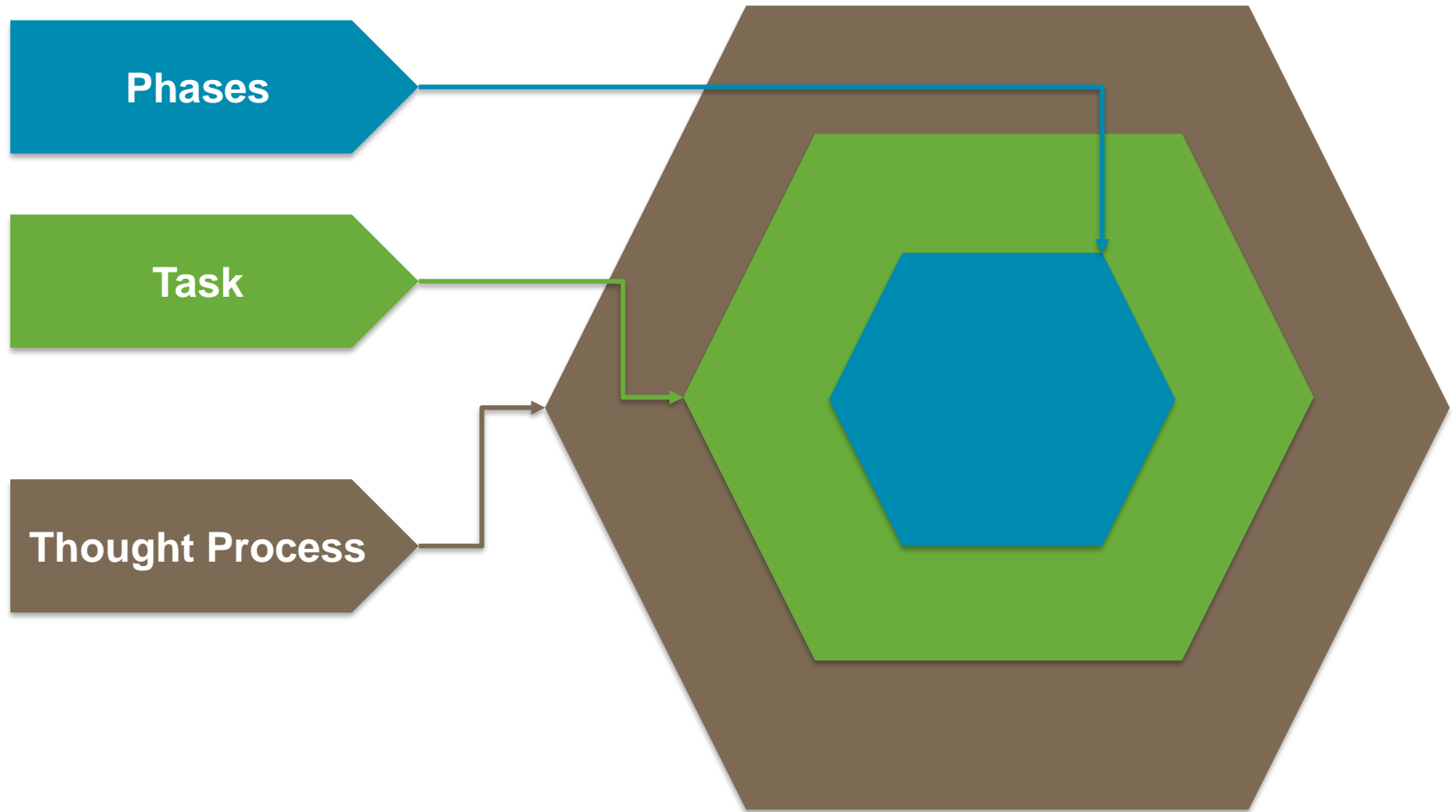
Rest of the group joins (everyone at paper)

Imagine

Revisit your chart: What more can you add to the type of thinking you did in this phase?

How did the protocol support your thinking?

SREB

Design Thinking Model

Phases

Task

Thought Process

Connections

Text Block Party

Choose a quote and reflect

Pairs or triad

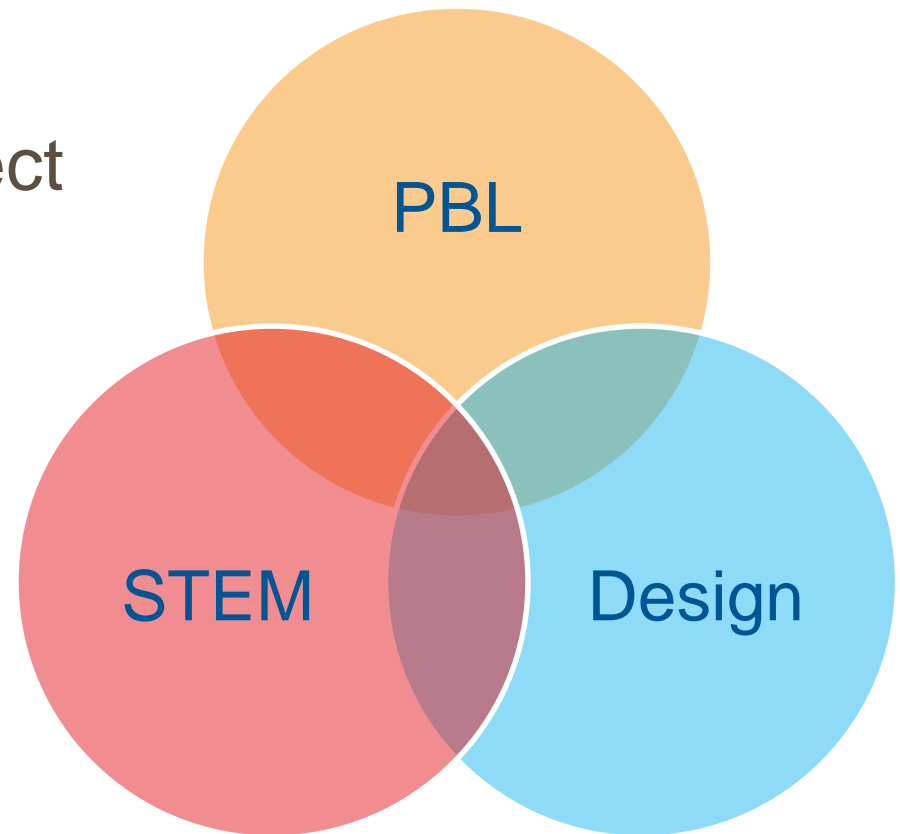   Share Quote and insights

    Connections & Questions

Pair with another team

    Share

    Connections & Questions

Resources

Design Thinking

https://dschool.stanford.edu/resources/

https://designthinkingforeducators.com/

PBL

https://bit.ly/SREBPBL

https://www.sreb.org/publication/project-based-learning-career-pathway-courses

https://bie.org

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