

# Provocation, Scaffolding & Plussing Questions

This tool provides 3 types of questions to help teachers facilitate tinkering and making activities and projects.

- **Provocations** are “wonder” statements or questions or images used at the beginning of a tinker, make or innovate process that prompt ideas. These questions should be designed to evoke images and memories to give the students a place to start.
- **Scaffolding** questions are designed to help students during the process of tinkering and making when they are stuck, needing a “bridge” to the construction of their knowledge.
- **Plussing** questions are designed to help students share their work in such a way that you can assess their process, peers can provide feedback , and the student has the opportunity to receive help.

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## Connecting with Materials, Tools and Topics

In this phase, students are asked to “play” with ideas, brainstorm problems to a prompt and to begin the process of bring their own connection to the provocation question.

### Provocations:

- Brainstorm:
  - What is the first thing that comes to mind when you hear or see the provocation.
  - What does it remind you of?
  - Who was there in your memory?
  - What else could it do?
  - How does it affect you? What do you know about this? What do you want to know?

### Scaffolding:

- What do you notice? What do you think might be the problem?
- I wonder what would happen if ....
- Have you tried?
- What else could you do?

### Plussing:

- Please share your process. What is your goal? Where are you in the process?
- What was hard? What was easy?
- What was surprising?
- What would you do differently ?
- What do you need help with?

# M a k e P h a s e

## Learning Skills. Building Knowledge

In this phase, students are provided with activities designed to help them to build the skills and knowledge that they will need to draw upon in the Innovate phase.

### Provocations:

- Materials: like circuit blocks can be the provocation. When planning to use this strategy, think about how the materials invite participation. Does something light up? Make noise? Making something move?

- Tools: like hammer and nails, fabrics with thread, along with a prompt that starts the creative process. We have found that these type of activities are engaging for multiple age groups.

- Games - anything where one student can try to stump another student
- Pranks - anything can make someone laugh
- Gifts - anything that make someone happy to receive

- Topic: Real world news topics, pop culture, relevant topics from school make great provocations. Controversial topics that have multiple view points allow for products that are different and enable students share their opinions through their products.

### Scaffolding:

- What do you notice? What do you think might be the problem?
- I wonder what would happen if ....
- Have you tried?
- What else could you do?
- I notice that .....

### Plussing:

- Please share your process. What is your goal? Where are you in the process?
- What was hard? What was easy?
- What was surprising?
- What would you do differently ?
- What do you need help with?

## Demonstrating Skills & Knowledge. Inventing Solutions.

In this phase, students are asked to use design thinking process to invent something that could have a real world impact. They will use the skills and knowledge gained from the tinker and make phases to realize their prototype. The prototype can be a physical product or a service or a digital media product.

### Provocations:

- Brainstorm: Generate Ideas
  - Pick a problem from the tinker phase that you are interested in
  - What do you want to know about this problem?
  - What do you know about this problem?
  - Which skills you gained from the make phase is the most interesting to you?
  - How does it affect you?
  - Develop a persona of a person that might use your product to solve the problem. How old are they? What do they do for living? What is their gender? What else do you know about their lives?

### Scaffolding:

- Research:
  - Do you have enough information about the persona that you are designing for?
  - Where could you find out more information? Who might know more about this topic?
  - What questions do you have?
- Design:
  - Keep your persona in mind.
  - Think about what solutions already exist to that problem. Think about how you can make your design solution different or better.
- Make a Plan:
  - What materials will you use?
  - What tools will you need?
  - What elements do you need to make and in what order?
  - How long do you think you will need for each stage?
- Prototype/Test/Plus/Revise:
  - What do you want to convey with your paper model?
  - What ideas do you have that you are not quite sure of that could use some feedback to refine.
  - What do need to test? Get more information from a mentor to accomplish?

### Plussing:

- Research :
  - What brainstorming methods worked best for you? Where did you find the most relevant answers to your questions?
  - What would you do differently next time?
  - Which particular parts of your design would you like to get feedback on?
  - What questions worked best for you to get the feedback you wanted?
  - How will you incorporate feedback/plussing into your design/prototype?