**Steps of Design Thinking - Bird Beak Design**

**Empathy** *Total time: 5 minutes*

In this initial phase of design thinking, the **goal** is to *observe, share* and *listen.* Questions to ponder:

* How would a bird effectively use their beak?
* What features would that bird find helpful?
* Does location play a role?
* Do food sources play a role?

*Remember, the more ideas generated, the easier the following steps will be!*

**Define** *Total time: 5 minutes*

The goal of this step is to unpack what you know and create a point of view. Items to keep in mind:

* What observations and thoughts from your initial “thinking out loud” list (empathy stage) will help make the best beak?
* Describe your POV in a simple sentence that includes action.

*Remember, you want to be able to make something, not just think about it!*

**Ideate** *Total time: 8-10 minutes*

The goal of this step is to brainstorm (now is the time to push your imagination and generate possible solutions. Now might be a good time to:

* Check out available materials
* Sketch and label your ideas (materials, dimensions, parts, and functions)

*Remember, the more ideas that you generate the better! Try to come up with at least 3 solutions*

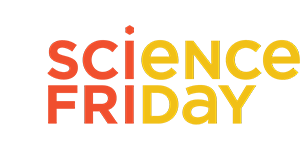
**Prototype** *Total time: 15-20 minutes*

The goal of this step is simple - build your model! In fact, build more than one. Final touches and editing down to one model can happen in the last 2-3 minutes. Photo documentation is key. These images can be incredibly useful when you go back and edit your prototype.

*Remember, builds do not always go according to plan - best to have a back up!*

**Test** *Total time: 1 class period*

Now it is time to start the laboratory activity. Have fun!  
*Remember, testing should inform your iterations. Keep your data in mind!*



*Written by Amy Cataldo*