

# BIRDEE Unit 1 Lesson Plans

## 1.1.5. Ideate a Solution for Conceptual Design 1

*Students will use various ideation tools to come up with solution ideas to a design problem. These tools include brainstorming, brainwriting, and SCAMPER. Students will evaluate their ideas based on the requirements given to them for dirty shoes and will integrate their ideas into a one conceptual design.*

**Before the Lesson:** teachers will need to: make a copy of the [Sample Padlet](#), get a sharable link, then share with students.

**Teacher Note:** Emphasize that all ideas are welcome in the ideation stage. Make sure students understand to withhold judgment of ideas, both their own and those of others.

### Engage: 5 min

**View:** [1.1.5. BID WOW!](#)

- What can be inspired by a cat's tongue?
- How does a cat's tongue work?
- **Class Discussion** on what students think
- **Play video:** [Cat tongue video](#) (in ppt)
- **Play video:** [Cat tongue-inspired hairbrush](#) (in ppt)

**Teacher Note:** The teacher will share the PPT, which contains all of the lessons below:

**View:** [1.1.5. Ideation PPT](#)

### Explain: 5 min (in PPT) (Guided Presentation with Activities Embedded)

The next step in the design process after understanding the problem and writing problem requirements is to ideate solution ideas. The goal of ideation is to generate a large quantity of ideas/solutions to a problem. Ideation tools include sketching, brainstorming, prototyping, and SCAMPER (to name a few).

In our last 2 lessons, we looked backwards at products and defined problems to determine requirements, which helped us to get a better understanding of our problem - dirty shoes. Each group should have different problem statements, depending on what was important to the member of your group. What are some of the problem statements you came up with? Today, we will be ideating solutions that address your group's problem statement.

### Explore: 30 min Total (in PPT)

**Brainstorming: Brainwriting 10 min: (Individual)**

- **2-Minute Write/Sketch:** You will have 2 min to write down ideas for how to solve the problem of dirty shoes or sketch a solution to

### Student Handouts:

[1.1.5. SCAMPER Organizer](#)

### Student Materials:

Sticky notes or notebook paper

### Instructional PPT's & Materials:

[1.1.5. BID WOW!](#)

[1.1.5. Ideation PPT](#)

### Teacher Resources:

[1.1.5. SCAMPER Organizer](#)  
[TEACHER KEY](#)

**Link to Sample Padlet:**

<https://padlet.com/juliavarned/oe2/g9hact908uz15rjq>

[SCAMPER article](#)

### Web Resources:

[1.1.5. Ideation PPT](#)  
[Rapid Ideation Video \(1:28\)](#)  
[Watch SCAMPER video](#)  
[1.1.5. Sample Padlet Image](#)

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the problem. You can do this on sticky notes or notebook paper. (You should NOT put your name on any of your papers.)

- **3-Minute Talk:** Share your ideas with your group by posting your sticky notes on a wall or sharing your paper on the table. Select the top ideas.

**Brainstorming: SCAMPER 15 min:** *(Group)*

**View:** [Watch SCAMPER video](#) (4:22)

- Use the S.C.A.M.P.E.R. technique to develop ideas that solve the problem of dirty shoes/keeping shoes clean. Use sticky notes or the SCAMPER Organizer to explore ideas from the 7 different perspectives.

**Elaborate: 10 min (in PPT)** *(Group)*

Evaluate your ideas from the previous ideation activities in terms of your group's problem statement and problem requirements you wrote earlier this Module and integrate these ideas into one preliminary conceptual design for a solution. Sketch and label the conceptual design you believe best fulfills the problem requirements.

**Evaluate: 10 min (in PPT)** *(Group)*

You will share your conceptual design sketch on the Padlet.

**View:** [1.1.5. Sample Padlet Image](#)

**Student Directions:**

Click on the Padlet link to share your team's idea. Use the sample as a guide. Click on the pink plus sign to add the following for your team:

- Name of the Idea/Product/Design
- Image of your Prototype
- Names of team members
- Description of the problem
- How your prototype solves the problem/meets requirements

If time permits, you should provide constructive feedback on the conceptual designs of 3 other groups on Padlet. *(Individual)*