

BIRDEE Unit 1 Lesson Plans

Unit 1 Module 5: Design Challenge Ideation and Evaluation	Materials/Notes
<u>Module 5 Overview:</u> 1.5.1 Design Challenge Part II 1.5.2 Conceptual Design 2 1.5.3 Ideate: Learn about the Morpho Matrix 1.5.4 Conceptual Design 3: Morpho Matrix for the Design Challenge 1.5.5 Evaluate to Prototype 1	1.5.0. EDPL Map

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1.5.1. Design Challenge Part II

Students will be introduced to the second client memo. They will work in groups to define the problem, including revision to the client's needs and wants. Then, students will ideate a solution or part of a solution using ideation techniques. Students should be reminded to integrate what they learned in the thermal regulation experiment and from the second Client Memo in their ideas.

Engage: 5 min

View: [1.5.1. BID WOW!](#)

- How do humans stay cool on warm days?
- What happens when a computer gets too warm?
- **Class Discussion** on what students think
- **Play video:** [Sweating Robots](#) (in ppt)

Explain: 5 min

View: [1.5.1. Client Memo II](#)

EatEZ has sent us another client memo with more details on their design needs. Many clients provide new information during the course of a project that may change your understanding of the problem and potential solutions. As the client's wants and needs change, you may need to revise how you define the problem. This will also impact the design requirements and your overall design solution.

Explore: 20 min (Individual then Group)

First, individually read the [1.5.1. Client Memo II](#) reflecting on the problem and request of your client. Then, discuss the memo with your group and complete [1.5.1. Identify the Client's Problem Part II](#).

EDPL: Make any necessary changes in the EDPL (Identify the Problem, Understand the Problem–Requirements) with the new information you learned from the second client memo.

Explain: 5 min (Class Discussion)

Now, we will ideate more solution ideas since we have gotten new information from the client and learned about thermoregulation and heat transfer.

Class Discussion

Student Handouts:

[1.5.1. Identify the Client's Problem Part II](#)

Student Materials:

[1.5.1. Client Memo II](#)

*notebook or printer paper for SCAMPER

Instructional PPT's & Materials:

[1.5.1. BID WOW!](#)

[BIDI Graphic](#)

[1.1.5. SCAMPER Organizer](#)

Teacher Resources:

N/A

Web Resources:

[BIDI Graphic](#)

[1.1.5. SCAMPER Organizer](#)

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- What were your “big takeaways” from conducting the thermoregulation experiment? List three ideas that struck you as important for product design.
- What were your big takeaways from the second client memo?

View: [BIDI Graphic](#)

Remember, if you choose to incorporate some of the biology we have explored in your design ideas, follow the BIDI steps. Select the biology concept you want to incorporate into your design idea and then integrate it into your design idea.

Extend: 10 min (Group)

Now we will Ideate more solution ideas. You can brainstorm and use the SCAMPER tool if you wish. You will do this on notebook or printer paper.

View: [1.1.5. SCAMPER Organizer](#) on the board

Teacher Note: *In 1.5.2., students will create a group conceptual design using these ideas.*