

BIRDEE Unit 1 Lesson Plans

1.3.4. Product Analysis & Requirements

Students will review existing products that could inform a response to the client's problem. Students evaluate the solution to capture the benefits and efficiencies of each of the products, and then share in their groups.

Engage: 5 min

View: [1.3.4. BID Ideation](#)

- You are trying to design and make better soles for shoes because people who stand all day at work complain of sore feet. What could you look to in nature for inspiration?
- List three functions of soles of shoes. Then, think about different structures that can accomplish these functions.
- **Class Discussion** on what students brainstormed

Explain: 5 min (Class Discussion)

Class Discussion

Teacher Note: The teacher will engage students in a quick discussion/review through questioning. The teacher will ask the question and have students discuss (answers are below the question).

- What is insulation?
 - A material or an object that does not easily allow heat, electricity, light, or sound to pass through it. Air, cloth and rubber are good electrical insulators; feathers and wool make good thermal insulators.
- How does insulation act as a thermal regulation system?
 - Thermal insulation is one type of thermal regulation system.
- What are some examples of insulation?
 - Skin (barrier), Air Gap (fur), solid insulation (blubber), reflective surface (coloration)
- What existing products provide support insulation?

Today we will analyze existing products that are utilized for insulation of food. An important part of understanding the problem is looking at existing products to understand how they work and identify their successes and shortcomings.

Explore: 20 min (Group)

Part I: Existing Solution Analysis

You will evaluate one Existing Product presented in 1.3.4. [Existing Products PPT](#) that has been randomly assigned by the teacher. You will complete Part 1 of the [1.3.4. Existing Solution Analysis](#) organizer to scaffold your analysis. You will identify:

- Overall Solution - what does it do?
- Component Structure, Material, Function
- Solution Analysis - Strength & Weaknesses

Student Handouts:

[1.3.4. Existing Solution Analysis](#)

Student Materials:

[1.3.4. Existing Product PPT](#)

Instructional PPT's & Materials:

[1.3.4. BID Ideation](#)

Teacher Resources:

N/A

Web Resources:

[Use this to show the photos of the existing solutions](#)

Not for instructional use Individual Product Photos and Product Cards (taken from 1.3.4. Existing Solutions PPT):

[Existing Solution 1: Insulated Cooler Bag](#)

[Existing Solution 2: Roll Top Lunch Bag](#)

[Existing Solution 3: Stanley Steel Lunch Box](#)

Existing Solution 4: No pics

Existing Solution 5: No Pics

[ES 1 Cooler Lunch Bag Product Card](#)

[ES 2 Roll Top Lunch Bag](#)

[ES 3 Stanley Steel Lunch Box](#)

[ES 4 Small Insulated Lunch Box Product Card](#)

[ES 5 Reusable Insulated Lunch Box Pro](#)

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- Understand how this solution can be applied to the client's problem

You will be giving a brief 1-2 minute presentation on your lunchbox and what you learned about it next. As you are doing the activity, think about the most important information you want to tell your classmates about the lunchbox you analyzed.

Explain/Evaluate: 10 min (*Group Student Presentation*)

Mini presentation

You will give a brief presentation to the class on the existing solution you analyzed. Your presentation should be 1-2 min long and should focus on the defining characteristic of your lunchbox, the main strengths and weaknesses of the existing solution, what they learned from the existing solution, and how this knowledge impacts your understanding of the problem.

Teacher Note: *The purpose of these short presentations is so that all students in the class are briefly introduced to each lunchbox.*

Extend: 10 min (*Group*)

EDPL: Update Research Notes & Understand (Requirements) as needed in the EDPL based on what you learned in this activity.

[Master File of LunchBox Existing Solutions 1-5 Videos and Worksheet](#)