

BIRDEE Unit 1 Lesson Plans

Unit 1 Module 3: Design Challenge Identify and Understand	Materials
<u>Module 3 Overview:</u> 1.3.1. Design Challenge Intro: BID & EDP 1.3.2. Understanding the Problem and EDPL 1.3.3. Understanding Existing Engineering Systems with SFM 1.3.4. Product Analysis & Reverse Engineering 1.3.5. Existing Products and Ideate	1.3.0. EDPL Map

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1.3.1. Design Challenge Intro: BID & EDP

Students will review the EDP and BID processes in terms of the “dirty shoes” challenge. They will then be introduced to the new design challenge by a client memo. They will work in their groups to define the client’s problem from the client memo using the handout to guide their documentation. Students will begin to look at additional data from their client—interviews, survey responses, etc.—if time permits.

Teacher Notes: Teachers will need to determine how they want to group their students (teacher choice, student choice, or random) to create project groups. They will remain in these groups for the next 4 ½ ys. Students will be responsible for entering data in the EDPL as a group. Any hard copies of Individual and group work should be saved, with group work kept in a designated folder in the classroom.

Engage: 5 min

View: [1.3.1. BID WOW!](#)

- How was velcro invented?
- **Class Discussion** on what students think
- **Play video:** [Velcro](#) (in ppt)

Engage: 10 min

Review the EDP and BID and Introduce the Design Challenge

View: [1.3.1. BID, EDP, and a New Design Challenge](#)

- Remember BID fits into the EDP at the Ideation stage! When BID is used in the ideation stage of the EDP, it is called BIDI. Understanding how BID fits into the EDP will help us with our new design challenge from our client, the non-profit organization EatEZ. Today we will work to identify and understand our client’s problem. These are the first two stages of the EDP.

Explore: 20 min (Individual and Group)

Identify the Problem

We will identify and define our client’s problem by first reading the [1.3.1. Client Memo](#).

- You will individually read the [1.3.1 Client Memo](#) reflecting on the problem and request of your client. You will highlight/take notes to begin *Identifying* and *Defining* the problem using Part 1 of the [1.3.1. Identify and Define the Client’s Problem Handout](#)
- Then, you will discuss the client memo with your group and complete Part 1 of the [1.3.1. Identify and Define the Client’s Problem Handout](#)
 - Who is the client?
 - What are the client’s needs?

Student Handouts:

[1.3.1. Identify and Define the Client’s Problem Handout](#)

Student Materials:

[1.3.1. Client Memo](#)

[1.3.1 Volunteer Opinions](#)

[1.3.1 Number 1 Complaint of Volunteers](#)

[1.3.1 Customer Satisfaction](#)

[1.3.1 Company Customer Satisfaction Data](#)

[1.3.1 Angry Customer Letter](#)

Instructional PPT's & Materials:

[1.3.1. BID WOW!](#)

[1.3.1. BID, EDP, and a New Design Challenge](#)

Teacher Resources:

N/A

Web Resources:

[EatEZ Logo](#)

[EDP Flowchart Detailed](#)

[BIDI Graphic](#)

[EDP Simple](#)

[EDP plus BIDI Simple](#)

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Evaluate/Explain: 10 min (Class Discussion)

Teacher Note:

Class Discussion: The teacher will facilitate a class conversation on problem definition, reviewing the responses to the questions asked in Part 1 of the 1.3.1. Identifying the Client's Problem organizer.

- Teachers may capture students' answers on big notes or on a slide that students can later reference.

Today we learned about the problem given by the client. We engaged in the problem definition stage of design. Throughout this unit, we are going to learn more about the problem and existing solutions which will help us better design the problem solution.

Extend: 10 min (Group)

EDPL: Begin filling out Identify and Understand in the EDPL. You will be working on the same sections of the EDPL tomorrow, so if you don't finish inputting all the information that is ok.

Log into your account and do the following:

- Create a Project Title (add group names)
- Identify the Problem by writing a problem statement
- Understand the problem by adding requirements (pulled from worksheet)

Extend: 5 min (Individual)

If you have extra time, you can get started on 1.3.2. Understanding the Problem and EDPL by looking at the 5 documents:

- [1.3.1 Volunteer Opinions](#)
- [1.3.1 Number 1 Complaint of Volunteers](#)
- [1.3.1 Customer Satisfaction](#)
- [1.3.1 Company Customer Satisfaction Data](#)
- [1.3.1 Angry Customer Letter](#)

and thinking about how these documents affect your understanding of the problem (Part 2 of the worksheet).