Lesson 9 Custom Coaster

Session 1 Lead-in

Tell students that they are going to play a role-playing game. They will act as the designers working for the company "One & Only Coasters" and the teacher (you) will be their client. Introduce the background: "Students, welcome to be part of "One & Only Coasters". The motto of our company is simple: create one & only coasters. Now let's take a look at the business of this company: it uses the tool, **LaserBox**, to design custom coasters for clients.

Help students identify and define the problems. Act as a client and have students ask you questions. These questions should center on what the client wants and likes. For example: The client's (the teacher's) daughter will have her birthday next week. The girl used to hate drinking water, but she changed her attitude due to a coaster later. Unfortunately, the coaster was damaged so now the client wants to buy a new one for her daughter as a birthday present. She wants the coaster to be functional and pretty.

Ask students to write down the problems.

What problems does clients have?

Session 2 Exploration

Have students ask you (you are the client from now on) some simple questions.

Sample questions:

Q1: What does your daughter usually do in her spare time? Could you tell us more about her personality?

Q2: What cartoons does she like?

Q3: What's the color of her cup? What's the image on it?

Q4: What's her favorite color?

Q5: Does she have a favorite animal or plant?

……

Sample answers:

My daughter is an outgoing girl who smiles a lot;

She loves reading and jigsaw puzzles;

She loves *The Lion King and Doraemon;*

Pink and blue;

Her favorite animals are dogs and cats so she collects animal-like stickers;

Act as a client to answer students' questions. Remind students that they should try to figure out what the client wants and take notes.

Here's the process.

Ask students to analyze the answers.

Example:

What features should the custom coaster have?

Which parts of these features are viable?

Which parts of these features are hardly possible for the moment?

With the tool you've got now, what kind of coaster can you make?

Motivate students to come up with more ideas and sketch their designs in the first table below. Designers (students) should ask the client (the teacher) whether the product fits his or her needs. Based on the feedback, narrow designs to only one. Make improvements on this final idea.

Rough ideas:

Optimal Solution:

Session 3 Sketch Design

Session 4 In-class Task

Work on the cutting and engraving part.

Do It!

Demonstrate

- Open the software **laserbox**. **Draw** a frame (rectangular, round, star or whatever. Use the cup size as a reference) of the coaster in the software and select the **Cut** command.
- Put your sketch in the laser cutter and use the **Marquee** tool to turn the sketch into a digital form. Select the **Engrave** command to process the material. Tell students that they can apply a layering structure to add more layers.
- Drag the image you pick onto the frame and use the laser cutter to turn the design into reality.

- Slot the laser-cut parts together and glue them in place.

Examples:

Source: Laser cut coaster of the Madison skyline by Halcykon

Source: Coaster Holder by jasondabold

Independent Practice:

- Have students improve their finished designs to ensure clear drawing lines;
- Use the **laserbox** software for further processing;
- Use **LaserBox** to cut and engrave students' designs.

Tip: When time permits, students can apply a layering structure in their designs if they want.

Explain to students: "We learned about the layering structure in Lesson 7. In this project, we can also use this structure to add more layers and interest to our coaster." (It is recommended that no more than 4 layers be added.)

Source: Gear Coasters by eweinhoffer

Session 5 Improvements

Tell students to show the client product and collect their feedback (e.g. To what extent does the product reflect what the client desires? Which feature is already achieved and which parts are yet to achieve? Any suggestions?)

Pros: Cons:

Suggestions: New ideas:

Session 6 Share

Motivate students to review the whole design thinking process. There are many ways to demonstrate the process: PPT, animations, pictures...

Summarize this lesson. You can ask students what obstacles they encountered during the process and how they solved the problems.

Quickly walk students through the design thinking process once again:

1. Empathize
2. Define

3. Ideate
4. Prototype
5. Test

Using this procedure, we manage to make a product.

Session 7 Extension

Assign an after-school task to students by telling them to play the role-playing game with classmates. One acts as a client and the other acts as a designer. The client wants a custom pen holder so the designer will follow the design thinking process to create a custom pen holder for the client.