臺中市惠文高中國中部 視覺藝術雙語教學教案

主題/ 單元名稱 Topic/ Unit	第二課- 感受生活玩設計 第一~三堂-何謂設計思考 <u>Unit 2</u> Design <u>Lesson 2</u> What is "Design Thinking"?		
教案設計者/教學者 Teacher	洪千琪 老師	教材來源 Teaching Materials	1. 自編 2. 參考翰林版藝術與人文 (八上，第二單元) 3. 網路資源
實施年級 Target Students	八年級 Grade 8	授課時間 Time	2021年 11 月第13~15週 時間:4堂課（200 分鐘）
學習目標 Learning Objective	第二單元: 感受生活玩設計 第一堂~第四堂: 何謂"設計思考"? 案例分享:雨傘新聞事件/ Eat well 餐具設計 **Unit 2: Design** **Lesson 1 ~3: What is "Design Thinking"? 5 stages in "Design Thinking".** 以"雨傘"真實新聞事件為課程主軸讓學生逐步瞭解何謂"設計思考"的5個步驟及5個 key questions,透過案例讓學生理解產品設計的思考流程並藉此學會批判性思考。 Stage 1: What is the problem?　— Empathize (v.) Stage 2: Why is it important?　— Define (v.) Stage 3: How do we solve it?　— Ideate (v.) Stage 4: How do we create it?　— Prototype (v.) Stage 5: Does it work?　　　— Test (v.) **Lesson4: Case study: "Eat well"餐具設計。** Use case study "Eat well" as a main idea to help students understand the meanings of design thinking, and how to take the design thinking into practice.		
核心素養 Core Competency	藝-J-A2嘗試設計思考，探索藝術實踐解決問題的途徑。 藝-J-B1應用藝術符號，以表達觀點與風格。 藝-J-B3善用多元感官，探索理解藝術與生活的關聯，以展現美感意識。 藝-J-C1探討藝術活動中社會議題的意義。		
學習內容 Learning Content	視E-IV-1色彩理論、造形表現、符號意涵。 視A-IV-2傳統藝術、當代藝術、視覺文化。 視P-IV-3設計思考、生活美感。		
學習表現 Student Performance	視1-IV-4能透過議題創作，表達對生活環境及社會文化的理解。 視2-IV-3能理解藝術產物的功能與價值，以拓展多元視野。 視3-IV-3能應用設計式思考及藝術知能，因應生活情境尋求解決方案。		
教學資源 Teaching Resources	使用"IPAD"作為主要學習工具,以Quizizz網站的Live quiz方式進行線上簡報教學,此教學方式可以及時得到學生的回答,並根據學生的即時回饋作為評量依據。這些回饋也是接下來一堂課的課程內容之一。		

學科先備知識 Subject Prior Knowledge	1、學生瞭解視覺設計的基本元素與原則。 Students understand the elements and principles of Visual Design. 2、學生認識不同領域的設計並瞭解其差別。 Students know the categories of Design and understand the differences. 3、學生已有色彩學的基本概念並且能夠使用水彩進行創作。 Students understand the theory of color, and have had watercolor painting experiences.

Rationale
for this
Lesson
	This lesson, Design Thinking, is part of student's passion project. The project-based learning activity gives students the freedom to learn what they want and how they want through self-inquiry. This project requires students to design and create a solution to a real-world problem.
	
	    Design thinking is an iterative process in which designers creatively solve complex problem with focus on a human-centered approach. The solution is purpose-built where the end user/ consumer's needs and desires are taken into consideration as the key element of the entire process. This solution-thinking method is ideal for project-based learning.
	
	    Five stages in design thinking in this lesson are: Empathize, Define (the problem), Ideate, Prototype, and Test. Great questions lead to great design. "Great designers help teams and stakeholders make better decisions by using questions to identify opportunities, reveal underlying needs, and understand user context" said by the world top designer Jorge Juan Perales. Therefore, students are expected to learn the meanings of these five words, and will design an interview questionnaire for their passion projects in the next following class.

Bilingual Learning Content 雙語學習內容	Content 內容
	1. 設計思考的步驟 There are five stages in the process of "Design Thinking". Each stage corresponds to one appropriate question. Stage 1: What is the problem? — Empathize (v.) Stage 2: Why is it important? — Define (v.) Stage 3: How do we solve it? — Ideate (v.) Stage 4: How do we create it? — Prototype (v.) Stage 5: Does it work? — Test (v.) 2. Meaning of each stage / 以台灣設計師 "Eat well" 餐具設計為範例。 Stage 1 : How to Empathize — Observe/ think / watch and listen Stage 2: How to Define — Research/understand /create a point of view. Stage 3: How to Ideate — Brainstorm ideas, good or bad is ok. Stage 4: How to Prototype — Start to create/ experiment your idea. Stage 5: How to Test — Make the product/ show to people/ start to refine the product. 3. 嘗試使用 "Design Thinking"發展自己的Passion project,學生的Passion Project主題為"設計一把雨傘"，請學生針對自己的雨傘設計，運用Design Thinking 完成產品設計的問卷。
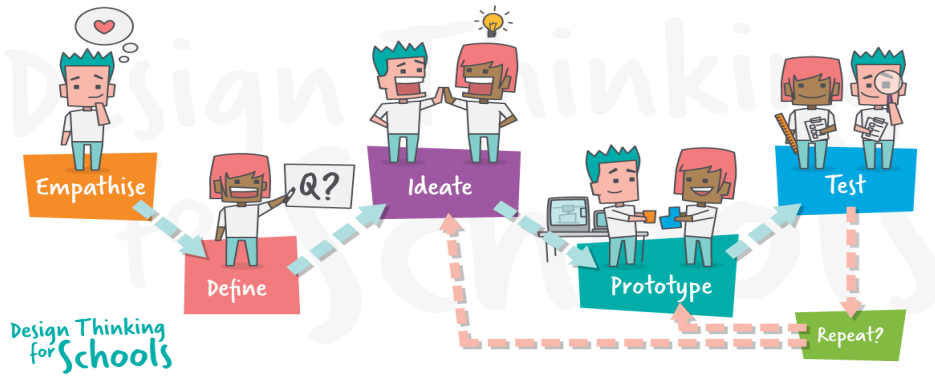
Language for Learning

By the end of this lesson, students will be able to describe the picture prompt; match words to the five questions; identify paragraphs corresponding to each stages; select nouns; identify sentences; analyze paragraphs; check the answers by reading the audio script.

目標字詞:

Design/Design thinking, graphic design, empathize, research, define, ideate, prototype, test, product

目標句型：

1. What do you see? What does she need? What is the problem?

I see /guess/ believe

2. If you are a designer, what is the problem you want to solve? Why?

If I am a designer, the problem I want to solve is…

In my opinion…

3. What is the problem you are trying to solve?

First, …

Second, …

Finally/lastly, ...

4. Which response intrigues you most?

I like (someone)'s response because it …

5. 設計思考的步驟

There are five stages in the process of "Design Thinking". Each stage corresponds to one appropriate question.

Stage 1: What is the problem?　— Empathize (v.)

Stage 2: Why is it important?　— Define (v.)

Stage 3: How do we solve it?　— Ideate (v.)

Stage 4: How do we create it?　— Prototype (v.)

Stage 5: Does it work?　　— Test (v.)

6. Meaning of each stage/　"Eat well"　餐具設計

	Stage 1 : How to Empathize — Observe/ think / watch and listen Stage 2: How to Define — Research/understand /create a point of view. Stage 3: How to Ideate — Brainstorm ideas, good or bad is ok. Stage 4: How to Prototype — Start to create/ experiment your idea. Stage 5: How to Test — Make the product/ show to people (don't tell) / start to refine the product.
	Learning Skills
	By the end of this lesson, students will have developed their abilities to describe, to read, to discuss, to write, to share, to interview, to create their passion project, and to transfer knowledge of the design thinking strategy to their passion project.
Classroom Language 教室英文用語	Sit tight 坐好 / Clean your desk 清理桌面 Eye on me / Hands on the table 看著我 / 手放桌面 Lower your voice when moving your chair down. 抬椅子下來請放低音量 Raise your hand when you have something to share. 請舉手發言 ►課堂結束打掃工作分配 sweep the floor 掃地/ mop the floor 拖地 / wipe the table擦桌子

Learning Activity The 1st class 雙語學習活動 第一堂課	**I. Warm up (10 mins)**	Teaching Resource
	Preview the last class: "What is Design?" and ask students. 讓學生複習上一堂課內容: 何謂設計?並點幾位學生發表想法 設計是以人為中心解決生活上的問題。 Picture prompt: present some bad designs in our life. Relate to their life experiences and share in class. **Ask students:** 1. What do you see? What happens in this image? What is the problem? I see… 2. If you are designer, what is the problem you want to solve? Why? If I am a designer, the problem I want to solve is… In my opinion… Bad design example: 	教學資源: Projector /"IPAD"

II. Presentation – Design Thinking (15 mins)

向學生說明 What is "Design Thinking"?

「Design thinking is a human-centered approach to innovation that draws from the designer's toolkit to integrate the needs of people, the possibilities of technology, and the requirements for business success.」—Tim Brown（IDEO 設計公司執行長）

「設計思考」是一種「以人為中心來解決問題的方法」，它起源於世界首屈一指的設計顧問公司—— IDEO，設計思考即是IDEO解決客戶問題的核心方法，著名作品如設計出蘋果的第一款滑鼠、第一台折疊筆記型電腦與經典PDA機種Palm V等，但IDEO的作品其實不只於實體產品，也包含服務設計、手機應用程式設計，甚至是學校教育體驗設計！

Brief summary of "Design Thinking", shortly introduce 5 stages.
Stage 1: Empathize (v.) — Observe/ think / watch and listen
以使用者需求出發，思考生活中有什麼物品或環境是讓人感到不方便，進而設身處地想替對方解決。

Stage 2: Define (v.)— Research/understand /create a point of view.
分析並釐清需要解決的問題何在，並且把問題轉變為"我可以怎麼做?"。

Stage 3: Ideate (v.) — Brainstorm ideas, good or bad is ok.
集思廣益發想出可能解決的方法有哪些。

Stage 4: Prototype (v.) — Start to create/ experiment your idea.
依據發想結果，製作概念性的模型。

Stage 5: Test (v.)— Make the product/ show to people (don't tell) / start to refine the

product.

檢視從同理心、定義、創意發想、速做原型，是否有需要調整的地方。

接著以真實案例"雨傘" 的新聞事件,引用真實案例逐步說明"Design Thinking"五個步驟。五個步驟分別是 Empathize – Define – Ideate - Prototype – Test。

There are five stages in the process of "Design Thinking". Each stage corresponds to one appropriate key question.

Stage 1: What is the problem? — **Empathize (v.)**
Stage 2: Why is it important? — **Define (v.)**
Stage 3: How do we solve it? — **Ideate (v.)**
Stage 4: How do we create it? — **Prototype (v.)**
Stage 5: Does it work? — **Test (v.)**

III. Activity –Discussion stage 1 (20 mins)

這個階段活動設計屬於設計思考的第一個步驟:

Stage 1 : How to Empathize — Observe/ think / watch and listen

Example: Problems about umbrella which happened in real-life.
Use this example and lead the student with different activities, and guide the students to go through the whole process in Design Thinking.
Image prompt:

	Think and listen!
	
	Choose the right descriptions about this image with hand gesture.
	
	I will give three sentences for each question describing the image. If the description is "true", students need to make a "circle" with arms. If the description is "false", students make a "cross".
	
	這個活動設計目的是讓學生練習以英文聽問題，並以手勢來回答問題。若答案是符合圖片情境，則雙手高舉" O"；若答案不符合圖片情境，則舉"X"。
	
	1. What do you see?
	   (1) The wind blows gently.
	   (2) The umbrella is broken.
	   (3) The pork bun(包子) looks delicious.
	
	2. If you were this woman, how do you feel?
	   (1) I feel happy.
	   (2) I feel awful.
	   (3) I feel excited.
	
	3. *What are the problems of this umbrella? (2 answers)
	   (key question in design thinking)
	   (1) It is not solid.
	   (2) It is not flexible.
	   (3) It is strong.
	
	Shortly introduce this funny story about this woman on the world-famous news.
	Share some hilarious comments on the internet.
	
	IV. Wrap up (5 mins) / End of the first class
	Make a conclusion about what they learned:
	Stage 1: What is the problem?　— Empathize (v.)
	
	V. Warm up (5 mins) / Start of the second class
	Preview what they learned in the last class:
	Stage 1: What is the problem?　— Empathize (v.)	

The 2nd class 第二堂課	

VI. Activity –Discussion stage 2 (15 mins)

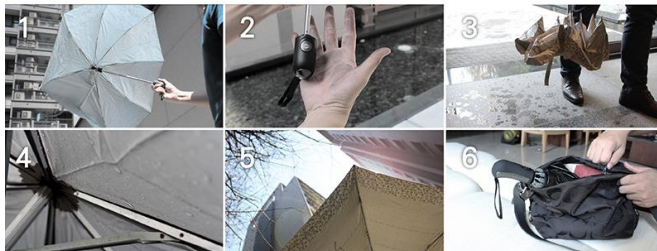● **Why is the design of an umbrella important?**

   (key question in design thinking)

這個階段活動設計屬於設計思考的第二個步驟:

Stage 2: How to Define — Research/understand /create a point of view.

Group discussion: share unhappy experience about umbrella with partners. Share your experiences.

您經歷過哪幾項窘境？

## VII. Lead in –Reading stage (10 mins)

Review the stage 1 - Empathize.

Learn to read some **unhappy feelings** while using an umbrella.

1. It was frustrating! Hard to open it!
2. It was embarrassing! It turned inside out, just like the picture.
3. It was not safe! It was a weapon.
4. It was upset! I didn't have another hand to hold it when carrying a lot of things.
5. Others. Share feelings with partners.

VIII. Activity –Reading and checking answers (5 mins)

Poll: Students check the answers that connect to their experiences.

Poll: What did you feel when experiencing the bad design of an umbrella?

It was frustrating! Hard to open it.

It was embarrassing! It turned inside out, just like the picture.

It was not safe. It was a weapon.

It was upset! I did't have another hand to hold it when carrying a lot of things.

Others.
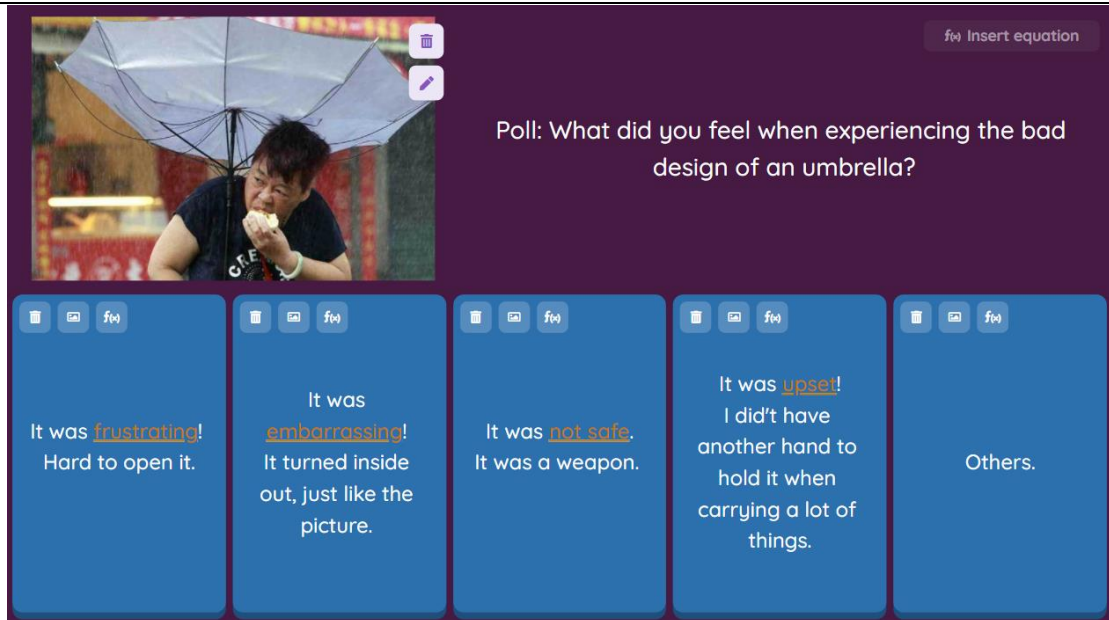
Teacher can see the responses immediately on Quizizz and will discuss the result of this poll with students in the next following class.

IX. Activity –Writing stage 1 (10 mins)

傘，可以給你。
但包子，不行！

● **In order to protect pork bun 包子, how do we solve this problem?**

(key question in design thinking)

這個階段活動設計屬於設計思考的第三個步驟:

Stage 3: How to Ideate — Brainstorm ideas, good or bad is ok.

Students write their ideas in the box on Quizizz.

Teacher can see the responses immediately on Quizizz and will discuss with students in the next class.

X. Wrap-up (5 mins) / End of the second class

教師螢幕會及時出現學生輸入的答案，讓學生閱讀其他人的回答，互相激盪想法、刺激思考，詢問學生：

Which response intrigues you most?

I like (someone)'s response because it …

並向學生預告後面單元課程會針對學生輸入的回答進行討論。

XI. Warm up (5 mins) / Start of the third class

Preview the previous lesson, and in this class they are going to learn: the last 2 stages in design thinking. After this class, students are going to design their questionnaires, and that questionnaires will help them to complete their passion projects.

Stage 1: What is the problem? — Empathize (v.)

Stage 2: Why is it important?　— Define (v.)

Stage 3: How do we solve it?　— Ideate (v.)

Stage 4: How do we create it? — Prototype (v.)

Stage 5: Does it work?　　— Test (v.)

Each stage has one key question.

XII. Activity –Writing stage 2 (15 mins)

Choose the best idea!

Imagine.

● **How do we create this new idea?** (You can change material, shape, etc…)

The 3rd class
第三堂課

(key question in design thinking)

這個階段活動設計屬於設計思考的第四個步驟:

Stage 4: How to Prototype — Start to create/ experiment your idea.

Students input their ideas in the box on Quizizz.
Teacher can see the responses immediately on Quizizz and will discuss with students in the next class.

● **Does your idea work?**
  (key question in design thinking)

這個階段活動設計屬於設計思考的第五個步驟:

Stage 5: How to Test — Make the product/ show to people (don't tell) / start to refine the product.

	Make a conclusion of the activity they have learned: Stage 1: What is the problem? — Empathize (v.) Stage 2: Why is it important? — Define (v.) Stage 3: How do we solve it? — Ideate (v.) Stage 4: How do we create it? — Prototype (v.) Stage 5: Does it work? — Test (v.) Each stage has one key question. **XIII. Activity –Reading stage (20 mins)** 教師播放學生在Quizizz的回答: Stage 4: How do we create this new idea? 請同學們閱讀，並針對同學們的回覆進行討論及思考。 **Which response intrigues you most?** **I like (someone)'s response because it …** **XIV. Wrap-up (10 mins) / End of the third class** 發下Passion Project 學習單(附件一)，說明學習單撰寫內容及方式。請學生回去思考自己Passion Project 預計想要做什麼主題，並完成學習單第一頁 **XV. Warm up (5 mins) / Start of the forth class** 請學生打開課本設計思考P.102-103這兩頁，請學生先閱讀5分鐘課本內容，老師接著講解並複習前面所學的五個步驟。 **XVI. Activity –Reading stage (10 mins)** **Stage 1: Empathize** 以使用者需求出發，思考生活中有什麼物品或環境是讓人感到不方便，進而設身處地想替對方解決。 Stage 1 : How to Empathize — Observe/ think / watch and listen 這個階段重點在於思考**:** ► **Who are you trying to help?** ► **What do you need?** 分享五個Bad design 的例子，並詢問學生以下問題: Teacher may ask students: What do you see? How do you feel? Students may say: I see/ I feel…	

The 4th class 第四堂課

Stage 2: Define

分析並釐清需要解決的問題何在，並且把問題轉變為"我可以怎麼做?"。

Stage 2: How to Define — Research/understand /create a point of view.

這個階段重點在於思考:

► **What is the problem you are trying to solve?**

► **How can you turn the problem into a *"How might we…?"* question?**

接著教師再次播放失敗(bad design)的設計作品，詢問學生:

What is the problem of this product?

Students may say:

There is/ there are…

XVII. Case Study "Eat Well"　(30 mins)

教師介紹臺灣設計師姚彥慈案例分享。Eat Well 餐具設計獲時代雜誌評選為2016年度最佳發明作品之一。

「**Eat Well餐具設計動機是因為設計師外婆罹患失智症。**

而這個成為她的研究起始點。設計師先到到照護中心當義工觀察照顧者與被照顧者的需求（Empathize），進而決定設計產品輔助長輩自行用餐(Define)。」

這個思考過程呼應前面提到"設計思考"的兩個步驟。

請學生閱讀課本這一段文字，並用螢光筆劃記: 哪一段符合"Empathize"/ 哪一段符合 "Define"。

接著說明 "設計思考" 第三個及第四個步驟: Ideate – Prototype。

Stage 3: Ideate

Stage 3: How to Ideate — Brainstorm ideas, good or bad is ok.
集思廣益發想出可能解決的方法有哪些。

► **Come up with some ideas to solve problems.**

教師接著繼續介紹臺灣設計師姚彥慈案例分享，說明她使用哪些方法來解決她發現的問題，並製作出餐具模型，並請學生用螢光筆劃記，課本中哪一段文字屬於設計思考中的哪一個步驟（Ideate）。
例如:
(1) 碗的傾斜設計可以讓食物或湯自動聚集到一邊。
(2) 靠近使用者方向的垂直設計可防止使用者在舀取食物時潑灑至碗外。
(3) 湯匙頭的形狀符合碗內弧度，方便使用者舀取食物。
(4) 托盤邊緣的夾口設計可以繫上長輩圍兜，蒐集在用餐時掉落的食物。
(5) 不管是底部的仿橡膠防滑材質還是延伸的手把設計都使得杯子不易傾倒及潑灑，連有關節炎的長輩都不需要握杯子的手把，也可以輕易提起杯子杯蓋上的小孔洞，可以搭配吸管使用。

Stage 4: Prototype

Stage 4: How to Prototype — Start to create/ experiment your idea.
依據發想結果，製作概念性的模型。

► **Which idea will you try first?**

► **What will you design to test your idea?**
接著說明 "設計思考" 第五個及最後實踐的步驟: Test – Implement。

Stage 5: Test

檢視從同理心、定義、創意發想、速做原型，是否有需要調整的地方。
Stage 5: How to Test — Make the product/ show to people (don't tell) / start to refine the product.

► **Is your idea working well?**

► **How do you improve your product?**

播放Eat well 姚彥慈訪談影片(4:00)

	The Last Stage: Implement 產品上市發表	
	近年來，許多設計師會透過募資平台將自己在生活中遇到很多的不便利，發想點子，透過重新設計產品，並將自己的新產品放在網站上集資發行。Ex. Zeczec 嘖嘖。 播放Zeczec 嘖嘖 網站上成功集資的範例影片(2:06): 雨傘設計- 滾滾傘是一把結合綠意識設計的折疊傘，輕鬆快速收覆、不易丟失、節約剪裁，讓行人在步履間就能體驗便利生活 x 環境友善的綠設計。 Teacher may say: After watching the videos, ask few students to describe the feelings in three words. **XVIII. Wrap up (5 mins)** 教師播放影片後，教師做出結論呼應課堂主題"Design"。 Design ＝ Beautiful Solutions 用最簡單、最漂亮的解決最複雜的 教師做出總結，重新複習Design Thinking 5個步驟，預告下一堂課分組完成 worksheets for their passion project。 ~The End~	
	1. 課堂即時回饋：理解「設計思考」的5個步驟。 2. 學習單：歸納、摘要「設計思考」的內容，並以雙語描述臺灣設計師姚彥慈案例觀後心情感想。 3. 視覺資訊圖表成果發表：透過小組合作，思考生活中可以重新設計的物品，製作「設計思考」之視覺資訊圖表及問卷，並以雙語發表自己設計的草圖概念。 4. 學生互評：能聆聽同儕口頭報告並欣賞其作品發表。	Ipad Quizizz. com
Evaluation 雙語學習評量	1. 課堂即時回饋：理解「設計思考」的5個步驟。 2. 學習單：歸納、摘要「設計思考」的內容，並以雙語描述臺灣設計師姚彥慈案例觀後心情感想。 3. 視覺資訊圖表成果發表：透過小組合作，思考生活中可以重新設計的物品，製作「設計思考」之視覺資訊圖表及問卷，並以雙語發表自己設計的草圖概念。 4. 學生互評：能聆聽同儕口頭報告並欣賞其作品發表。	

附件一: Passion Project 學習單

Passion Project with Design Thinking

Understand
(Empathize)

List your passions! What do you LOVE to do in your spare time? What activity gives you a strong, exciting feeling?

1. _____ 2. _____
3. _____ 4. _____
5. _____ 6. _____
7. _____ 8. _____
9. _____ 10. _____

Choose one of your passions you would like to work on and think of a way you can **use your passion to help people.**

_____

Teacher Approval Signature	

What do I need to know and learn to be able to complete my passion project?

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Interview your end user(s)! Learn as much as you can about them that can help you with your design!

_____
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Describe your problem sentence.

Describe
(Define)

_____ (*person or end user*) needs _____ (*product*) that _____ (*needs and insights*).

Sketches

Imagine
(Ideate)

Sketch some ideas you have for your passion project. Remember we want a lot of ideas. Even **wild ideas** are okay!

Sketches

Imagine
(Ideate)

Sketch some ideas you have for your passion project. Remember we want a lot of ideas. Even **wild ideas** are okay!

Imagine (Ideate)

Blueprint #1: My Solution

Imagine (Ideate)

Blueprint #2: My Solution

TEST

Have your end user **test out your product!** Find out what works well and what can be improved.

Test #	What worked well? (Ask end user)	What can be improved? Can you "plus" my idea? (Ask end user)	How will I improve my solution for the next test?
1			
2			
3			
4			
5			

Click here to get the Google Docs version.