

SDG13 Climate Change Engage Game Design



SDG13 Climate Change Engage Game Design

Lesson 1: Introduction to Design Thinking

Subjects: Design, Environmental Science, Game Design, Geography, Science, Technology

Lesson Title and Summary: Introduction to Design Thinking

Design Thinking is the cognitive, strategic and practical processes for creative problem-solving. This lesson will introduce students to the 5 stages of Design Thinking to build a foundational understanding of the process.

Vocabulary: Context, Culture, Empathy, Qualitative, Stakeholders, Users

In this lesson, the learner will:

- be introduced to Design Thinking
- explore the 5 stages of Design Thinking
- create their own understanding of the stages through quick practical tasks
- work as pairs and individuals to begin to understand the iterative processes
- practice time management

Materials

- Worksheet: Introduction to Design Thinking
- Flipped Classroom: Learning about Complexity
- A4 paper
- Internet access
- Stakeholder mapping activity

4 QUALITY EDUCATION



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



11 SUSTAINABLE CITIES AND COMMUNITIES



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



SDG13 Climate Change Engage Game Design

L1: Introduction to Design Thinking



Activity Instructions

Activity 1 Introduction to Design Thinking (20 mins)

1. Using Worksheet: 'Introduction to Design Thinking', watch the short video and refer to the 'Define' section of the worksheet.
2. Working in pairs, ask learners (using dictionaries or the internet) to find out the definitions of the keywords listed and paraphrase in their own words.
3. Share paraphrased definitions with another pair. Make any necessary amendments.
4. Review definitions as a whole class and examine the 5 stages of Design Thinking image.

Activity 2 Ideate: Worst Idea / Good Idea (30 mins)

Working in the same pairs, learners should work through the rest of the worksheet asks. Remind learners they will have to manage their time to complete all tasks in 30 minutes. Ask them to read through all of the tasks and discuss in their pairs how long they should spend on each one.

1. Move learners on to Ideate, complete the task
2. Complete the Prototype task.
3. Complete the 'Test' stage task - using the questions to consider their prototype

The aim of the prototype is not to create masterpieces, but to work quickly and experimentally – it should be made clear that given the time limitations, the aim is to quickly show the idea in 3D.

Ask learners to complete Flipped Classroom: 'Learning about Complexity' before the next lesson.

REFLECTIVE EXERCISE: 3-2-1 (10 mins)

- Three things they feel they have learnt from the tasks
- Two things they found most interesting and would like to explore more
- One opinion they have about the activities, what did they like or how they would improve them

Use Post-its or a mentimeter survey - www.mentimeter.com to gather reflections

SDG13 Climate Change Engage Game Design

L1: Introduction to Design Thinking



EXTENSION / REDUCTION ACTIVITIES

Reduction: For a shorter class, skip Activity 2 and spend more time in building the collective vocabulary list – have learners type up their words and definitions and add to a shared document (either on the wall or as a digital repository).

Extension: For a longer class, allow more time and materials for the Ideate – Prototype stages of the Introduction to Design Thinking worksheet.

If students have game themes in mind they could also begin to research their stakeholders and local organisations through the stakeholder mapping worksheets – see Media Box.

MEDIA BOX: (materials, online video links, extra resources, case studies etc)

Design thinking Mindsets

Design Thinking For Schools poster

<https://www.makersempire.com/design-thinking-for-schools-poster/>

How to apply Design Thinking in the Classroom -

<https://creativedesigncycle.com/how-to-apply-design-thinking-in-the-classroom/>

dSchool starter kit <https://dschool.stanford.edu/resources/dschool-starter-kit>

SDG Focus: See Introduction to Sustainable Development Goals lessons

Introduction to SDGs for Young People <https://www.un.org/sustainabledevelopment/youth/>

Explore the SDGs <https://sdgs.un.org/>

Local Trip / Expertise / Additional Work and Assessments

Teachers are encouraged to work with other teachers to develop the project through multiple outcomes such as video, poster, Pecha Kucha, interviews or podcasts.

SDG 8 Media Communication - supports support the development of the 4Cs skills – Creativity, Communication, Critical Thinking and Collaboration -

https://www.codesres.ie/_files/ugd/92a067_a8f108ce0a6448e9851a5b03dd2e8d40.pdf

SDG 4 Supporting Skills - <https://www.codesres.ie/sdg-4-supporting-resources>



Learning about Complex Systems

Why are systems complex. https://www.youtube.com/watch?v=FW6MXqzeg7M&ab_channel=SustainabilityScienceEducation



What is a Wicked Problem (Rittel, 1973)?

What is a Wicked Problem? <https://www.youtube.com/watch?v=IOKpB4KtUZ8>

Watch the video and give 4 qualities of a Wicked Problem.

- 1.
- 2.
- 3.
- 4.

Climate Change is a Wicked Problem

<https://www.youtube.com/watch?v=XRoCxS6n53U>

How can Design Thinking help with Wicked Problems?

<https://www.youtube.com/watch?v=WrdSkqRypsg>

Watch both the videos above and list 3 areas you could use Design Thinking to work on an aspect of climate change.



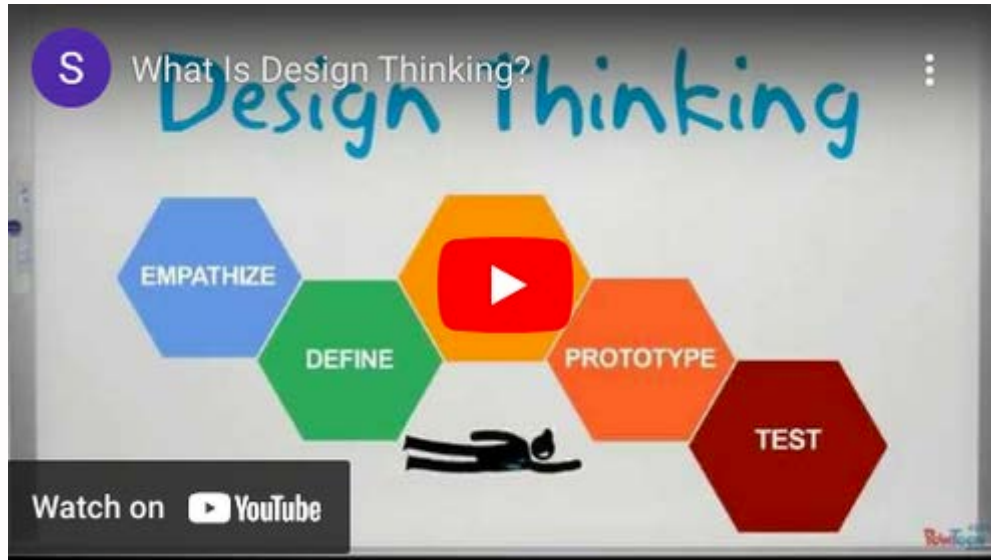
- 1.
- 2.
- 3.

If you are interested in complexity and systems thinking here's a few more videos you might find interesting.

- Jamming on complexity https://www.youtube.com/watch?v=WT_zUxRTEjA
- Boundaries define complex systems <https://www.youtube.com/watch?v=9o21WKsM4U8>



WHAT IS DESIGN THINKING?



Working in pairs google these words (or use a dictionary) to find out what they mean and re-write the definitions in your own words

1. Ergonomic -

2. Context -

3. Culture -

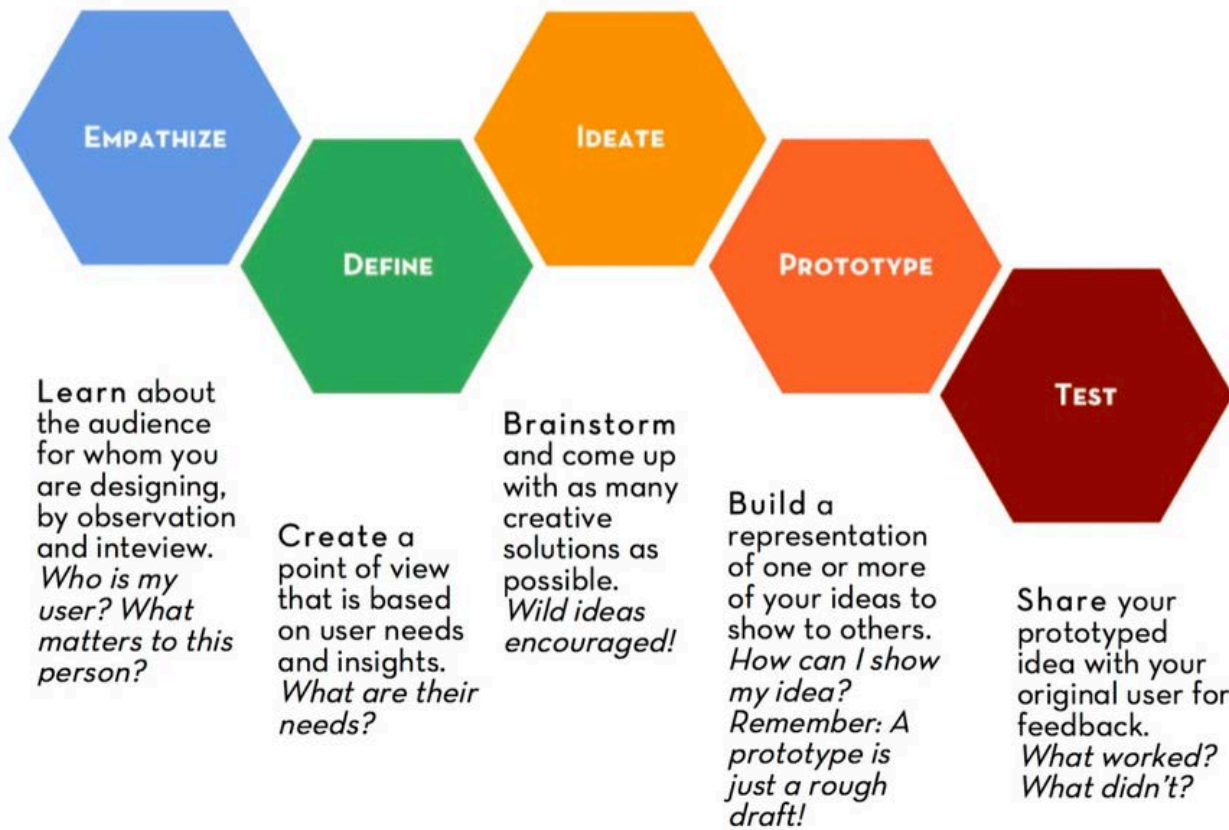
4. Stakeholders -

Your answers will be shared with the other teams to build a vocabulary list and definitions - this is called a glossary





The 5 stages of Design Thinking:



Before you start to work on your problem or project have a look at each stage and see what you need to think about in any project. You will also have to manage your time as the last three tasks will take more time.



Empathise - Most projects will involve people at some point. What might you need to think about - Discuss with your partner and write down 3 things that might matter to a user / audience member.

- 1.
- 2.
- 3.



Define - What's your problem? `Often we deal with symptoms - a runny nose, a sore throat but we need to deal with our immune system. In defining your problem you will look at the whole system. Write down 3 problems you know of in your community or the world.

- 1.
- 2.
- 3.



The 5 stages of Design Thinking:



Ideate - This is the stage in the process to think about as many ideas as possible. For now, write down the 2 worst ideas you can think of - swap them with your partner and try to create three good ideas from each others bad ideas.

Bad Ideas.

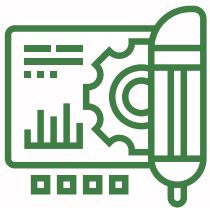
Good Ideas

1.

1.

2.

2.



Prototype- using only one piece of paper, build or make one of the good ideas above. You will have to be creative, how will you make the shapes; folding, tearing? If you are to fix it together, how might you do this - links, cutting, what other ways of joining things together can you experiment with?

Remember: There is no right answer this is about experimentation - have fun!



Test - The final stage is testing. In this stage you learn about the product, service or idea you have created . Share your 'good idea' prototype with your partner and they will share with you.

Things to discuss / consider:

Test - The final stage is testing. In this stage you learn about the product, service or idea you have created . Share your 'good idea' prototype with your partner and they will share with you.

Things to discuss / consider and questions to ask:

1. Who might the user be?
2. Look at how it is made - remember there were limits to materials so you are looking at their problem solving and creativity.
3. Is there anything they could try to make it better or improve it using the materials they had?
4. How might you explore the idea further if time and materials were not a limit?