

5/6 - Design Thinking Process: Ideation

Learning focus

In this lesson students understand design thinking as a process for solving problems creatively. Students explore the design thinking process of ideation and reflect on different ways to generate ideas in order to solve a problem with a design brief. This lesson explores healthy eating through the design brief although the activities can be used to ideate any design.

Curriculum links

Links with Digital Technologies Curriculum Area

Strand	Content Description
Digital Technologies Processes and Production Skills	Design a user interface for a digital system (ACTDIP018)

Links with the Health and Physical Education Curriculum Area

Subject	Content Description
Personal, Social and Community Health	Plan and practise strategies to promote health, safety and wellbeing (ACPPS054)

Learning hook

Show the students [Behind the News: Teen obesity](#), a video about teenagers and obesity. The video explains some of the problems associated with child obesity and offers some solutions. The video will be used as inspiration for generating different ideas for a digital solution to childhood obesity.

Have a discussion with students about the main points in the video:

- A national survey of 12,000 Australian teenagers found that kids aren't taking good care of their health.
- Health experts warn that this could lead to health problems such as diabetes, cancer and heart disease.
- One in four kids is overweight or obese. Some drink four or more cups of sweet drinks a week. Half have a television in their bedroom and most have at least three in their house.
- Kids used to walk to school every day, but now many are driven.
- More time is spent playing with technology than playing sport.
- The average Australian kid watches around a dozen junk food ads a day.

Child obesity is a huge problem and we are going to ideate how to find a digital solution to the problem. Ideation is a part of the design thinking process. It helps us to open our minds to many different solutions in order to find the solution that will work best.

Learning map and outcomes

The aim of this lesson is to understand how the design process works and to generate different ideas for solving the problem of child obesity. We will use design thinking activities and compare which one was most effective in generating different ideas.

Understandings

- Ideation is an important part of the design thinking process.
- Building on each other's ideas helps us to improve the ideas.
- We need to generate ideas to realise design solutions.
- We analyse and develop ideas based on human interactions.

Learning input:

Explain to students that design thinking is a process or approach to how we can think about the problems we are trying to solve. It is a common process in the game and app making industry and is used to solve a variety of problems. A large part of design thinking is developing strategies for understanding the needs of the user and generating innovative solutions.

Explain that the first part of design thinking is to empathise with the users and define what it is we are trying to solve. Then we generate as many ideas as possible: the more ideas, the more opportunity to find the idea that will suit the design brief. This is the time to share our weirdest and most creative ideas, as well as our clear and sensible ones. We want to get all of our ideas on the page without discounting anything.

Explain that after brainstorming, we analyse and refine the ideas and narrow them down to find the feasible ideas to start to design. Although design thinking has an order, this is not a linear process. At times we will move between prototyping and back to ideation or empathising. It is a fluid process that develops as the design does.

Explain that there are many different ways to ideate. One way is to brainstorm (to write down all of the ideas that come to mind). When brainstorming as a group, we use the energy of the group and its ideas to come up with more ideas and build on them. An important part of ideation is being around others so we can build on each other's ideas.

Learning construction

Students will participate in some different design thinking activities to help them generate ideas. By creating many different ideas, they can decide which one suits the design brief best. Remind them that they are considering the design brief, and should always keep potential users in mind.

Design brief

One in four kids is overweight or obese. Some drink four or more cups of sweet drinks a week and half have a television in their bedroom. This is becoming a huge problem for schools, families and the community because it can lead to health problems such as diabetes, cancer and heart disease. Design and make an app or game for young children to play to teach them how to be healthy and active.

Brainstorming

Introduce students to the activity '50 ideas in ten minutes' (the number of ideas and time can be changed to suit the group). The aim of this activity is to come up with as many ideas as possible (at least 50). The time limit ensures you don't get side-tracked. In order for everyone to get the most ideas down, ask the group to encourage wild ideas, to use 'and' instead of 'but' to build on the ideas, and not to judge each other's ideas.

How to brainstorm

Each student will need some sticky notes and a pen. Each group will need a table or wall where they can stick their notes.

1. Organise students into groups of three or four.
2. On a whiteboard write the design brief for students to refer to.
3. Start the timer for 10 minutes.
4. Students write down as many one-word ideas as they can in the given time.

An alternative to this is to write down ideas individually, and then form groups and share ideas. Another alternative is for students to write their ideas on paper and, after a few minutes, pass on their paper to another participant who can then elaborate on the first person's ideas and so forth.

Students complete the activity and share some of their ideas with the whole group.

Attributes method

Another method of generating ideas is the 'Attributes' method. This is a tool for generating options. It allows you to generate possibilities by first identifying the main attributes (characteristics or qualities) and then exploring new, interesting or unusual variations of those attributes.

Explain to students that they are now going to collect different attributes of games or apps and use these to consider the type of app or game they can make. Attributes are the different features of a game or app. As a group make a list of different kinds of attributes. For example:

- characters
- colours
- cost
- users
- type
- style
- audience
- language
- music.

Use these headings to create a chart. Give students approximately 15 minutes to complete a list of ideas they can use for each attribute. They may like to consider some of the ideas they did in the brainstorming but there will also be an opportunity to add more ideas under each heading.

Example attributes table: Healthy eating game

Characters	Aim	Style	Setting
Bob	Story of happens when you eat the wrong food	Open world	Fairy tale
Crocodile	Making decisions about what to eat	Levelled	Underwater
Flamingo	Help the character to get to the end	Points system	Desert
Pirates	Cook a meal	Shot game Maze	School yard

When students have a list of attributes, they can choose one from each section to create an idea. For example:

- Bob in the school yard, in a points game, where he makes decisions about what to eat.
- A pirate in a castle gets more and more sick when he eats the wrong foods in a maze.
- A flamingo needs to cook a meal in an underwater setting.

In the final activity students refine ideas they already have. In groups, students reflect on the ideas developed in the brainstorming and attributes listing, asking questions such as 'Which ideas are feasible and which are not?' Students look at all of the ideas and then place them into categories such as 'Similarities', 'Creativity' or 'Type'. Discuss how the students can categorise them in many different ways.

Finally, ask students to pick one of their favourite ideas from the brainstorming, and expand on the concept by sketching what the app or game might look like.

Learning demo

Give students an opportunity to share the game or app they chose. They should be encouraged to share how they participated in the different activities as well as reflecting on which activity they found most useful to ideate.

When students are sharing, encourage other students to ask questions about the ideas presented. This presentation is an opportunity to unpack ideas further and to begin to list the considerations that may be needed in making the app or game.

At this point you may choose to extend the ideation and create a prototype.

Learning reflection

Ask students to reflect on their role in their groups and how they contributed to the team throughout ideation. They should answer questions about how many ideas they had and why they chose the idea they did. They could use the [Reflection sheet](#) to complete their idea and draw what their solution might look like.

Assessment

Evidence can be gained from the written reflection and presentation students make. Focus on the language they use to show how they built on others ideas and how they developed an idea from someone else.

The [Design thinking ideation annotated sample](#) demonstrates how a student might show an understanding of the design thinking process and can be used along with the design thinking rubric to demonstrate understanding.

'Design thinking' rubric

	Empathise	Define	Ideation	Prototype	Evaluate
Extending	The student has sought more than one way to connect with users and shows insight and depth when talking about users' needs.	The design brief is clear and has been re-framed around the user. The needs of the user have been included.	The student has provided a large number of ideas showing variety in thinking. A few diverse ideas have been chosen to further develop. The student works with a team to builds on each other's ideas.	The student demonstrates how the prototype is a solution for users. Iterations as well as challenges are described in reference to any testing completed.	The designer describes in detail all iterations and what was learnt from each user testing as well as how effective their final product was in relation to the needs of the user.
Proficient	The student expresses empathy by explaining users' needs, including user essentials. They discuss what surprised them about their users.	The design brief is revised and described with the user in mind.	The student produces a large number of ideas, ranging from sensible and easy to create to those which are creative and difficult to create. They choose a few ideas to further develop.	The student shows how the prototype has been improved on and how it reflects any user testing.	The designer can describe the steps taken as well as how effective their final product is in relation to the needs of the user.
Developing	The student describes the user but relies on prior	The student mentions the user but the design brief remains	The student shows a limited range of ideas that	The prototype has some iteration and testing as it is	The designer can describe the steps taken to complete their

	knowledge rather than new information.	unchanged.	are similar in nature.	developed.	design.
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