



**Education**

# Thermal Comfort Game

**Usability testing report (game and website)**

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# 01

## Executive summary

The following section outlines the key findings of the usability testing conducted on the game and website wireframes.

# 02

## About the project

The following section outlines the purpose and objectives of the project

# About the project

The overarching aim of the current project is to design, build, and support an educational tool for teaching thermal comfort and sustainability in NSW primary schools.

Based on insights and requirements gathered from interviews with stakeholders and subject matter experts, the information architecture (IA), detailed user interface designs (in wireframe form) of the website, and an alpha version of the educational game were developed.

Following this, usability testing was conducted with representative users to evaluate the effectiveness of the proposed user interface designs and IA in facilitating the simple completion of key user journeys / goals. Additionally, usability testing was conducted on the game with representative users to evaluate the effectiveness, efficiency and satisfaction with the product.

The purpose of this report is to detail the key findings and recommended updates to be made to the IA, wireframes, and the game.

# 03

## Methodology

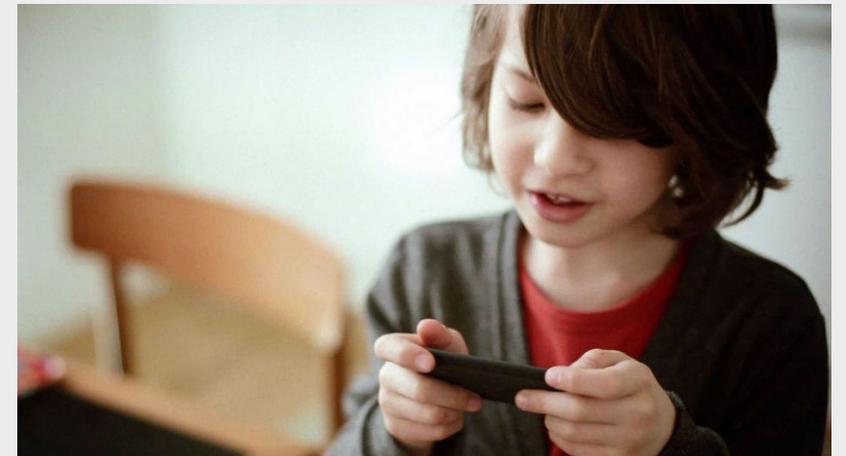
The following section includes the objectives of the usability testing, the research approach, and a description of the participants.

# Research approach: Usability testing

Usability testing involves observing users interact with an interface in order to test its user experience design and identify usability issues and opportunities for improvement.

Three research activities were undertaken to gain feedback from users:

- **Whole class game session (3 sessions)**– To observe and understand how the teachers use the game and teaching materials in a classroom setting.
- **Usability testing with students (4 sessions, with 3 students per session)** – To observe students playing the game in order to understand the effectiveness, efficiency, and satisfaction of the game.
- **Usability testing with teachers (6 x 1:1 sessions)** – To observe teachers undertaking tasks/finding information using the website in order to understand the effectiveness, efficiency, and satisfaction with the website.



# Participants



## **3 x whole class game sessions were conducted:**

- 1 x whole class session with stage 1 students
- 1 x whole class session with stage 2 students
- 1 x whole class session with stage 3 students



## **6 x usability testing sessions with students were conducted (a total of 12 students):**

- 2 x sessions with stage 2 students (with 3 students in each session)
- 2 x sessions with stage 3 students (with 3 students in each session)



## **6 x 1:1 usability testing sessions with teachers were conducted**

- 2 x stage 1 teachers
- 2 x stage 2 teachers
- 2 x stage 3 teachers

# Analysis

A content analysis was performed on transcripts of the participant's responses to extract key themes and usability issues.

Two criteria were used to evaluate whether responses were indicative of potential weaknesses/serious issues in both the information architecture (for the website) and the user interface (both game and website):

- If the response emerged consistently across the sample
- If, in our expert opinion, the response highlights a usability issue

# 04

## Key findings and recommendations

The following section outlines the key findings from the usability testing conducted on the game and the website wireframes. Recommended updates based on these findings are also outlined.

This section includes 2 parts:

- Game key findings and recommendations
- Website wireframes key findings and recommendations

# 04

## Game key findings and recommendations

# Thermal Comfort Game

## Student's overall impression of the game

Overall, the student's enjoyed playing the game. Most of them found it fun, and said they would play it again. In particular, they enjoyed creating their avatar and interacting with the classroom. They wanted to interact with many of the items in the room, such as toys, the whiteboard, and the iPads.

A number of the students did not always know what they were meant to be doing in the game. Many of them were clicking around the classroom trying to figure out what to do, or asking the teacher what they were meant to do next.

*"I like it. Because its challenging. You have to make the room a certain temperature."*

*"It's fun because you get to do a lot of stuff. Like you can make the temperature high and low and make the Avatar. I like how you can walk around and explore."*

## Teacher's overall impression of the game

Overall, the teacher's reacted positively to the game. They thought that having a game is a very engaging way to teach science and technology concepts.

A number of them mentioned they need to be teaching their students the bigger picture – not just about how to make themselves cool or warm, but the impact of their behaviour on the environment.

*"I'm looking forward to seeing the game released, it looks great".*

*"Overall, I can see potential. I'd have a play around with the game for a final verdict, but I can see this being effective in the classroom as a tool".*

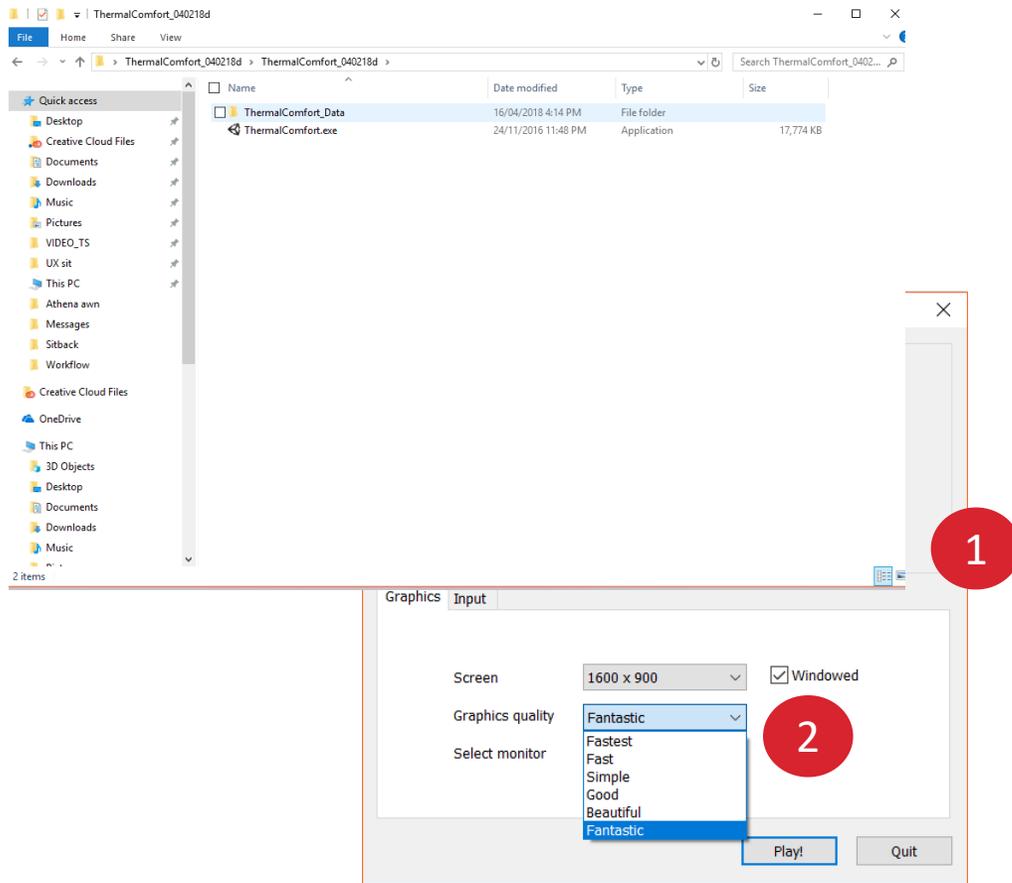
# Technology and classroom considerations



## 1. Initial setup was time consuming for teachers

- There were a number of technology hurdles that teachers faced in a classroom environment.
- It was time consuming for teachers to have to login or install the game across multiple devices
- Often laptops required the power charger to be charged before use or whilst being used.
- There was difficulty obtaining enough headphones for the entire class which added more work for the teachers.
- Multiple downloads/streaming of the game at the same time caused issues with the game (e.g. took a long time for the game to load)
- If teachers have to invest a significant amount of time setting up the devices and the game, it is unlikely they will continue to use it or recommend it to other teachers.
- Some students preferred using the laptop touchpad whilst others used a mouse. The younger students particularly had trouble using the mouse.
- **Recommendations:**
  - Teacher should test the game on actual devices in advance.
  - Advise teachers to allow time to set-up the game, including preparing all the computers, ensuring computers have sufficient power, headphones, etc.

# Settings window



## 1. Initial setup settings window

- The “settings window” was sometimes hidden underneath the game folder, and users thought the game “didn’t work”.
- **Recommendation:**
  - Ensure the “settings window” appears over the top of the first window or combine it with the introductory splash page.

## 2. Default setting is at the highest resolution and largest display

- The default settings for the game was the best graphics resolutions and widest monitor setting, which may impact certain monitors and game quality for older laptops or tablets which typically don’t have higher processing speed.
- **Recommendations:**
  - Where possible avoid creating another screen/step for teachers
  - Consider removing the configuration window (not suitable for young children) and include a setting button for adults
  - Change the default graphics setting to simple to allow for all devices
  - Select a lower monitor resolution for most older laptops (which is what schools mostly use)

# Introductory screen and music

## 1. Start up music was distracting, particularly in a classroom setting

- The theme music was distracting with multiple devices in the classroom playing the music. All the teachers asked the students to turn off the music. However, this meant the students did not hear any of the feedback sounds.

### • Recommendations:

- Music should be turned off initially for the splash screen, whilst the teacher is explaining the game.
- Feedback sounds should be configured independently to the background music.
- Include a music toggle on the intro screen with the background music set to off by default. Feedback sounds should be set to low. Students should also be able to turn the music on/off in the settings.
- Include a “Settings” button on the intro screen to allow the monitor settings and resolutions to be changed. Splash screen should be at simple resolution for most classroom devices.



# Avatar creation



## 1. All students enjoyed creating their avatar.

- The teachers liked that the gender of the avatar was neutral at the beginning of the avatar creation.
- Some female students would have preferred an avatar face that look more feminine, as well as more extensive headwear/ accessories and skirts for girls.
- **Recommendation:**
  - Consider including more feminine face shape

## 2. Changing items of clothing

Many of the students had difficulty taking the jumper off (quest 1). They did not know they needed to click another item of clothing in order to take the jumper off – “How do you un-wear something?”

- **Recommendation:**
  - Click on the selected jumper to unselect it and take it off the avatar (For the jumper only, not all clothes). Once unselected, the avatar should have a shirt underneath.

# Avatar interface



## 1. Difficulty scrolling vertically

- Both the up and down arrow did not allow users to scroll. The students expected to be able to use the arrows on the scroll bar to move their character characteristics up and down.

### • Recommendations:

- The green up and down green scrolling arrows should be clickable, as per left and right green arrow.

## 2. Some students were unfamiliar with the term “head gear”

### • Recommendations:

- Relabel the “head gear” section to hats or a similar term.

## 3. Start/done button

- A start button was visible on the tablet version of the game, which was easily identified by students. However, given that the students went back to the avatar screen multiple times during the game, they found it confusing that the button was labelled “start”, as they were already playing the game.

### • Recommendations:

- Rename the “start” button to “done”.

# Interface and menus



## 1. It was unclear what the experience XP indicator was

- Teachers and inexperienced game users did not know what the Experience XP indicator was. Initially, most students thought XP was overall game progress.
- When the XP indicator increased or decreased, it was too subtle and easily missed. Most users did not know why it changed or what decrease in XP meant.
- **Recommendations:**
  - Include a tooltip when users click on the XP to explain what this does and why it goes up/down.

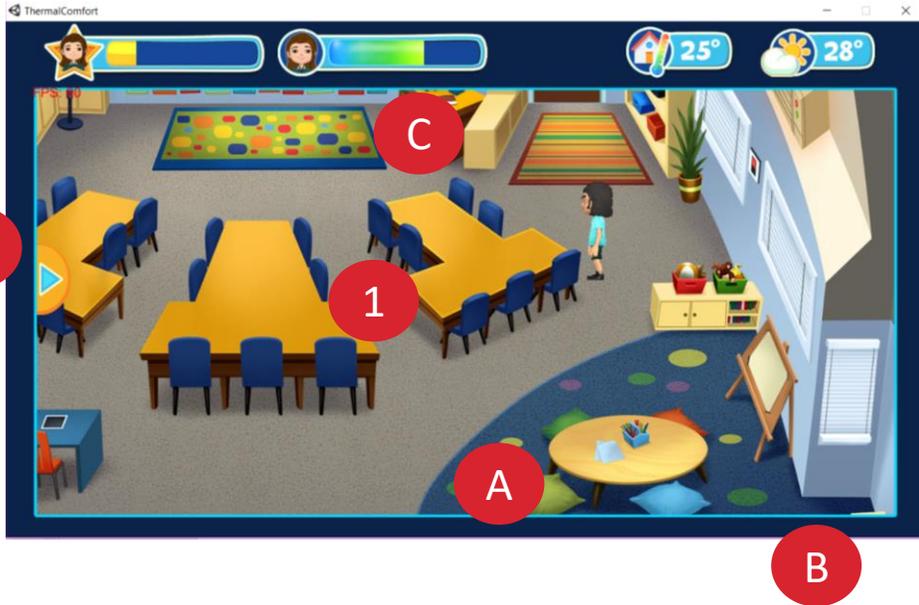
## 2. Avatar temperature, room and outside temperature indicators

- All users could understand the avatar temperature, and knew that this changed when the room temperature changed. The other indicators such as room temperature and outside temperature indicators were understood and the students did monitor the various temperatures for changes.

## 3. The help menu was clear to all users because it was signposted with a large animated arrow

- The large arrow to the help menu made finding the menu bar easy.

# Difficulty moving around the room



## 1. Desk, cushions and other obstacles were difficult to navigate around

- The majority of the students had difficulty navigating around the desks and cushions. They also couldn't walk along the left hand side of the page.
- The avatars were getting stuck at multiple points the classroom, including:

- A. Near the cushions in the bottom right.
- B. The lower left of the screen.
- C. Between the door and the desk

Game had to be restarted on the PC version, sometimes multiple times because of the above issues.

- **Recommendations:**

- Remove one row of desks, and decrease the size of the desks and make the desks square shaped
- Remove barrier between the door and room, and reposition the desk to lower half of the screen
- Allow the avatar to easily walk easily around the perimeter of the room.

# Instructions were displayed too quickly



## 1. The instructions appeared too quickly and were too long.

- The robot instructions were displayed too quickly for some students and teachers to read.
- Some of the words were too advanced for younger or students who were less proficient at reading,

### • Recommendations:

- Provide controls for the instructions, such as a back and next button for the speed of the copy
- Ensure the copy is concise and suitable for less-proficient students.

## 2. Users were not able to access hints when they were required.

### • Recommendations:

- Have the instructions available at any point in the game, for example a minimised robot. When students clicked on the minimised picture, the full robot appears with the instructions that can be re-read.

## 3. Some English as a second language students found it difficult to understand some of the instructions.

### • Recommendations:

- Consider having the instructions in other languages

# Small items in the room



## 1. Small items in the room are hard to distinguish and activate

- Room items such as the remote control and light switches are small and often hard to find.
- Additionally it was challenging for some users to activate switches using a mouse.
- **Recommendations:**
  - Ensure the light switches and controls are prominent and easy to access.

## 2. Switch in the room could not be identified

It is not clear in this room the purpose of the switch in the lower left hand corner. Once clicked, there is no additional feedback or visual cues in the room. Some of the students thought it was a heater.

- **Recommendations:**
  - If switches are obscure, include a tooltip once the device is clicked/tapped on

# Collecting 5 items in the room



## 1. Collecting the same items in the room

One of the tasks was to click on 5 items in the room that might affect temperature. The aim was for users to click 5 separate items, however, the game allowed user to collect the same 5 items.

- **Recommendations:**
  - Remove the ability to collect the same item more than once.
  - Include a tool tip advising the item has already been selected and recommend finding something else in the room.

## 2. Displaying the number of items collected

- The display of the 1 to 5 numbers was overlaid on top of the instructions
- **Recommendations:**
  - Fix the display issue. The robot instructions should disappear as soon as user clicks on one of the items. The counter should be displayed on an empty background.

# Goals and relationship to quests, tasks and badges



## 1. Each goal rationale and purpose

It was unclear to teachers what the objective and learning outcomes of the goals were.

- **Recommendations:**
  - Include a “More” or “About” button which includes learning outcomes for teachers and further help instructions for students if required to complete the task

## 2. Relationship between quests, goals, tasks, XP and badges

- It is not clear the relationship between quests, goals, tasks and badges. Does each quest have one goal or several? Is a goal the same as a quest?
- **Recommendations:**
  - Several recommendations are made later in this document relating to the goals and badges screen to improve usability

# Goals instructions

## 1. Only one goal was visible at any one time

- Instruction for goals are only available individually, therefore user can only perform one task at a time. It appears as if each goal / quest and badge is completed sequentially.

### Recommendations:

- If older users are allowed to access advanced levels, include navigation in the goals section to access all the goal instructions, and to be able to complete goals non-sequentially.

## 2. Unclear what the next goal is

- Most students knew when a goal had been achieved. However, it was not clear to go to “Goals menu” to see what the next goal was
- *“I don’t really know if I’ve completed it yet, because it went to 0 degrees then I went to 40 degrees.”*

### Recommendations:

- Title should state the status of the goal is complete
- Include a “Next goal” button on the congratulations badges screen



# Goal completion



## 1. The images on the goal screen is confusing.

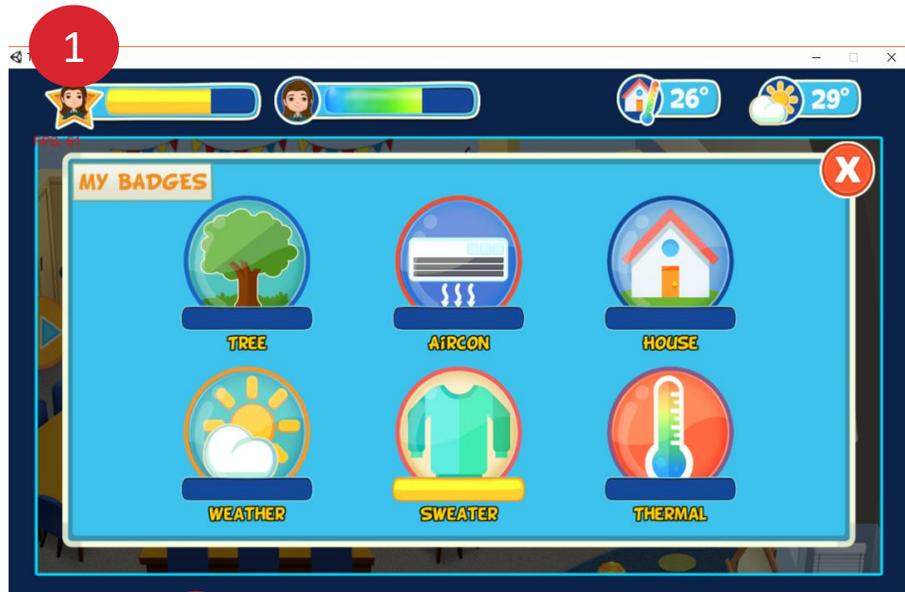
- It is not clear on the goal screen what the “Quest icon” in the dark blue circle represented.
- The sweater looks like a picture. It is not clear here that the sweater is a badge.

## 2. Recommended changes to the screen

The next illustration has had the following recommendations applied

- **Recommendations:**
  - Remove the “quest icon” dark blue circle.
  - Include a “More” or “About” button which includes learning outcomes for teachers and further help instructions for students if required to complete the task
    - Include in “About” a roadmap/sitemap for users to provide context, indicate progress and provide direction as to where to go next and for users to understand when the game is complete.
  - Include the word badge, and ensure the badge visually looks like a badge. Badge should be greyed out/ faded as if not yet collected.

# Avatar experience XP indicators



## 1. The Avatar Experience XP Indicator is confusing

- The Avatar Experience XP Indicator was not well understood. Most students and teachers confused it with progress.
- It was not clear how Avatar Experience XP related to each of the tasks, goals and badges.
- The Avatar Experience XP indicator appeared to increase after some tasks were completed, yet it behaved inconsistently and sometimes decreased, yet it was not clear why.
- **Recommendations:**
  - Include a tooltip to provide further explanation when users click on the XP progress indicator.

# The way badges are collected is inconsistent

1. It is not clear how many tasks need to be completed to obtain a badge.

- It is not clear how many tasks students are required to perform to obtain badges and complete a quest. In some instances, two tasks are required to obtain one badge (the Sweater badge).

2. For the second goal, Classroom Comfort, students can obtain two badges (the Weather and Thermal badge).

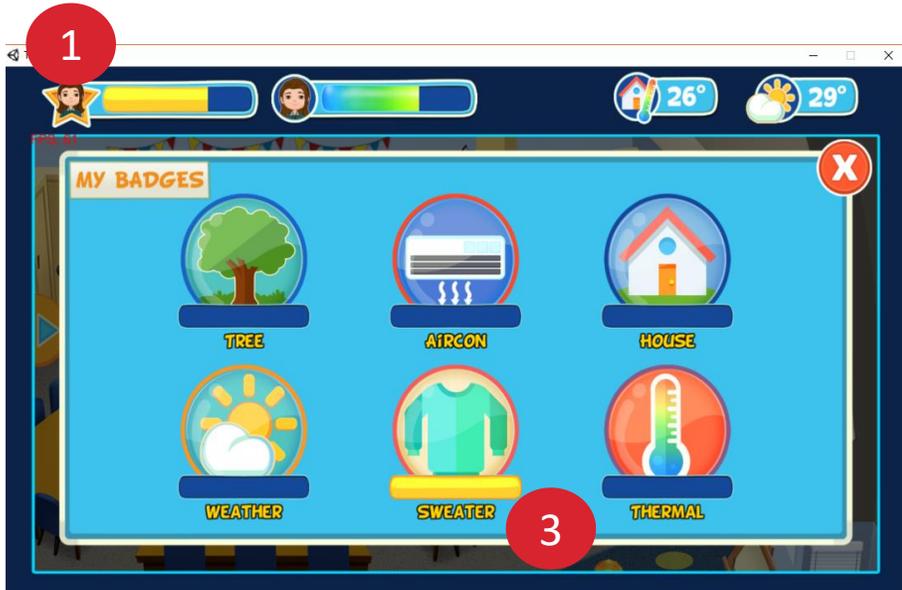
- It is not clear why students are able to obtain two badges for this goal.

## Recommendations:

- Relabel title Thermal comfort to include Quest “Thermal comfort quest”.



# Inconsistent progress indicators



## 1. Inconsistent progress indicators

- The progress indicators throughout the site behave inconsistently. Each badge appears to have a progress indicator, however each badge lacked an “in progress” state. Badges are either completed or not completed. Therefore a progress indicator for badges is not required.
- **Recommendations:**
  - Use a different visual treatment to indicate badges that have been completed, or include an icon such as green tick.
  - Consider some other indication of skill/success rather than a progress indicator. For example an animation of a “thumbs up”

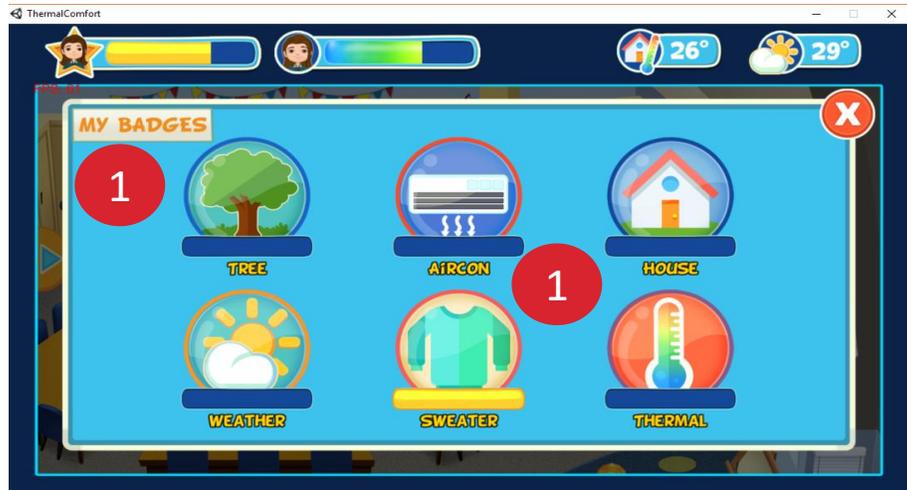
# Badges screen

## 1. Not clear what the goal or purpose for each badge was or how to obtain a badge

- From this screen, users could not tell what the badge was about and how to obtain the badge. Users would have to go to the goal screen for goal instructions and which badge is being obtained within the goal.

- Recommendations:**

- Include a hover over modal with relevant instructions for when a badge had been obtained or is still pending.



Recommend improvements: include hover over instructions for each badge



**Sweater Badge**  
You have received this badge as a reward for taking off your jumper.  
You have learnt how to get cooler. [More](#)



**Thermal Badge**  
The badge will become available after you have completed the weather and air con quest



## 2. Badges are not ordered sequentially

Although quests /goals and badges are presented sequentially, the badges are not ordered sequentially in the interface. Therefore it's not clear which badge was next.

- Recommendations:**

- Order the badges sequentially.
- Include a quest number next to each badge, so users can understand the order of quests/ badges.
- Include how many quests have been completed (1/6 quests done) etc.

1

# Temperature tokens

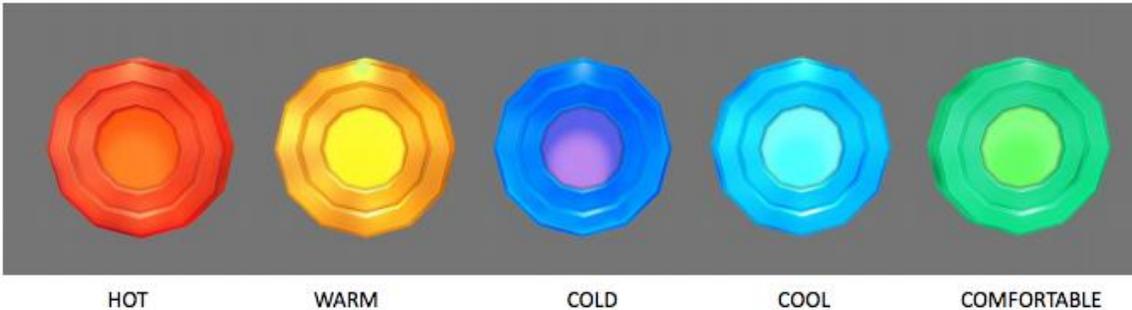
## 1. Understanding of the temperature tokens

- When the temperature tokens first appeared on the screen, the students thought they could collect them straight away. Many of the students walked around the room trying to collect the tokens, but were not able to, and did not understand why they couldn't.
- Many of the students thought the temperature tokens were actually coins, especially the gold tokens. Nearly all the students expected to be able to collect the gold tokens.

- **Recommendations:**

- Indicate to the players what each of the temperature token colours refer to, so they can understand what colour the tokens need to be in order to collect them, and how to collect the token. This could be done in a legend on the page (that appears only when the temperature tokens are in use).
- Reduce the range of colours the temperature tokens can be. It is suggested this range is red (hot), cold (blue), and comfortable (green) (and the warm and cool tokens are removed).

2



# Focus on sustainability

## Teaching students the bigger picture about environmental sustainability

- The teachers understood the game was aiming to educate students about managing their thermal comfort, and how to keep cool and warm. However, a few teachers mentioned they want to be teaching their students the bigger picture – the impact of their behaviour on the environment, and educating them about environmental sustainability.

## Feedback on the player's actions in relation to sustainability

- A few teachers commented they would like the game to provide more feedback to students about the environmental sustainability of the devices/mechanisms they can use to manage their thermal comfort – e.g. when they change their clothes to manage their temperature they receive feedback such as, “Well done, using clothing to keep warm/cool is environmentally friendly”, or when they try to put the air-con on straight away, they are told by the robot, “is there anything else you could use that doesn't use as much energy?”
- **Recommendations:**
  - Provide feedback to players about the environmental friendliness of the devices/mechanisms to manage their thermal comfort.
  - Focus the game towards teaching students about how to manage their thermal comfort in an environmentally sustainable way, and the consequences of their actions, rather than how to be warm/cool. This will assist to drive behaviour change.

# 04

## Website wireframes key findings and recommendations

# Website wireframes

## Overall impression

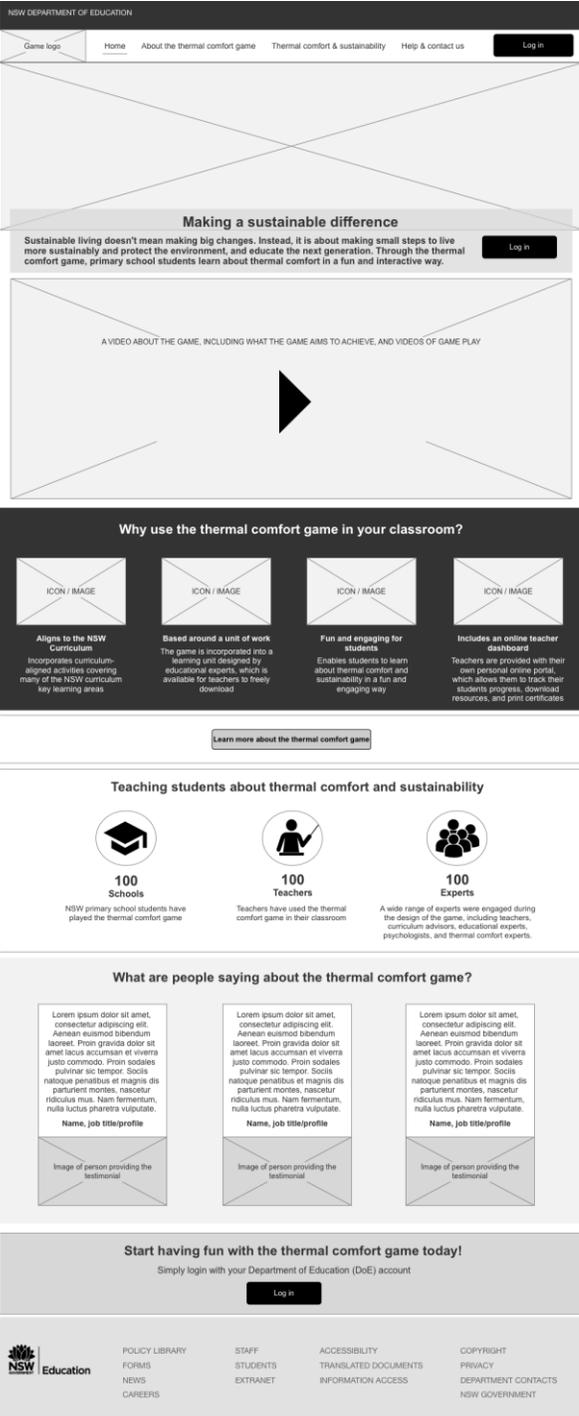
Overall, the participants reacted positively to the website. It had most of the information they needed in order to use the game and unit of work. They were also very happy that there was a unit of work available for them to use – they mentioned this would make it a lot more likely they would use the game and resources in their classroom.

The teachers mentioned it is not solely up to them whether they use the game in their classroom. They work together in teams (typically with teachers who teach the same stage, and a stage leader/co-ordinator) to decide on what they will teach their classes, and the resources they will use. As such, the website needs to appeal to those who make the decisions on what will be taught in the classroom (such as the stage leaders/co-ordinators, and the principal).

*“I like the simplicity of the website and the layout”*

*“The website is good, it seems like something targeted towards teachers. It’s got all the information I need. I don’t think I need anything else, I think everything I need I found it on the website”.*

*“I liked the dashboard, it allowed me to see the student’s progress. I liked that there’s a unit of work, I would definitely use that, makes my job so much easier. I probably wouldn’t use the game if it didn’t come with a unit of work.”*



2

1

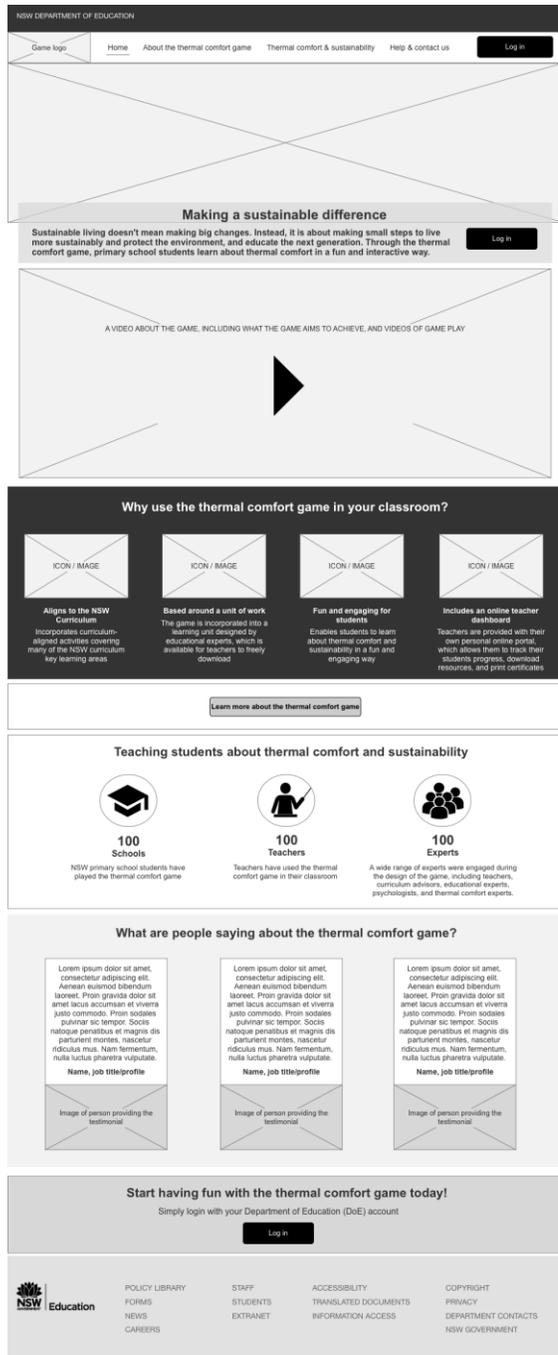
# Homepage

## 1. Why use the thermal comfort game in your classroom section

- All the participants commented they liked, and found very useful *the ‘why use the thermal comfort game in your classroom’* section as it outlined aspects of the game and resources they require in order to use it in their classroom (i.e. aligns to the curriculum, based around a unit of work, includes a dashboard to track their student’s progress).

## 2. Accessing the teacher section / accessing the game

- Most of the participants did not know to click the ‘login’ button to access the teacher section.
- Recommendation:** Login button needs to be clearer as to who it is for (rename to ‘teacher login’ or something similar). Additionally, include a button that says ‘play the game’, so students can easily access the game.



3

4

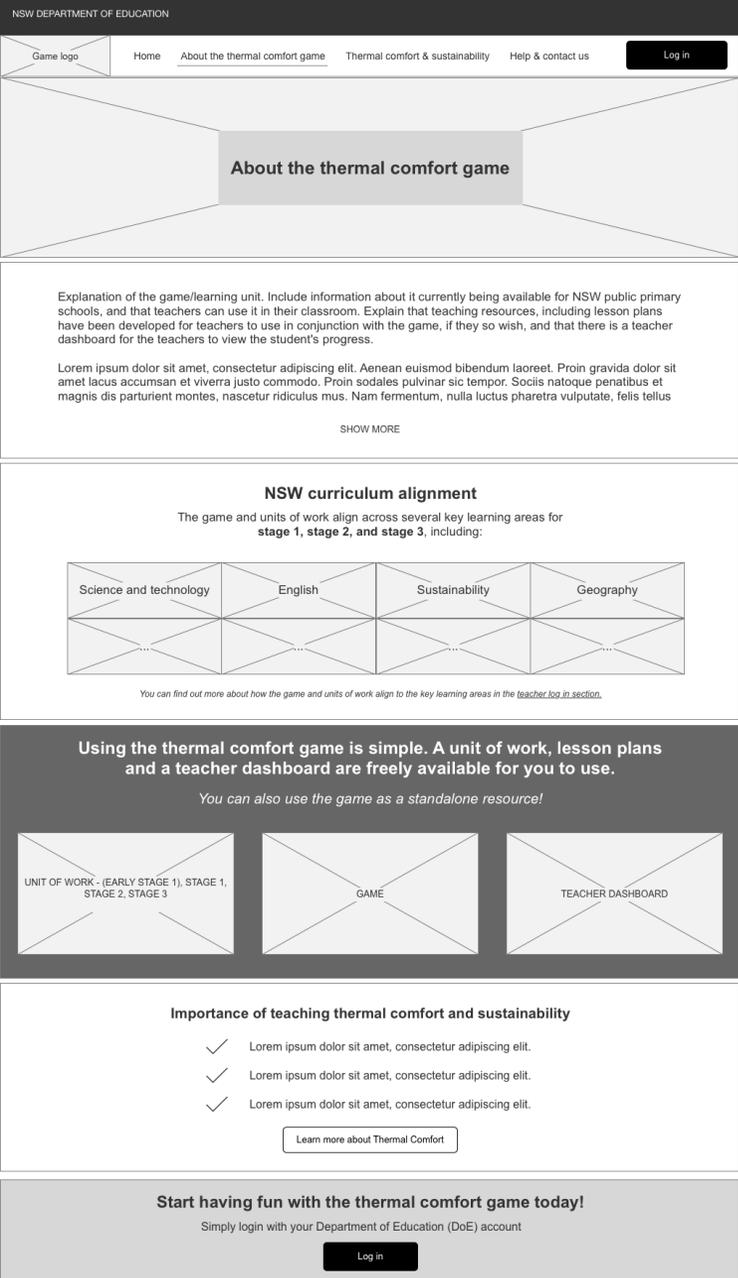
# Homepage

## 3. Purpose of the game, unit of work, alignment to the curriculum

- Some of the teachers did not clearly understand what the purpose of the game was from the homepage.
- When the teachers realised the game was included within a unit of work, most of them were very happy – *“I like that there’s a unit of work, I would definitely use that. Makes my job so much easier. I probably wouldn’t use the game if it didn’t come with a unit of work”*.
- The game being aligned to the curriculum is imperative. This alignment needs to be clearly articulated to the teachers in order to gain their buy-in to use the game.
- **Recommendations:**
  - The blurb at the top of the page should clearly explain the purpose of the game, the game is incorporated in a unit of work, and is aligned to the curriculum.
  - Include the NSW curriculum alignment information on the homepage.
  - Make it clear the game has been developed, and is supported by the DoE.

## 4. Video

- Most of the teachers liked that there would be a video on the homepage, and expected the video to be short – no longer than 3 minutes. In the video they expected *“to see the tasks the kids are going to do on the game, the badges they are going to get. I would show my students the video so they can get an idea about what they can expect in the game”*.
- Images used on the homepage need to resonate with teachers, such as an image of a classroom with students playing the game.



# About the game

## 1. Impression of the page

- Overall, the participants liked this page and found it informative. In addition to the information currently on this page (an explanation of the game, it's incorporated in a unit of work, and it's available to be used in NSW classroom), a few of the participants expected to find information about the rationale for the game and the purpose of the game. In particular, one of the participants wanted information about why the DoE had created the game.
  - **Recommendation:** On this page, make it clear what the rationale and purpose of the game is.

## 2. NSW Curriculum alignment

- The game being aligned to the curriculum is imperative for teachers (they won't use the game if it's not aligned to the curriculum).
  - **Recommendation:** Include this information on the homepage, and therefore remove it from this page.

## 3. Importance of teaching thermal comfort and sustainability

- Most of the teachers were not interested in this section, with one of the teachers saying, "if I access this page it is because I want to use the game in my classroom, so I already understand it's importance".
  - **Recommendation:** Remove this section.

## 4. Case study of a school using the game

- A couple of the teachers mentioned they would like to see a case study about a school using the game. This would give them confidence to use it in their classroom, and the knowledge that it is a popular resource.

# Thermal comfort and sustainability

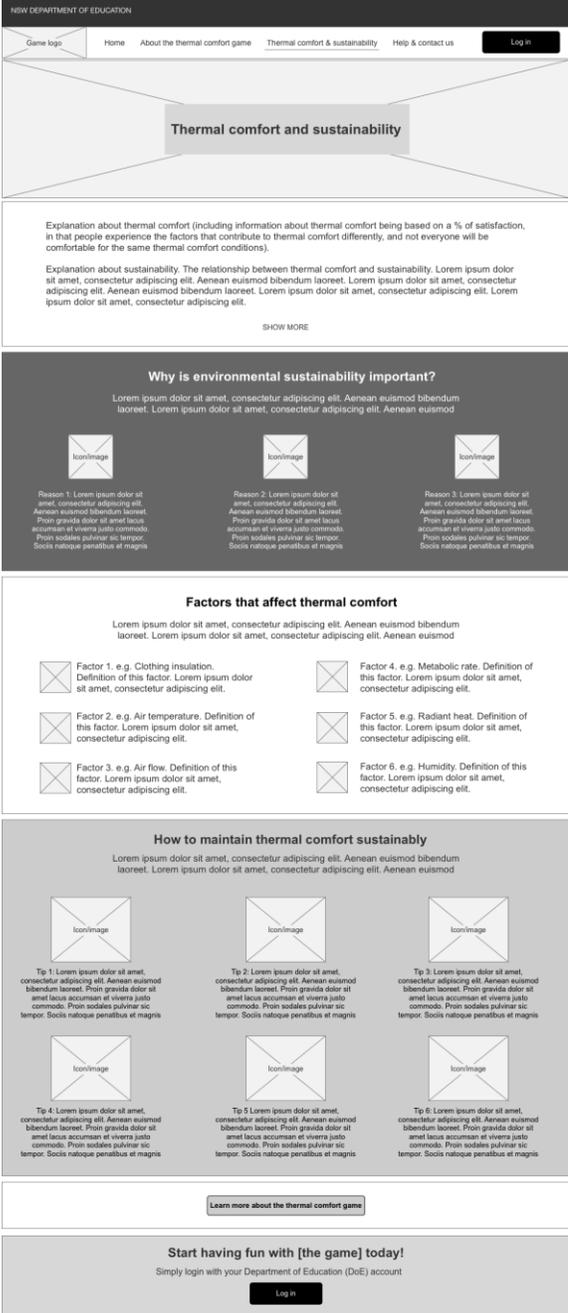
## 1. Impression of the page

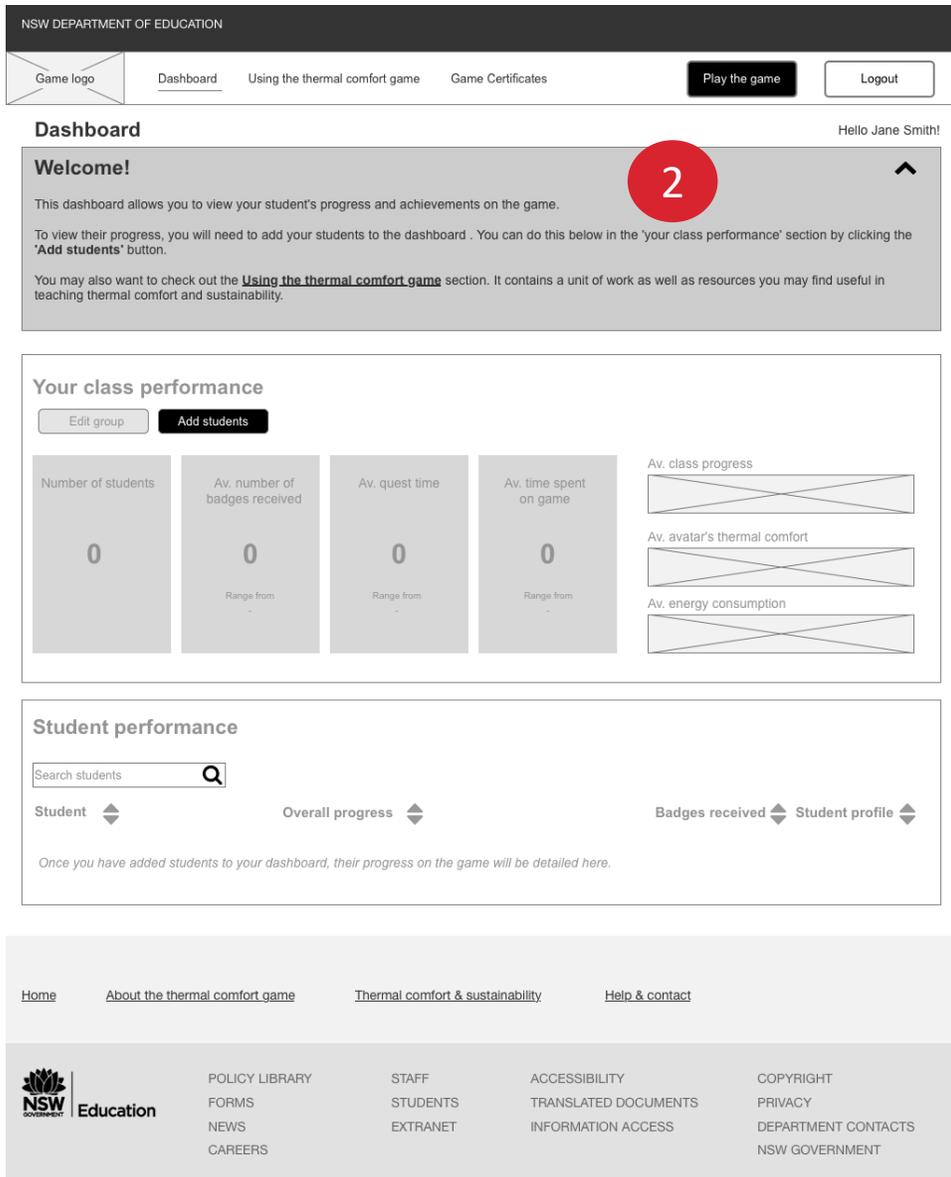
- Overall, most of the teachers really liked this page. They mentioned they would read this page themselves to get an understanding of thermal comfort and sustainability, and use this information to teach their class about the topic.
- The 'factors that affect thermal comfort' section was of the most interest to the teachers. They also found the layout of this section the easiest to understand and read.
  - **Recommendation:** Position the 'factors that affect thermal comfort' section higher on the page.



## 2. Teacher's typically scan pages quickly

- As teachers are busy, they typically scan pages quickly, and normally don't read pages in depth. As such, it is recommended that the information included on the page stay the same, but that it is written concisely and to the point.





# Teacher dashboard (empty state)

## 1. Understanding of the page and functionality

- When the participants were asked what they would do when they landed on this page, they all clicked the 'add students' button. Thus, the main action of this page was easily understood.

## 2. Welcome! section

- Most of the participants read the 'Welcome!' section to gain an understanding of the dashboard. Some were confused by the "You can do this [add students] below in the 'your class' performance section by clicking the 'add students' button", in that they had trouble locating the 'your class performance' title.
  - **Recommendation:** Reword the instructions in the Welcome! section to be more concise and avoid needing to find specific titles on the dashboard to locate information (e.g. reword the second sentence to: 'To add students to your dashboard, click the **add students** button' or similar).

# Adding students to the dashboard

**Add students**

Chester Hill Public School

1. Select students

All students

### Students  
 Select all

| Student's name                          | Year   | User ID          |
|---|--------|------------------|
| <input type="checkbox"/> Ryan Lewis     | Year 1 | ryan.lewis1      |
| <input type="checkbox"/> Mary Joseph    | Year 1 | mary.jo08        |
| <input type="checkbox"/> Ashleigh Prest | Year 1 | ashleigh.prest23 |
| <input type="checkbox"/> Amber Mull     | Year 1 | amber.mull44     |
| <input type="checkbox"/> Clara Smith    | Year 1 | clara.smith11    |
| <input type="checkbox"/> Lily Peter     | Year 1 | lily.peter33     |
| <input type="checkbox"/> Toby Jones     | Year 1 | toby.jones1      |
| <input type="checkbox"/> Mark Oslow     | Year 1 | mark.oslow2      |
| <input type="checkbox"/> Craig Ryan     | Year 1 | craig.ryan5      |

You may also add students to your dashboard by filling in the [students on dashboard template](#). Once completed, upload the template [here](#).

2. Create group

## 1. Usability of adding students and creating groups

- All the teachers were able to easily add students to their dashboard. They understood how to do so – “That was easy and straightforward, I understood what to do”.

## 2. Grade filter

- Two of the teachers did not notice the grade dropdown. Rather, they scrolled through the whole school list to locate their students (rather than using the dropdown to filter to their grade only). This caused it to be more difficult and take longer to add students to their class.
  - Recommendation:** Make the grade filter more visually prominent.

## 3. Order of students

- The teachers expected the students in the list to be ordered within their year group, alphabetically (e.g. all year 1s listed together, in an alphabetical order).
  - Recommendation:** Order the students alphabetically (within their grade).

## 4. Create group

- As some students are in a group, whilst others are in a class, a teacher recommended renaming this section to create group/class.
  - Recommendation:** Rename this label to ‘create group/class’.

**Dashboard** Hello Jane Smith!

Welcome! 2

**Your class performance** Last update: 01/01/2018

Year 3A Edit group Add students

|  |  |   |   |   |  |   |
|--|--|---|---|---|--|---|
| <p>Number of students</p> <p><b>26</b></p> <p>26 Started<br/>0 Pending</p> | <p>Av. number of badges received</p> <p><b>5</b></p> <p>Ranges from 3 - 5 across the class</p> | <p>Av. quest time</p> <p><b>20m</b></p> <p>Ranges from 20m - 60m across the class</p> | <p>Av. time spent on game</p> <p><b>1.05hr</b></p> <p>Ranges from 1hr - 5 hr across the class</p> | <p>Av. class progress</p> <p>PROGRESS BAR</p> | <p>Av. avatar's thermal comfort</p> <p>THERMAL COMFORT BAR</p> | <p>Av. energy consumption</p> <p>ENERGY CONSUMPTION BAR</p> |
|--|--|---|---|---|--|---|

**Student performance**

Search students

| Student         | Overall progress | Badges received | Student profile                     |
|-----------------|------------------|-----------------|-------------------------------------|
| Bob Jones       | Level 1          | 5/20            | <a href="#">view</a> <span>×</span> |
| Lily Rose       | Level 1          | 5/20            | <a href="#">view</a> <span>×</span> |
| Lauren Stephens | Level 1          | 5/20            | <a href="#">view</a> <span>×</span> |
| Cynthia Hung    | Level 1          | 5/20            | <a href="#">view</a> <span>×</span> |
| Lucy Rowell     | Level 1          | 5/20            | <a href="#">view</a> <span>×</span> |
| George Bank     | Level 1          | 5/20            | <a href="#">view</a> <span>×</span> |
| Student name    | Level 1          | 5/20            | <a href="#">view</a> <span>×</span> |
| Student name    | Level 1          | 5/20            | <a href="#">view</a> <span>×</span> |
| Student name    | Level 1          | 5/20            | <a href="#">view</a> <span>×</span> |
| Student name    | Level 1          | 5/20            | <a href="#">view</a> <span>×</span> |

[View all students](#)

# Teacher dashboard

## 1. Overall impression

- Overall, the participants found the dashboard useful as it allows them to track their student's progress. Most teachers mentioned they would use it to see which students are doing well on the game, as well as those who weren't doing so well – so they could know who they may need to check-in with.

## 2. Class performance/class average

- The teachers were most interested in the student performance information, rather than the class performance.
  - Recommendation:** Place less emphasis on the class average, and more focus on student performance (e.g. reduce the size of the 'your class performance' section).

## 3. Ability to share the dashboard with others

- Teachers need the ability to share their dashboard with another teacher (e.g. if team teaching; if the relief from face-to-face teacher will be the teacher using the game with the class).
  - Recommendation:** Include a functionality that allows a dashboard to be shared with someone else.

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Game logo Dashboard Using the thermal comfort game Game Certificates **Play the game** Logout

Dashboard Hello Jane Smith!

Welcome! ▾

**Your class performance** Last update: 01/01/2018

Year 3A Edit group Add students

|  |  |   |   |   |
|--|--|---|---|---|
| Number of students<br><b>26</b><br><small>26 Started<br/>0 Pending</small> | Av. number of badges received<br><b>5</b><br><small>Ranges from 3 - 5 across the class</small> | Av. quest time<br><b>20m</b><br><small>Ranges from 20m - 60m across the class</small> | Av. time spent on game<br><b>1.05hr</b><br><small>Ranges from 1hr - 5 hr across the class</small> | Av. class progress<br>PROGRESS BAR                  |
|  |  |   |   | Av. avatar's thermal comfort<br>THERMAL COMFORT BAR |
|  |  |   |   | Av. energy consumption<br>ENERGY CONSUMPTION BAR    |

**Student performance**

Search students Q

| Student         | Overall progress | Badges received | Student profile        |
|-----------------|------------------|-----------------|------------------------|
| Bob Jones       | Level 1 2 3      | 5/20            | <a href="#">view</a> X |
| Lily Rose       | Level 1 2 3      | 5/20            | <a href="#">view</a> X |
| Lauren Stephens | Level 1 2 3      | 5/20            | <a href="#">view</a> X |
| Cynthia Hung    | Level 1 2 3      | 5/20            | <a href="#">view</a> X |
| Lucy Rowell     | Level 1 2 3      | 5/20            | <a href="#">view</a> X |
| George Bank     | Level 1 2 3      | 5/20            | <a href="#">view</a> X |
| Student name    | Level 1 2 3      | 5/20            | <a href="#">view</a> X |
| Student name    | Level 1 2 3      | 5/20            | <a href="#">view</a> X |
| Student name    | Level 1 2 3      | 5/20            | <a href="#">view</a> X |
| Student name    | Level 1 2 3      | 5/20            | <a href="#">view</a> X |

[View all students](#)

4

# Teacher dashboard

## 4. Metrics

- The teachers were not interested in the 'average avatar's thermal comfort' metric, and the 'average energy consumption' metric.
  - Recommendation:** Remove these metrics
- A few teachers were not interested in the 'average time spent on quest' or 'average time spent on game' metrics – *"I don't really find it relevant. It doesn't really demonstrate understanding, their competence, or if they have a better understanding of the concepts taught."* However, two of the teachers were interested in these metrics, as they allow the teachers to know if any of the students were spending an above average amount of time on the game, and therefore may not understand the concepts being taught.
  - Recommendation:** Keep these metrics, but place less emphasis on them (i.e. reduce the size of the 'your class performance' section).
- Most of the teachers liked the overall progress metric – *"I like this overall progress bar, you can see how much they are progress"; "I know the students are completing tasks"*.

[< Back to Dashboard](#)

### Student Profile Last update: 01/01/2018

Class: Year 3A Student: **Bob Jones** [Create Certificate](#)

Avatar

Number of badges received

2

Average quest time

20m

Average time spent on game

1.05hr

Progress

Avatar's thermal comfort

Energy consumption

#### Performance breakdown

Level 1

Level 2

Level 3

| Quest progress  | Status      | Completion time |
|---|-------------|-----------------|
| <p>Quest 1</p> <div style="display: flex; align-items: center;"> <div style="width: 100px; height: 10px; background: linear-gradient(to right, green 70%, grey 70%);"></div> <div style="margin-left: 10px;"> <p>Completed</p> <p>###</p> </div> </div> <div style="margin-top: 5px;"> <p><b>1</b></p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p> Description of the badge and learning outcome. Lorem ipsum dolor sit amet, consectetur adipiscing elit</p> <p> Description of the badge and learning outcome. Lorem ipsum dolor sit amet, consectetur adipiscing elit</p> <p> Description of the badge and learning outcome. Lorem ipsum dolor sit amet, consectetur adipiscing elit</p> </div> <div style="width: 45%; text-align: right;"> <p><b>2</b></p> </div> </div> </div> | Completed   | ###             |
| <p>Quest 2</p> <div style="display: flex; align-items: center;"> <div style="width: 100px; height: 10px; background: linear-gradient(to right, green 100%, grey 100%);"></div> <div style="margin-left: 10px;"> <p>Completed</p> <p>###</p> </div> </div> <div style="margin-top: 5px;"> <p> Description of the badge and learning outcome. Lorem ipsum dolor sit amet, consectetur adipiscing elit</p> <p> Description of the badge and learning outcome. Lorem ipsum dolor sit amet, consectetur adipiscing elit</p> <p> Description of the badge and learning outcome. Lorem ipsum dolor sit amet, consectetur adipiscing elit</p> </div>  | Completed   | ###             |
| <p>Quest 3</p> <div style="display: flex; align-items: center;"> <div style="width: 100px; height: 10px; background: linear-gradient(to right, green 30%, grey 30%);"></div> <div style="margin-left: 10px;"> <p>In-progress</p> <p>###</p> </div> </div> <div style="margin-top: 5px;"> <p> Description of the badge and learning outcome. Lorem ipsum dolor sit amet, consectetur adipiscing elit</p> <p> Description of the badge and learning outcome. Lorem ipsum dolor sit amet, consectetur adipiscing elit</p> <p> Description of the badge and learning outcome. Lorem ipsum dolor sit amet, consectetur adipiscing elit</p> </div>  | In-progress | ###             |
| <p>Quest 4</p> <div style="display: flex; align-items: center;"> <div style="width: 100px; height: 10px; background: linear-gradient(to right, grey 100%, grey 100%);"></div> <div style="margin-left: 10px;"> <p>—</p> <p>—</p> </div> </div> <div style="margin-top: 5px;"> <p> Description of the badge and learning outcome. Lorem ipsum dolor sit amet, consectetur adipiscing elit</p> <p> Description of the badge and learning outcome. Lorem ipsum dolor sit amet, consectetur adipiscing elit</p> </div>  | —           | —               |
| <p>Quest 5</p> <div style="display: flex; align-items: center;"> <div style="width: 100px; height: 10px; background: linear-gradient(to right, grey 100%, grey 100%);"></div> <div style="margin-left: 10px;"> <p>—</p> <p>—</p> </div> </div> <div style="margin-top: 5px;"> <p> Description of the badge and learning outcome. Lorem ipsum dolor sit amet, consectetur adipiscing elit</p> </div>   | —           | —               |

[View all quests](#)

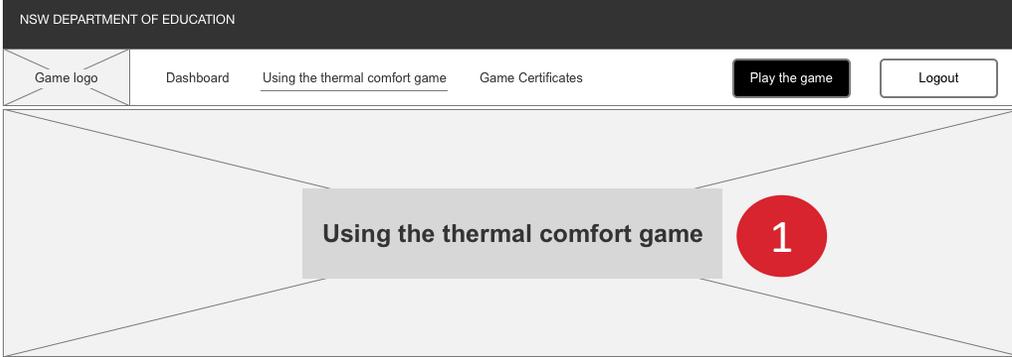
# Student profile

## 1. Learning outcomes

- Currently, each of the badges are associated with a learning outcome. However, for the teachers, they did not understand/see the relevance of this association.
- The teachers mentioned they need to know the learning outcomes each quest relates to, and when the student has completed a part of the game that relates to this outcome.
  - Recommendation:** Remove the image of the badge. As the learning outcomes are the most important aspect of this page, use this section to clearly outline the learning outcomes relevant to each of the quests.

## 2. Terminology

- The majority of the teachers stated they observe and/or assess their student's performance on the learning outcomes multiple times. As such, completing a task that relates to a learning outcomes once does not make them confident that the student has achieved this outcome – *“Just because a student has done something once, doesn't mean they have achieved that outcome, I'd want to see them do it a number of times”*.
  - Recommendation:** Be mindful of the terminology used when describing the association between the quests and the learning outcomes on this page. Avoid using the word 'achieved', rather, use words such as 'relates' or 'associated'.



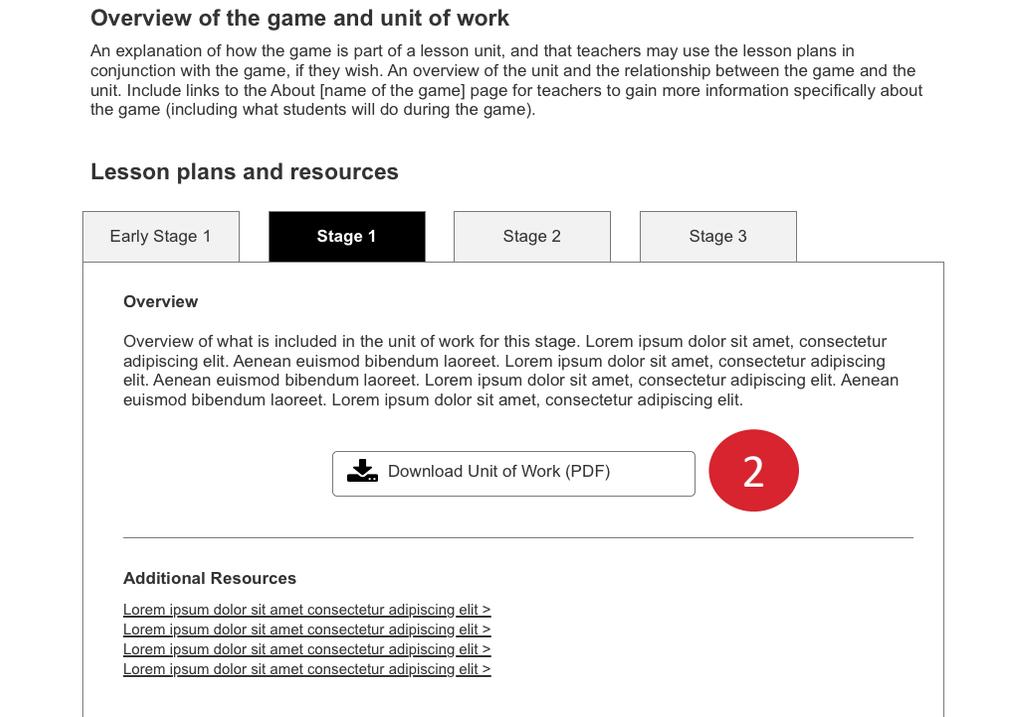
# Using the game

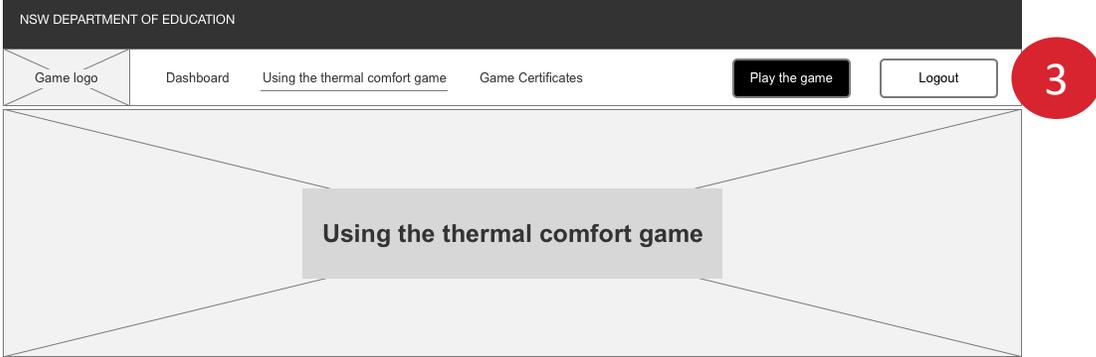
## 1. Title of the page

- The main purpose of this page is for the users to access the units of work. However, the title of this page was confusing for all the participants, and they did not expect to find this information on this page. *“Confusing title, it wasn’t obvious to me from the title that this would be where the units of work would be located”*; *“I’m actually struggling to find the units of work”*.
- Recommendation:** Rename this page to a clearer title, such as ‘units of work’.

## 2. Word and PDF versions of the units of work

- Four of the teachers mentioned that in addition to a PDF version of the units of work, they would also like a word version – *“I would like to be able to download a word version in case I want to make changes to the unit of work”*.





# Using the game

## 3. Logged in access

- Currently, teachers must login to the teacher’s section in order to gain access to the units of work. However, most of the teachers mentioned they would prefer to not have to login to download the units of work.
- Often when teachers are looking for teaching resources, they will search the internet and scan webpages, and come back to those that sparked their interest. Any barrier to gaining further information and resources (e.g. units of work) will decrease the likelihood they will use the resource.
- Additionally, a few of the teachers mentioned that the DoE is starting to have more resources publically available – *“The DoE is starting to have a lot more things available without login”*.
  - **Recommendation:** Include this page in the public site, rather than the teacher login area.

### Overview of the game and unit of work

An explanation of how the game is part of a lesson unit, and that teachers may use the lesson plans in conjunction with the game, if they wish. An overview of the unit and the relationship between the game and the unit. Include links to the About [name of the game] page for teachers to gain more information specifically about the game (including what students will do during the game).

### Lesson plans and resources

Early Stage 1

Stage 1

Stage 2

Stage 3

**Overview**

Overview of what is included in the unit of work for this stage. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aenean euismod bibendum laoreet. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aenean euismod bibendum laoreet. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aenean euismod bibendum laoreet. Lorem ipsum dolor sit amet, consectetur adipiscing elit.

Download Unit of Work (PDF)

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**Additional Resources**

[Lorem ipsum dolor sit amet consectetur adipiscing elit >](#)  
[Lorem ipsum dolor sit amet consectetur adipiscing elit >](#)  
[Lorem ipsum dolor sit amet consectetur adipiscing elit >](#)  
[Lorem ipsum dolor sit amet consectetur adipiscing elit >](#)

NSW DEPARTMENT OF EDUCATION

Game logo Dashboard Using the thermal comfort game Game Certificates **Play the game** Logout

## Game Certificate

 [A paragraph explains the purpose of the certificate] Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aenean euismod bibendum laoreet. Proin gravida dolor sit amet lacus accumsan et viverra justo commodo. Proin sodales pulvinar sic tempor. Sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus.

Year 3A **Create certificates**

Select/deselect all

|                                     | NAME  | LEVEL | QUESTS COMPLETED | BADGES EARNED |
|-------------------------------------|---|-------|------------------|---------------|
| <input checked="" type="checkbox"/> |  Student name (e.g. Bob Jones)   | ##    | ##               | ##            |
| <input checked="" type="checkbox"/> |  Student name (e.g. Bob Jones)   | ##    | ##               | ##            |
| <input checked="" type="checkbox"/> |  Student name (e.g. Bob Jones)   | ##    | ##               | ##            |
| <input checked="" type="checkbox"/> |  Student name (e.g. Bob Jones)   | ##    | ##               | ##            |
| <input checked="" type="checkbox"/> |  Student name (e.g. Bob Jones)   | ##    | ##               | ##            |
| <input checked="" type="checkbox"/> |  Student name (e.g. Bob Jones)   | ##    | ##               | ##            |
| <input checked="" type="checkbox"/> |  Student name (e.g. Bob Jones)   | ##    | ##               | ##            |
| <input checked="" type="checkbox"/> |  Student name (e.g. Bob Jones)   | ##    | ##               | ##            |
| <input checked="" type="checkbox"/> |  Student name (e.g. Bob Jones)   | ##    | ##               | ##            |
| <input checked="" type="checkbox"/> |  Student name (e.g. Bob Jones)   | ##    | ##               | ##            |
| <input checked="" type="checkbox"/> |  Student name (e.g. Bob Jones)   | ##    | ##               | ##            |
| <input checked="" type="checkbox"/> |  Student name (e.g. Bob Jones)   | ##    | ##               | ##            |
| <input checked="" type="checkbox"/> |  Student name (e.g. Bob Jones)  | ##    | ##               | ##            |
| <input checked="" type="checkbox"/> |  Student name (e.g. Bob Jones) | ##    | ##               | ##            |
| <input checked="" type="checkbox"/> |  Student name (e.g. Bob Jones) | ##    | ##               | ##            |
| <input checked="" type="checkbox"/> |  Student name (e.g. Bob Jones) | ##    | ##               | ##            |
| <input checked="" type="checkbox"/> |  Student name (e.g. Bob Jones) | ##    | ##               | ##            |

Select/deselect all  **Create certificates**

Home About the thermal comfort game Thermal comfort & sustainability Help & contact


 POLICY LIBRARY STAFF ACCESSIBILITY COPYRIGHT  
 FORMS STUDENTS TRANSLATED DOCUMENTS PRIVACY  
 NEWS EXTRANET INFORMATION ACCESS DEPARTMENT CONTACTS  
 CAREERS NSW GOVERNMENT

# Game Certificates

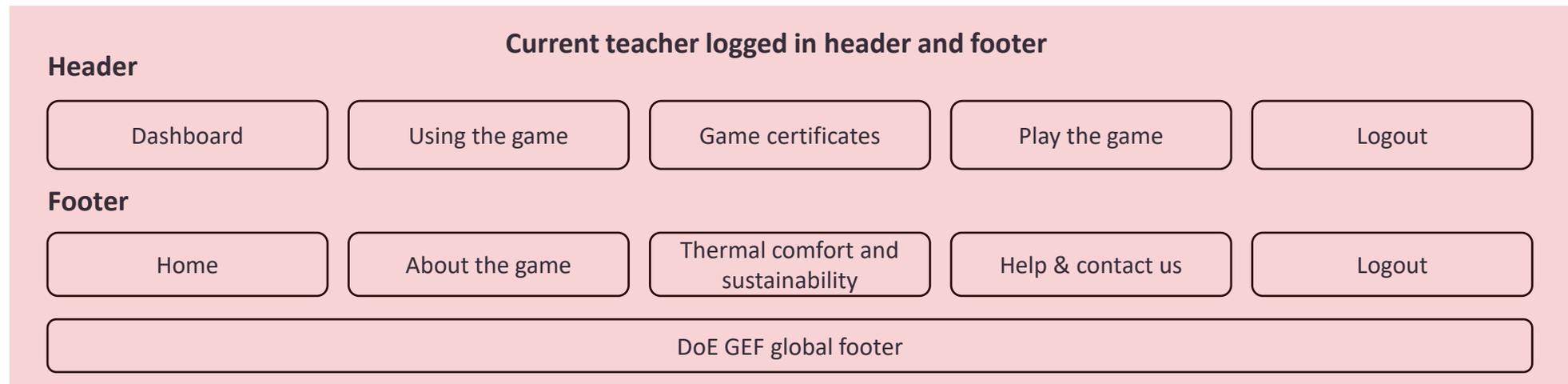
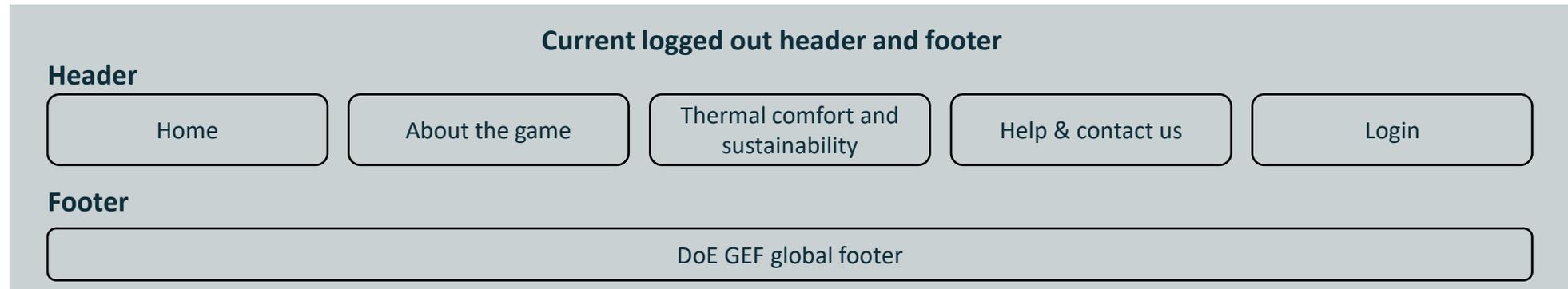
## 1. Creating certificates for the students

- The teacher's reactions to the certificates were mixed. Most (4 out of the 6) would not print a certificate for their students – *"I wouldn't be printing certificates. I don't think the students should get a certificate for playing a game!"*.
- However, 2 of the teachers did say they would probably print off the certificates, and they would do this once a student had completed the game.
- Recommendation:** Keep the game certificates page, so that those teachers who would like to give their students are certificates are able to.

## 2. Usability of the page

- The teacher's were able to easily print the certificates.

# Current navigation / information architecture



- Currently, once the user moves into the logged in state, the links to the public site pages are in the footer. However, once logged into the teacher section, all the participants had difficulty finding the public site pages (i.e. home, about the game, thermal comfort and sustainability, help and contact us).
- Teachers were specifically looking for a page labelled 'units of work' or similar which had the units of work on them. Having this page will also make it obvious to users that units of work are available – which will make them much more likely to found out more about the game / use it in their classroom.

# Recommended navigation / information architecture

## Recommended logged out header and footer

### Header

Home

About the game

Units of work

Sustainability

Help and contact  
us

Teacher  
Login

Play game!

### Footer

DoE GEF global footer

## Recommended teacher logged in header and footer

### Header

Home

About the game

Units of work

Sustainability

Help and  
contact us

Dashboard

Logout

Play game!

### Footer

DoE GEF global footer

# Other insights

## 1. Teachers playing the game

- Most of the teachers said they would have a go at playing the game prior to using it in their class. They don't want a detailed page explaining the ins and outs of what students do in the game, they will mainly figure this out from playing the game themselves. *"I'd play the game to find out more about it, rather than reading what it's about"*.

## 2. Assessment of the student's learning and understanding of the concepts taught in the game

- Four out of the six teachers said they would like examples of assessments they can use to assess the student's learning and understanding of the concepts taught in the game. The teachers mentioned being provided with assessment methods will make using the game and the unit of work much easier for the them, as otherwise they will need to create their own.
- *"I need to be able to assess the kids on their learning and understanding of the concepts taught in a unit of work. However, I don't want a quiz. I'm not a fan of quizzes, I prefer to see the kids produce something themselves through observation. Such as creating a poster about sustainability, instead of a one-off thing"*.
  - **Recommendation:** On the website, Include two sample assessments teachers can use (for each of the stages).



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