

## PUI Final Project

### Vocabulary Learning Game: Wordland

Game Link:

[https://tzulingyang.github.io/pui-hw-joanne/Final\\_Project\\_Mix-and-match/html/GameStart.html](https://tzulingyang.github.io/pui-hw-joanne/Final_Project_Mix-and-match/html/GameStart.html)

#### Part 1: Project Description

Wordland is an engaging vocabulary learning game specifically crafted to elevate young children's word knowledge. This immersive platform integrates two key learning components: word cards learning and an interesting mix-and-match game, designed to make vocabulary acquisition both enjoyable and effective.

In this project, I aimed to introduce diverse vocabulary topics in a way that resonates with young learners. Initially focusing on two distinct themes, namely sports and occupations, the game provides an accessible entry point into these subjects. The evolution of the game's design was driven by a crucial insight: traditional flashcards with words and definitions might be too complex for younger children to grasp and retain new words effectively. As a strategic pivot, Wordland shifted to a visually enriched approach, leveraging images in tandem with words. This shift not only increased memorability but also provided a more engaging and intuitive learning experience.

Wordland's appeal lies in its unique mix-and-match challenge, setting it apart from conventional games. Instead of matching identical images, players pair words with the images, enhancing word-image associations and memory recall. This interactive gameplay boosts engagement and reinforces learning through active participation and cognitive connections.

By merging entertainment with education, I tried to redefine the process of learning vocabulary for children, offering an enriching experience that stimulates cognitive development while fostering a passion for learning. As the game evolves with additional topics and enhanced features, I believe that Wordland could continue to be a dynamic and impactful tool in nurturing young minds' linguistic abilities.

# WORDLAND

VOCABULARY LEARNING PLATFORM

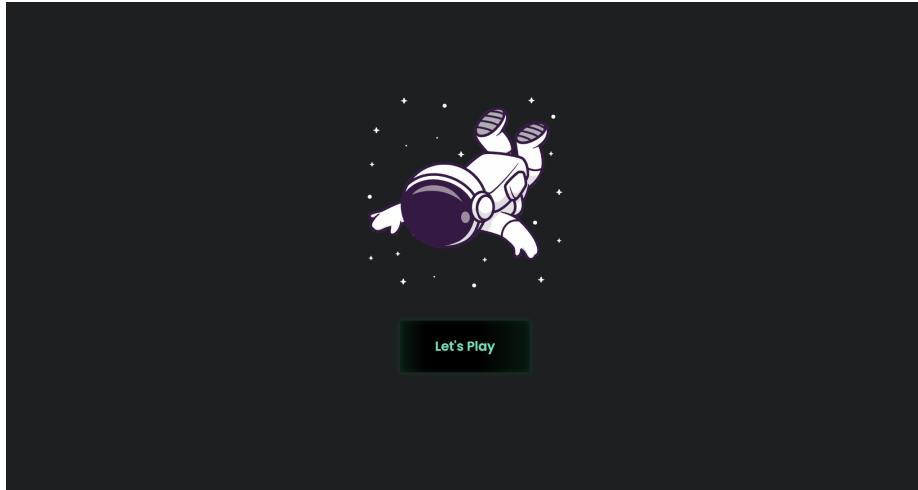


## Part 2: Interaction in the game

Below are the main interaction and user flow for this game:

### 1/ Game Start Page:

- Click 'Let's Play' to start. A loading bar guides you to the game homepage.



### 2/ Homepage:

- Hover over 'START' for a guiding animation.
- Click 'START' to go to the Menu.



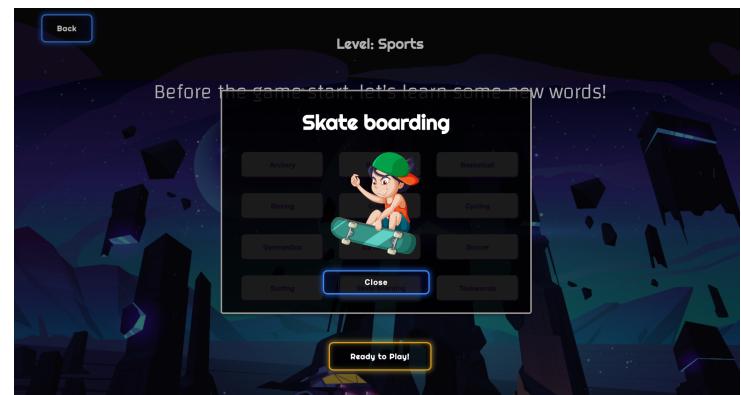
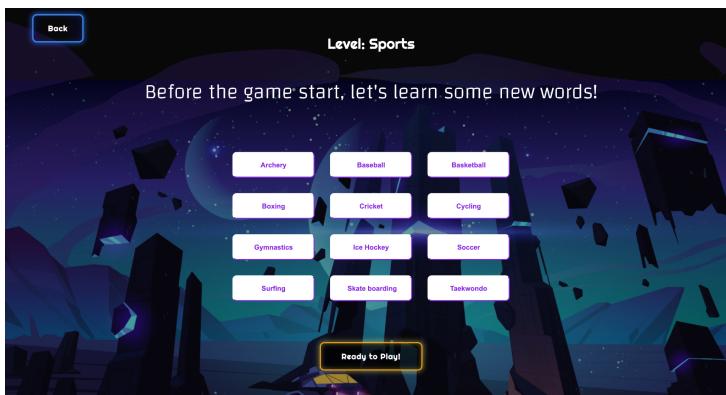
### 3/ Menu Page:

- Choose a topic to explore vocabulary or go back to the homepage.



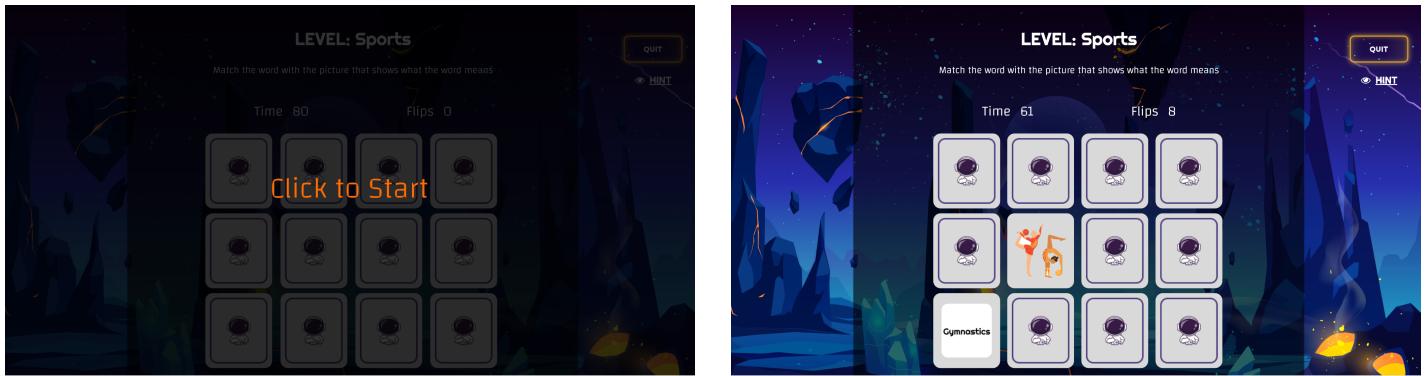
### 4/ Vocabulary Page (for both topics):

- Access 12 words; click to see the word card with related images.
- Close the card with the 'close' button or return to the Menu with the 'Back' button.
- Click 'Ready to Play!' to begin the mix-and-match game.



### 5/ Mix-and-Match Game Page:

- Tap anywhere to start the game.
- Click to flip cards and match words with their images.
- Mismatched cards will flip back automatically.
- Successfully matched cards will trigger an animation.
- Complete the game in 80 sec or tap anywhere again to restart if time runs out.
- Click 'Quit' to return to the Vocabulary Page.
- Hold 'HINT' to reveal all cards momentarily.



## 6/ Victory Page

- Click 'Play Again' to restart the game.
- Click 'Back to Menu' to return to the Menu page.

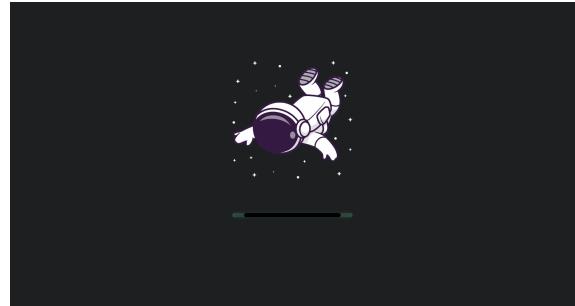


## Part 3: Javascript Library

### 1/ Name of tool: [anime.js](#)

### 2/ Why did I choose to use it?

I aimed to enhance visual appeal in my game, and Anime.js perfectly caters to this need. Its capabilities allow me to execute various animations seamlessly without necessitating extensive code restructuring.



### 3/ How did I use it?

I utilized Anime.js to create a loading animation that activates when players click 'Let's Play.' This loading bar offers players a moment to prepare for the game, serving as an engaging prelude. Specifically, I implemented a '[basicTimeline](#)' animation function triggered by clicking, a '[stroke-dashoffset property](#)' which is a presentation attribute that defines the location along an SVG path where the dash of a stroke will begin, and also a '[setTimeout](#)' that [enables to navigate to the next page automatically within a short period of time](#).

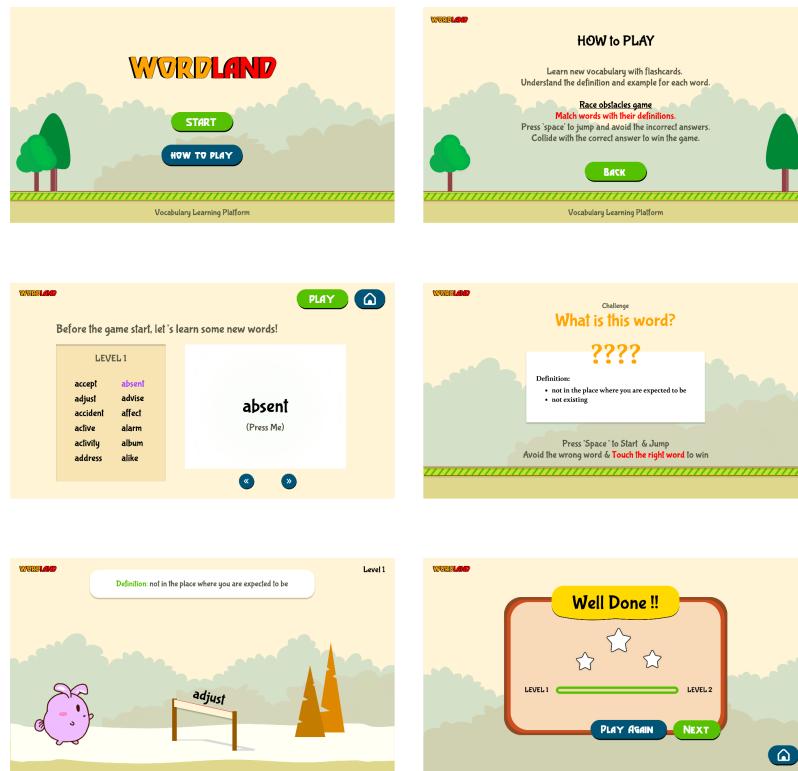
### 4/ What does it add to my website?

The implementation of Anime.js introduces a sleek start game loading animation, featuring a simple yet effective loading bar. This addition provides players with a brief interval to gear up for the game, setting a captivating tone for the gameplay experience.

## Part 4: Iteration Process

In the initial version, my game featured flashcards with images, words, and definitions, alongside a simple game requiring players to match a word's definition. Yet, after user testing and critiques during the lab, I discovered that an abundance of words hindered young children's understanding and motivation. To address this, I simplified word access by allowing clicks to reveal related images, recognizing visuals as potent learning aids for children. I also transformed the game from a traditional match to a mix-and-match format, initially requiring matching identical cards. However, recognizing the importance of word-image associations, I modified the game eventually to pair words with corresponding images, optimizing word memorization and recall.

### 1/ Iteration 1



### 2/ Iteration 2



## Part 5: Challenges and Learning

As a newcomer to implementing games using JavaScript, the challenge lay in grasping the fundamentals of game development within this language, navigating its unique syntax, functions, and libraries to bring the envisioned game mechanics to life. Additionally, leveraging my HTML/CSS knowledge, especially in employing the flexible flexbox layout, also proved a substantial but manageable challenge. Last but not least, the venture into animation marked a significant hurdle, prompting a dedicated self-learning journey through online resources and tutorials to deep dive into CSS and JavaScript animation libraries, mastering key concepts like keyframes, transitions, and transformations.

## Part 6: Responsive website

1/ Laptop: 1280\*800

2/ Tablet: 820\*1180

## Appendix: Accessibility

1/ Game start page

The screenshot shows the WAVE web accessibility evaluation tool interface. The address bar shows the URL: <https://tzulingyang.github.io/pui-hw-joanne/>. A toggle switch labeled 'Styles: OFF' is turned 'ON'. The main section is titled 'Summary' with tabs for 'Summary', 'Details', 'Reference', 'Order', 'Structure', and 'Contrast'. Under 'Summary', there are four categories: Errors (0), Contrast Errors (0), Alerts (1), and Features (2). Below these are Structural Elements (1) and ARIA (0). A 'View details >' button is at the bottom. A message at the bottom states: 'Congratulations! No errors were detected! Manual testing is still necessary to ensure compliance and optimal accessibility.'

The screenshot shows the 'Details' tab of the WAVE web accessibility evaluation tool. It lists three sections: 'Alerts' (1), 'Features' (2), and 'Structural Elements' (1). The 'Alerts' section contains one item: '1 X No heading structure' with an icon of a document and a magnifying glass. The 'Features' section contains two items: '1 X Alternative text' with an icon of a green square and a magnifying glass, and '1 X Language' with an icon of a globe and a magnifying glass. The 'Structural Elements' section contains one item: '1 X Main content' with an icon of a blue folder and a magnifying glass. A note at the bottom says: 'If an icon does not appear within the page, turn off Styles above to view it.'

## 2/ Homepage

The WAVE web accessibility evaluation tool homepage displays the following information:

**Summary**

- Errors: 0
- Contrast Errors: 0
- Alerts: 1
- Features: 2
- Structural Elements: 1
- ARIA: 0

**Details**

- Alerts:** 1 X No heading structure (with icon)
- Features:** 1 X Alternative text (with icon), 1 X Language (with icon)
- Structural Elements:** 1 X Main content (with icon)

If an icon does not appear within the page, turn off Styles above to view it.

## 3/ Menu Page

The WAVE web accessibility evaluation tool menu page displays the following information:

**Summary**

- Errors: 0
- Contrast Errors: 0
- Alerts: 1
- Features: 2
- Structural Elements: 1
- ARIA: 0

**Details**

- Alerts:** 1 X No heading structure (with icon)
- Features:** 1 X Alternative text (with icon), 1 X Language (with icon)
- Structural Elements:** 1 X Main content (with icon)

If an icon does not appear within the page, turn off Styles above to view it.

#### 4/ Vocabulary Page (Both topics have same Html/Css structure)

**WAVE web accessibility evaluation tool**

Address: <https://tzulinyang.github.io/pui-hw-joanne/>

Styles: OFF  ON

**Summary**

	0	Errors		0	Contrast Errors
	1	Alerts		13	Features
	14	Structural Elements		0	ARIA

[View details >](#)

Congratulations! No errors were detected! Manual testing is still necessary to ensure compliance and optimal accessibility.

**Details**

- 1 Alerts**
  - 1 X No page regions
- 13 Features**
  - 12 X Alternative text
  - 1 X Language
- 14 Structural Elements**
  - 1 X Heading level 1
  - 13 X Heading level 2
- 1 ARIA**
  - 1 X ARIA hidden

If an icon does not appear within the page, turn off Styles above to view it.

#### 5/ Mix-and-Match Game Page (Both topics have same Html/Css structure)

**WAVE web accessibility evaluation tool**

Address: <https://tzulinyang.github.io/pui-hw-joanne/>

Styles: OFF  ON

**Summary**

	0	Errors		0	Contrast Errors
	1	Alerts		37	Features
	2	Structural Elements		1	ARIA

[View details >](#)

Congratulations! No errors were detected! Manual testing is still necessary to ensure compliance and optimal accessibility.

**Details**

- 1 Alerts**
  - 1 X No page regions
- 37 Features**
  - 36 X Alternative text
  - 1 X Language
- 2 Structural Elements**
  - 1 X Heading level 1
  - 1 X Heading level 2
- 1 ARIA**
  - 1 X ARIA hidden

## 6/ Victory Page

WAVE web accessibility evaluation tool powered by [WebAIM](#)

Address: <https://tzulinyang.github.io/pui-hw-joanne/>

Styles: OFF  ON

### Summary

[Summary](#) [Details](#) [Reference](#) [Order](#) [Structure](#) [Contrast](#)

0 Errors	0 Contrast Errors
1 Alerts	4 Features
3 Structural Elements	0 ARIA

[View details >](#)

Congratulations! No errors were detected! Manual testing is still necessary to ensure compliance and optimal accessibility.

WAVE web accessibility evaluation tool powered by [WebAIM](#)

Address: <https://tzulinyang.github.io/pui-hw-joanne/>

Styles: OFF  ON

### Details

[Summary](#) [Details](#) [Reference](#) [Order](#) [Structure](#) [Contrast](#)

1 Alerts  
 1 X No page regions

4 Features  
 3 X Alternative text   
 1 X Language

3 Structural Elements  
 1 X Heading level 1   
 1 X Heading level 2   
 1 X Heading level 4

If an icon does not appear within the page, turn off Styles above to view it.