

# Seminar in Applied STEAM: Personal Project



**Environmental Sustainability iPad  
Application for the Education of Lower  
School Students**

Dylan Winer, 12 May 2023

# Presentation Content

01

**Project  
Introduction**

02

**Research &  
Investigation**

03

**Planning**

04

**Taking Action**

05

**Final  
Reflection**

06

**Questions**



OI

# Project Introduction

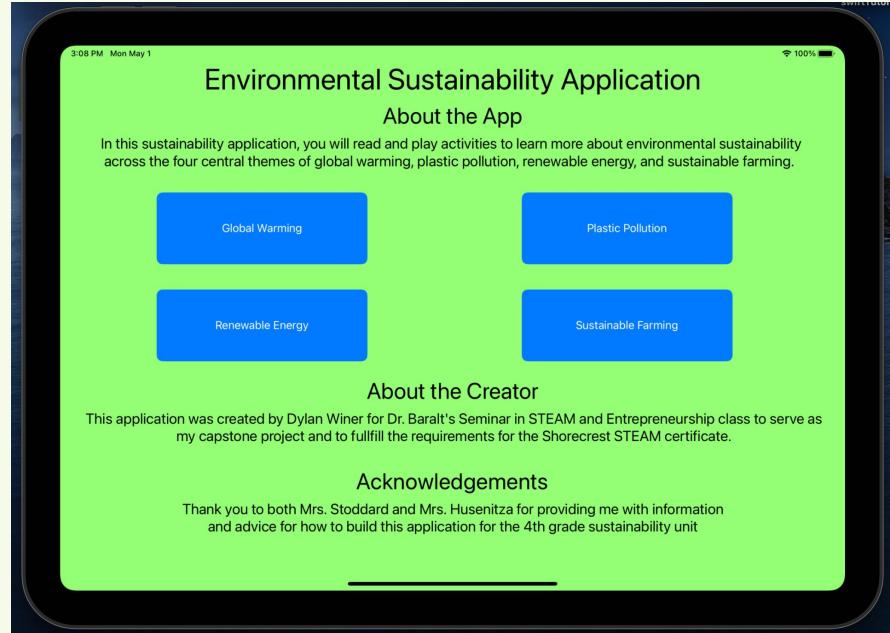


# Overview of Project



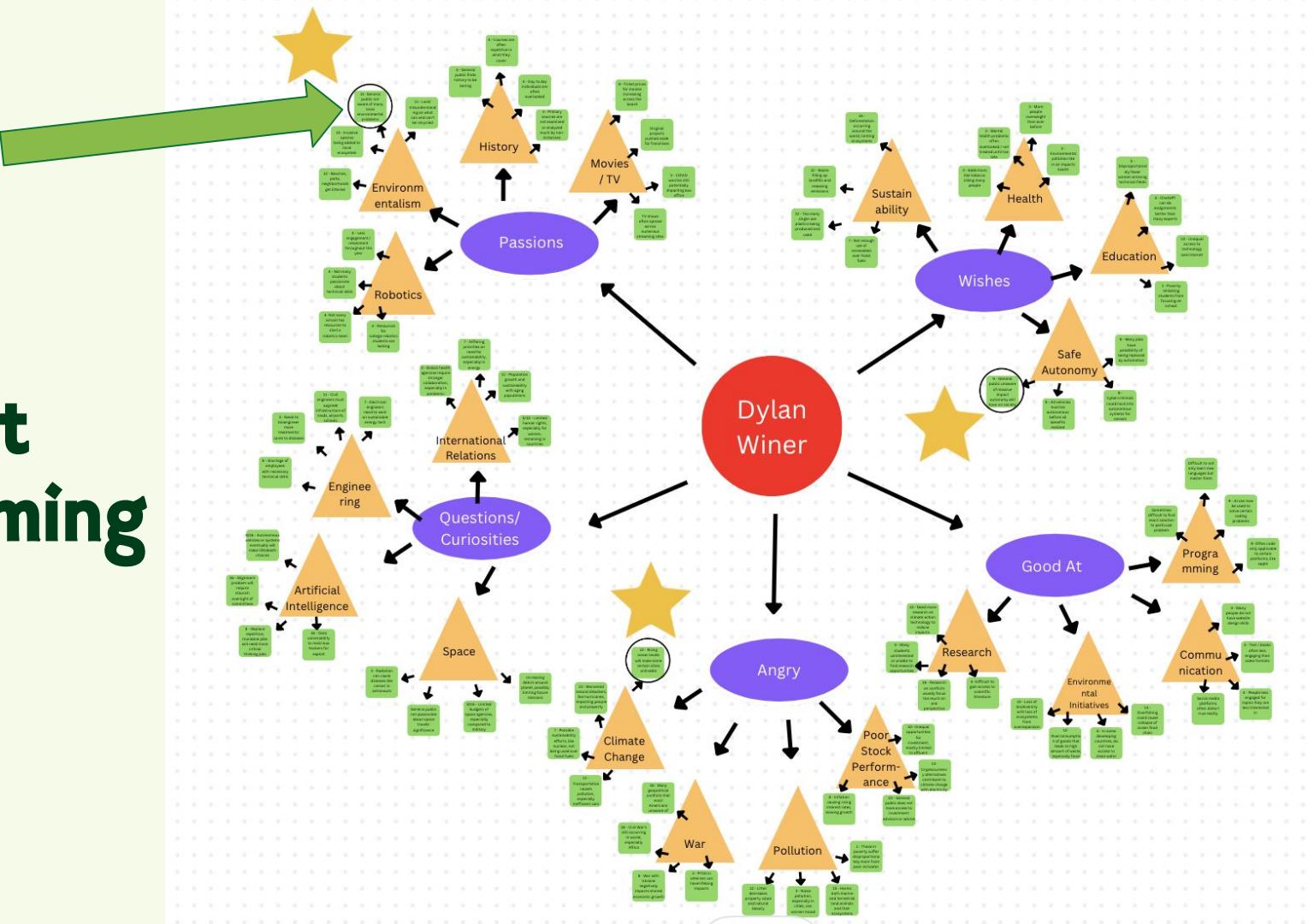
App  
Icon

- iPad Application
  - Articles
  - Interactive Games
- Topics
  - Global Warming
  - Plastic Pollution
  - Renewable Energy
  - Sustainable Farming



Home Screen

# Project Brainstorming



# Why this Project



- **Volunteering**
- **Passion for environment**

Keep Pinellas Beautiful

# Personal & Project Goals

**1. Gain Global Knowledge**



<https://www.openaccessgovernment.org/the-environment-clean-water-is-life-health-food-leisure-and-energy/53926/>

**2. iOS Swift Programming**



<https://1000logos.net/swift-logo/>

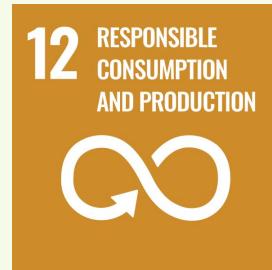
**3. Teach sustainability to next generation**



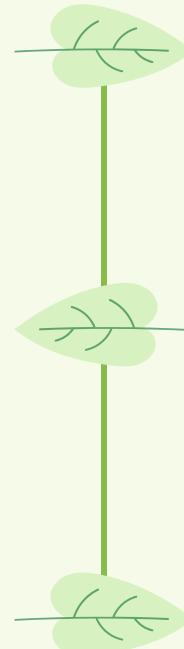
<https://www.rsc.org/news-events/features/2021/jul/sustainability-in-the-curriculum/>

# UN Sustainable Development Goals

Renewable Energy



Global Warming



11 SUSTAINABLE CITIES AND COMMUNITIES



Plastic Pollution  
Sustainable Farming

13 CLIMATE ACTION



<https://sdgs.un.org/goals>

# Global Context



<https://climate.nasa.gov/global-warming-vs-climate-change/>



02

# Research & Investigation



# Researching my Topic

- Started broad
  - Introduced to 4th grade sustainability
- Four Central Topics
  - Global Warming
  - Plastic Pollution
  - Renewable Energy Sources
  - Sustainable Farming

Dr. Odile  
STEAM Seminar  
30 January 2022

## Personal Project Research

### Problem

- **Goal:** Educate the general public because most of them are not aware of the extent of many local and global environmental problems
- **Solution:** App coded in Swift (with developer access) that informs the public of significant environmental challenges
  - Include links to outside organizations that are working to solve environmental problems
  - Explain ways to volunteer and get involved locally
  - Map showing countries categorized into sustainability metrics like emissions per capita
    - An interactive map on the website/app showing where oceans will rise over time
    - Temperature maps like red to blue to show average temperatures, include many maps to show change over time
  - Explain how renewable energy solutions, even nuclear, should replace fossil fuels
  - Make an interactive GUI that people can click through for topics that most interest them
  - Include prominent statistics like the amount of waste created each year

### Research on Topic

<https://www.udemy.com/course/ios11development/learn/lecture/7718174#overview>

© 2022 Dr. Odile

# Critical Resources

- Bailenson: Sea level rise & VR
- Kurian: Renewable energy demand
- Maqueda: Great Pacific Garbage Patch
- Risse: Composting



<https://www.10rivers1ocean.com/en/journal/great-pacific-garbage-patch/>



# Critical Resource:



“Virtual reality (VR) simulations may offer a way to overcome some of these communication challenges... and increase their knowledge of climate change”

**—Bailenson et al, 2021**



<https://www.wired.com/story/as-sea-levels-rise-the-east-coast-is-also-sinking/>



Photo courtesy of Calil et al.

Bailenson et al.

# Interview with Teachers



<https://fgmarchitecture.com/shorecrest-preparatory-school-lower-division/>

- Mrs. Stoddard and Mrs. Husenitza
  - 4th-grade teachers
  - Incorporate sustainability
- Interview Takeaways
  - Encourage sustainable habits
    - Composting
    - Plastic waste
- [https://docs.google.com/document/d/10swjTqh995pv4DolDj\\_smqepG53ZnmJkr7ABD0N8Elg/edit?usp=sharing](https://docs.google.com/document/d/10swjTqh995pv4DolDj_smqepG53ZnmJkr7ABD0N8Elg/edit?usp=sharing)



03

# Planning

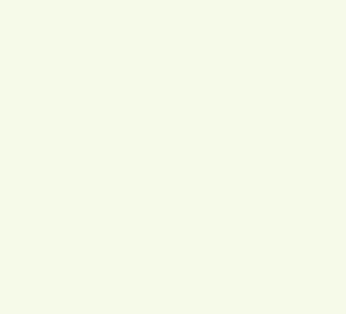


# Design Thinking





1. Empathize



2. Define

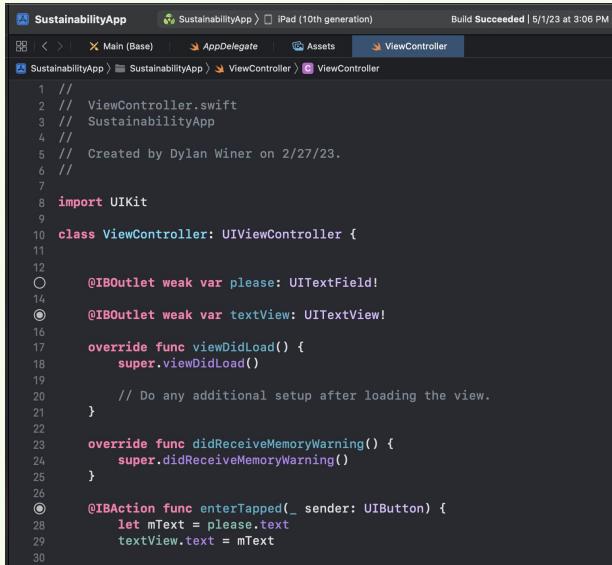
3. Ideate

4. Prototype

5. Test

# Overall Project Completion

- Canva Prototypes
- Swift Tutorials
- iOS App Tutorials
- xCode Storyboards
  - Informational articles
  - Programmed interactive elements



The screenshot shows the Xcode interface with the project 'SustainabilityApp' open. The current file is 'ViewController.swift'. The code is as follows:

```
1 // ViewController.swift
2 // SustainabilityApp
3 // Created by Dylan Winer on 2/27/23.
4 //
5 import UIKit
6
7 class ViewController: UIViewController {
8
9     @IBOutlet weak var please: UITextField!
10    @IBOutlet weak var textView: UITextView!
11
12    override func viewDidLoad() {
13        super.viewDidLoad()
14
15        // Do any additional setup after loading the view.
16    }
17
18    override func didReceiveMemoryWarning() {
19        super.didReceiveMemoryWarning()
20    }
21
22    @IBAction func enterTapped(_ sender: UIButton) {
23        let mText = please.text
24        textView.text = mText
25    }
26
27
28
29
30 }
```

ViewController Code for App

# Project Evolution

Website: General Environmentalism



Python App: General Environmentalism



Swift App: 4th-Grade Focus

# Canva Design Prototypes

## Global Warming Matching

Term	Climate	Global Warming	Carbon Dioxide	Carbon Footprint	Fossil Fuels	Sea Level Rise	Green-house gases	Effects of Global Warming
Image								
Definition	The average pattern of weather conditions over a long period of time.	The increase in Earth's average temperature over a long period of time.	The increase in Earth's average temperature over a long period of time.	The amount of carbon dioxide one human releases into the environment in a year from all sources.	Coal, oil, and natural gas, which come from the breakdown of ancient plants and animals over millions of years.	An increase in the level of the world's oceans due to the effects of global warming.	Gases, mainly carbon dioxide, and methane, in the earth's atmosphere that trap heat.	Hotter temperatures, more severe storms, increased drought, and wildfires.

## Plastic Pollution & Renewable Energy Categorizing Activity

Options to Match


Sustainable	Unsustainable

## Examples of Sustainable Farming

### Green Composting

Composting is when organic matter, like old food, decomposes into soil that can be reused to grow new crops.

### Sustainable Agriculture

Sustainable agriculture uses methods that are less polluting (less damage to the environment) than what industrial farms can produce. They are meant to preserve soil fertility, prevent water pollution, and protect biodiversity.

## Sustainable Farming Reflection

In the box below, describe your experiences with Sustainable Farming. You can write about visiting the Lower School garden or learning about composting from individuals like Farmer Ray.

# Feedback

- Dr. Baralt
  - Idea for 4th grade
  - Reading level
  - Contrasting colors
- Ms. Estremera
  - Provided tutorials
  - Bug-fixing
  - Functionality



Prototype Dragging Game



04

# Taking Action



# Final Outcomes

- Finished project
  - Friendly UI-Design
  - Successful functionality
  - Educational
  - Age-appropriate
  - Globally aware



[https://earth.org/the-biggest-environmental-problems-of-our-lifetime/  
me/](https://earth.org/the-biggest-environmental-problems-of-our-lifetime/)

# xCode Storyboards: Content

## Plastic Pollution

Plastic pollution is an important environmental problem that happens when companies or people throw away plastic without recycling responsibly. Plastic shopping bags can last for 20 years in the ocean without fully breaking down into tiny pieces of plastic called microplastic. Other unsustainable plastic pollution comes from plastic bottles or fishing line. In total, 8 million tons of plastic escapes into the ocean, causing a lot of harm to sea animals and the oceanic environment.



300 million tonnes of plastic are made each year

However, there are sustainable ways to not pollute plastic. One way is to use reusable bags and bottles instead of single-use plastic bags and bottles. Another option is to use materials made from plants that can break down over time.



Reusable Water



Single-Use Plastic Water



Reusable Straw



Single-Use Plastic Straws

[Plastic Pollution Categorizing](#)

## Sustainable Farming Examples



Composting is when organic matter, like old food, decomposes into soil that can be reused to grow new crops.



Sustainable agriculture uses methods that are less polluting (less damage to the environment) than what industrial farms can produce. They are meant to preserve soil fertility, prevent water pollution, and protect biodiversity.

[Sustainable Farming Reflection](#)

# xCode Storyboards: Content

## Global Warming

1 Understanding the climate is very important for our futures. Climate is the long-term weather pattern over many years, while weather changes every day.



2 Fossil fuels, like oil and coal, are being used to provide energy for everything from cars to lighting and power the world.



3 However, these fossil fuels have the negative effect of releasing carbon dioxide gas into Earth's atmosphere, the layer of gases surrounding Earth.

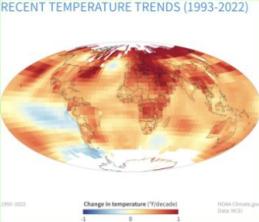


4 Carbon dioxide is made up of one carbon atom and two oxygen atoms, which trap heat in the atmosphere.



5 This pollution of carbon dioxide (CO<sub>2</sub>) has contributed to global warming, which is the increasing average temperature around the world.

RECENT TEMPERATURE TRENDS (1993-2022)



6 Greenhouse gasses trap heat in the atmosphere, increasing the world's overall temperature, and the other main example is methane, which comes from animals.



Effects of Global Warming

## Effects of Global Warming

Due to rising temperatures, glaciers and the ice sheets on the Earth's poles melt. This melting has increased the average sea level around the world. The global sea level has risen 8-9 inches since 1880, which may not sound like much, but this can be very dangerous for countries around the world. Additionally, the average temperature of the ocean has increased by 1.5 degrees Fahrenheit. This warming makes hurricanes stronger and endangers sea life.



Other effects of global warming besides increasing temperatures and rising sea levels include more severe storms, increased drought, and wildfires. These storms can cause billions of dollars in damages around the world, displacing people from their homes. Droughts make life much more difficult for people without reliable access to water. Wildfires can also more easily grow out of control.



It is important to stay aware of our carbon footprint, which is the total amount of greenhouse gas emissions from our actions. For example, driving to school burns gasoline, and most electricity requires burning coal. To reduce your carbon footprint, you can do simple actions like turning off the lights when you are not using them and recycling.

Global Warming Matching



# xCode Storyboards: Content

## Renewable Energy vs. Non-Renewable Energy

Renewable energy does not use up and get rid of energy sources. For example, solar power is renewable because it does not use up the sun. However, non-renewable energy uses up resources like coal and natural gas that are gone forever. Today in the United States, 79% of energy comes from fossil fuels, 8.4% is nuclear power, and 12.5% are renewables.

### Renewable Energy

Solar power uses the light from the sun to create electricity, which is then stored in batteries that can be used to power anything, from your iPad to your air conditioner. Wind turbines renewably generate (create) electricity by converting the wind's energy into electricity. Sustainable energy is important to protect our environment and prevent the pollution of fossil fuels into the atmosphere.



Solar Power



Wind Power

### Non-Renewable Energy

Burning fossil fuels currently supplies 80% of the world's energy. Fossil fuel plants burn coal to boil water, which powers a generator to create electricity. Natural gas plants generate electricity by burning gases made millions of years ago. Nuclear power uses heat that is created during nuclear fission, the splitting of atoms apart, to create energy. Many people are afraid of nuclear power because of past accidents, but modern nuclear plants are much safer and more sustainable than fossil fuels.



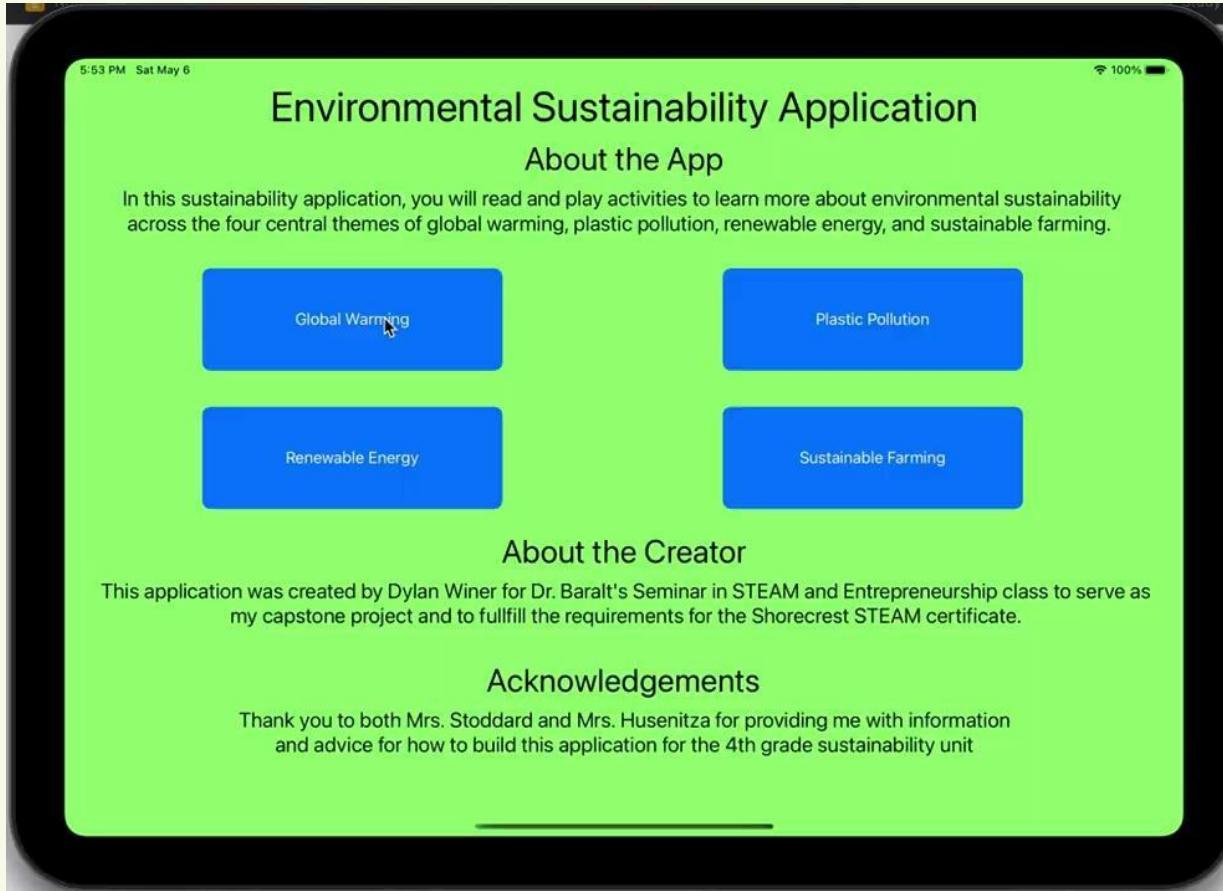
Fossil Fuel Plant



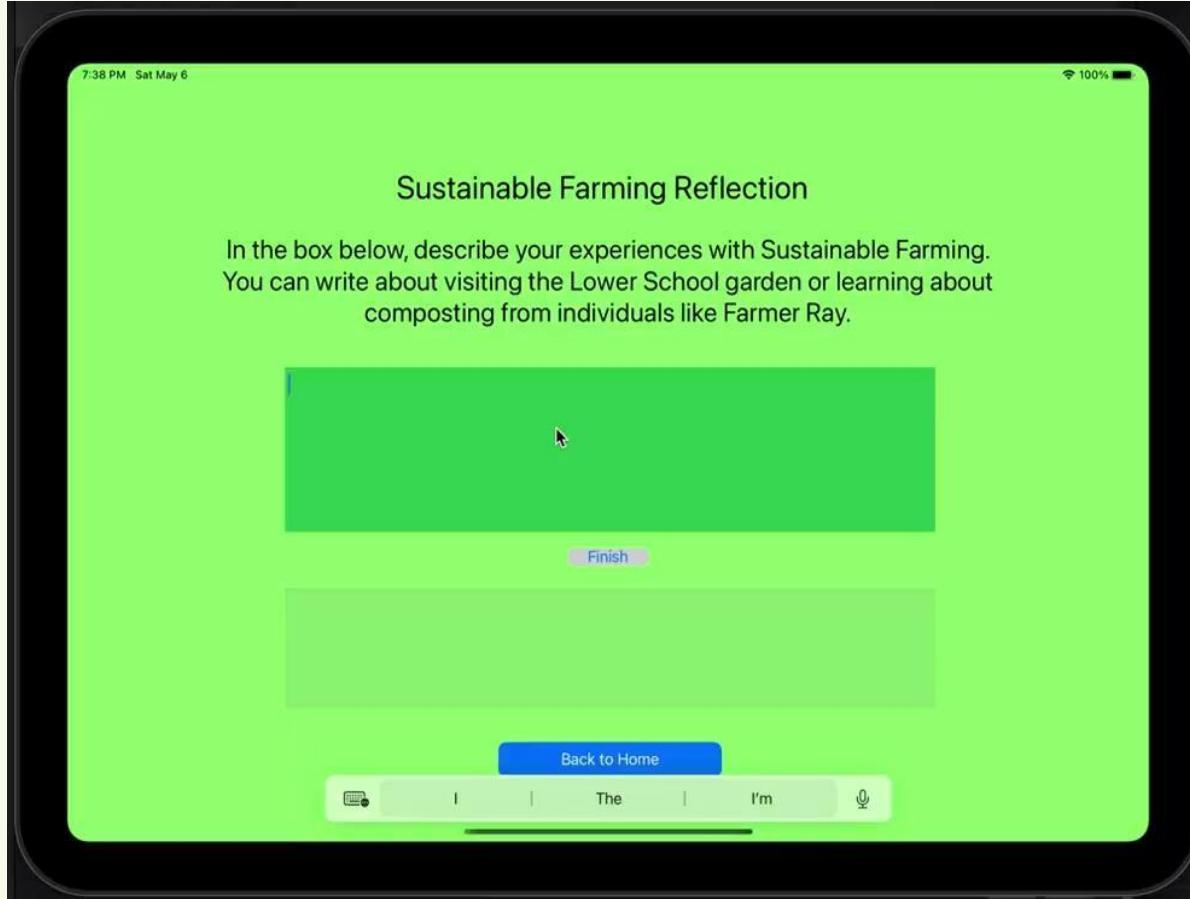
Nuclear Plant

Renewable Energy Activity

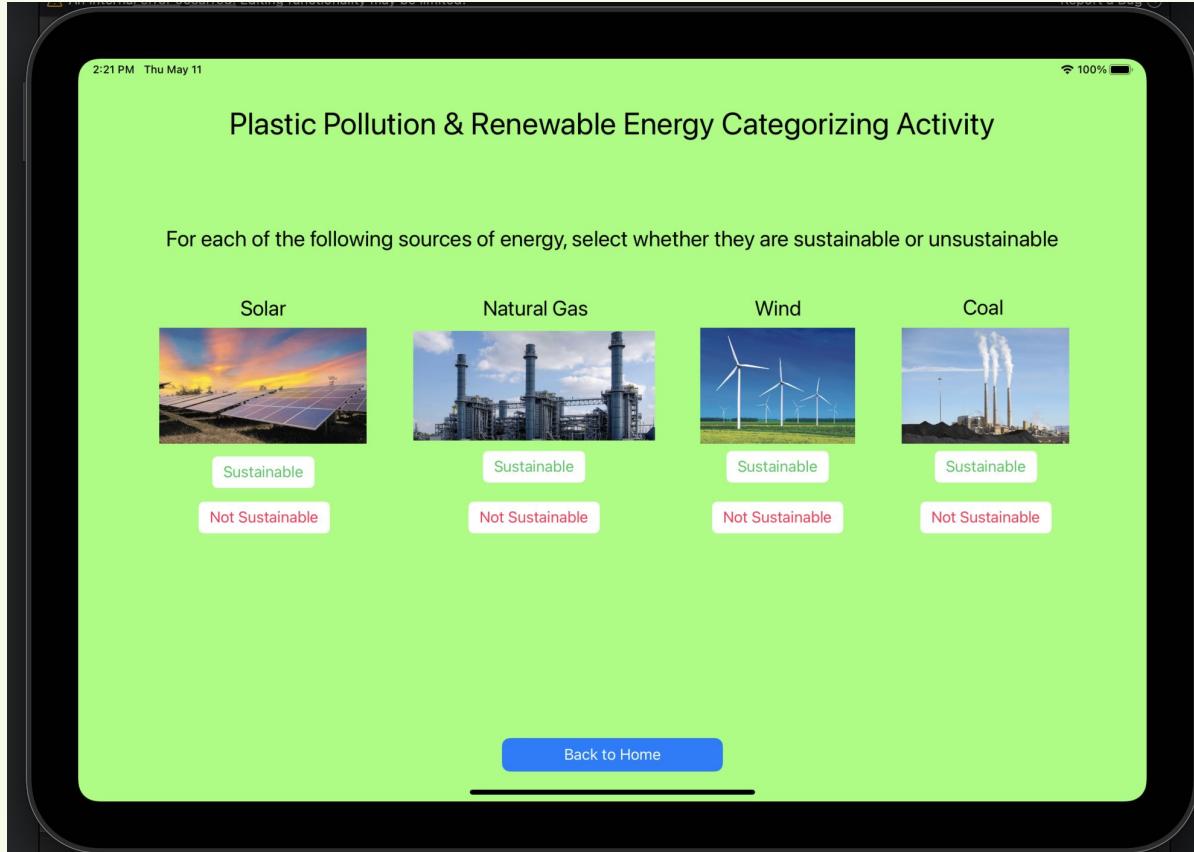
# xCode Storyboards: Interaction



# xCode Storyboards: Interaction



# xCode Storyboards: Interaction



# xCode Storyboards: Interaction

2:21 PM Thu May 11 100%

## Plastic Pollution Categorizing Activity

For each of the following sources of energy, select whether they are sustainable or unsustainable

	<input type="radio"/> Sustainable	<input type="radio"/> Not Sustainable
	<input type="radio"/> Sustainable	<input type="radio"/> Not Sustainable
	<input type="radio"/> Sustainable	<input type="radio"/> Not Sustainable
	<input type="radio"/> Sustainable	<input type="radio"/> Not Sustainable
	<input type="radio"/> Sustainable	<input type="radio"/> Not Sustainable
	<input type="radio"/> Sustainable	<input type="radio"/> Not Sustainable

[Back to Home](#)

# xCode Programming: Drag and Drop

```
8 import SwiftUI
9
10 struct ContentView: View {
11
12     // @State var private activeImages = [String](repeating: "Blank", count: 4)
13     // @State var tray = [String](repeating: "Blank", count: 4)
14     @State var buttonFrames = [CGRect](repeating: .zero, count: 4)
15     let names = ["solar", "coal", "gas", "wind"]
16
17
18
19 //var allowedImages = Bundle.main.words(from: "names.txt")
20 //var startImages = Bundle.main.words(from: "names.txt")
21
22 var body: some View {
23     VStack(spacing: 20) {
24
25         // Shorecrest logo on top
26         Image("logo").padding()
27         Spacer()
28
29         // Gray spaces to drag images to
30         HStack
31     }
```

```
32             ForEach(0..<2)
33             {
34                 number in Letter(empty: "gray", index: number)
35                     .allowsHitTesting(false)
36                     .overlay(
37                         GeometryReader { geo in
38                             Color.clear
39                         .onAppear{
40                             self.buttonFrames[number] = geo.frame(in:
41                                 .global)
42                         }
43                     }
44                 )
45             }
46         }
47         ForEach(0..<2)
48         {
49             number in Letter(empty: "gray", index: number)
50                 .allowsHitTesting(false)
51                 .overlay(
52                     GeometryReader { geo in
53                         Color.clear
54                         .onAppear{
```

## Unsuccessful Prototype

# xCode Programming: Drag and Drop

```
55                     self.buttonFrames[number] = geo.frame(in:
56                                         .global)
57
58             }
59
60         )
61     }
62 }
63
64     Spacer()
65
66 // Images of energy they are going to drag
67 HStack
68 {
69     ForEach(0..<4) { number in
70         //onChanged: self.letterMoved,
71         //onEnded: self.letterDropped
72         Letter(empty: names[number], index: number)
73     }
74
75 }
76
77
78 }
```

Unsuccessful Prototype

# xCode Programming: Drag and Drop

```
8 import SwiftUI
9
10 enum DragState
11 {
12     case unknown
13     case good
14     case bad
15 }
16
17 struct Letter: View
18 {
19     @State private var dragAmount = CGSize.zero
20     @State private var dragState = DragState.unknown
21
22     var onChanged: ((CGPoint, String) -> DragState)?
23     var onEnded: ((CGPoint, Int, String) -> Void)?
24
25     var empty: String
26     var index: Int
27     var body: some View
28
29     Image(empty)
30         .frame(width: 130, height: 130)
31         .offset(dragAmount)
32         .zIndex(dragAmount == .zero ? 0 : 1)
33         .shadow(color: dragColor, radius: dragAmount == .zero ? 0 : 3)
34         .shadow(color: dragColor, radius: dragAmount == .zero ? 0 : 3)
35         .shadow(color: dragColor, radius: dragAmount == .zero ? 0 : 3)
36         .gesture(
37             DragGesture(coordinateSpace: .global)
38                 .onChanged {
39                     self.dragAmount = CGSize(width:$0.translation.width,
40                         height:$0.translation.height)
41                     self.dragState = self.onChanged?($0.location, self.empty) ??
42                         .unknown
43                 }
44                 .onEnded {
45                     if self.dragState == .good {
46                         self.onEnded?($0.location, self.index, self.empty)
47                     }
48                     self.dragAmount = .zero
49                 }
50             )
51 }
```

Unsuccessful Prototype

# xCode: Renewable Energy

```
282 @IBAction func solarS(_ sender: Any)
283 {
284     let dialogue = UIAlertController(title: "Correct", message: "Solar power is a
285         sustainable and green alternative!", preferredStyle: .alert)
286
287     //Add OK button to a dialog message
288     dialogue.addAction(UIAlertAction(title: "OK", style: .default, handler: nil))
289
290     // Present Alert to
291     present(dialogue, animated: true, completion: {
292         return
293     })
294 }
295
296 @IBAction func solarNS(_ sender: Any) {
297     let dialogue = UIAlertController(title: "Incorrect", message: "Solar power is a
298         sustainable method of energy production", preferredStyle: .alert)
299
300     //Add OK button to a dialog message
301     dialogue.addAction(UIAlertAction(title: "OK", style: .default, handler: nil))
302
303     // Present Alert to
304     present(dialogue, animated: true, completion: {
305         return
306     })
307 }
```

```
310 @IBAction func gasS(_ sender: Any) {
311     let dialogue = UIAlertController(title: "Incorrect", message: "Natural gas uses
312         fossil fuels, which are not sustainable", preferredStyle: .alert)
313
314     //Add OK button to a dialog message
315     dialogue.addAction(UIAlertAction(title: "OK", style: .default, handler: nil))
316
317     // Present Alert to
318     present(dialogue, animated: true, completion: {
319         return
320     })
321 }
322
323 @IBAction func gasNS(_ sender: Any) {
324     let dialogue = UIAlertController(title: "Correct", message: "Natural gas uses
325         fossil fuels, which are not sustainable", preferredStyle: .alert)
326
327     //Add OK button to a dialog message
328     dialogue.addAction(UIAlertAction(title: "OK", style: .default, handler: nil))
329
330     // Present Alert to
331     present(dialogue, animated: true, completion: {
332         return
333     })
334 }
```

## Solar Power vs Natural Gas

# xCode: Plastic Pollution

```
390 @IBAction func bagsS(_ sender: Any) {
391     let dialogue = UIAlertController(title: "Incorrect", message: "Plastic bags are
392         often only used once and then polluted or sent to landfills", preferredStyle:
393             .alert)
394
395     // Add OK button to a dialog message
396     dialogue.addAction(UIAlertAction(title: "OK", style: .default, handler: nil))
397
398     // Present Alert to
399     present(dialogue, animated: true, completion: {
400         return
401     })
402 }
403
404 @IBAction func bagsNS(_ sender: Any) {
405     let dialogue = UIAlertController(title: "Correct", message: "Plastic bags are often
406         only used once and then polluted or sent to landfills", preferredStyle: .alert)
407
408     // Add OK button to a dialog message
409     dialogue.addAction(UIAlertAction(title: "OK", style: .default, handler: nil))
410
411     // Present Alert to
412     present(dialogue, animated: true, completion: {
413         return
414     })
415 }
```

```
469 @IBAction func rebottleS(_ sender: Any) {
470     let dialogue = UIAlertController(title: "Correct", message: "Reusable water bottles
471         are much more sustainable than single-use plastics", preferredStyle: .alert)
472
473     // Add OK button to a dialog message
474     dialogue.addAction(UIAlertAction(title: "OK", style: .default, handler: nil))
475
476     // Present Alert to
477     present(dialogue, animated: true, completion: {
478         return
479     })
480 }
481
482 @IBAction func rebottleNS(_ sender: Any) {
483     let dialogue = UIAlertController(title: "Incorrect", message: "Reusable water
484         bottles are much more sustainable than single-use plastics", preferredStyle:
485             .alert)
486
487     // Add OK button to a dialog message
488     dialogue.addAction(UIAlertAction(title: "OK", style: .default, handler: nil))
489
490     // Present Alert to
491     present(dialogue, animated: true, completion: {
492         return
493     })
494 }
```

## Plastic Bags vs Reusable Water Bottle

# xCode: Sustainable Farming

```
8 import UIKit
9
10 class ViewController: UIViewController {
11
12
13     @IBOutlet weak var reflect: UITextView!
14
15     @IBOutlet weak var textView: UITextView!
16
17     override func viewDidLoad() {
18         super.viewDidLoad()
19
20         // Do any additional setup after loading the view.
21     }
22
23     override func didReceiveMemoryWarning() {
24         super.didReceiveMemoryWarning()
25     }
26
27     @IBAction func enterTapped(_ sender: UIButton) {
28         let mText = reflect.text
29         textView.text = mText
30     }
31 }
```

# xCode: Global Warming Matching

```
● @IBOutlet weak var textA: UITextField!
34
● @IBOutlet weak var textB: UITextField!
36
● @IBOutlet weak var textC: UITextField!
38
● @IBOutlet weak var textD: UITextField!
40
● @IBOutlet weak var textE: UITextField!
42
● @IBOutlet weak var textF: UITextField!
44
● @IBOutlet weak var textG: UITextField!
46
● @IBOutlet weak var textH: UITextField!
```

```
50    @IBAction func checkA(_ sender: Any) {
51        if(textA.text == "A")
52        {
53            // Create new Alert
54            let dialogue = UIAlertController(title: "Correct", message: "Nice, you picked
55                the right term!", preferredStyle: .alert)
56
57            //Add OK button to a dialog message
58            dialogue.addAction(UIAlertAction(title: "OK", style: .default, handler: nil))
59
60            // Present Alert to
61            present(dialogue, animated: true, completion: {
62                return
63            })
64        }
65        else
66        {
67            // Create new Alert
68            let dialogue = UIAlertController(title: "Wrong", message: "Try again!",
69                preferredStyle: .alert)
70
71            dialogue.addAction(UIAlertAction(title: "OK", style: .default, handler: nil))
72
73            // Present Alert to
74            present(dialogue, animated: true, completion: {
75                return
76            })
77        }
78    }
```

# xCode Programming: Assets

 A
 AccentColor
 AppIcon
 B
 bags
 c 1
 c 2
 C
 carbon foot
 climateweather
 coal
 D 2
 D
 drought
 E
 f 1
 F

 foss
 g 1
 G
 H
 Image 1
 Image 2
 Image 3
 Image
 nat gas
 nuclear power
 plastic
 re-bag
 re-water

 s
 silver 2
 silver
 solar
 solar2
 steel_straw
 straw
 tree
 w 1
 w 2
 W
 water
 wind

# Measuring Success

- Successful completion
  - Educational pages
  - Interactive elements
- Quality of Work
  - Researched
  - Edited
- Clear future use



<https://www.pexels.com/search/environment/>

# Review of Goals



<https://www.mapfre.com.mt/blog/7-ways-to-take-care-of-the-environment-and-make-a-difference/>

1. Gain Global Knowledge ✓
  - a. Learn about crises
2. Learn iOS Swift Programming ✓
  - a. GUI Design
  - b. User Input
3. Teach sustainability ✓
  - a. At reading level

# Next Steps

- Create databases
  - Student accounts
  - History on app
  - Badges/rewards
- Submit game results
- Expand existing games
- Create new activities



<https://www.openaccessgovernment.org/the-environment-clean-water-is-life-health-food-leisure-and-energy/53926/>



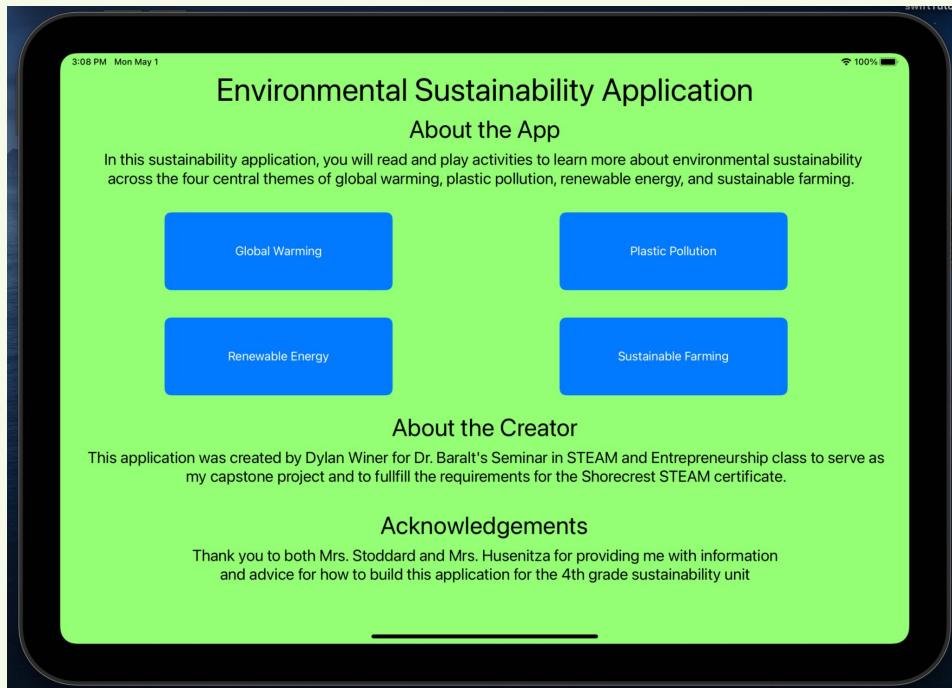
05

# Final Reflection



# Overall Evaluation

- Reached goals
  - Programming
    - Interactive
  - Writing
    - Educational
  - Presenting
    - Clear
    - Intuitive



# Project Strengths

This screenshot shows a slide titled "Global Warming" with six numbered sections:

- 1. Understanding the climate is very important for our futures. Climate is the long-term weather pattern over many years, while weather changes every day.
- 2. Fossil fuels, like oil and coal, are being used to provide energy for everything from cars to lighting and power the world.
- 3. However, these fossil fuels have the negative effect of releasing carbon dioxide gas into Earth's atmosphere, the layer of gases surrounding Earth.
- 4. Carbon dioxide is made up of one carbon atom and two oxygen atoms, which trap heat in the atmosphere.
- 5. This pollution of carbon dioxide (CO<sub>2</sub>) has contributed to global warming, which is the increasing average temperature around the world.  
RECENT TEMPERATURE TRENDS (1993-2022)
- 6. Greenhouse gases trap heat in the atmosphere, increasing the world's overall temperature, and the other main example is methane, which comes from animals.

The slide includes small illustrations and a globe showing temperature trends.

This screenshot shows a matching activity titled "Global Warming Matching". It lists terms and their definitions with checkboxes for each term.

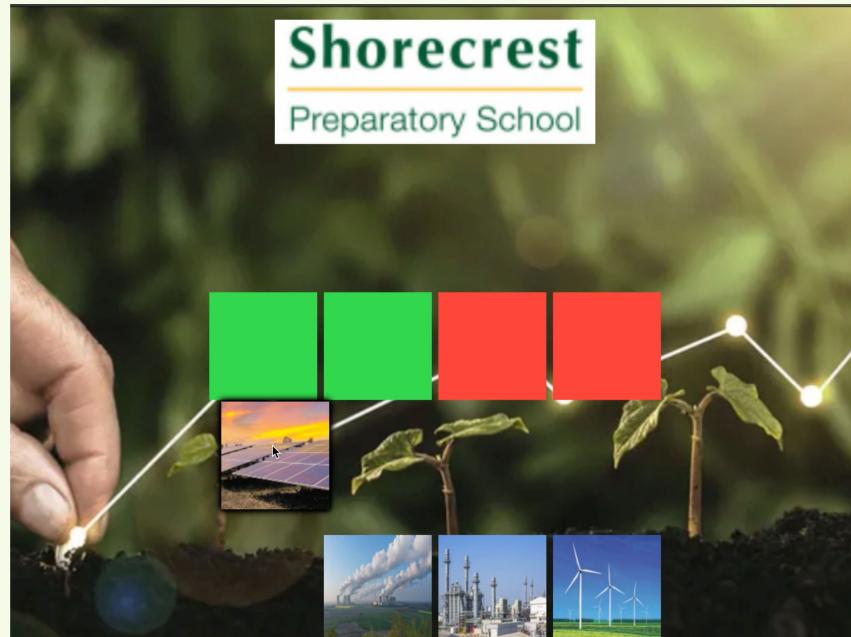
Terms	Definitions
A: Climate	The increase in Earth's average temperature over a long period of time.
B: Sea Level Rise	The average pattern of weather conditions over a long period of time.
C: Fossil Fuels	Gases, mainly carbon dioxide and methane, in the earth's atmosphere that trap heat
D: Carbon Dioxide	An increase in the level of the world's oceans due to the effects of global warming
E: Carbon Footprint	The amount of carbon dioxide one human releases into the environment in a year.
F: Global Warming	Hotter temperatures, more severe storms, increased drought, and wild fires
G: Effects of Global Warming	Coal, oil, and natural gas, which come from plants and animals millions of years old
H: Greenhouse Gases	A gas that is made when burning materials like fossil fuels

At the bottom, there is a "Back to Home" button.

- Easy-to-navigate
- Clear concepts
  - Graphics
  - Layout
- Interactive games
  - Enhance learning
  - More enjoyable
  - Memorable
- Target demographic reached

# Struggles & Challenges

- Narrowing down topic
- Picking color-palette and style
- Writing clear articles
- Coding Challenges
  - Accept user text input ✓
  - Creating drag-and-drop program 😢



# Extending my Knowledge

- Global Warming
  - 8.6 ° Fahrenheit
    - 100 years
- Plastic Pollution
  - 8 mil tons/year
- Renewable Energy
  - Only 29% sustainable
- Sustainable Farming
  - 70% increase needed



<https://uniteforchange.com/en/blog/climate-change/global-warming-difference/>

# Learning Development



- Self-Management Skills
  - Pace myself
- Critical Thinking
  - Distilling concepts
- Writing and Communication
  - To target audience
- Programming
  - Swift and iOS

<https://hbr.org/2019/10/a-short-guide-to-building-your-teams-critical-thinking-skills>

# 06

# Questions?



<https://purebluesustainability.com/environmental-sustainability-examples-tips-to-implement-them/>

# Presentation Template

