

# “Can You Help Me?” An Experience Report of Teamwork in a Game Coding Camp for Autistic High School Students

**Makayla Moster**, Ella Kokinda, Matthew Re, James Dominic,  
Jason Lehmann, Andrew Begel, and Paige Rodeghero



# Camp Overview

- We designed and implemented a 2-week hybrid summer camp
  - 14 autistic high school students attended
- Exposed students to programming and video game design
- Taught teamwork skills such as
  - Communication
  - Collaboration



# ASD Statistics

- Centers for Disease Control reported that 1 in 54 children in the USA are diagnosed with Autism Spectrum Disorder (ASD)
  - Only 17% of them enroll in 4-year colleges and only 39% of those graduate [3]
- Lower rates of employment for young adults with ASD

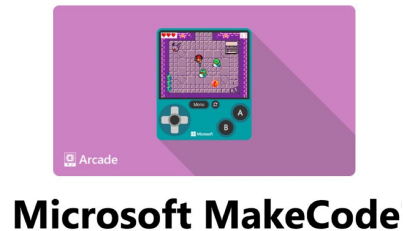
# Coding Camps for Autism

- Coding camps foster students' interest in programming and future development jobs
- Only one coding camp targets the ASD student population
- Skills taught in these camps are skills required by the software engineering community, such as communication, social interaction, and teaming



# Building upon our previous 2020 camp

- In 2020, we conducted our first iteration of this camp
  - Video game programming with MakeCode Arcade
- Based on the feedback from the first iteration, we decided to investigate a different programming language



# Overview

- We offered a 2-week long camp during June 2021
  - Each day was 3 hours long on Zoom
- The camp was offered in a hybrid format for the most flexibility
- We have provided our teaching materials at <https://doi.org/10.5281/zenodo.5902445>



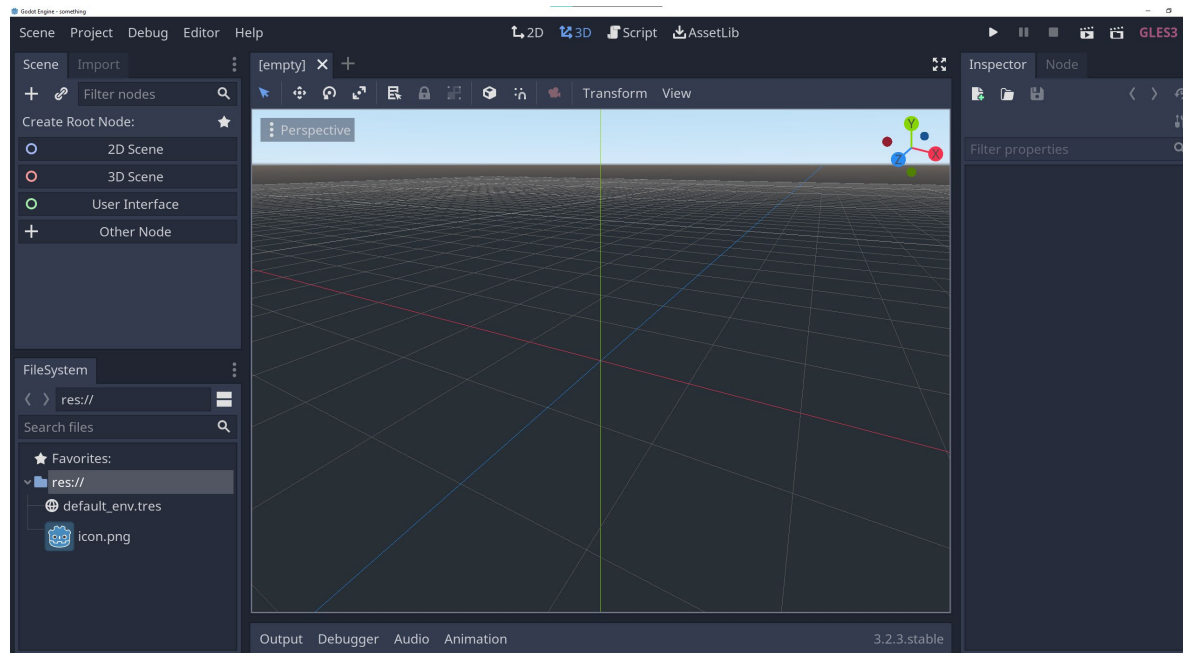
# Learning Outcomes

- Real, industry-level programming language
- Real team-based programming environment
- Software Development Skills:
  - Communication
  - Collaboration
  - Teamwork



# Programming Environment

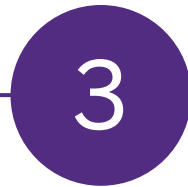
- Godot game engine is a free, open source, professional video game development environment
- We required students to install GitHub and VS Code plugins





# Camp Timeline – Week 1

Day



Introductions

Student Icebreakers

Video Game

Elements Discussion

# Camp Timeline – Week 1

Day

1

Introductions

Student  
Icebreakers

Video Game  
Elements Discussion

2

GitHub Introduction

Game Design  
Discussion

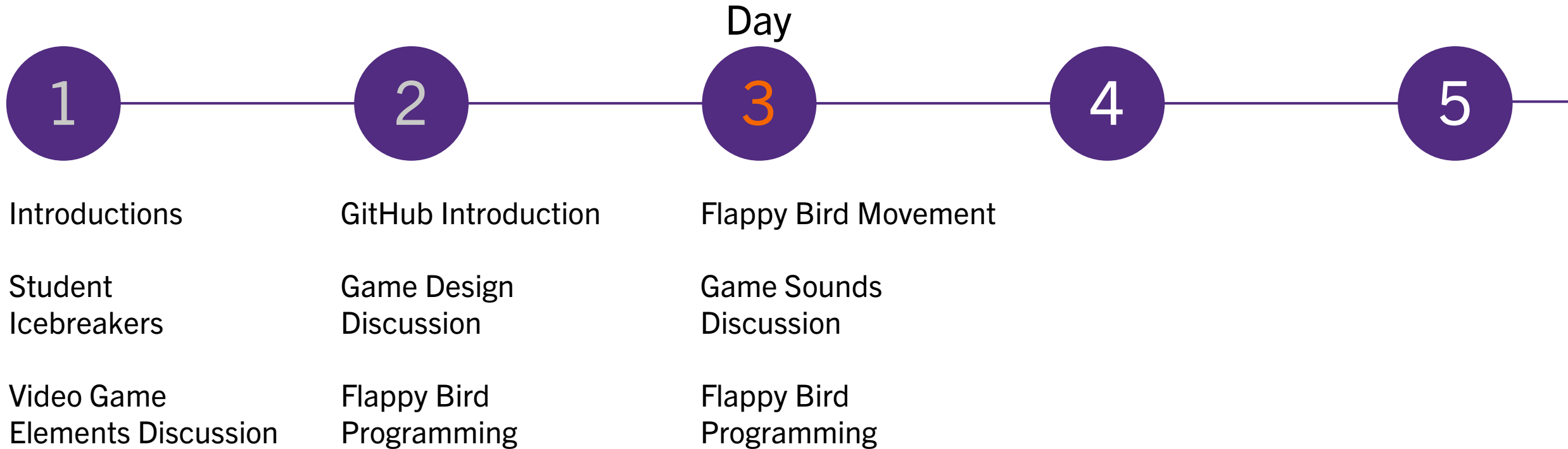
Flappy Bird  
Programming

3

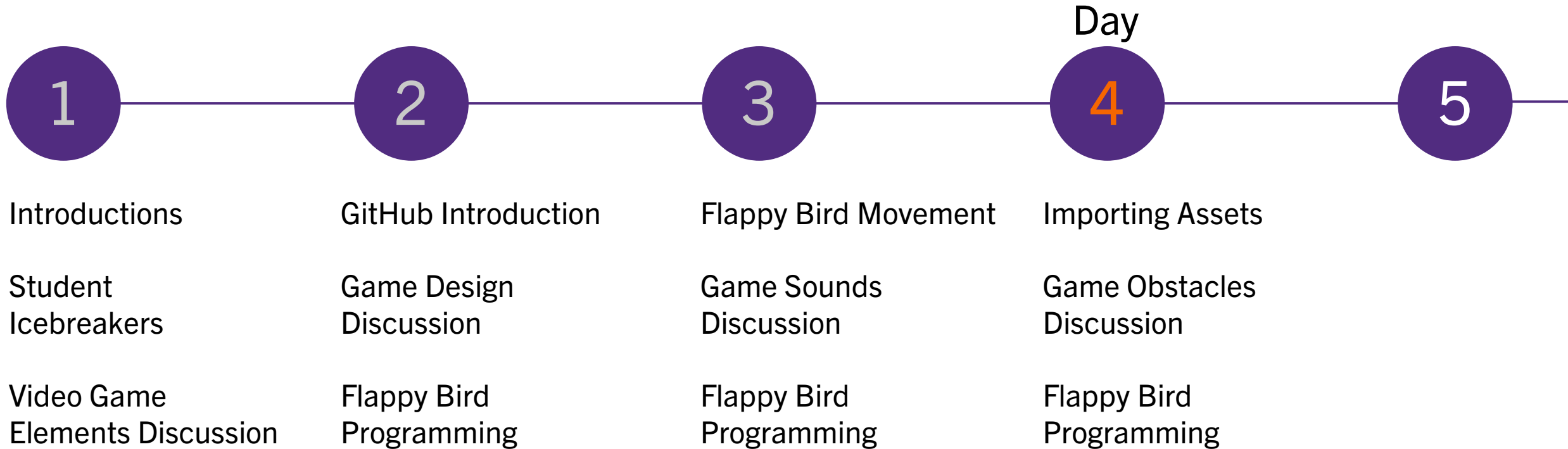
4

5

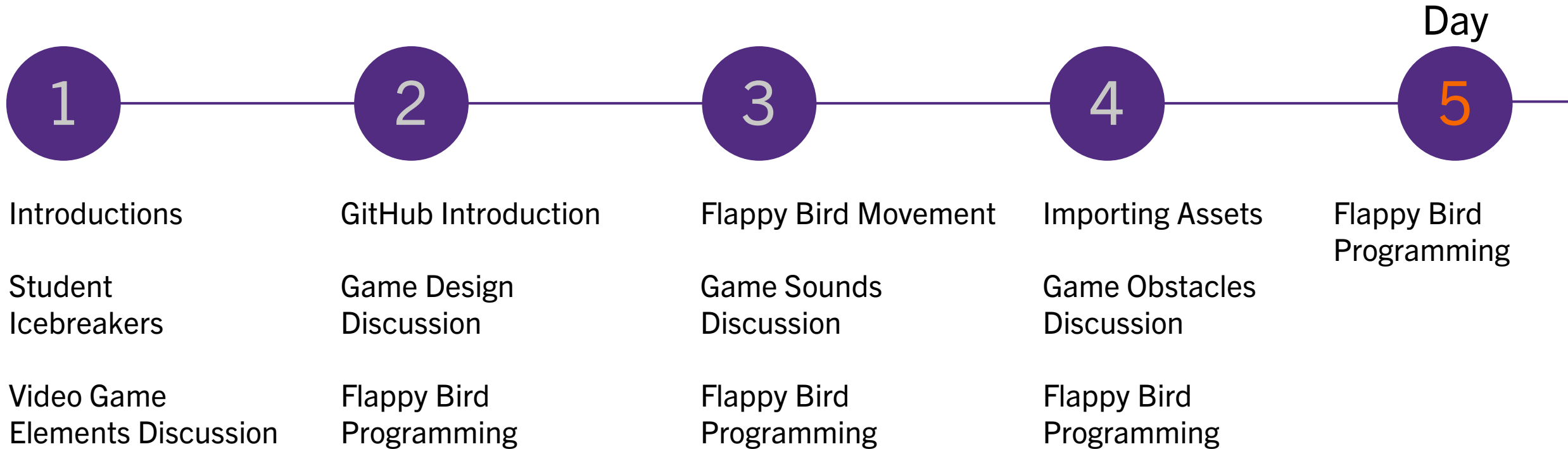
# Camp Timeline – Week 1



# Camp Timeline – Week 1



# Camp Timeline – Week 1



# Camp Timeline – Week 2

Day

6

7

8

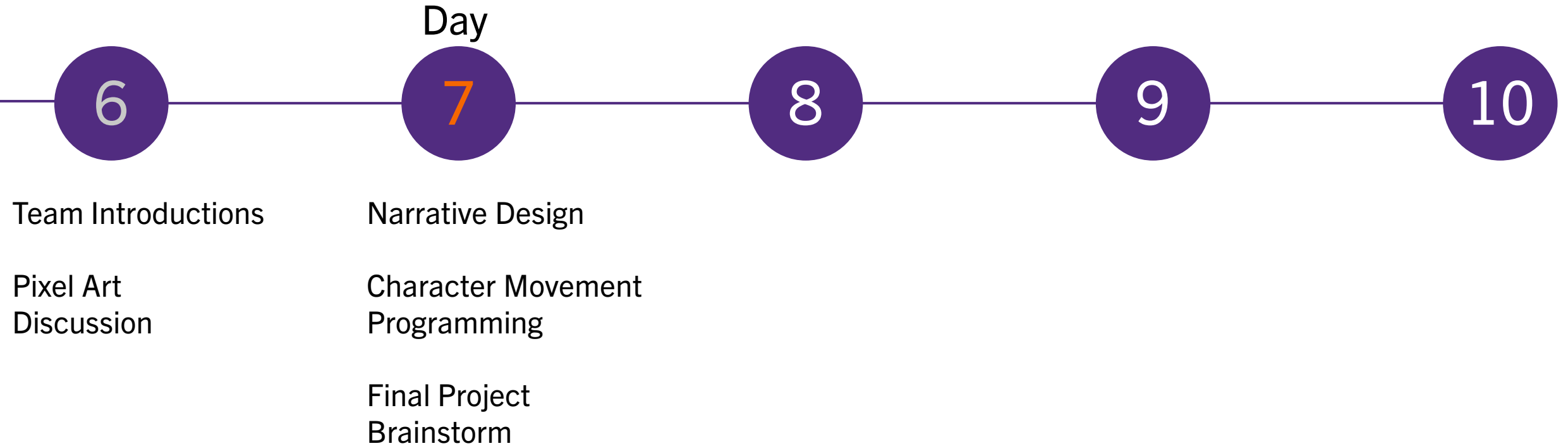
9

10

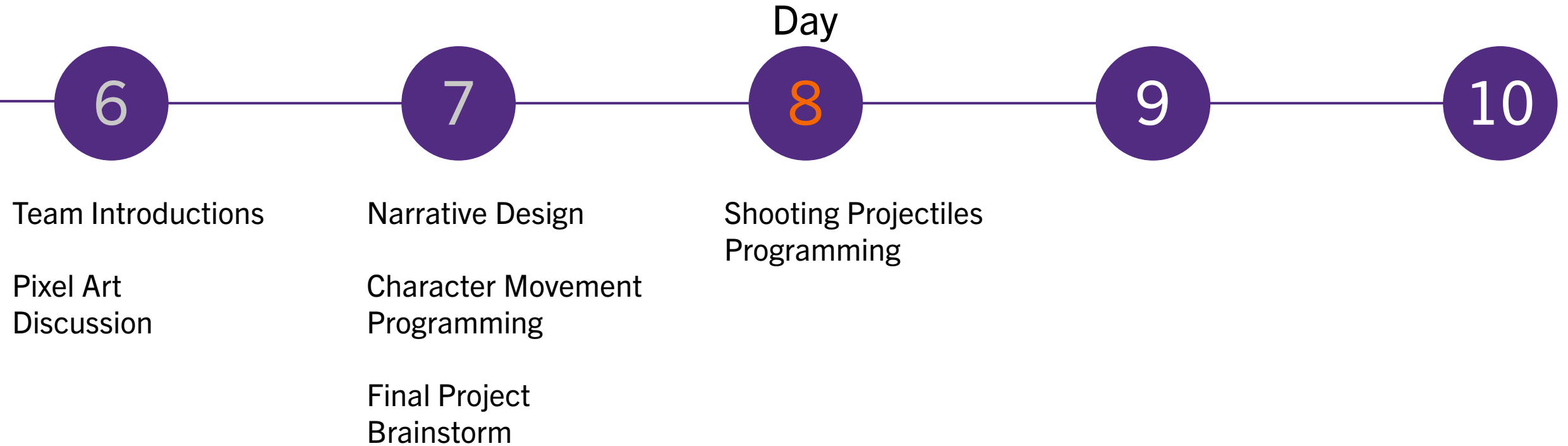
Team Introductions

Pixel Art  
Discussion

# Camp Timeline – Week 2

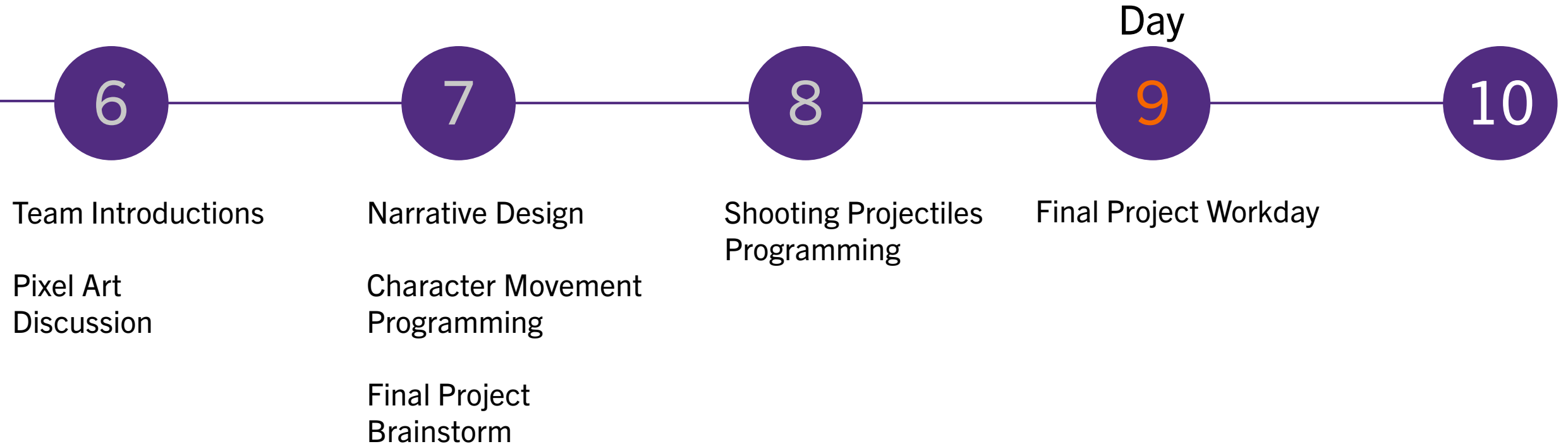


# Camp Timeline – Week 2





# Camp Timeline – Week 2



# Camp Timeline – Week 2



# Reducing Distractions

- Students easily distracted by Zoom chat
  - We provided a Google Doc for students for off-topic discussions
- The Google Doc:
  - Decreased off-topic comments in chat
  - Improved student focus during instruction



# Promoting Kindness

- We held an open forum to create kindness guidelines
  - We asked for student input and facilitated a discussion
- We found that this discussion to create guidelines worked well
  - We recommend creating kindness guidelines



# Provide Scaffolded Instructions

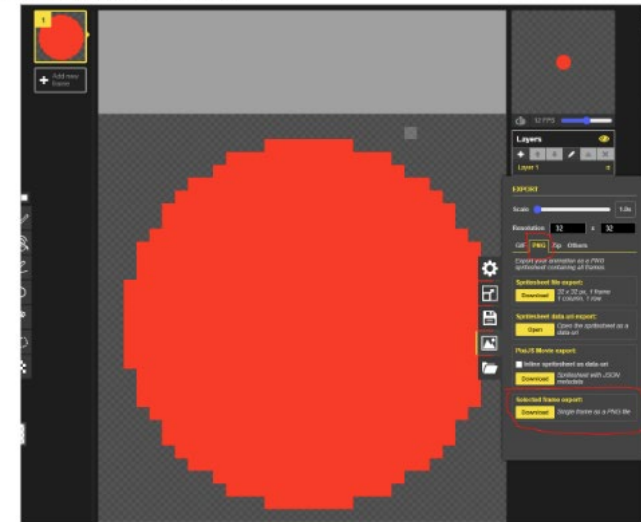
- Inevitable that students will fall behind on instructions
  - Even more likely with ASD students if the info overwhelms them
- We provided written instructions for each day of camp
  - Students were able to catch up at their own pace

- Group Breakout Rooms (10 min)
  - In the Team folder, open the Team Journal
    - As a group, answer the "Rules Discussion" questions

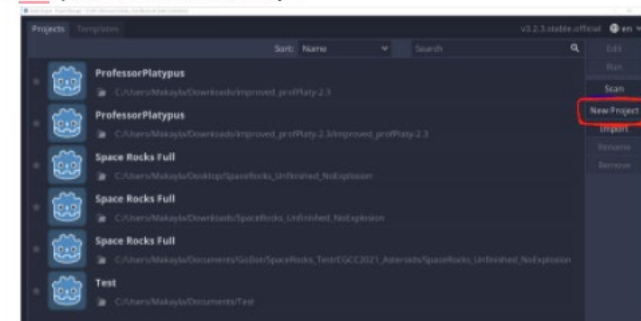
## 10 Minute Break

**ACTIVITY:** GoDot Development: Importing Sprites (30 min) (Individual)

1. Create a character on <https://www.piskelapp.com/>
2. Export selected frame as a PNG.



3. Next open GoDot and create a New Project



4. Name the Project: Day7Example . We will have to create a new folder to save our

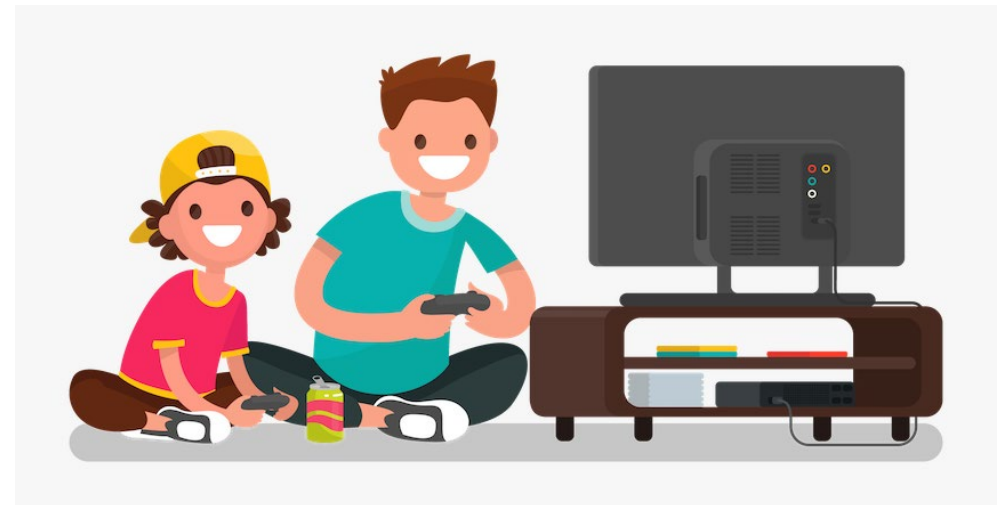
# Be Prepared to Change Lessons Plans

- Our material took 2-3 times longer to cover than planned
  - We had to significantly reduce topics covered
- We recommend having back-up lectures prepared



# Implement Common Game Mechanics

- We had scoped for narrative games
  - However, students wanted to create more open-ended games
- We surveyed students in Week 2 to discover wanted features
  - This allowed us to adjust our lecture material to cover popular features



# Thank you!

## Contact

- Makayla Moster
  - [mmoster@clemson.edu](mailto:mmoster@clemson.edu)

