

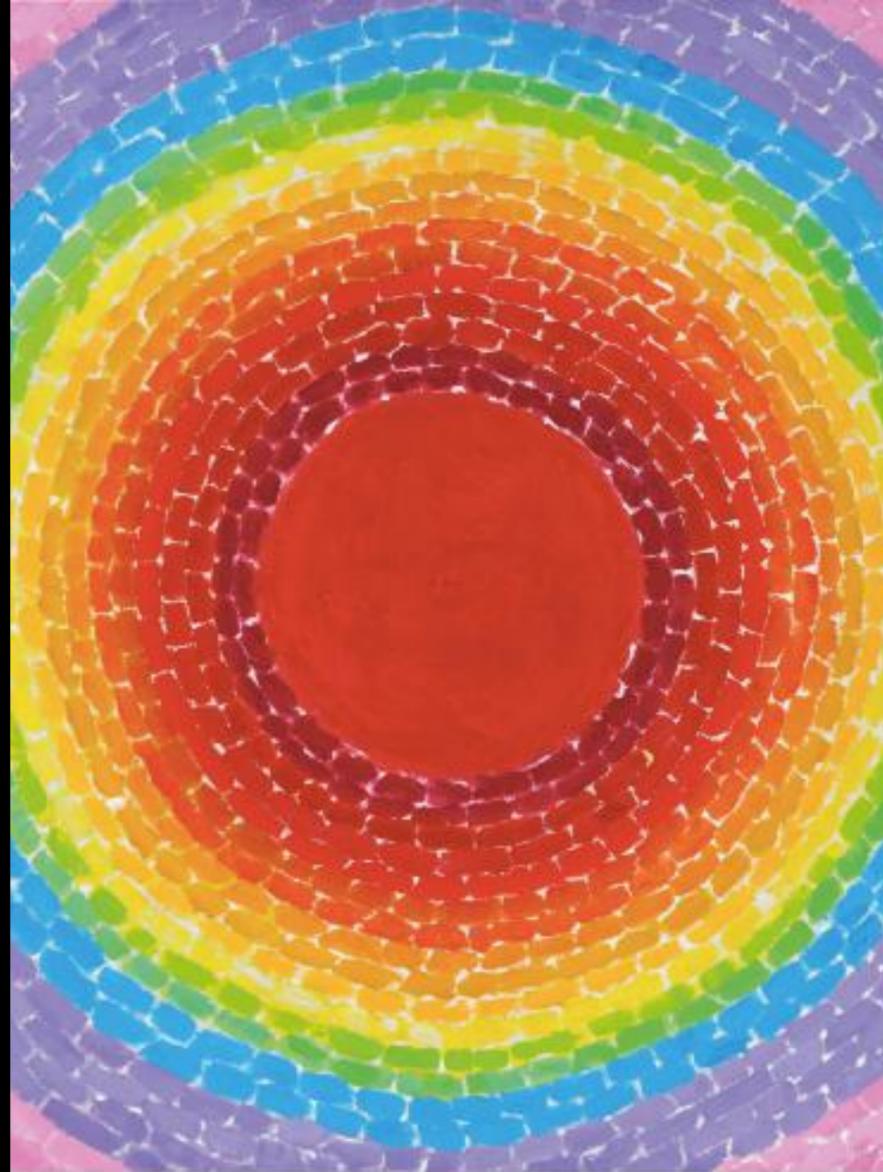
# MOSAICA

The word "MOSAICA" is written in a stylized, multi-colored font where each letter is composed of small mosaic tiles. A paintbrush with a yellow star on its tip is positioned above the letters, as if it has just finished painting them.

August 2020

Team 71

Alma Thomas



# Helena, Montana

- Born in Gold Rush of 1864
- Halfway between Yellowstone and Glacier National Park
  - Tourists interested in outdoor adventure
  - Multi-use trails, views of night sky, botanical gardens
- Wanted to find an artist that resonated with nature and atmospheric qualities

Photo: Jason Savage Photography



## About the Artist



# Alma Thomas

- Moved to Washington, D.C. to seek relief from racial violence in the South
  - Inspired by her garden here - abstract pointillism technique depicting nature
- Amazed by technology, space, and progress
  - Developed mosaic technique to depict Apollo lunar missions

# Backstory: The Artist

In the late 1960's there was once a town. It was small and simple. People lived their lives, went about their daily business and accomplished their goals. Yet, something was missing. None of them realized it, but something was missing...

This land centers around a little girl, one we shall call The Artist. This little girl was a bit different from the others in her town. She was curious, inquisitive and did not see the world the way others saw it. Yet, she was never sure how to let others see it her way... Her parents owned a craft store and she had tried many ways to show others what she saw in the world. She tried using pencils and pens, cloth and textures to convey her view. Yet, none of it worked. None of it showed the world how she saw it.

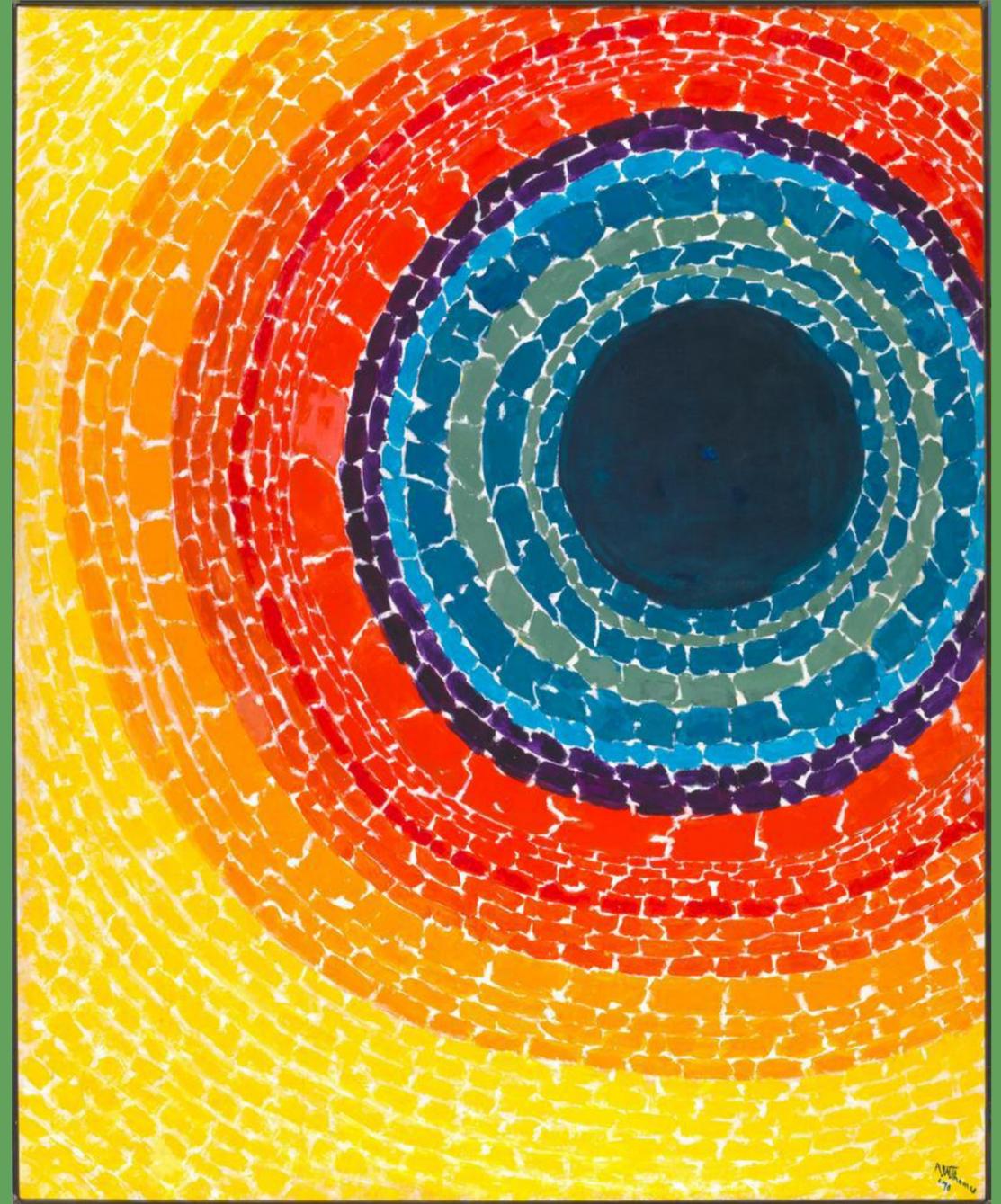
One day though, things changed. The little girl's curiosity drew her up to the attic of her house, which sat just above the store. She began rifling and rummaging through boxes until she eventually came upon a simple wooden box; and inside it, a wooden brush. As she pulled the wooden brush with its white and blue bristles out of the box she felt an irregular texture on the handle. "Color is Life" it read, and she had found it. The thing the town was missing. Its color.

The little girl rushed down the stairs and out into the town and began sharing the colors her new brush produced with the whole town. Now, she is asking for your help to help her paint the town. To help her make Mosaica a true masterpiece.

This story is conveyed to the guests throughout the land, from the museum to Alma's Art Store where the employees all act as a part of The Artist's family. However, there is one piece they are missing: who actually is The Artist?

# Story: Inspiration

This story was inspired by Thomas' incredible use of color to depict things many think of as monochrome, such as space. "Color is Life", the etching on The Artist's brush in our story, is a quote from Thomas. When our team saw Thomas' use of color and her unique style, we knew we not only wanted to share it with guests, but hopefully use it to encourage others to find their own personal styles.



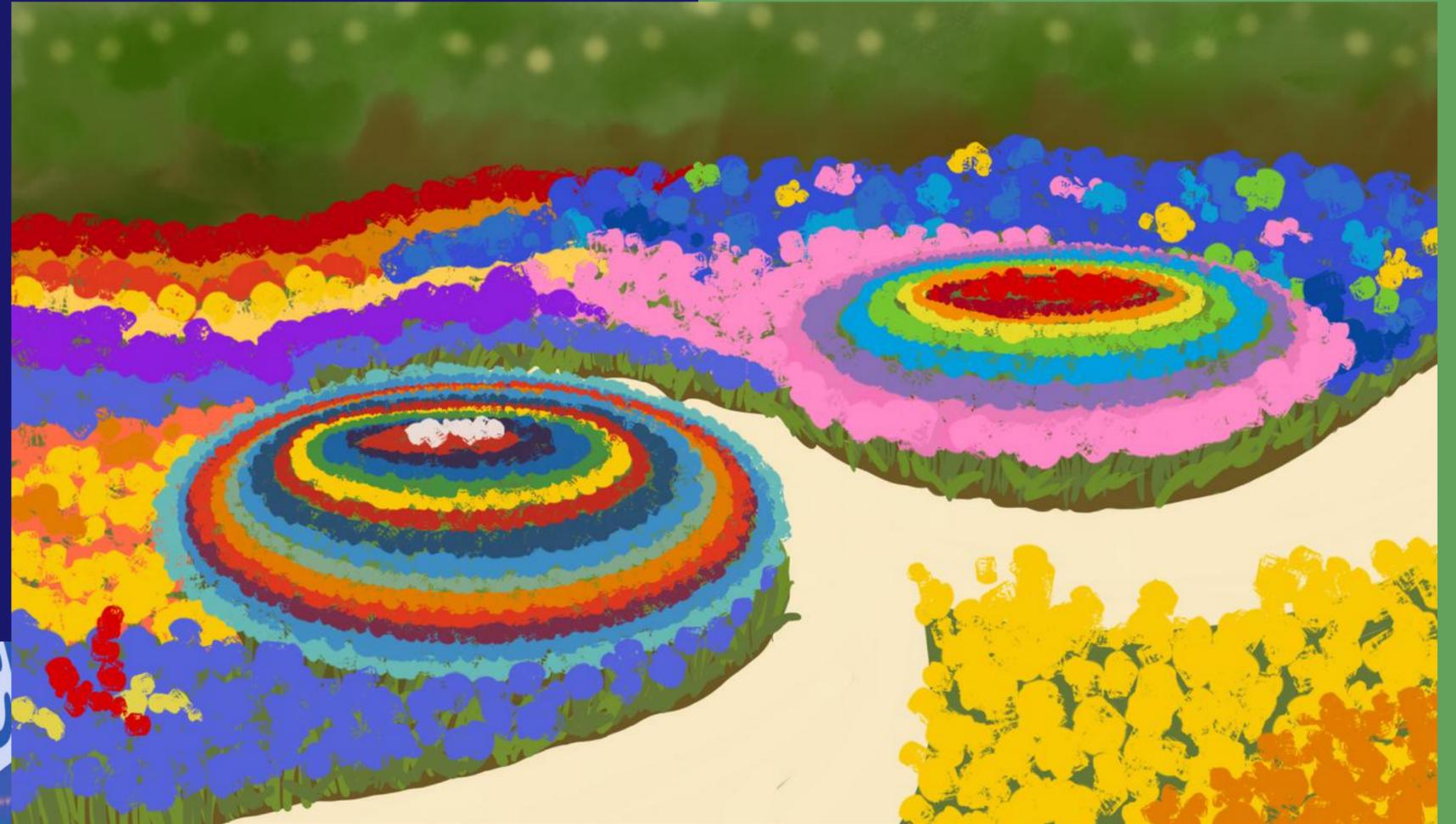
The Eclipse by Alma Thomas

# Park Map



# Park Overview

Main Street



Mosaic Flowerbeds



# Painting the Town

- Some of the town is already painted, but The Artist needs help finishing it
- Guests can buy a paintbrush that allows them to "paint" the walls in the land



Merchandise Item

# Interactive Paintbrush

- This brush works similarly to a stylus on a screen
- The guest can select the color they wish to "paint" with using the six buttons on the side
- As the drawable walls in the park begin white, the white button also serves as an eraser

# Interactive Paintbrush Technology

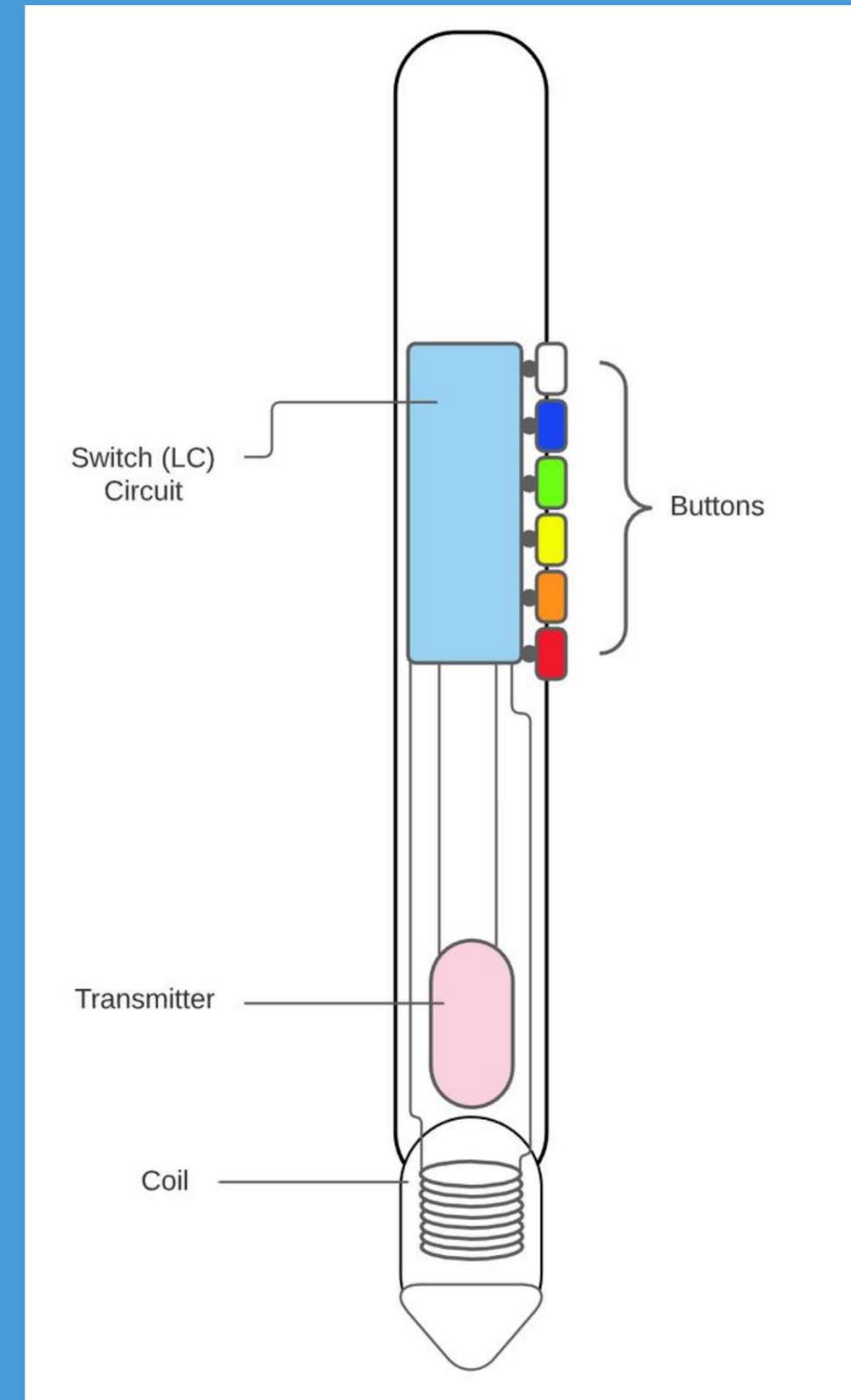
Each brush will transmit an ID and color indicator based on its outputted frequency. Based on the triangulation of this frequency, the screen will be able to determine the brush's location

## Brush

- Transmitter
- Capacitance switch
- LC Circuit (Resonance Circuit)
- Coil (Inductor)
- Six buttons

## Screen

- Receiver
- Position Triangulation System
- Non-reflective

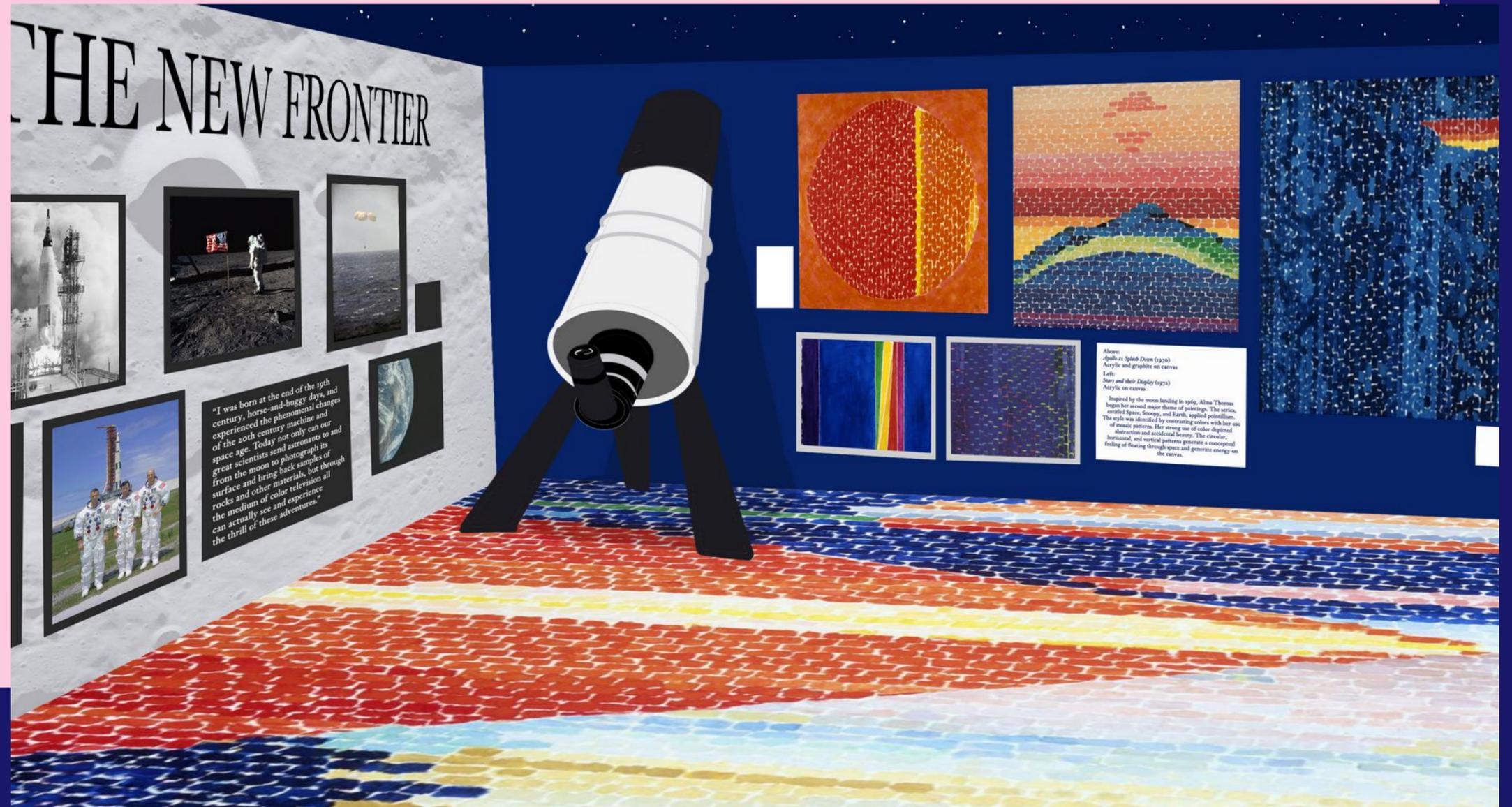


Inspired by Wacom Technology.

# Museum

Purpose: To introduce Thomas and explain how the land is linked to her story

Plaques located around land explain links between Thomas' life and the land's characteristics



Space Exhibit Concept Art

# Museum



## Space Exhibit:

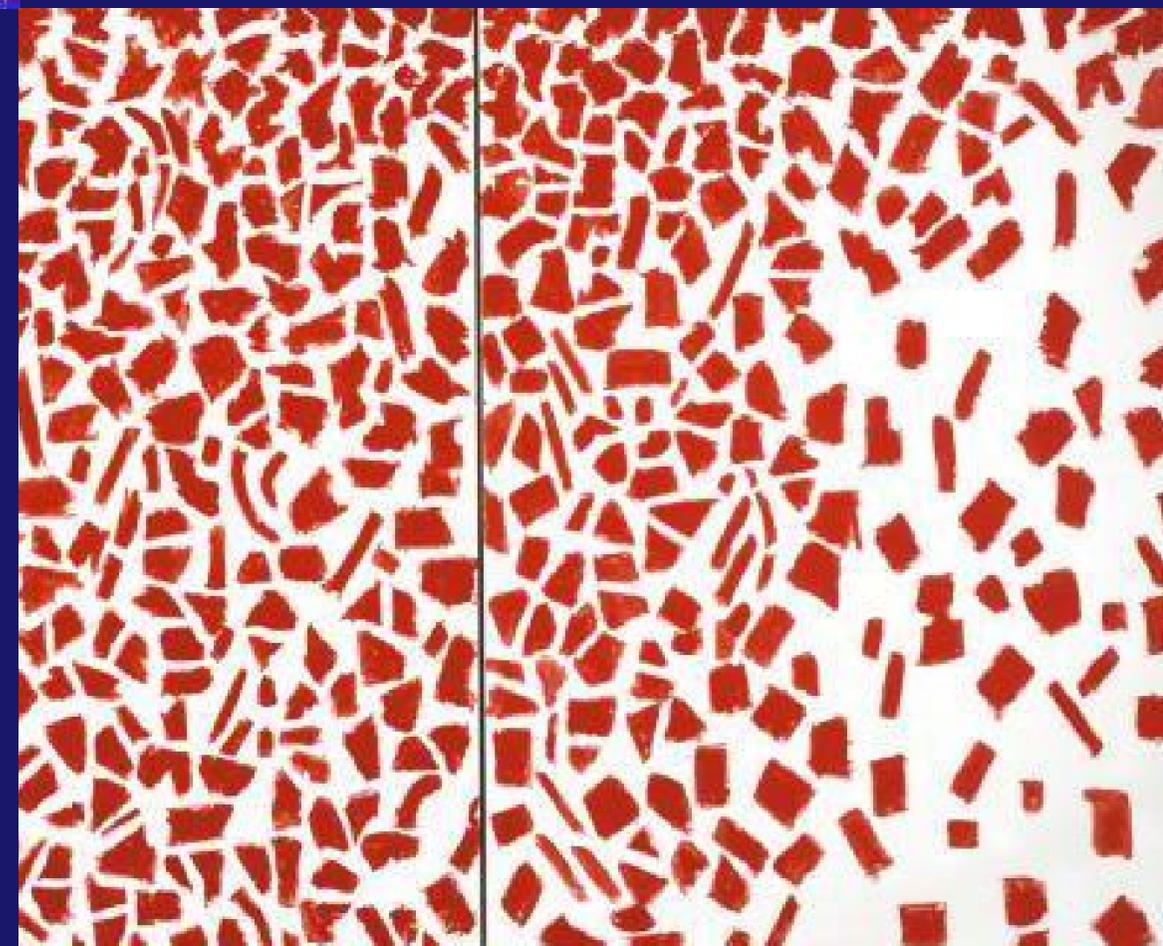
Fascination with Space Exploration,  
Later Years

Interactive Exhibit: Telescope  
allows visitors to see launch pad  
for rocket

## Earth Exhibit:

Early Life, Career Begins, Artistic  
Career

Interactive Exhibit: Hold phone up  
to a flower in the garden and it  
connects you to a painting of  
Thomas and explains where to find  
it in the park



# Constellation Cones

Quick Service 1

Snow cones that mimic Thomas' mosaic paintings



# **Starry Night and the Astronauts**

Quick Service 2

## **Concept**

- Spaced-themed as a tribute to Alma Thomas' fascination with the Apollo lunar missions
- Packaging that mimics space food that astronauts eat during missions
- Food served in lightweight, easy to dispose of retort pouches, sealed containers to fit on trays, and tin foil

# Starry Night and the Astronauts

Quick Service 2

## Salads

**Celestial Salad** - Spinach, kale, tomatoes, cucumber, avocado, radish, red onion, mango, peas, feta **(\$7)**

**Blastoff Blueberry Salad** - Arugula, tomatoes, pepper, mozzarella cheese, peaches, blueberries, sliced prosciutto, balsamic vinegar, dijon mustard **(\$9)**

## Vegetarian

**Voyage to Space Veggie Burger** - Black bean and mushroom burger, side of fries **(\$9)**

**Night Sky Soup** - Green lentils, vegetable broth, diced tomatoes, curry powder, cumin, kale, white onion, olive oil and lemon juice **(\$7)**

# Menu

## Entrees

**Wrapped Up in the Stars** - Grilled or fried chicken wrapped in a tortilla with ranch, cheddar cheese, lettuce, tomato **(\$8)**

**Rocket Launch Burger** - Cheeseburger with bacon and a spicy chipotle sauce served with barbecue chips **(\$11)**

**Shooting Star Sandwich** - Turkey and roast beef on wheat, dijon mustard, lettuce, tomato, onion, side of kettle chips **(\$10)**

## Kids

**Astronaut in Training** - Chicken nuggets with a side of macaroni and cheese **(\$7)**

**Ready for Takeoff** - Cheese pizza and grapes **(\$6)**

**Atmospheric Delight** - Grilled cheese and fruit cup **(\$6)**

# Sylvan Oak

HIDEAWAY

Sit Down  
Restaurant





### APPETIZERS



- SnapDragon Wings** Boneless chicken wings with your choice of sauce - smoked honey barbecue, teriyaki, fire-hot 12.34
- Great Outdoors Guacamole** Served with a side of diced mango and toasted chips 12.34
- Garden of Goodies Soup** Hearty seasonal vegetable soup 12.34

### SALADS

- Citrus Shrimp Salad** Pan-seared citrus flavored shrimp, creamy avocado, and a crunch of sliced almonds on a bed of spinach and romaine 12.34
- Sunset Caesar Salad** Bed of romaine lettuce, shredded parmesan cheese, croutons, served with caesar dressing 12.34



### KIDS' BITES

- Rocket Dogs** Croissant-wrapped hot dogs topped with triangle cheese skewer 12.34
- Flower and Fairies Fruit Kabobs** Pineapple, grapes, strawberries, blueberries, clementines 12.34



### ENTREÉS

- Butterfly Burger** Basic burger dressed to your liking, side of fries or a house salad 12.34
- Peony Platter** Pan-roasted wild salmon with zucchini ribbons and wild rice blend 12.34
- Woodfire Wilderness Medallions** Beef loin medallions served with sea salt roasted carrots and roasted russet potatoes 12.34
- Adventure Veggie Burger** Black bean, brown rice, and mushroom burger served with mixed vegetables, fries, or onion rings 12.34
- Pomodoro Paradise Pasta** Whole-wheat linguine and homemade pomodoro sauce with breadsticks 12.34
- Enchanted Forest Flatbread** Grain free naan flatbread with fresh tomatoes, garlic, onion, zucchini, olive oil, feta, and herbs 12.34

#### Build Your Own Mosaic Pizza

Choose 3 toppings, arranged in your very own mosaic design:

- Pepperoni - Sausage
- Green pepper
- Olives - Pineapple
- Ham - Onion
- Anchovies

12.34



### DESSERTS



- Pizookie** Giant cookie with choice of toppings 12.34
- Cherry Blossom Symphony Sorbet** Tart cherry and mint sorbet 12.34
- White Daisies Rhapsody Ice Cream** Vanilla ice cream topped with molasses and granola crunch 12.34
- Galaxy Cake** Dark chocolate and brown sugar cake with buttercream icing 12.34

### DRINKS

- |                       |                       |
|-----------------------|-----------------------|
| Water 12.34           | Coffee 12.34          |
| Milk 12.34            | Tea 12.34             |
| Juices 12.34          | Hot cocoa 12.34       |
| Fountain drinks 12.34 | Bottled drinks 12.34  |
|                       | Sparkling water 12.34 |



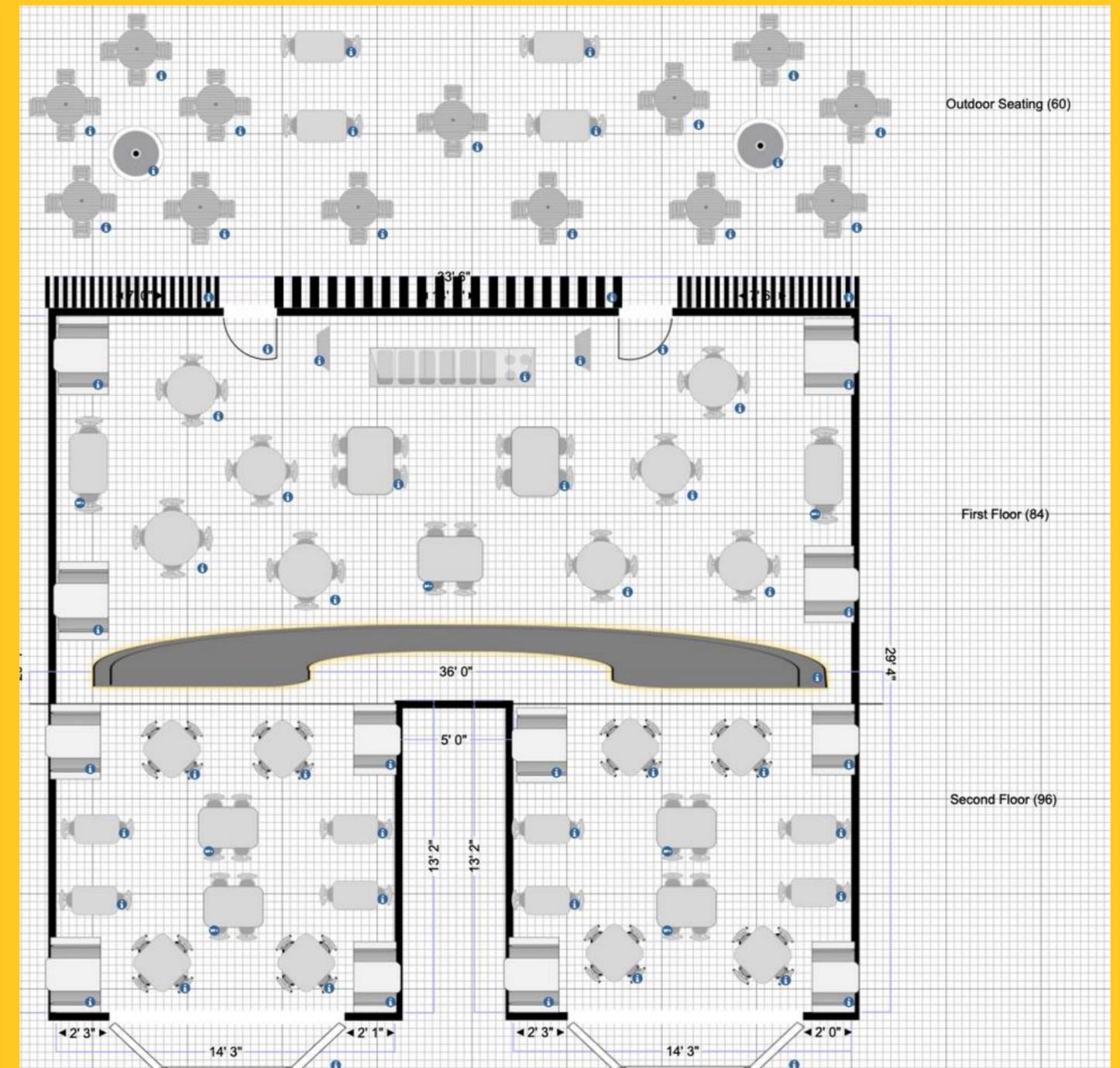
# Inspiration

- Multi-story treehouse
- Circular design motif to mimic Thomas' circular paintings
- Top floor
  - Intersect with the trunk which acts as service elevator
- Bottom floor
  - Slightly more casual dining area - bar seating, rounded open kitchen for viewing



# Sit Down Restaurant

## Floor Plan



# Alma's Art Store

## Merchandise Location



- This is the art store owned by The Artist's parents
- At this location guests will be able to buy the interactive paintbrushes as well as other merchandise

# Alma's Art Store

## **Other Merchandise Includes:**

### **Park Wares**

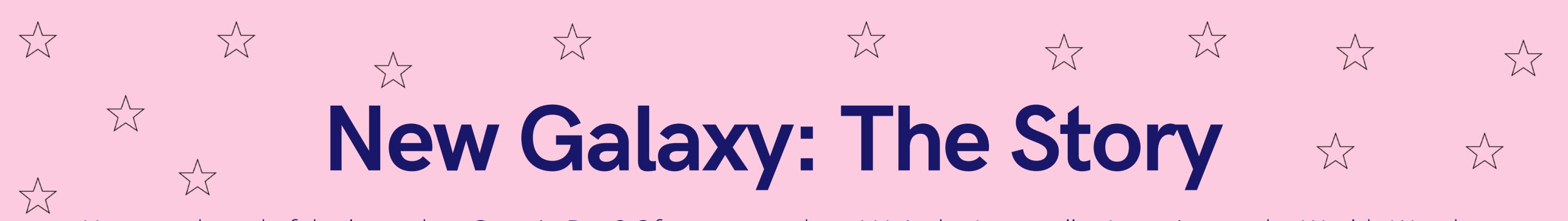
- Mosaica Shirt
- "I Saved Captain Don" Mugs
- "My Constellation was Better" Shirt
- "I am an Artist" Shirt
- "I Painted the Town" Shirt

### **Art Supplies**

- "Mosaica" Brushes
- "Mosaica" Markers
- Paper
- Mosaic Coloring Book

### **General**

- Umbrellas
- Portable Chargers
- Bottles of Water
- Collectible Bottles
- Hats
- Scarves (In Winter)
- Bags/Small Backpacks

A decorative border of white stars is scattered across the top and sides of the page. The stars vary in size and are positioned around the main title and introductory text.

# New Galaxy: The Story

Have you heard of the legendary Captain Don? Of course you have! He's the Interstellar Investigator, the Worlds Wanderer. And now, he's in trouble.

While making his way back to base he encountered some unusual dark matter readings. Captain Don being Captain Don went to investigate despite Mission Control's warnings and has now been stranded just outside a looming asteroid field! It's up to you, the Mission Control Mechanics, to go get his ship fixed and get him home safely before he gets pulled into the asteroid field!

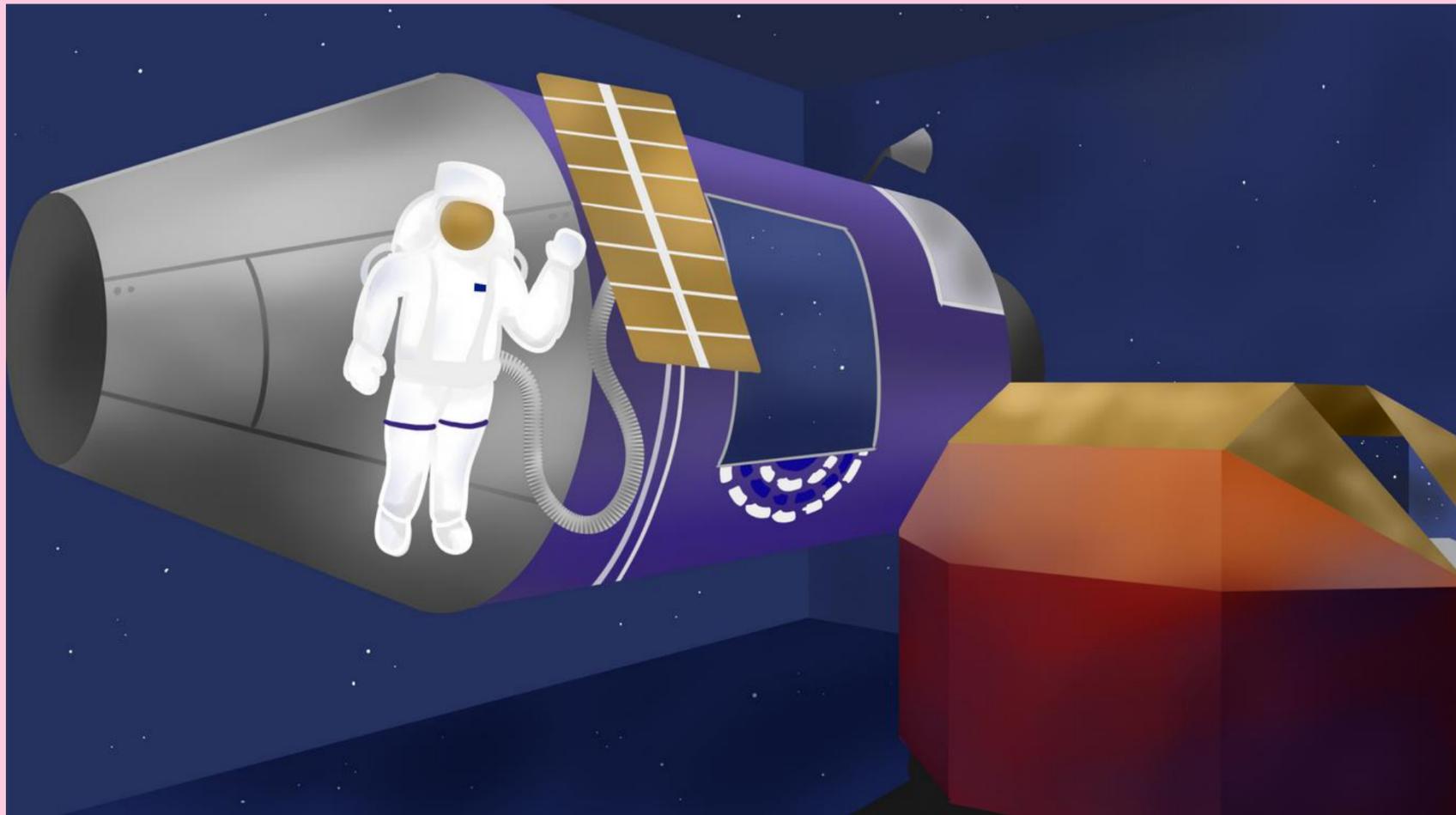
## Guest Experience:

Overall: The Mechanic Ship is a ride vehicle equipped for guests who can both sit or stand. Each ride vehicle holds up to four guests, where each has their own control panel and each pair of guests shares access to a ride vehicle door that houses an interactive screen. These doors can be lifted and dropped to enclose the ride vehicle or allow guests to see outside of it. Each control panel and interactive door will be used to facilitate the guests interacting with the ride as if playing a game: one in which all of the guests are given instructions regarding actions they need to take to save Captain Don.

These instructions are given both from Captain Don himself (a recording speaking through the ride system) and screens on each individual control panel. However, some instructions posed specifically to the guest in Position 1 through their screen, for example, might be for the control panel of the guest in Position 3. Thus, the guests must communicate and work together in order to complete their mission.

# New Galaxy: Scenes

- The queue takes the guests past atmosphere to Mission Control's space station where a distress call reminds of the looming threat to Captain Don's safety
- While in line, the guests are helped into harnesses by the ride crew
- Guests load into their Mechanic Ship, hooking the tether attached to their harness to one of the four poles in the ride vehicle
- Take-off! The Mechanic Ship speeds away from the loading zone towards Captain Don's stalled ship
- Guests must follow instructions to draw him a new engine using the ride's interactive screens and then use the control panel to reroute his ship's power to the new engine



- Just as the guests are finishing their mission, it becomes apparent that it is too late... they have already been encompassed by the asteroid field. Now they must escape!
- Captain Don, his ship now up and running, states that he is able to navigate the asteroid field but he needs the guests to fend off any incoming debris. The guests must use the interactive screens to slice any incoming asteroids and protect the ship.
- Once the guests have broken free of the asteroid field, they find themselves in beautiful, peaceful space: our first show room.
  - Here the interactive screens rise up so that the guests may see outside the ride vehicle

# New Galaxy: Scenes

- As the guests slowly move through the open space, they discover what caused the strange dark matter readings that Captain Don went to investigate: a wormhole!
  - The wormhole is styled after Thomas' painting "Red Azaleas Singing and Dancing Rock and Roll Music"
- Guests are given hurried instructions to close their doors using specific commands on the control panel before getting sucked into the wormhole.
- Guests must follow instructions to attempt to safely get out of wormhole
- As they do, they see that Captain Don's ship has been split in two by the force of the wormhole. The guests must use the screens and the cranks on their control panels to pull in the two sides of Captain Don's ship.



- Once Captain Don is safe, he announces that they are in a new area of space never before explored and dubs it "White Space". He tells the guests that, as they saved him so many times, they should be allowed to create the new constellations.
- Guests can then draw on their screens, connecting the stars
- After the guests complete their drawings, the side doors open up once again revealing the second show room. The guests will now see all of the constellations they drew displayed in the actual show room.
  - The constellations in this room are created using fiber optics
- After an opportunity to admire their constellations, the doors close again and Captain Don uses the one familiar constellation, Orion, to pinpoint their location and set a course for home.

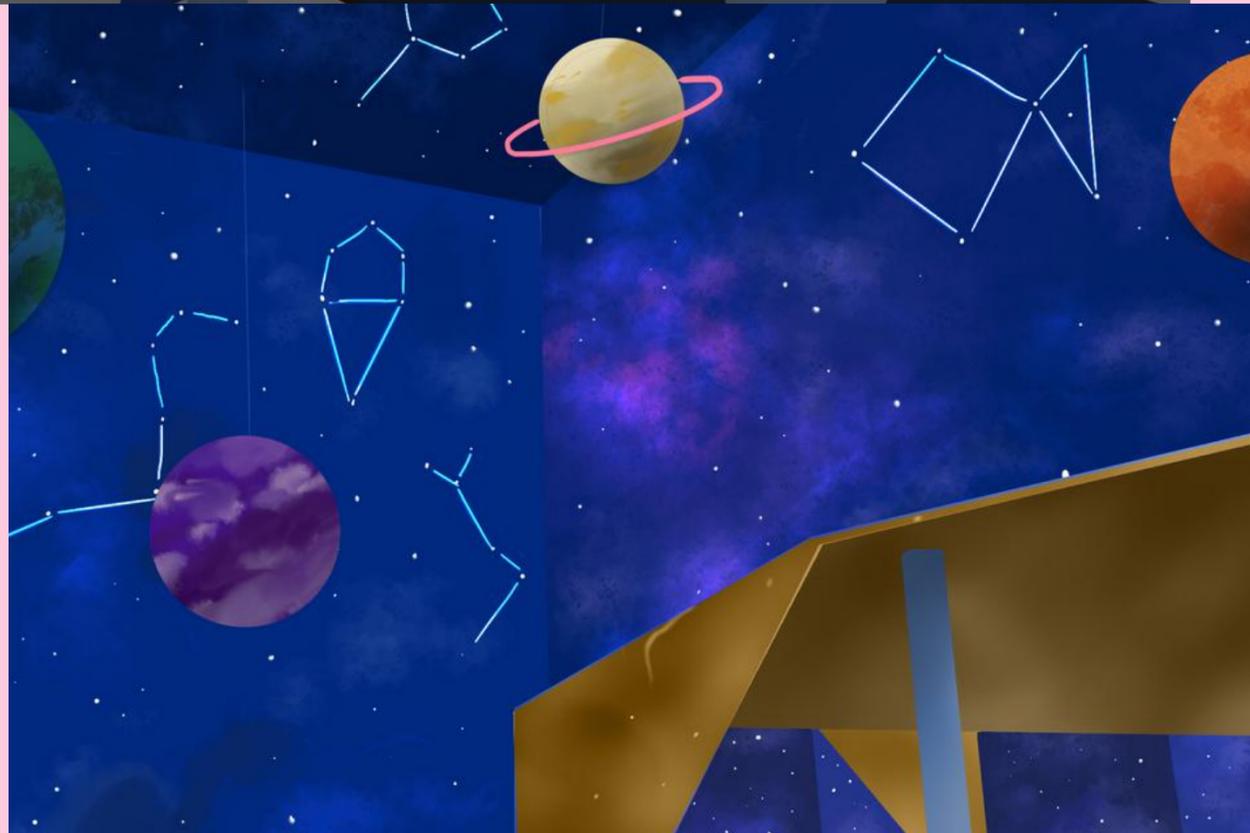
# Interactivity



This ride is designed to facilitate guest interaction with the ride, other guests, and the park itself while complying with ADA requirements.

## Screens

- The screens consist of the same technology used for the interactive walls around the park.
- In order to draw on these walls, guests must use the interactive paintbrush developed for the rest of the park
  - If the guests do not have this technology personally, brushes with a bright red indicator on the top will be handed out and collected at the end of the ride
- They make up the entirety of the doors on the ride vehicle so that the guests are able to draw on any part of them



## Control Panel

The control panels consist of:

- Buttons
- Cranks
- Switches
- Pull Cords
- Levers
- Dials
- Sliders
- Instruction Panel

## Other Considerations

- If there are fewer than four eligible guests to participate in the ride (such as a party of three or a party with a young child) that quadrant on the ride will act under an "auto-pilot"
- Guests preferring to sit for all or part of the ride will still be able to interact with the control panel

Assembly Explosion  
Full Ride Through  
360 Degree Interior View

[Click here for  
Ride Animation](#)

# Ride System

## Omnimover Ride System

- Length: 1,800 Feet
- Vehicle Separation: 35 Feet
- Constant Speed: 3 Miles/Hour
- Duration: ~7 Minutes
- Capacity: 1,800 People/Hour

## Door Opening/Closing System

- Similarly to how Omnimovers move left and right, our rotating doors open using the same method. This method involves a rail of changing height relative to the top track. Via a mechanical system, that separation from the top track is converted into the rotation of the screens

## Drive System

- Chain of ride vehicles are continuously operated by motors driving the grip plates attached to the bottom of the ride vehicles

# Ride Safety

F2291 - 19

- 6.4.3.3 Restraint Criteria Compliant
- 6.4.3.4 Area-1---A Class-1 restraint device is defined as unrestrained or no restraint at all.
  - (1) Based solely on Area-1 dynamic forces, no restraint is required; however, other criteria in this practice (that is, the ride analysis) may require a higher class restraint device.

Despite having no restraint requirement based on our ride system, upon analysis of the ride we decided to include the tethered harness restraint in order to accommodate any outlier occurrences such as guests attempting to leave the ride while moving, pinching their fingers in the closing doors or colliding with other riders in the enclosed space.

Figure 1

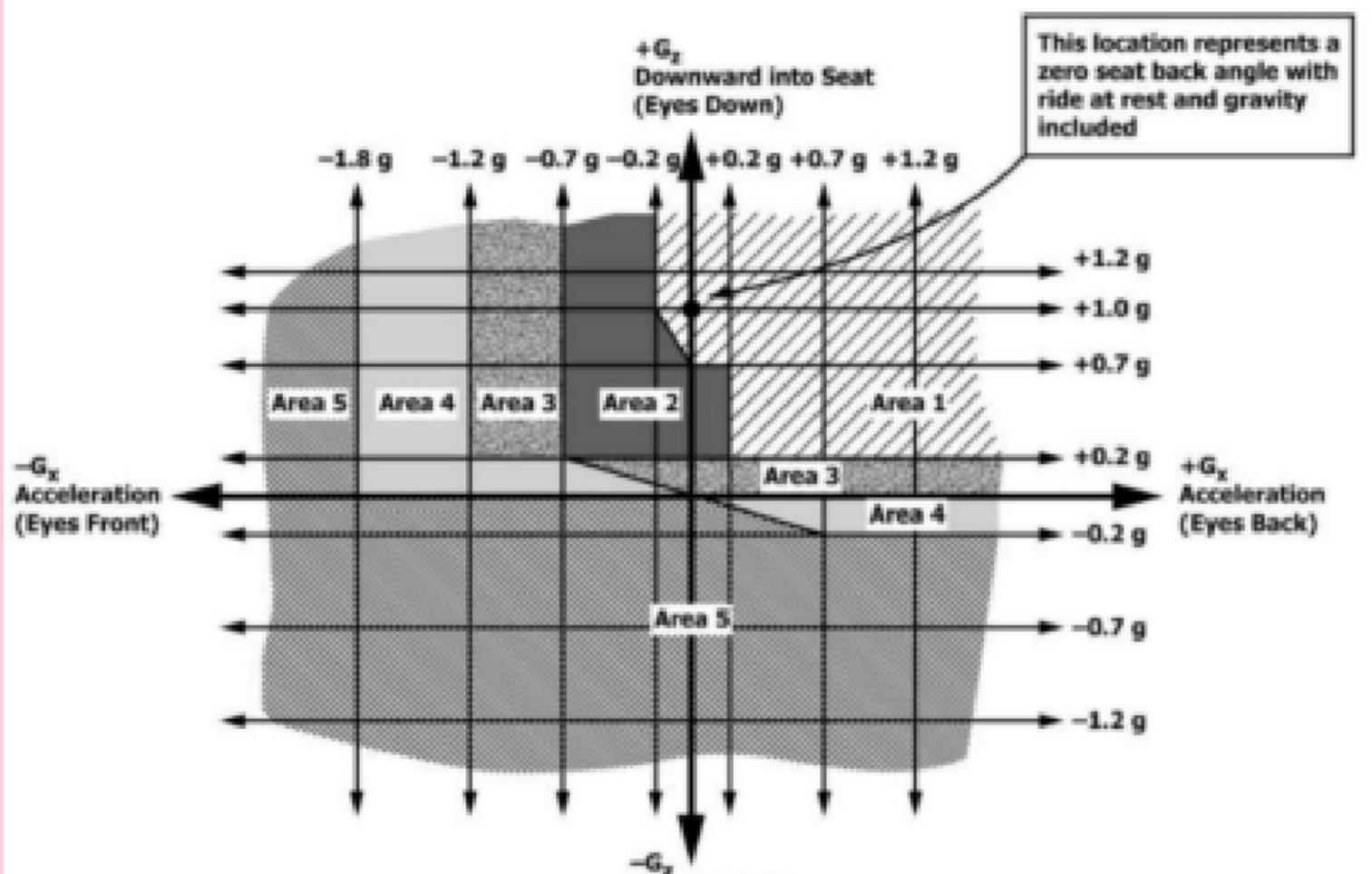
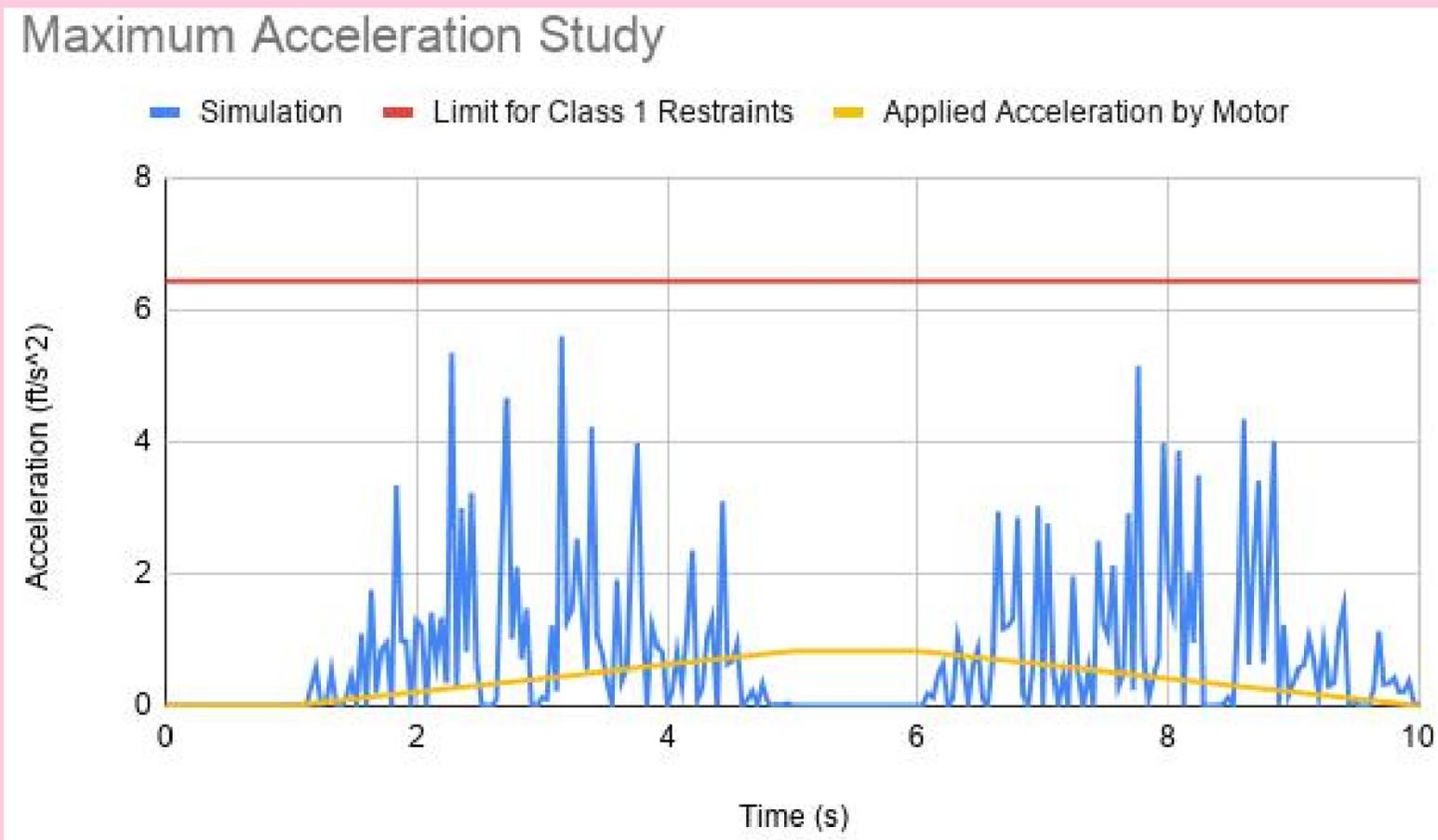


Figure 2



# The Artist: Revealed Story

Entertainment Element:  
Nighttime Spectacular

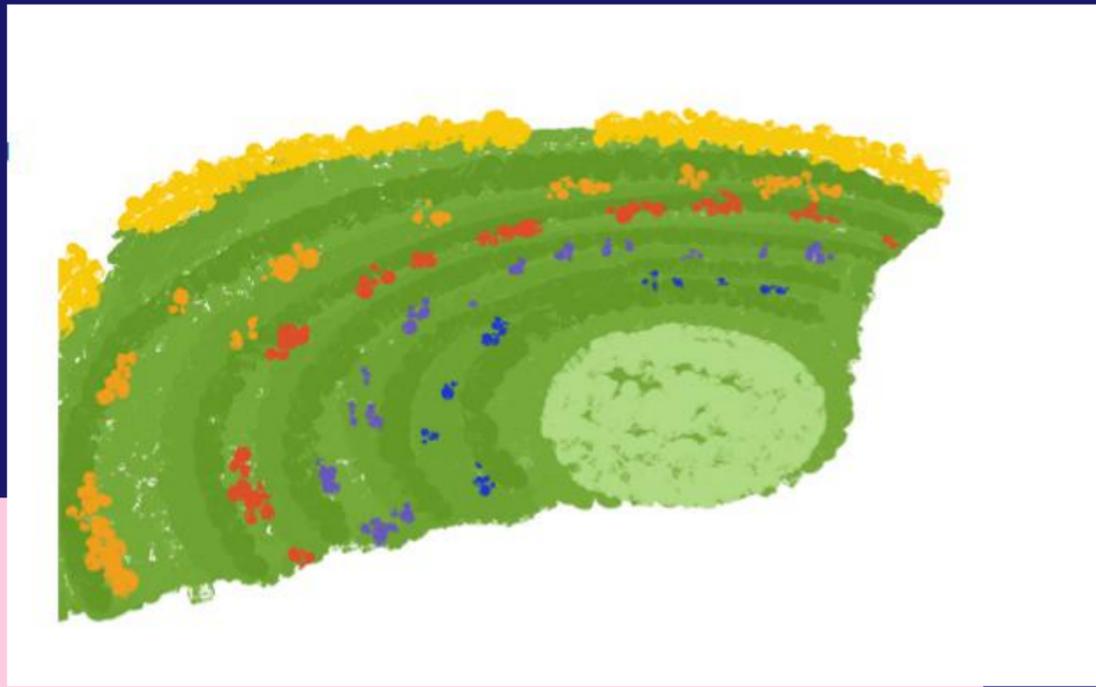
While throughout the day the guests have been painting the walls of the town, The Artist has been working on her own grand project. In the distance, the guests see a life-size rocket painted incredibly on the side of a far off building. As the sun sets on the day, a young girl now known to be The Artist hops on stage to introduce herself. "Thank you all for helping me paint my town." She says. "Now let me show you something amazing!" The Artist turns around staring at the rocket expectantly. Yet, nothing happens...

After a brief pause, The Artist throws her hands up, "I know what I forgot! We have to sign it! We all painted this town today, so why don't we all sign the rocket? Everyone, raise your brushes with me!" As the guests flick their brushes towards the rocket, art from all over the park begins to appear on it. Once the art has settled, the next phase begins.

# The Artist: Revealed Show

Entertainment Element:  
Nighttime Spectacular

[Click here for](#)  
[The Artist:](#)  
[Revealed Show](#)



# The Artist: Revealed

Entertainment Element:  
Nighttime Spectacular

## Viewing Area

- Tiered auditorium style seating formed out of grassy slope with rows of flowers between seating levels
- At the far edge of the central circle is a performance stage for the actress portraying The Artist
- Maximum Capacity: 3,000 People

## Firework Specifications

- Maximum Mortar Size: 8 Inches
- In line with NFPA1123, the minimum secured diameter of the site is 1,120 Feet
- Thus, our firework launch will be more than 560ft from the viewing area

# Drone Safety

## Operational Details

- The maximum altitude reached by the drone fleet will not exceed 120m

## Pilot/Personnel Details

- The total minimum personnel, including the remote pilot in command (RPIC), required for operation of the fleet is 6

## Small Unmanned Aircraft System Details

- A fleet of 200 multicopter drones will be used
- Our UAS's maximum flight time is 8 minutes, max range is 4,900 feet, and max speed is 22 miles per hour
- The size of the UAS is 15.12 x 15.12 x 3.66 inches
- The UAS will weight no more than 330 grams

# Drone Safety

## Operational Risks and Mitigations

### FAA Waiver Applications:

- 107.29 Daylight Operation
  - The RPIC and Visual Observers will be able to maintain a Visual Line of Sight during darkness as a result of bright LEDs mounted on every AUS
- 107.35 Operation of Multiple Small UAS
  - Each drone's position is tracked and if the relative position of 2 drones comes within less than 2.5 meters from each other the system will alert the RPIC and automatically make the necessary adjustments to the UAS flight paths