



Dr. Freeze's Ice Cream Experiment
A Themed Make-Your-Own Ice Cream Experience

Studio Class
UCF Themed Experience MFA
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Table of Contents

- Concept..... 3**
- Backstory 3**
- Overview..... 3**
- Design..... 7**
 - Exterior7
 - Shop Interior8
 - Lab Experience10
 - Layout16
- Operations and Cost Analysis17**
 - One-Time Costs17
 - Recurring Costs.....18
 - Revenue21
- Production Schedule.....27**
- Concept Research28**
 - “Mad Scientist” Archetype28
 - Mad Science Lab Theming31
 - Ice Cream Shops (Parlor) and Menus35
 - Nitrogen Ice Cream.....38
- Additional Resources and References40**

Concept

Ice cream is a universal sweet treat enjoyed by all ages. The number of flavors, mix-ins and other toppings that can be created make it an easy dessert for many different tastes. And what's even better than a sweet treat, than getting to make it with your own hands? This ice cream counter service and experience gives guests the chance to make their own creations from scratch in just 15 minutes by using new dessert technologies and providing the ingredients and hands-on help to make their sweet, icy dreams come true.

The Big Idea: a make your own ice cream experience and counter service using nitrogen to "flash freeze" ice cream in a shopping center like Disney Springs.

Backstory

From the very moment Dr. Freeze first tasted ice cream, he became obsessed. His scientific research over the years has completely devolved into his obsession with creating the perfect ice cream. Although his methods are wacky and unconventional, he is certain that his experiments will one day succeed. Some call him mad; some call him absent-minded; but really, Dr. Freeze is just a kid at heart, trying to satisfy his every-growing sweet tooth.

To start making money to fund his experiments, he started Dr. Freeze's Ice Cream, an ice cream shop that sells creations from his lab notebooks that he deems worthy of extra taste tests. But as his ideas have grown so out of hand, he doesn't have enough assistants to support him in his experiments. He now opens the lab to new assistants that can help him make even more creations come to life, in Dr. Freeze's Ice Cream Experiment experience. New assistants can don their goggles, lab coats and oversized gloves to create their very own sweet and icy desserts with Dr. Freeze in just 15 minutes by using his patented freezing technology and wacky inventions.

Overview

In addition to the brightly painted colors and exaggerated shapes of the exterior of Dr. Freeze's Ice Cream Experiment, guests see many small gags and details that bring the area to life – clues as to what kind of shenanigans await them inside. Dr. Freeze found an old ice cream parlor, and attached his lab to it, pushing the buildings together to create a large workspace for his experiments. The lab, a scientific and colorful building, is bolted with large rivets onto the classic ice cream parlor. Large intricate windows define the front of the pink colored shop, with striped awnings and a sign for the experience above.

Decorated with pipes and scientific-looking instruments, the walls feel like something out of a cartoon science fiction story. On the edge of the roof, two tesla coils shaped like ice cream cones buzz, connected by multitudes of wires to other parts of the building. Someone has

forgotten a large shipment of ice cream tubs, which have melted in the hot sun and dripped down the side of the building, leaving a giant puddle of melted ice cream on the concrete. Near a window looking into the ice cream lab, is a loosely patched hole from an experiment gone wrong. It's filled with random items from the lab and leftover bricks.

Multiple windows entice Guests from the outside street to look into the experience within. Each shows a different area of the process, the most important being near the Freeze Ray machine, the most exciting part of the experiment. Through the frosted glass, Guests see a machine labeled "Freeze Ray 5000." The ray starts up and special effects trigger both inside and outside the building. The Guests on the outside feel a spray of cold steam coming from a hidden grate and watch as the glass in the window gets covered in frost.

As Guests step through the door into the shop, they see a classic ice cream parlor that has been taken over by doctor freeze. The pink walls and black and white tiled floor are covered in many spots by various scientific instruments, boxes, and diagrams. Bookshelves and lab desks are filled with journals, notebooks, research materials and textbooks. Above one of Dr. Freeze's desks is a bulletin board covered in images, notes and string – a mind map of his journey to try and discover where ice cream comes from and other conspiracies. In jars, ice cream cones, scoops and other utensils are suspended in green goo. On the wall, there are various images of ice cream anatomy and other famous scientists painted in ice cream, which is melting a little down the metal wall.

At his shop, customers can either order pre-made ice cream concoctions that Dr. Freeze has made in his past experiments from the front counter, or they can choose to join him as assistants and create their own ice cream from scratch in his research lab (15-minute experience).

Counter Service

Right in front of the door, in the middle of the room before the queue, is one of Dr. Freeze's lab desks with open experiment journals of his past ice cream experiments – whether a failure or success. Guests who do not wish to make their own ice cream from scratch in the laboratory can choose one of these concoctions that Dr. Freeze has already invented. After looking through the journals, Guests stand in the queue defined by traditional queue ropes mixed with boxes of Dr. Freeze's supplies and experiment items. A chalkboard menu scattered with equations hangs above the counter, also showing the shop's menu and any specials.

Dr. Freeze's lab assistants, dressed in matching costumes of white lab coats, goggles and gloves, sit behind the counter with cabinets of ice creams and boxes of candies. Guests order their ice cream, and the assistants create it, putting it into a beaker with extra toppings. Guests pay and then grab utensils and napkins from a side counter. Nearby, are three crazy sets of tubes labeled "Volcanic Hot Fudge," "Radioactive Caramel" and "Dark Matter Chocolate." Guests put their ice cream underneath their chosen topping, press the big buttons and watch as

the sauce shoots through the various tubes and finally spread on top of their ice cream. Then, Guests take their beaker of ice cream and eat in the shop, outside or continue on their day at the shopping center.

Research Lab Experience

Bright colored double doors with metal plates serve as the entrance to the experiment lab. When Guests enter, they are greeted by one of Dr. Freeze's assistants, who explains the process of the experience and charges the group up front for their ice cream creations. Guests are given the option to dress in their own lab equipment, including a white lab coat, tinted goggles and dark rubber gloves. On the desk right in front of the door, lay piles of Experiment Sheets, a page to make their own "lab notebook." These papers contain the full instructions, walkthrough and rules of the experience as well as sections that show all the available ingredients Guests could use to make their creations. The flavors, candies and toppings are listed with check boxes and Guests mark off the ones they wish to use as they start walking into the queue of the experience. They can name their creation as well and can take the card home at the end as a token of what they experienced.

The lab reflects Dr. Freeze's state of mind, unconventionally twisting and turning around counters, desks, pipes and other equipment scattered from his various experiments. In addition to science lab equipment such as flasks, monitors, pipes, control centers and wiring, there are also various items associated with baking such as ovens, sinks, pots and pans and refrigerators. Guests can hear and see glimpses of various effects through the many decorations that elude to the fantastic freeze ray coming ahead, but only enough to bring excitement for the coming experience and not enough to ruin the suspense of being at that station themselves.

Candy and Ice cream dispensers define the next area of the lab. Similar to frozen yogurt machines, four dispensers are lined up with color-coded labels displaying the various flavors available. Guests touch the buttons to choose which flavors they want, and the machine dispenses them into the mixing bowls they have just picked up. Nearby, ten large tubes are lined up with bright colors. On the bottom half are two compartments filled with various candies that Guests can scoop out into their mixing bowls. On the top half, lava lamp-like effects bubble with candies from the sections below floating in the liquid.

Around the corner lies the inspection station. Dr. Freeze's assistant moves an inspection camera over the Guests' bowls of ice cream mixes and scans for abnormalities and tastiness. Monitors display the information, showing pre-determined but randomized ratings of yumminess and interesting experiment combinations. In addition to this show element, the assistant also checks for food safety standards by ensuring the ice cream bases and candies that the Guests have put into their bowls matches both their lab notebook cards and the requirements for the next step (the freezing process). If they notice a problem, they add any additional ingredients or assist in any other fixes needed.

Finally, the Guests reach the Freeze Ray 5000, a large metal machine with a frosted window, light decorations, dials and compartments. They stand in front of a colorful control panel that is covered in various buttons, slides and levers. Dr. Freeze's assistant takes each of the bowls from the Guests and puts them onto a conveyor belt that slide them into the freezing machine. Once inside, the doors are locked and sealed so that the liquid nitrogen can be used safely without harm to anyone. Then, Guests get to use the buttons on the control panel – picking two “freezing additives” to add to their experiment and determine what the best combination is. Once they have decided, they pull the giant lever in the middle, starting up the machine. Two rays turn into the colors of the freezing additives they picked as clouds of liquid nitrogen fill the tank. Mixers blend the ingredients in the bowls as they freeze, creating the tasty ice cream incredibly quickly. Other special effects go off during the process, including cold steam and air, lights flickering and dials spinning on the machine. Once the process is finished, the conveyor belt moves the bowls back out of the machine.

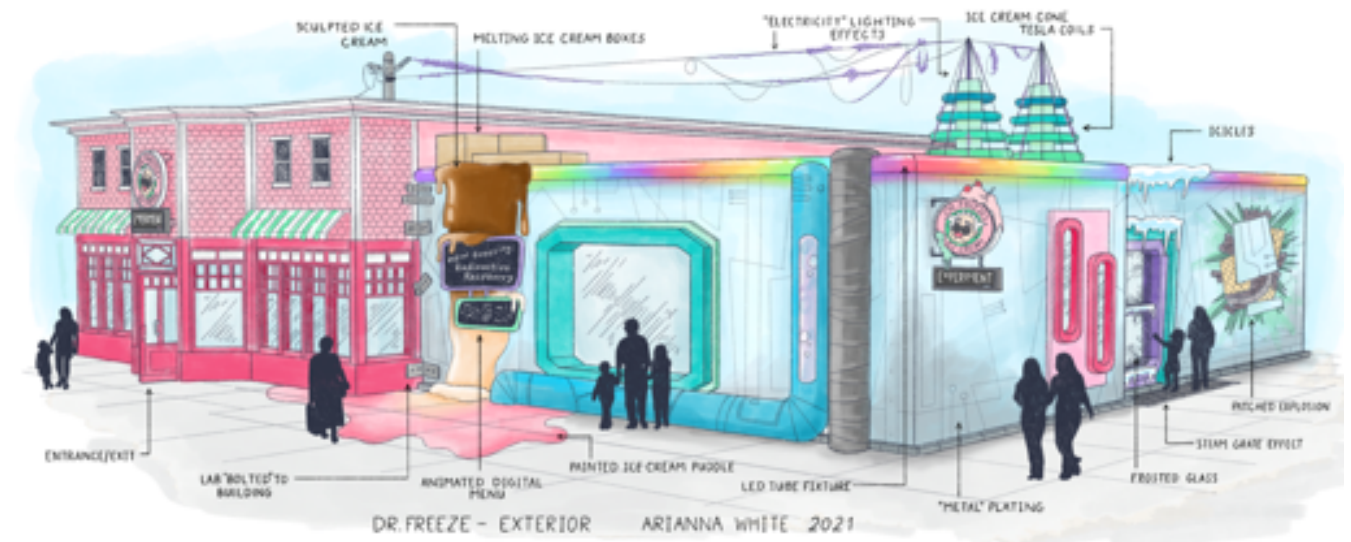
At the last area of the lab, Guests take their bowls of ice cream and use spatulas to pour it into their beakers. There are shelves of additional candies for extra toppings and a dish return spot for the bowls and spatulas for staff to wash them later on. A crazy set up of test tubes and flasks contains toppings for their ice cream such as caramel and hot fudge. Guests press the large button for what they desire and the test tubes bubble and boil as the topping goes into their beaker. Before they leave, grab spoons and napkins, their creations completed, and can show Dr. Freeze himself!

As Guests walk through the final door, they see Dr. Freeze behind a desk covered in his papers, equipment and ice cream. Dr. Freeze, an interactive audio-animatronic, talks with the Guests and asks them excitedly about their completed experiments. Then, they pose with him and take a picture which serves as a fun reminder of the experience.

Guests then return their costumes and take their ice cream creations in their beakers and lab notebook page home with them. They can eat their tasty creation knowing they got to make it with their own hands and enjoy the rest of their day at the shopping center.

Design

Exterior

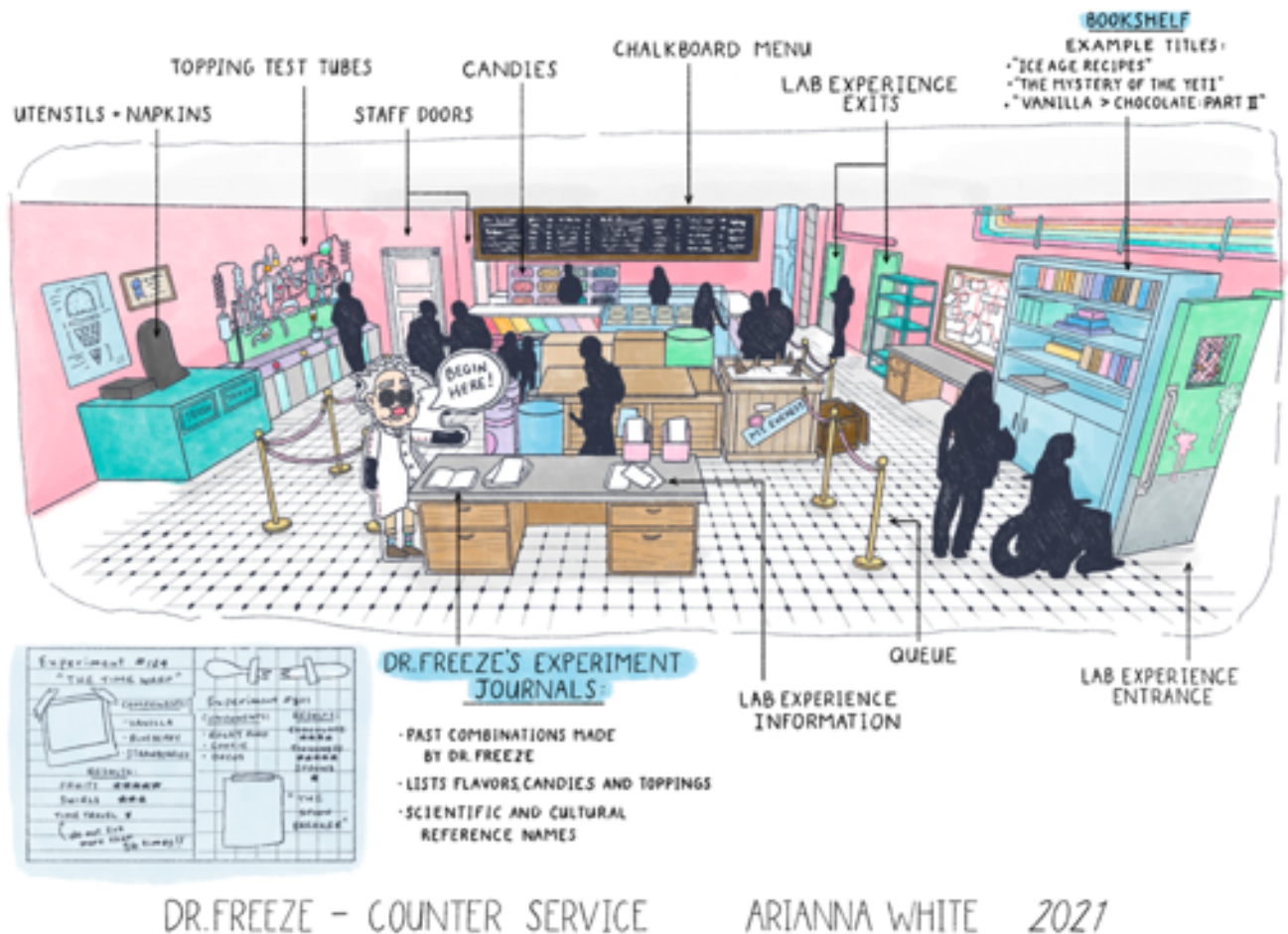


The exterior of this experience is brightly colored and represents two buildings that are seemingly pushed together and of very different design. The pink shop is based off of traditional ice cream parlors that many people will recognize. The main color scheme of the experience (pink and green) is reflected in the color of the bottom windows, siding and striped awnings. Large windows dominate the front of the building, showing the fun activity within. The “second floor” of the building is a forced perspective illusion. The windows allude to the fact that Dr. Freeze may live on the second floor, but the second section of the building is not tall enough for a real space above.

The lab has fake “metal plating” walls with geometric patterns. The top edge, at the roof line, is a LED tube fixture with controllable light controls so they move in various patterns and colors. Ice cream shipment boxes have been forgotten on the roof and so the ice cream (Neapolitan flavor) within has melted down the side of the building. On the wall, this is represented as 3D smooth sculpted plastic and then transitions to paint as it reaches the concrete, so the walkway is not blocked. The large green window looks on into the first section of the lab, where guests can see the initial decorations and bowls of ingredients inside. Two pipes are affixed to the edge of the building, one with special bubbling effects in a see-through section.

On one edge of the roof are two tesla coils designed to resemble ice cream cones. Lighting affects zip across the electric lines along with sizzling noise effects. Two pink windows show a view into the middle section of the lab experience, the inspection station. The last window, with frosted glass and sculpted icicles, allows Guests to see the Freeze Ray. As they watch the process, steam from a grate below blasts them with cool air and fogs up the window with additional frost. At the edge of the lab building’s wall is a patched hole from an explosion. Green residual blast marks remain behind the badly matched bricks, pipes and waffle cone pieces.

Shop Interior



The interior of the classic ice cream parlor has elements from the “original” building as well as messily organized items from Dr. Freeze and his experiments. The white and black tiled floors and pink wall color give it the bright feel associated with ice cream and sweet treats. Other elements that match what the shop would have originally had include the gold and pink velvet ropes for the queue and the pink and white staff doors. On the right-hand side of the room are the doors that lead to and from the lab, in a bright green (for the pink and green color scheme) and metal plating. Each of the windows has sprinkles stuck inside.

At the front of the queue is a cutout of Dr. Freeze directing Guests to the spot where they can learn more information about both parts of the experience. The desk next to him has his lab experiment journals, where he shows combinations that Guests can order at the front counter and pamphlets with information about the lab experience so that they can read more about it before taking part in it. The queue is defined by both the classic ropes as well as boxes and equipment Dr. Freeze has left about. Boxes have labels from cold places in the world such as Mount Everest and canisters are full of compounds and additives for the Freeze Ray.

Above the counter is a black chalkboard with white chalk writing showing the menu and specials available in the shop. In addition, there are small drawings of science items and

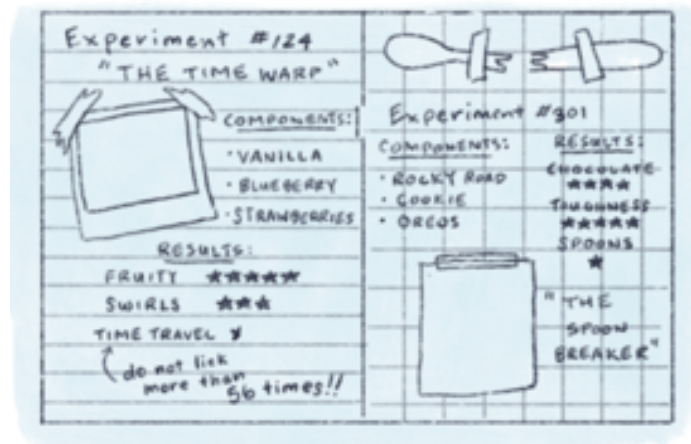
equations. The counter contains items that Guests are used to seeing at ice cream shops including cold slabs, ice cream storage shelves, and containers filled with colorful candies. In their lab themed costumes, the staff members created the ice creams and put them into beakers, then checking out the Guests at the register. On the left-hand side of the shop is a test tube set up with bubbling effects when Guests use them to put toppings on their ice cream (explained more in part 5 of the lab). There is also trash cans, napkins and utensils.

On the right-hand side of the shop, next to lab doors, is desks and shelves with items that Dr. Freeze doesn't want to get dirty in the lab. The bookshelf has many titles with funny names that he uses to find the best ways to do his experiments. Some of these might include: "100 Ice Creams from Around the World;" "TOP SECRET Chocolate Recipe;" "Frozen: the Art of Ice;" "The Mystery of the Yeti;" "Vanilla > Chocolate: Part II;" and "Ice Age Recipes." Above his desk, is a mind map with red string that Dr. Freeze has tried to use to understand the secret of the perfect ice cream. The board is full of images of the Yeti, mountains, snow, fruits and space as well as documents from secret government projects and cookbooks.

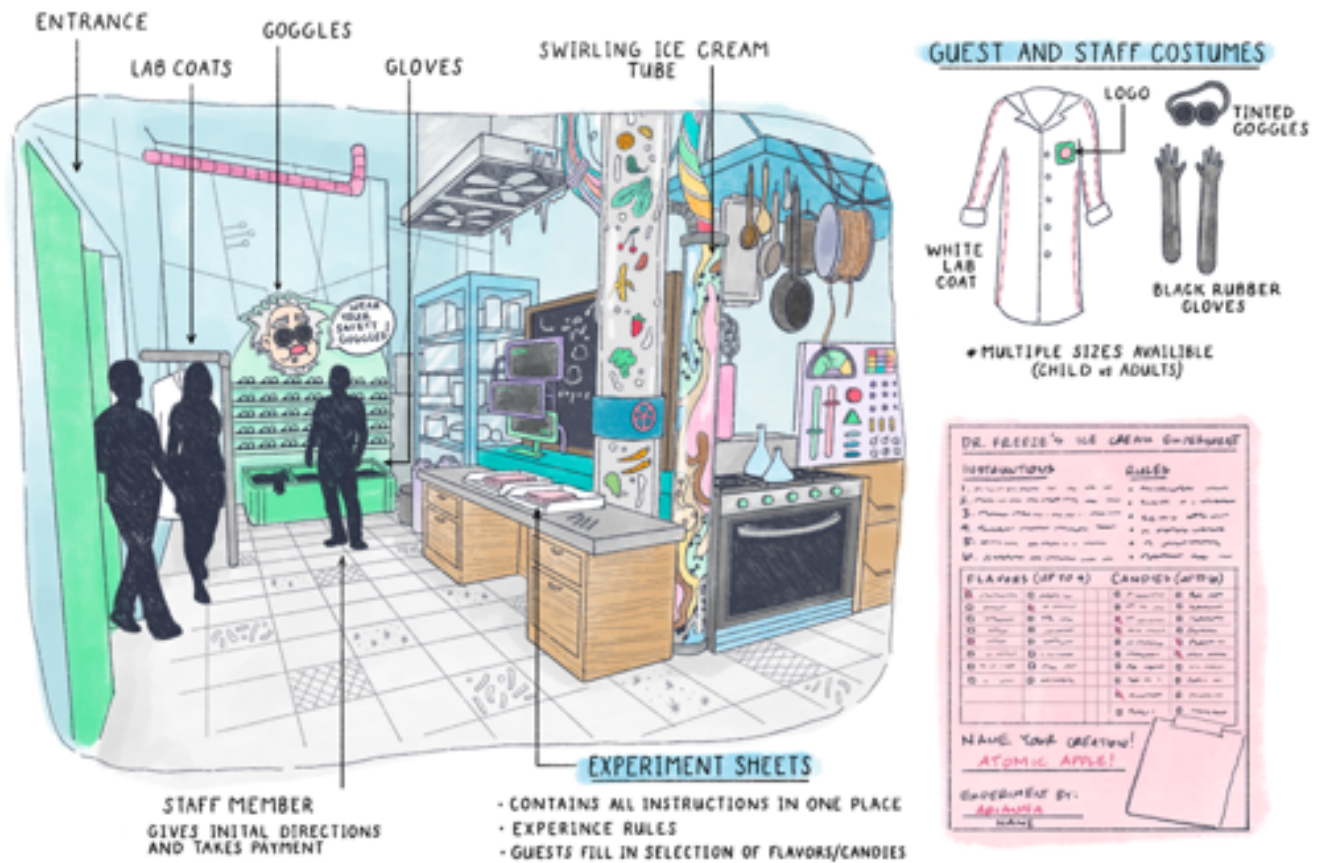
In addition to the larger elements mentioned, the shop should be filled with funny details that Guests can only find by looking and reading further into all the décor. Based on puns, gags and cultural references, everything should pertain to Dr. Freeze, ice cream, science and science fiction, and cold things in general. Every small detail and items have a well thought-out and reason as to its placement and design so that it makes Dr. Freeze's world completely real.

Dr. Freeze's Experiment Journals:

The experiment journals have laminated notebook and graph pages full of handwritten information from Dr. Freeze and his past combinations. Each experiment has a number, name, picture, components, and results. For example, experiment #124 is named "the Time Warp." The components are vanilla and blueberry ice cream and strawberries as a mix-in. The pasted in polaroid shows the ice cream swirled in a beaker with strawberries floating out into a worm hole behind it. After he has made them, Dr. Freeze will write the results and rate the various aspects of the creation, the third rating will always have to do with something scientific other than flavor. So, he rates this as 5/5 on fruity taste, 3/5 for the swirls and 0.5/5 starts for time traveling. He warns that if you lick it more than 56 times you will time travel so beware!



Lab Experience
Station 1

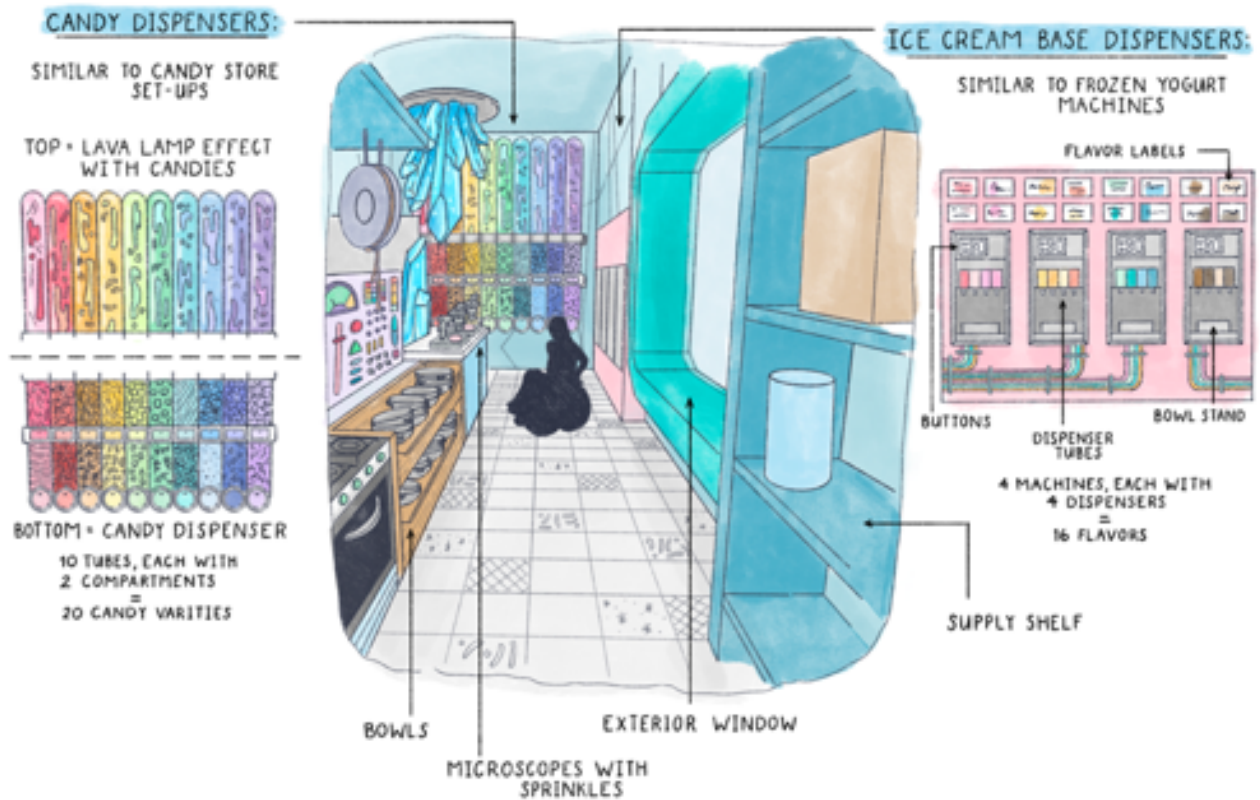


DR.FREEZE - STATION 1 ARIANNA WHITE 2021

In the entrance of the lab, a staff member in the lab costume assists Guests by explaining the experience, giving them costumes and taking payment. The lab coats hang on a rail made of pipes and the goggles are lined up on a shelf with another cutout of Dr. Freeze. Below is a bin of the rubber gloves. Each of these items has various sizes, mainly a smaller size for children and a size for adults. A lab desk has stacks of experiment sheets; papers which the Guests can read the full instructions and rules as well as pick out the ingredients they are going to use in the experience. Each item has a checkbox and Guests use pens to check off the ones they want. They can pick up to 4 flavors of ice cream and up to 6 candies as mix-ins. They cannot pick more than this or the machine will not be able to freeze their ice cream. In addition, Guests can write their name and an imaginary name for their creation and then the sheet serves as a souvenir from the experience.

Monitors above the desk show videos and images from various experiments by Dr. Freeze and a chalkboard shows different equations and drawings of ice cream items. Two tubes reach high into the ceiling and down into the floor, one filled with various ingredients of fruits as well as vegetables and the other with ice cream in a swirling effect.

Station 2



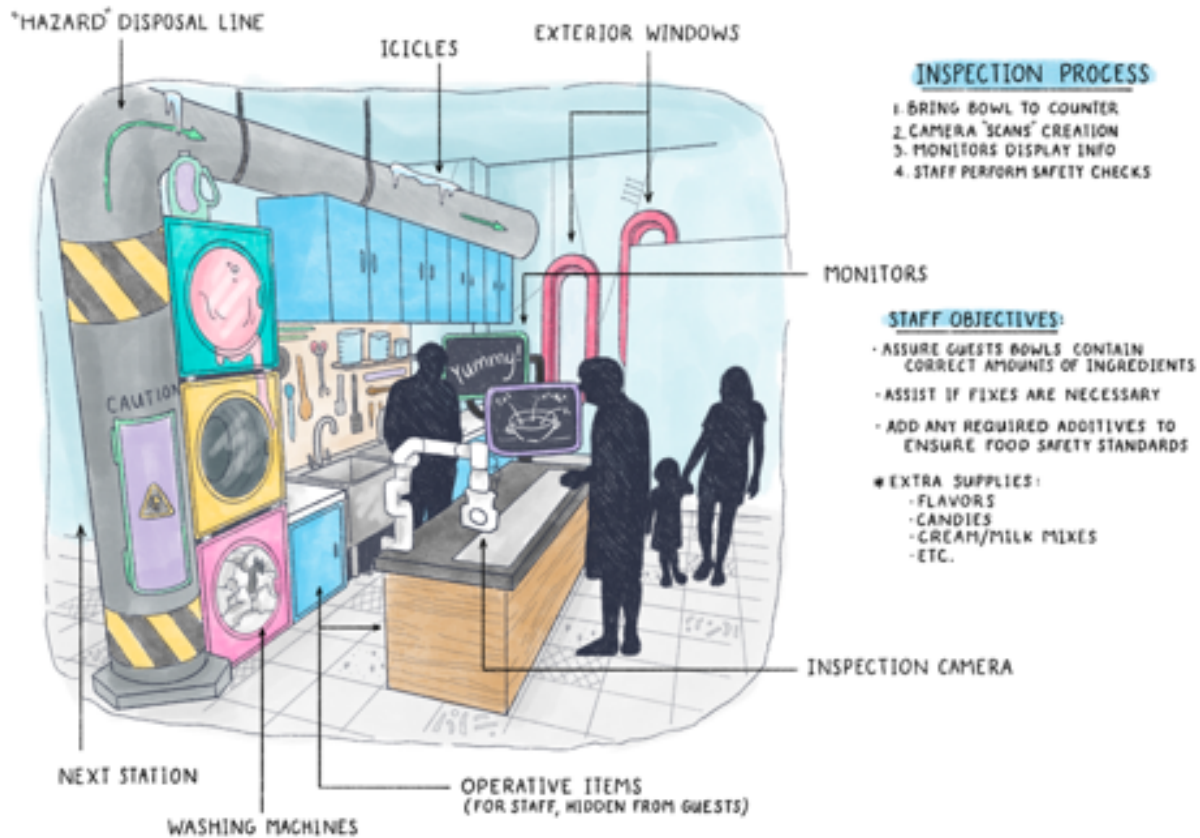
DR.FREEZE - STATION 2

ARIANNA WHITE 2021

On the right side of the queue, a shelf is full of boxes, canisters, and other supplies for the lab. On the opposite, an oven is full of glassware and a pot rack has pans, wires, and other random items hung about. A shelf sits underneath a control board of buttons, filled with the bowls that Guests use for the experience. In addition, crystals grow from the floor and ceiling and microscopes are set up to look at various sprinkles.

At the corner of the room are two important components, the ice cream base dispenser and candy dispensers. The ice cream dispensers are similar to frozen yogurt machines, except they dispense the ice cream in a powdered form. Four machines are set into the wall, each with four flavors housed within. Labels for all the flavors are listed on cards above, the colors matching the various tube dispensers within the machines. Guests set their bowls onto the stand and choose their flavors with buttons on the top. The buttons they press also depend on the number of flavors they have chosen. For example, if they have only chosen one flavor, then they will press to add 4 servings of it. And, instead, if they have chosen 2 flavors, then they will press to add 2 servings for one and then 2 servings for the other. At the candy dispensers, the top is a lava lamp effect with various candies stuck within the moving bubbles. On the bottom, actual candies are housed in twenty compartments with opening drawers. Guests can pull open the drawer and use the scoop within to add candies to their mixing bowls.

Station 3

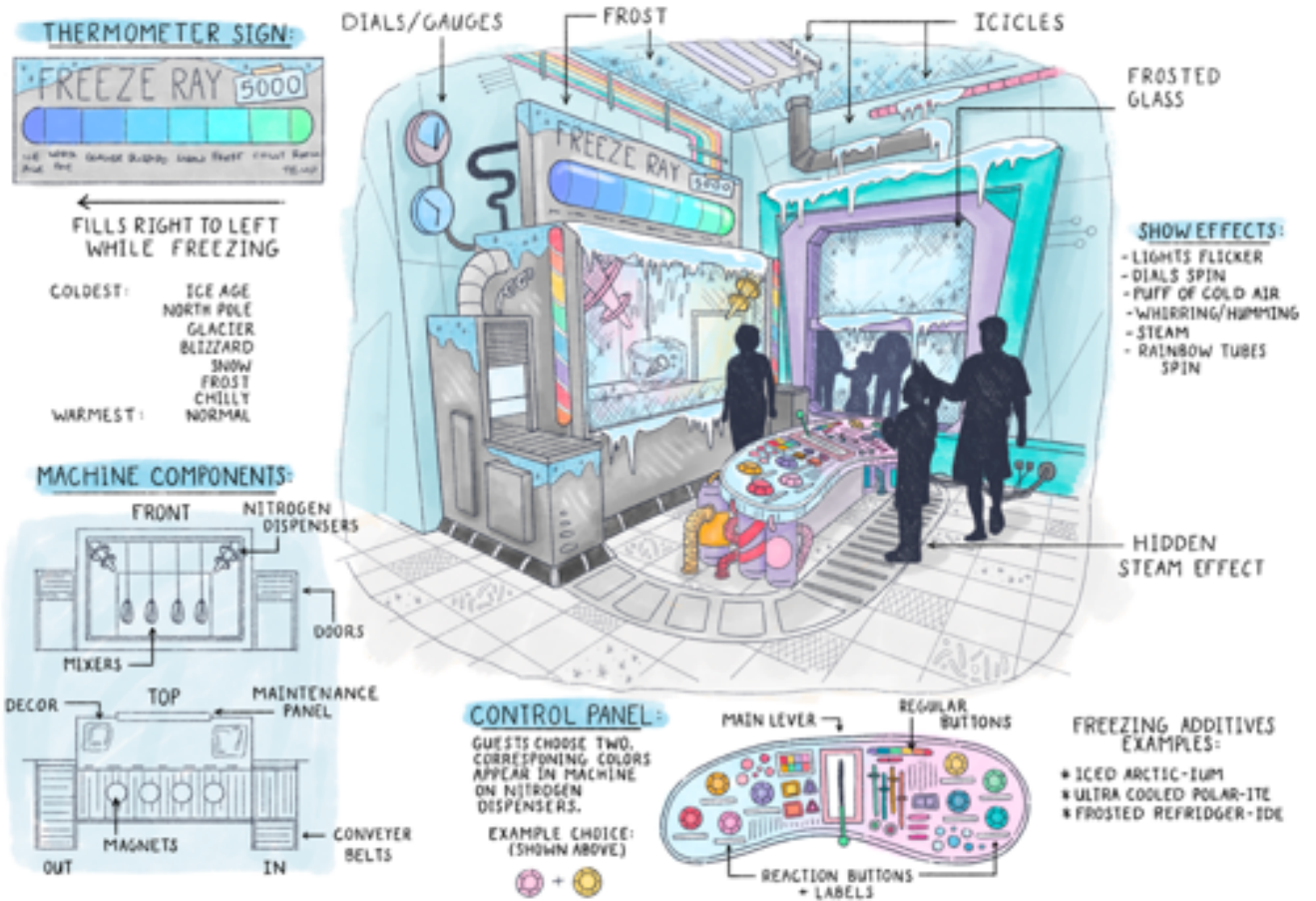


DR. FREEZE - STATION 3 (INSPECTION) ARIANNA WHITE 2021

The third station is an important stop in meeting safety standards and checking in on Guests during the experience. Using a camera arm prop attached to the desk, the staff member scans the creations the Guests have made. Monitors on the other side of the desk show pre-made but randomized scans with words of affirmation and labels of "compounds" (fake) found within the bowl. During this station, staff are checking for safety standards and fixing any problems that may arise for the Guests so that no problems will occur during the freezing process at the next station.

In addition to the main counter, cabinets and sinks sit behind the staff member. A tool rack is full of various beakers and tubes as well as mixing spoons and spatulas. Three washing machines are stacked with one full of white lab coats and gloves and the other spilling over with strawberry ice cream. A large hazard disposal pipe has cautionary stickers, arrows and a hatch.

Station 4

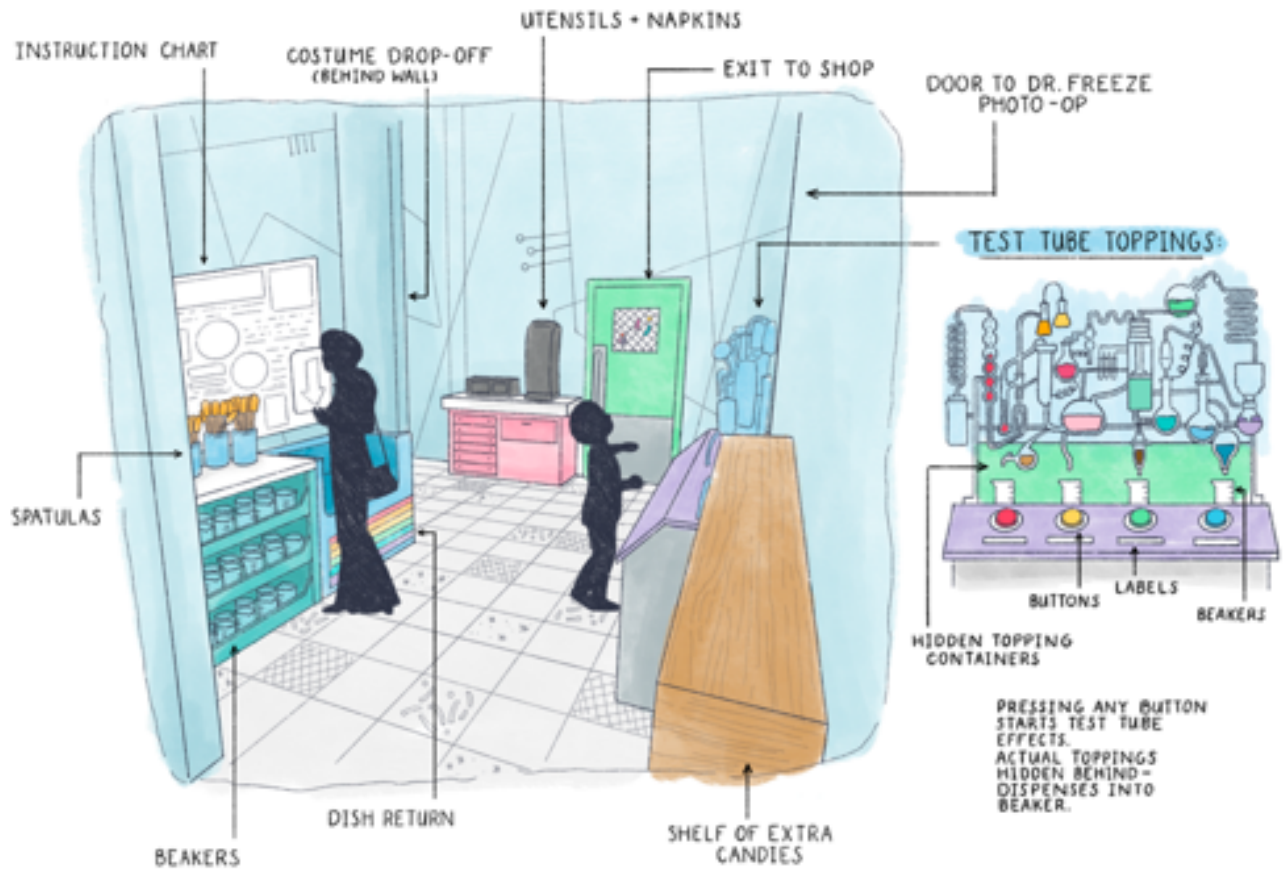


DR.FREEZE - STATION 4 (FREEZE RAY) ARIANNA WHITE 2021

The Freeze Ray (5000 – written on a piece of paper taped over the last names) is a large silver metal machine covered with frost and icicles from its extreme inner temperatures. Below the machine’s name is a thermometer which fills up with color that gets bluer as the process starts. On the sides of the machine are two swirling rainbow light bars that rotate and dials that spin. Inside the main compartment are two rays that light up with two colors that match the colors that Guests pick from the control panel. In addition, various ice cream cones and items are frozen in ice blocks.

At the control panel, all of the buttons are pressable, but none activate or cause effects until the staff member turns them on at the correct time after explaining the necessary information to Guests. The largest buttons are freezing additives that Guests can add to their experiment while the ice cream is in the machine. The other main button is the main lever that they pull to start the machine. Various effects happen throughout the area while the machine is running including lighting, air and sounds. The freeze ray uses conveyer belts and magnets to bring the ice cream bowls inside the main compartment and then mixers fold down during the process to mix the ice cream while the liquid nitrogen is pouring inside through the rays.

Station 5



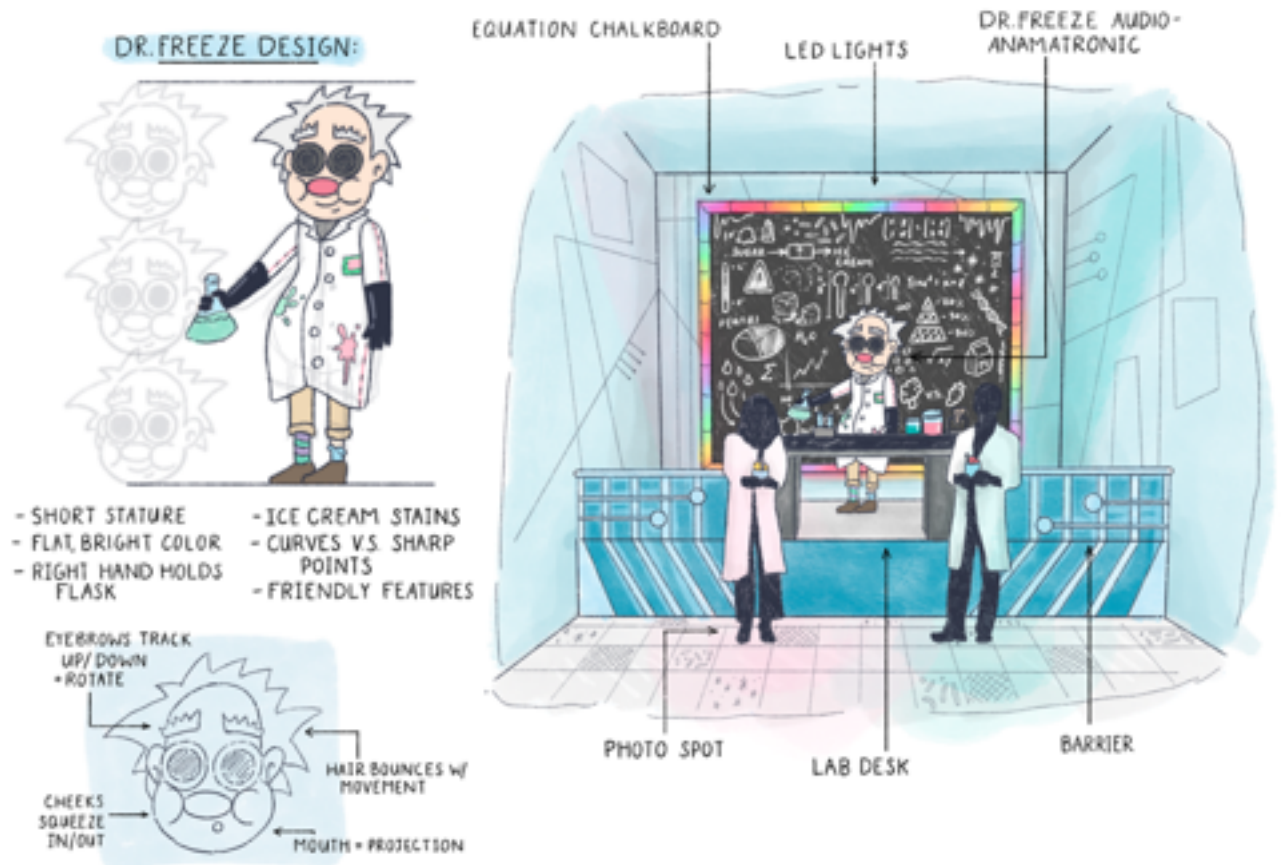
DR.FREEZE - STATION 5

ARIANNA WHITE 2021

The last area of the lab is relatively simple in order to simplify the process for Guests to avoid any confusion. An instruction chart, with the same information as the sheet they picked up at the beginning, is on the wall above a shelf full of the beakers for their ice cream. Cups of spatulas are available for them to scoop in the ice cream, and then the dishes can be returned in the dish return container. A shelf of extra candies provides them extra toppings and a counter has utensils and napkins. Around the corner of the room are baskets to return the costumes they wore.

On a tall lab table, a setup of various test tubes and flasks are interconnected with buttons underneath. Four spouts sit above a grate for beakers to sit on. The tubes allow Guests to pick from four toppings; when they press a button, the liquid in the tubes boils, bubbles and races along. The real toppings, though, are hidden in a compartment in the tubes and dispenses over the Guest's beaker as the tube effects finish.

Dr. Freeze Photo Op



DR. FREEZE - PHOTO OP

ARIANNA WHITE 2021

Guests meet Dr. Freeze in this side room of the lab, where he stands behind a lab table covered with various instruments and scientific items. A chalkboard is covered with equations and drawings from his experiment work and is surrounded by the same rainbow LED lights that are on the exterior of the building. A barrier blocks the Guests from getting too close to him as they take photos with him in their costumes and with their creations.

Dr. Freeze is an interactive audio-animatronic, controlled from another room by a staff member. His eyes are block by the tinted goggles, but the rest of his face is 3D molded soft plastic. His cheeks, hair and eyebrows move in 3D while his mouth is an inner animated projection onto the soft surface so that it is easier to make him talk. While he talks to Guests, he is very animated, excitable and goofy. He can move his arms, but one hand is always holding a flask of ice cream. He poses when Guests stand in front of him for pictures, and then waves goodbye to them when they go.

Layout



The experience lives in a shopping center such as Disney Springs, on a corner between two other buildings to the North and West. The East and South sides both have Guest-facing designs. While it is one full building, it is designed to feel like two: the ice cream parlor and lab. Behind the building, between one of its neighbors, is an alleyway in which staff members can enter into the back. The shop is mainly made up of the queue, counter and a few decorations along the side walls. There is no seating inside, only outside, to encourage the experience's Guest flow does not reach a bottleneck or too many customers inside. Behind the main room is the kitchens, staff room, staff bathroom and any other required rooms for the staff. Importantly, there is a small control room for the Dr. Freeze audio animatronic as well as a large storage room for the liquid nitrogen tank. The lab experience room is divided by décor to help Guests walk through the experiment without ruining the excitement of the freeze ray machine.

Operations and Cost Analysis

One-Time Costs

Equipment/Machinery

An ice cream shop requires quite a few pieces of machinery and equipment in order to operate on a daily basis. The estimated number of units needed and their average price, according to online research, are listed in the table below.

Equipment	Estimated # Req.	\$/per	TOTAL
Ice Cream Dipping Cabinet	2	\$8,000	\$16,000
Ice Cream Storage Containers	5-10 sets	\$80	\$800
Drop-in Frost Tops and Cold Slabs	4-6	\$5,000	\$25,000
Walk-In Freezer	1	\$11,000	\$11,000
Bulk Storage Liquid Nitrogen Tank*	1	\$12,00	\$12,000
Misc. Machines for Ice Cream Creation	2	\$10,000	\$20,000
Cash Register	3	\$500	\$1,500
Sinks	4	\$600	\$2,000
Dish Washing Unit	1	\$4,000	\$4,000
TOTAL			\$92,300

*The liquid nitrogen tank is explained further in the Nitrogen section

Construction

This ice cream experience, in a place like Disney Springs, would probably be retrofitted into an existing building in this space. But even though the building already exists, the machinery and kitchen requirements for this experience would require a great deal of construction. The estimated packages and overall construction costs to build this experience and the estimated budget are in the table below.

Construction	Estimated Cost
Building retrofit construction	\$1 million
Themed Architecture	\$1 million
Theming and Decor	\$600k
Lighting and Show Control	\$400k
TOTAL BUDGET	\$3 million

Uniforms/Safety Equipment/Sanitation, Misc.

Besides the large equipment, the kitchen and counter require supplies to serve the ice cream and help customers create their own. In addition, the employees need special uniforms. The cost for the costumes for guests to wear is also included.

Item	Estimated # Req.	\$/per	TOTAL
Costumes/Uniforms	15	\$100	\$1,500
Lab Costumes	50	\$50	\$2,500
Scoops/Utensils	40	\$5	\$200
Mixing bowls/etc.	50	\$8	\$400
Kitchen Supplies	-	\$1000	\$1,000
Sanitation Equipment	-	\$500	\$500
TOTAL			\$6,100

Recurring Costs

Ice Cream Ingredients

In order to make the ice cream from scratch, a base product of cream or non-dairy product is needed. There are several companies that sell bulk orders. In addition, mix ins such as candies are needed often as well. These can be bulk ordered every couple of weeks or so when they are needed. The estimated costs for the ingredients is in the table below.

Referring to the customer calculations in the revenue section, the average number of customers receiving ice cream each day is 600. If 600 people are served, that is an estimated 225 quarts of ice cream per day. 1 US quart is 0.94 liters so that is about 210 liters per day.

1 gallon is about 3.7 liters, so 56 gallons of ice cream are needed each day. A hard-pack ice cream mix (base) costs about \$20 (average) and makes 3 gallons. So, 18 packs are needed each day and will cost \$360. This is on average as some flavors may sell better than others and so on. On average, an estimated 6,600 packs are needed per year at a total of \$131,400.

For the mix-ins and toppings, whole bags are not used every day. Probably about half of a supplier candy bag is used every 2 days. So every 4 days a bag of candy is used up, depending on the popularity. If there are about 25 varieties at \$5 a bag, this is \$125 every 4 days. If we split up this average to one day this is about \$31 every day (6 bags per day). For the year, the total will be about \$10,950.

Item	\$/per	Estimated #/day	\$/day	Estimated #/year	\$/year
Ice Cream Base Packs	\$20	18	360	6,600	\$131,400
Mix ins & toppings	\$5	6	\$31	2,190	\$10,950
TOTAL					\$142,350

Ice Cream Items

Since the ice creams are sold in beakers instead of plastic or paper cups, the cost per ice cream will be slightly higher. A bulk pack of beakers was found at lots of 12 for \$3.18 each (\$38.16). If 600 people are served per day, that's \$1,908 per day for the beakers. For the entire year the cost is \$696,420. In reality, this is probably far too expensive to be viable. Unfortunately, there aren't any bulk sale beakers in plastic. More research is needed into a lower cost solution, such as having a supplier manufacture them in plastic.

In addition to the beakers, spoons, napkins and other disposable items are needed but the costs are much lower in bulk and can be ordered quite regularly.

	\$/per	\$/day	\$/year
Beakers	\$3.18	\$1,908	\$696,420
Disposable Items	\$0.5	\$300	\$109,500
TOTAL			\$805,920

Nitrogen

Liquid nitrogen is sold in a few forms. One is by canisters which can come in many sizes of liters/pounds. Another is by using large storage tanks and regular delivery with a trusted supplier. Since the ice cream shop will require quite a bit liquid nitrogen, it makes more sense to install a storage tank on property and receive regular deliveries. Calculations for how much LN2 is required are below:

A scoop of ice cream is about ½ a cup on average, after looking at many standard ice cream dishers (Scoop tools). From experience, most people get 2-3 scoops of ice cream in their cups at ice cream shops. So, most people have about 1.5 cups of ice cream in their order (this is probably the smallest serving at our shop, considering they will be served in beakers that can hold closer to 4 scoops on average). 1.5 cups is equal to 0.375 quarts.

Referring to the customer calculations in the revenue section, the average number of customers receiving ice cream each day is 600. If 600 people are served, that is an estimated 225 quarts of ice cream per day. 1 US quart is 0.94 liters so that is about 210 liters per day.

3 L of LN2 is needed per 1 L of ice cream. If an average of 210 liters of ice cream are needed per day, that means 630 L of LN2 is needed in addition.

Now in reality, the kitchen is making tubs of ice cream on an as-needed basis and only the back-of-house experience is using the LN2 regularly. But since it is difficult to determine the random usage, the estimate of an average per day (630 L) will be used.

Here you go:	
• Requirement:	1,500 lb/month (925 liters assuming 10% loss due to evaporation)
• Package:	240 liter dewar
• Product:	4 dewars per month
• Product Price:	\$80 per dewar (or \$320 per month)
• Rent:	\$200 per month
• Delivery:	\$50 per month (assumes 2 deliveries, 2 units each)
Total per month cost: \$570 per month or \$0.345 per LB.	

From this quote obtained from a supplier, the cost per liter of LN2 would be about \$0.345. Per day, this is \$217. In the quote, the supply is about 925 L per delivery (into the tank on site). Since the store will require about 8,800 L every 2 weeks, this delivery window would have to be quoted quite a bit higher. By ordering 8,800 L for delivery on a biweekly basis, the cost comes out to \$3,042. For the entire year, the cost of liquid nitrogen will be \$79,092.

Rental Space

In a shopping area like Disney Springs, rent for spaces can be a bit higher and hard to research. From what could be found, they start at least \$5k but could possibly go up to \$10k. Since the ice cream experience only needs a relatively small space but enough to have storage and room for the counter service, it is assumed that the rent will be at the lower end. The estimated range is \$5k-\$7k. For the year, the total would then be \$84,000.

Employees

The counter service of the experience requires 2-3 employees to run. The kitchen makes ice cream throughout the day and therefore requires at least 2 employees. The lab experience requires 3 employees in the main room and 2 in the Dr. Freeze area (one to take pictures and assist Guests and another to run the audio-animatronic) for a total of 5. In addition, there should always be one janitor/cleaning person on duty for extra tasks that include cleaning the costumes, dishes and other items. Lastly, a manager is needed to watch over all the employees and make sure the experience is running smoothly. This is an estimated total of 12 employees each day.

Employees in the counter service, experience lab and bus person need minimal training and skill and therefore can be paid a minimum wage of \$15/hour. The 2 kitchen staff members and manager do require extra baking and safety skills so they will be paid a wage of \$18/hour.

Since the shop is open every day of the year (365 days) and for 13 hours each day, that means the total wages paid per year are \$811,395.

	\$/Day	\$/Week	\$/Month	\$/Year	
\$15/hour employees (9)	\$1,755	\$12,285	\$52,825	\$640,575	
\$18/hour employees (3)	\$702	\$4,914	\$21,130	\$256,230	
TOTAL	\$2,457	\$17,199	\$73,955	\$896,805	

Repair/Upkeep/Utilities

With the cost of keeping a nitrogen tank on property and the cost to keep ice cream cool in the shop, the utilities for this experience will be higher than a normal shop at Disney Springs. In addition, repairs and upkeep need to be made on the equipment quite often. This will cost an estimated \$5,000 per month or \$60,000 per year.

Marketing

In order to promote the experience outside of just foot traffic, a marketing budget should be created. In addition to social media, website and ads the estimated cost is about \$7,500 per month or \$90,000 per year.

Revenue

Customer Rate Calculations

If in a busy, warm year-round location like Disney Springs, the ice cream shop will most likely have steady business during the day. Disney Springs is open every day from 10am – 11pm. We can assume on weekends though, that there will be even more customers. So there is basically two types of customer calculations:

Counter Service

At the counter service, an employee can make 1 ice cream creations per 1 minutes (overestimate). Or hopefully, closer to 30 seconds (underestimate) so 2 every 1 minutes. Then,

it takes about another minute to check out the customer. So overall the time taken for one customer is 1.5 – 2 minutes (assuming each customer is individually checking out and not in a group, so this is an overestimate). This means that the shop can service about 30 to 40 customers every hour. With several other calculations, we find that they can then service, on average, about 140,868 to 187,824 customers every year.

(Underestimate) Customers Served Ice Cream + Checked-out

	Per minute	Per 1.5 – 2 minutes	Per Hour	Per Day	Per Week	Per Month *4.3	Per Year
Customers Served	0.5 – 2/3	1	30 - 40	390 - 520	2,730 – 3,640	11,739 – 15,652	140,868 – 187,824

*Assuming a never ending stream of customers using 1 employee

From research of other ice cream shops, most have 2-3 people working a counter at once in order to make the process faster and serve more than one customer at once. More than 3 and the counters are usually crowded and less productive. There will be about a 30 second cushion (probably an underestimate) of extra time added to the service time for each additional employee though, because they do have to work around each other at the counter and rotate who is using the cash register.

	Per Minute	Per Hour	Per Day	Per Week	Per Month	Per Year
1 Employee	0.5 – 2/3	30-40	390 - 520	2,730 – 3,640	11,739 – 15,652	140,868 – 187,824
2 Employees	0.8 - 1	48 - 60	624 - 780	4,368 – 5,460	18,782 – 23,478	225,384 – 281,736
3 Employees	0.9 – 1.2	54 - 72	702 - 936	4,914 – 6,552	21,130 – 28,173	253,562 – 338,083

*Assuming a never ending stream of customers

Currently, these calculations assume 100% utilization of the employees time, which is not reasonable or what actually happens in stores.

To make this a little more accurate, the variations in customer behaviors need to be modeled (only minimal basics, see note below).

A much better calculation for number of customers is

- (1) From Monday – Thursday we can expect about an average of 65% utilization of the employees’ max output
- (2) From Friday – Sunday we can expect about an average of 80% utilization of the employees’ max output
- Assume there are 52 weeks in a year

	Per Day (1)	Per Week (1)	Per Day (2)	Per Week (2)	Per Week (Full)
2 employees	406 - 507	1,624 – 2,028	500 - 624	1,500 – 1,872	3,124 – 3,900
3 employees	456 - 608	1,824 – 2,432	562 - 749	1,686 – 2,247	3,510 – 4,679

	Per Week	Per Month	Per Year
2 employees	3,124 – 3,900	13,433 – 16,770	161,196 – 201,240
3 employees	3,510 – 4,679	15,093 – 20,120	181,116 – 241,440

So, the counter service in itself will serve an estimated 180,000 – 240,000 customers each year when there are 3 employees behind the counter.

Ice Cream Experience

At the make your own ice cream experience, employees can help a group of up to 4 guests make up to 4 ice cream creations per 8 minutes. The employees help groups from station to station so it doesn't matter how many guests (from 1-4) are in a group, its more about how long each station takes. So, if they are serving the max amount of 4 ice creams/people per 8 minutes, they are servicing 0.5 guests per minute. This means that the experience can handle about 30 guests per hour. This, on average, comes to about an estimate maximum of 140,868 guests every year.

	Per minute	2 Minutes	Per Hour	Per Day	Per Week	Per Month	Per Year
Guests Experienced	0.5	1	30	390	2,730	11,739	140,868

*assuming a steady stream of customers

This unfortunately is a much rougher estimate. Without testing the experience stations, it is hard to tell exactly how long it will take to serve each group. Optimistically, the serving time per group would be closer to 5 minutes. Below are target calculations for guests serviced if it can be achieved.

Target: 5 minutes serving time per 4 guests (other 10 minutes is queue and after experience)

	Per minute	Per Hour	Per Day	Per Week	Per Month	Per Year
Guests Experienced	0.8	48	624	4,368	18,782	225,388

Revenue Calculations

For each ice cream, an initial price of \$5 per ice cream seems like a good amount considering the theming, the specialty ice cream, the beaker and amount of ice cream in each cup. Below are the calculations if each ice cream was \$5 at the counter service.

Considering the above prices for the counter service, customers will also pay extra for the chance to have the experience. An initial charge of double the ice cream price (\$10) seems like a good starting amount.

\$5/ice cream, \$10/experience calculations (low customer estimate)

\$ per year	Low Customer Estimate (180,000)	Recurring Costs	Total Margin
\$5/ice cream	\$900,000		
\$10/experience	\$1,400,000		
TOTAL	\$2,300,000	\$2,072, 757	\$227,243

\$5/ice cream, \$10/experience calculations (high customer estimate)

\$ per year	High Customer Estimate (240,000)	Recurring Costs	Total Margin
\$5/ice cream	\$1,200,000		
\$10/experience	\$1,400,000		
TOTAL	\$2,600,000	\$2,072, 757	\$527,243

In both cases, even the lower customer estimate, a total profit is made each year. So what is the lowest price that the ice cream could sell at to break even? These calculations are below:

\$ per year	Low Customer Estimate (180,000)	Recurring Costs	Total Margin
\$4.35/ice cream	\$783,000		
\$9.25/experience	\$1,295,000		
TOTAL	\$2,078,000	\$2,072, 757	\$5,243

As shown above, about the lowest the two prices could go are \$4.35 and \$9.25 respectively before there is no profit. So, for now, the prices will stay at the estimated \$5 and \$10.

Using all these cost estimates, the total analysis can be completed which is shown below. If the lowest customer estimate is accurate, it would take far too long for the shop to be profitable, which is not ideal. And, if the highest customer estimate is accurate, it will take 7 years for the shop to be profitable, which still isn't great. The price of the ice cream and experience need to be increased.

Low Customer Estimate									
One-Time Costs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
Equipment	\$92,300								
Construction	\$3,000,000								
Uniforms/Safety Equipment	\$6,100								
TOTAL	\$3,098,400								
Recurring Costs									
Ice Cream Ingredients	\$142,350	\$142,350	\$142,350	\$142,350	\$142,350	\$142,350	\$142,350	\$142,350	\$142,350
Ice Cream Items	\$805,920	\$805,920	\$805,920	\$805,920	\$805,920	\$805,920	\$805,920	\$805,920	\$805,920
Nitrogen	\$79,092	\$79,092	\$79,092	\$79,092	\$79,092	\$79,092	\$79,092	\$79,092	\$79,092
Rental Space	\$84,000	\$84,000	\$84,000	\$84,000	\$84,000	\$84,000	\$84,000	\$84,000	\$84,000
Employees	\$896,805	\$896,805	\$896,805	\$896,805	\$896,805	\$896,805	\$896,805	\$896,805	\$896,805
Repair/Upkeep/Utilities	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000
Marketing	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000
TOTAL	\$2,158,167	\$2,158,167	\$2,158,167	\$2,158,167	\$2,158,167	\$2,158,167	\$2,158,167	\$2,158,167	\$2,158,167
Revenue									
Counter Service	\$900,000	\$900,000	\$900,000	\$900,000	\$900,000	\$900,000	\$900,000	\$900,000	\$900,000
Lab Experience	\$1,400,000	\$1,400,000	\$1,400,000	\$1,400,000	\$1,400,000	\$1,400,000	\$1,400,000	\$1,400,000	\$1,400,000
TOTAL	\$2,300,000	\$2,300,000	\$2,300,000	\$2,300,000	\$2,300,000	\$2,300,000	\$2,300,000	\$2,300,000	\$2,300,000
YEARLY LOSS/PROFIT	(\$2,956,567)	(\$2,814,734)	(\$2,672,901)	(\$2,531,068)	(\$2,389,235)	(\$2,247,402)	(\$2,105,569)	(\$1,963,736)	(\$1,821,903)
High Customer Estimate									
One-Time Costs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
Equipment	\$92,300								
Construction	\$3,000,000								
Uniforms/Safety Equipment	\$6,100								
TOTAL	\$3,098,400								
Recurring Costs									
Ice Cream Ingredients	\$142,350	\$142,350	\$142,350	\$142,350	\$142,350	\$142,350	\$142,350	\$142,350	\$142,350
Ice Cream Items	\$805,920	\$805,920	\$805,920	\$805,920	\$805,920	\$805,920	\$805,920	\$805,920	\$805,920
Nitrogen	\$79,092	\$79,092	\$79,092	\$79,092	\$79,092	\$79,092	\$79,092	\$79,092	\$79,092
Rental Space	\$84,000	\$84,000	\$84,000	\$84,000	\$84,000	\$84,000	\$84,000	\$84,000	\$84,000
Employees	\$896,805	\$896,805	\$896,805	\$896,805	\$896,805	\$896,805	\$896,805	\$896,805	\$896,805
Repair/Upkeep/Utilities	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000
Marketing	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000
TOTAL	\$2,158,167	\$2,158,167	\$2,158,167	\$2,158,167	\$2,158,167	\$2,158,167	\$2,158,167	\$2,158,167	\$2,158,167
Revenue									
Counter Service	\$1,200,000	\$1,200,000	\$1,200,000	\$1,200,000	\$1,200,000	\$1,200,000	\$1,200,000	\$1,200,000	\$1,200,000
Lab Experience	\$1,400,000	\$1,400,000	\$1,400,000	\$1,400,000	\$1,400,000	\$1,400,000	\$1,400,000	\$1,400,000	\$1,400,000
TOTAL	\$2,600,000	\$2,600,000	\$2,600,000	\$2,600,000	\$2,600,000	\$2,600,000	\$2,600,000	\$2,600,000	\$2,600,000
YEARLY LOSS/PROFIT	(\$2,656,567)	(\$2,214,734)	(\$1,772,901)	(\$1,331,068)	(\$889,235)	(\$447,402)	(\$5,569)	\$436,264	\$878,097

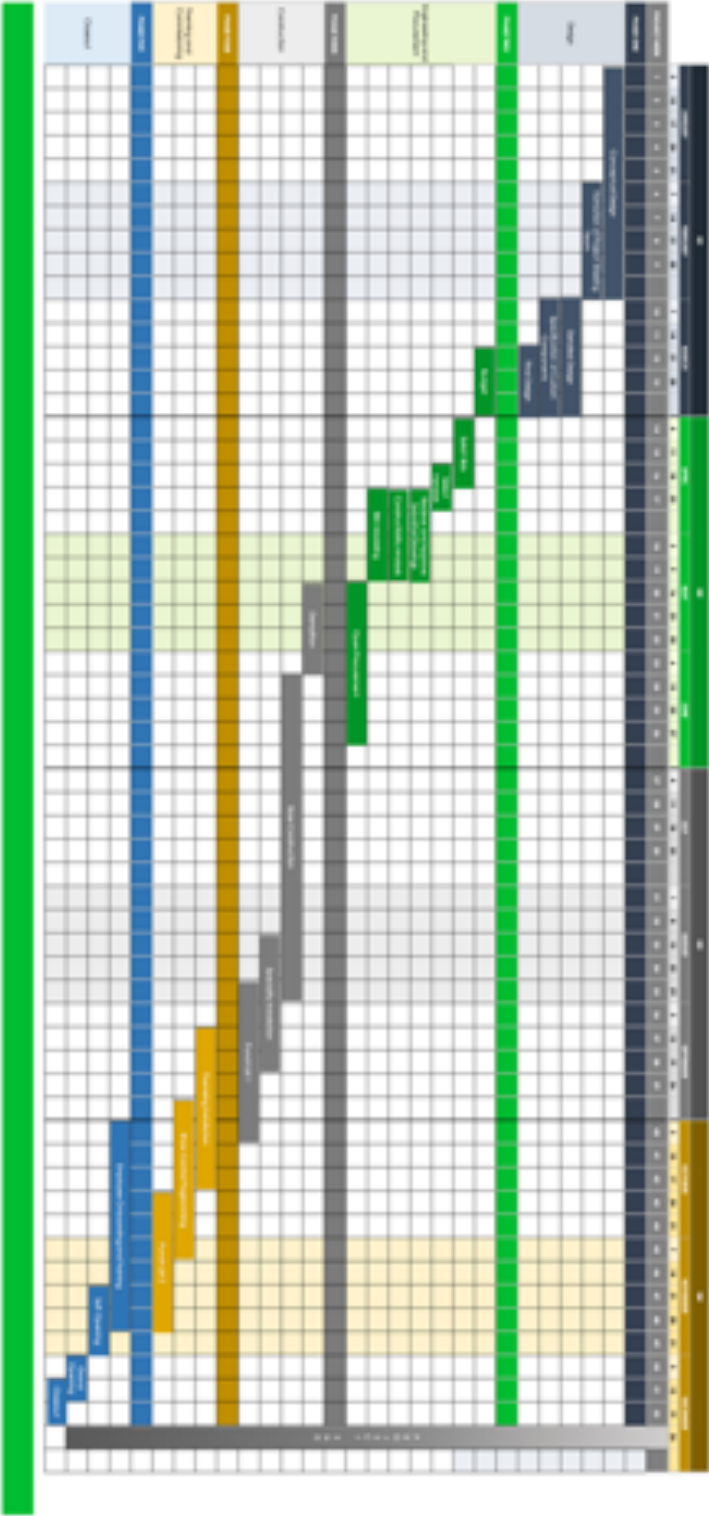
Final Ideal Revenue:

In order to make a higher profit, the margin between cost and revenue per ice cream should be increased, as currently it's only about \$0.50 each. From market analysis, it's estimated that customers would be willing to pay about \$7.50 per ice cream from the shop and therefore \$15 per ice cream inside the lab experience. Using these prices, a new total analysis is completed, shown below. If the customer estimate is low, it will take 2 years to turn a profit which is pretty good even for a low amount of customers. And, if the customer estimate is higher, it will only take one year to turn a profit. This is great data and shows that with these higher prices, no matter the number of customers between the estimates, it will only take 1-3 years for it to start making money back.

Low Customer Estimate									
One-Time Costs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
Equipment	\$92,300								
Construction	\$3,000,000								
Uniforms/Safety Equipment	\$6,100								
TOTAL	\$3,098,400								
Recurring Costs									
Ice Cream Ingredients	\$142,350	\$142,350	\$142,350	\$142,350	\$142,350	\$142,350	\$142,350	\$142,350	\$142,350
Ice Cream Items	\$805,920	\$805,920	\$805,920	\$805,920	\$805,920	\$805,920	\$805,920	\$805,920	\$805,920
Nitrogen	\$79,092	\$79,092	\$79,092	\$79,092	\$79,092	\$79,092	\$79,092	\$79,092	\$79,092
Rental Space	\$84,000	\$84,000	\$84,000	\$84,000	\$84,000	\$84,000	\$84,000	\$84,000	\$84,000
Employees	\$896,805	\$896,805	\$896,805	\$896,805	\$896,805	\$896,805	\$896,805	\$896,805	\$896,805
Repair/Upkeep/Utilities	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000
Marketing	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000
TOTAL	\$2,158,167	\$2,158,167	\$2,158,167	\$2,158,167	\$2,158,167	\$2,158,167	\$2,158,167	\$2,158,167	\$2,158,167
Revenue									
Counter Service	\$1,350,000	\$1,350,000	\$1,350,000	\$1,350,000	\$1,350,000	\$1,350,000	\$1,350,000	\$1,350,000	\$1,350,000
Lab Experience	\$2,100,000	\$2,100,000	\$2,100,000	\$2,100,000	\$2,100,000	\$2,100,000	\$2,100,000	\$2,100,000	\$2,100,000
TOTAL	\$3,450,000	\$3,450,000	\$3,450,000	\$3,450,000	\$3,450,000	\$3,450,000	\$3,450,000	\$3,450,000	\$3,450,000
YEARLY LOSS/PROFIT	(\$1,806,567)	(\$514,734)	\$777,099	\$2,068,932	\$3,360,765	\$4,652,598	\$5,944,431	\$7,236,264	\$8,528,097

High Customer Estimate									
One-Time Costs	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9
Equipment	\$92,300								
Construction	\$3,000,000								
Uniforms/Safety Equipment	\$6,100								
TOTAL	\$3,098,400								
Recurring Costs									
Ice Cream Ingredients	\$142,350	\$142,350	\$142,350	\$142,350	\$142,350	\$142,350	\$142,350	\$142,350	\$142,350
Ice Cream Items	\$805,920	\$805,920	\$805,920	\$805,920	\$805,920	\$805,920	\$805,920	\$805,920	\$805,920
Nitrogen	\$79,092	\$79,092	\$79,092	\$79,092	\$79,092	\$79,092	\$79,092	\$79,092	\$79,092
Rental Space	\$84,000	\$84,000	\$84,000	\$84,000	\$84,000	\$84,000	\$84,000	\$84,000	\$84,000
Employees	\$896,805	\$896,805	\$896,805	\$896,805	\$896,805	\$896,805	\$896,805	\$896,805	\$896,805
Repair/Upkeep/Utilities	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000
Marketing	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000	\$90,000
TOTAL	\$2,158,167	\$2,158,167	\$2,158,167	\$2,158,167	\$2,158,167	\$2,158,167	\$2,158,167	\$2,158,167	\$2,158,167
Revenue									
Counter Service	\$1,800,000	\$1,800,000	\$1,800,000	\$1,800,000	\$1,800,000	\$1,800,000	\$1,800,000	\$1,800,000	\$1,800,000
Lab Experience	\$2,100,000	\$2,100,000	\$2,100,000	\$2,100,000	\$2,100,000	\$2,100,000	\$2,100,000	\$2,100,000	\$2,100,000
TOTAL	\$3,900,000	\$3,900,000	\$3,900,000	\$3,900,000	\$3,900,000	\$3,900,000	\$3,900,000	\$3,900,000	\$3,900,000
YEARLY LOSS/PROFIT	(\$1,356,567)	\$385,266	\$2,127,099	\$3,868,932	\$5,610,765	\$7,352,598	\$9,094,431	\$10,836,264	\$12,578,097

Production Schedule



Concept Research

“Mad Scientist” Archetype

The mad scientist trope or archetype originates from the emergence of the science fiction genre. It usually is a type of scientist who is described as mad, insane, unusual and eccentric. They are also commonly stereotyped and grouped by descriptions such as evil vs. good intentions and genius vs. clumsy. The most popular stereotyped appearance of a mad scientist is: white, male, old, crazy grey hair, goggles, white lab coat, and gloves.

This mad scientist trope originated in Victor Frankenstein and the creation of his monster. The character has been trained as both an alchemist and modern scientist, which is where the trope starts to form. As cinema took to science fiction and horror, more iterations of the scientist were created but continued to follow similar forms. In the past 20 years, the archetype has evolved to include a wider range of traits and appearances.

The mad scientist also comes from and is based on real scientists like Newton, Tesla, Edison and especially Einstein. Since so many modern people know Einstein and his distinctive look (the crazy hair) – it too has come to define the mad scientist archetype.

There are basically two sides to the mad scientist “coin,” with some grey area in between. One side, the mad scientist is more alchemy based than true science: reanimating bodies and having an overall creepy or horrific vibe. They can also be mad scientists that also do experiments on humans or even themselves. Usually, they are motivated by greed and achieving great scientific discoveries without any moral obligations. A great quote that encompasses this archetype is “It’s Alive!” usually followed by a maniacal laugh.

The other side of the coin is the mad scientist that is usually more science based than any sort of “magic;” inventing objects and having an eccentric outlook on life. They mostly have good intentions (in their mind) but may mess things up or suffer the consequences of being too curious. These mad scientists are motivated by obsession, usually the obsession with obtaining knowledge or creating something particularly life changing. A quote that encompasses this archetype well is “they called me mad!”

A type of mad scientist between these two, but closer to the latter, is a type best described as something close to the “absent-minded professor.” They are brilliant scientists that struggle to hold conversation or do normal activities because they are engrossed in thinking about their work. An example of this specific archetype is Professor Farnsworth from *Futurama*. Often optimistic and starting his day with a “Good news everyone,” he makes many crazy inventions throughout the shows 10 seasons. But because he is over 160 years old, he can be forgetful and almost lost in the adventures that the rest of the crew is involved in. His character brings silly genius and fun ideas though.

Overall, a mad scientist, and the stories about them highlight a common theme: science can also be creative. It can be fun, it can be crazy – it is not always about boring books, measurements or normal ideas. It's about thinking outside the box and really pushing the limits, not matter what others think of you. With this research in mind, this experience is perfectly matched with the mad scientist's theme because it's all about individual creation, exploration and fun experiences with family and friends.

Many mad scientist archetypes focus on the intersection of science and horror, but for this experience we are leaning away from that side of the trope and focusing on the absent-minded, eccentric and good intentioned scientist. Dr. Freeze has overall good intentions but may mess things up at times and may suffer the consequences of being relentlessly curious. A great example of some of his traits are Doc Brown from *Back to the Future*. Doc Brown creates a time machine which is fantastic and fun invention but stole plutonium from dangerous characters in order to do so. As a consequence, the bad guys come after him. Some other popular culture characters are shown below for what Dr. Freeze is modeled after and what he is *not* modeled after.

Dr. Freeze is obsessed with gaining the knowledge to create the world's most perfect ice cream. He is not motivated by greed or any other villainous desires. He's an eccentric mad scientist that brings fun to science through everyone's sweet tooth.

Overall: By combining these specific elements from this research - old, white haired man; goggles, lab coats and gloves; and eccentric behavior and inventions - guests will associate the experience with the archetype image of a mad scientist.

Media examples of the right look and tone of character:



Doc Brown (*Back to the Future*): As described above, he's a very famous media figure of a mad scientist that fits the good intentions archetype.

Megamind (*Megamind*): Although alien and a bit different from the normal scientist archetype, his inventiveness and enthusiasm for his plans is a perfect example of Dr. Freeze's characteristics.

Professor Farnsworth (*Futurama*): As described above, Farnsworth is a great example of the elderly archetype and "madness" that comes with age.



Flint Lockwood (*Cloudy with a Chance of Meatballs*): Flint's obsession with creating machines that make people's lives better is exactly what Dr. Freeze needs to represent as well. Though Flint is young, his enthusiasm, quirkiness and attire is the right look.

Media examples of what Dr. Freeze is **not** like:



Dr. Finklestein (*Nightmare before Christmas*): giving off a more sinister vibe, Dr. Finklestein is closer to the horror genre archetype than comedic.

Dr. Victor Frankenstein (*Young Frankenstein*): any reincarnation of Frankenstein is the opposite of the preferred archetype of a mad scientist. His madness might be close but it's the kind of madness that has no moral limits.

Notable mention:



Dr. Forrester (*Mystery Science Theater 3000*): The attitude and gags of Mystery Science Theater 3000, run by Dr. Forrester are a perfect match for the feeling and atmosphere of Dr. Freeze's Ice Cream Experiment. But, his overall moral reasoning (capturing someone and forcing them to watch terrible movies) is not what Dr. Freeze is modeled after.

Mad Science Lab Theming

As described in the section above, the mad scientist archetype has a few notable types. In order to further define the type of mad scientist Dr. Freeze is, his lab must reflect that. After looking through many images and research, below are the best representations of the theming that his lab will have. In addition, a brainstorm from this research resulted in a list of key items and associations to keep in mind with the design.

Notable Elements and Items:

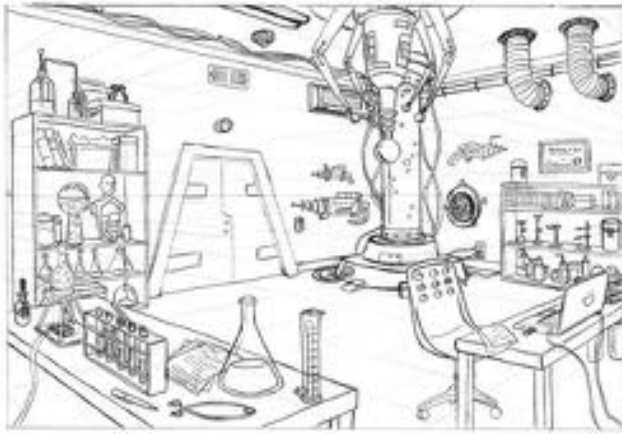
- Gloves
- Lab Coat
- Goggles
- Lasers
- Tubes
- Liquids
- Switches
- Electricity
- Radio Dish
- Tesla Coils
- Chalkboard
- Periodic Table
- Syringes
- Jars
- "Rays" (guns)
- Radioactive material
- Glowing items
- Microscope
- Petri dish
- Atoms
- Slime
- Bubbles
- Journals, books

Notable Associations:

- Radiation, radioactive
- Freeze, frozen, chill
- Molecular, molecule
- Electric, electricity, zap
- Burning, burnt, Bunsen burner
- Magnetic, magnet
- Solar
- Photon
- Acid, acidic
- Cosmic
- Crystal
- Hydrogen
- Nuclear
- Proton
- Extraterrestrial
- Interstellar
- Mutation
- Atom
- Binary
- Radiation
- Catalyst
- Ion
- X- ray
- Slime
- Time-warped
- Floating
- Macroscopic
- Antimatter
- Big bang
- Boiling
- Capacitor
- Charge
- Reaction
- Dark matter
- Energy
- Lightening
- Neon
- Quark
- Static
- Voltage
- Vacuum
- Video
- Vapor
- Volcanic, volcano
- Vintage
- Vector
- Vortex







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Ice Cream Shops (Parlor) and Menus

Ice cream parlors originated around the 17th century in France and gained interest in America starting in the 1800's. They often sell many types of ice cream and flavors and other cold shakes or sodas. This treat used to be rare and exotic, enjoyed only by the small elite classes. But once mass production cut down the cost of ice cream, it gained popularity for people of the lower classes.

There are a few types of parlors that are popular today. Some include only an ordering window and outdoor seating while others are only indoors. There are also many ice cream chains that now dominate the market including, but not limited to: Baskin-Robbins, Cold Stone Creamery, and Dairy Queen. These chains usually have a standardized parlor style and set menu. Ice cream is still really popular, though, in small family-owned parlors because it is so versatile and gives people the creativity to sell and manufacture in their own style.

In the last few years, with the rise of Instagram and influencers, smaller stores have gained increasing popularity for their styles, wacky ice creams, and presentation. Ice cream can now come in so many forms and presentations, there is always something for everyone. Entering the market with a new ice cream store is almost too easy if the correct research is done. Ice cream is an easy treat to sell that almost everyone can eat, and with so many new presentation styles, parlors are increasing in popularity.

In research of popular chains and successful ice cream parlors, there is almost always a certain aesthetic or style that draws customers. The parlors are brightly lit and colorful. Pink and blue are common colors, especially if they are pastel. Many have a feminine atmosphere and feel charming. Family-owned parlors most often have a vintage or vintage-inspired style and usually advertise as "homemade." And most importantly, there are always large front windows or some view that shows the ice cream from the street. Below are some of the research images that show these styles. These types of styles and items should be considered when designing the theme, because they are known to attract customers.





Since many parlors include a variety of flavors or rotating selections, Dr. Freeze’s should as well. Dr. Freeze is also all about experimenting and trying new things, so the flavors and combinations should be wacky and strange. There are many recently popular parlors that make ice cream similar to this and some research images are curated below to show some initial examples or ideas.

Initial Flavor Brainstorm:

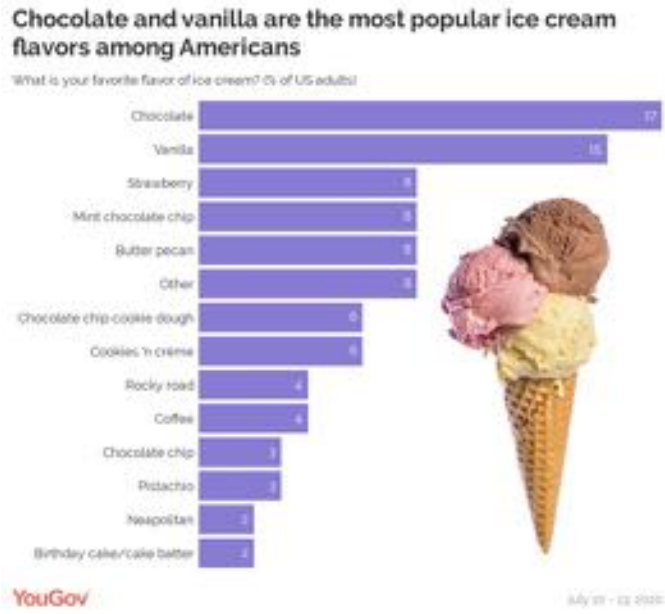
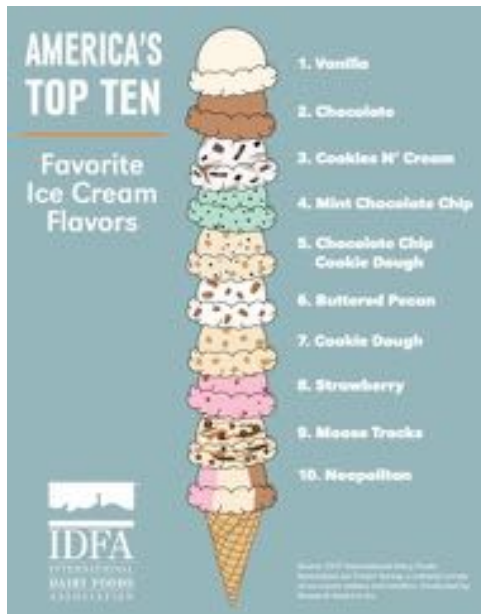
Traditional flavors that people love and know should always be included but also be given exciting “science” names that suggest the theme. The menu might have a rotating flavors week to week with a couple of the staples staying the same. Seasonal flavors are also usually a hit at certain holidays and events. Flavors usually fall into 3 categories: fruit/simple, complex and deluxe.

- Vanilla
- Chocolate
- Mint Chocolate Chip
- Butter Pecan
- Birthday Cake

- Strawberry
- Coffee
- Salted Caramel
- Blue Moon
- Blueberry
- Coconut
- Cotton Candy
- Lemon
- Almond
- Honey
- Lychee
- Apple
- Bacon
- Cherry

- Banana
- Peach
- Passion Fruit
- Matcha
- Green Tea
- Lavender
- Cinnamon
- Mango
- Orange
- Raspberry
- Pineapple
- Pistachio
- Peanut Butter
- Superman

- Cheesecake
- Buttered Popcorn
- Butterscotch
- Nutella
- Key Lime
- Red Velvet
- Chocolate Chip Cookie Dough
- Cookies and Cream
- Rocky Road
- Chocolate chip
- Moose tracks





Nitrogen Ice Cream

Using liquid nitrogen to flash freeze ice cream was actually proposed about a century ago by a woman who is known as “the Queen of Ice Cream,” Agnes Marshall. The technique she had written, though, was not used in any form until many years later when Dippin’ Dots was started. After, a chemist and cook began to use liquid nitrogen in kitchens and learned to utilize it with the hard-packed ice cream everyone knows and loves.

To make ice cream with liquid nitrogen, first, the bases of cream, yogurt or other varieties are gathered together with flavoring and any other candy mix-ins. Then, as the ice cream is mixing, liquid nitrogen is poured into the bowl, freezing the ice cream from liquid to a

solid in about 45 seconds. Liquid nitrogen is about -320 degrees Fahrenheit and is odorless, colorless and tasteless. Because it freezes so quickly, the ice cream is usually extremely smooth and creamy. The faster the ice cream can freeze, the smaller the ice crystals are, which gives the greatest consistency.

There are many reasons to love nitrogen ice cream. Since the freezing is so quick compared to traditional ice cream, it is smoother and silkier, giving a really yummy texture. It is also denser, which means that there are less air bubbles and ice in the ice cream, so the taste is purer. And overall, since the ice cream is made right in front of the customer, it's incredibly fresh and there's many options for them to choose from.

Additional Resources and References

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Mad Scientist Theming Cont.







Cartoons

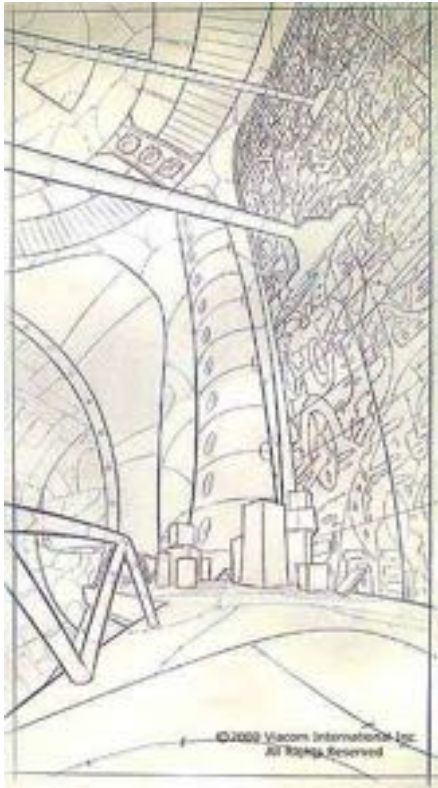




Background Artist by Shady Tadeux - Project of World Book. Art piece is a conceptual representation for a world where the world is...



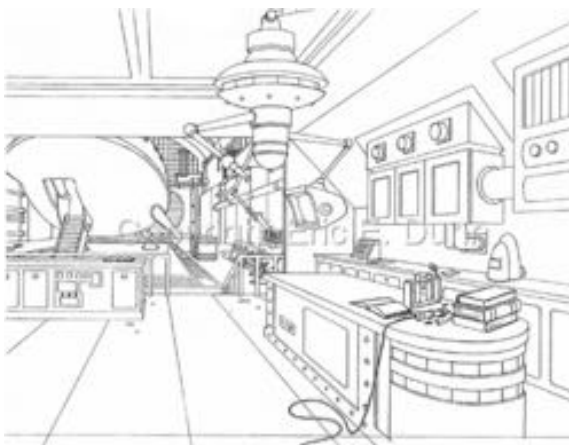
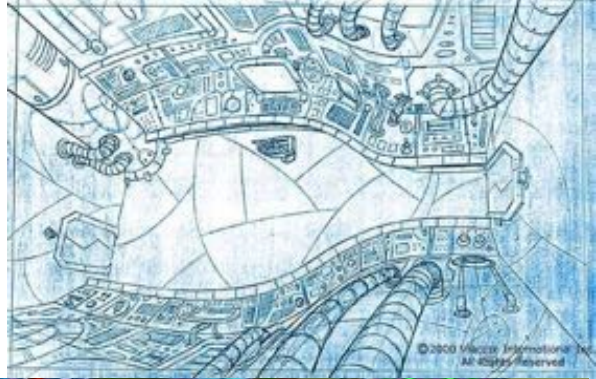
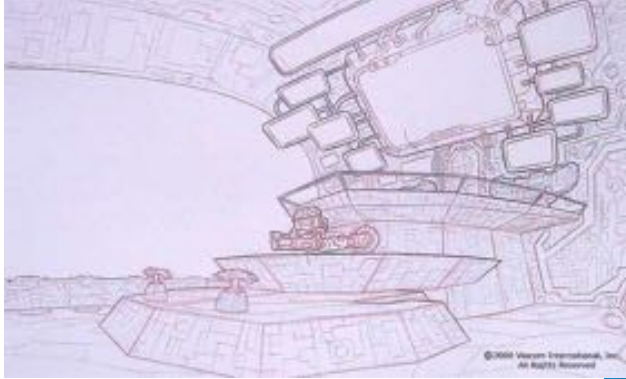
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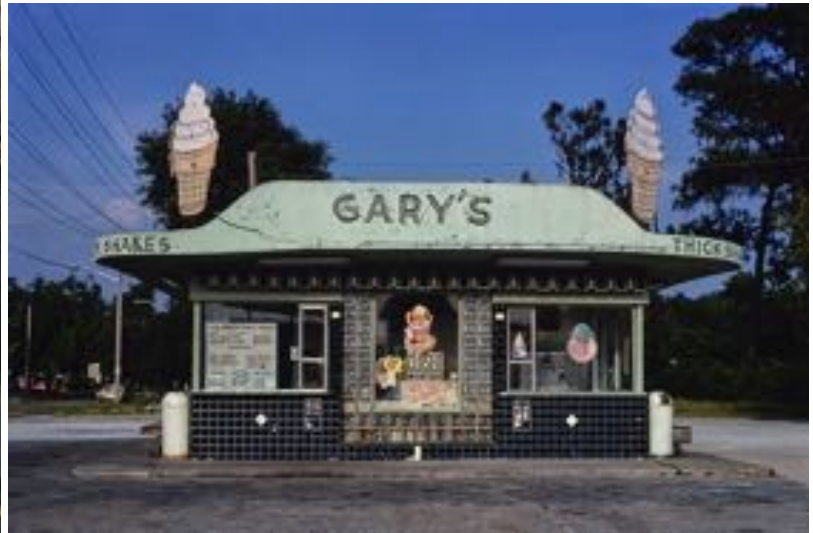
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Ice Cream Parlor Cont.



Misc.

