

SWEET SCIENCE

Students will read about Maya Warren who creates new ice-cream flavors. Then students will practice one aspect of being an ice-cream scientist by scaling up an ice-cream recipe.

[illegible]

Common Core State Standards

CCSS.ELA-LITERACY.CCRA.RI.1

CCSS.ELA-LITERACY.CCRA.RI.3

CCSS.ELA-LITERACY.CCRA.SL.1

Materials

Class set of “Sweet Science”; access to Kahoot! quiz; “Ice-Cream Calculations” worksheet; ice-cream ingredients (optional)

INTRODUCTION

Start the lesson by telling students they'll be reading about an ice-cream scientist. Ask them what they think someone in that career does, and what skills it might require. Then you can test their ice-cream knowledge with this month's Kahoot! quiz at ti.me/icecreamKahoot.



DISCUSSION QUESTIONS

- How does Maya Warren create new ice-cream flavors?
- What skills might be needed to be an ice-cream scientist?
- How do the photos help the reader better understand the information in the article?
- Do you think you would enjoy being an ice-cream scientist? Why or why not?

CLOSING

Point out that after Warren creates a mix she likes, her formulas are scaled up. Give students the worksheet “Ice-Cream Calculations,” which can be found at [ti.me/YHJicecream](https://t.me/YHJicecream), and tell them they’ll be practicing that skill. Read through the recipe for ice cream in a bag. Then have students calculate how much of each ingredient would be needed if you made enough ice cream for the whole class. If possible, allow students to try creating this recipe in class. End with a class discussion. Talk about what would happen if a measurement was not scaled up correctly. Then have students share what knowledge they needed for this task (e.g. how to multiply whole numbers and fractions) and what skills or traits it took (e.g. it may have taken patience to double check calculations).

SWEET SCIENCE

Maya Warren's job as an ice-cream scientist has taken her all over the world in search of new flavors.

After graduating from Minnesota's Carleton College and earning a PhD in food science from the University of Wisconsin, Maya Warren became—an ice-cream scientist! Warren has pursued this dream career at SMiZE & Dream. She spoke to TIME for Kids about the sweet life.

You were the head of research and development at SMiZE & Dream. What was a day at work like?

I created ice-cream flavors. I did a lot of computer work. I'd start with a formula on a spreadsheet: "These are the ingredients I have, this is how much milk fat comes from this substance, whether it's milk fat or cream or whole milk," and so on.

Then, in a test kitchen, I'd make a mix. It could be a white mix, like a sweet cream, or a chocolate mix. I'd taste it, and I might think, "Okay, this is a beautiful-tasting mix," or, "You know what? I don't really like this. I shouldn't have used this ingredient. Let me start over." When I got a mix I really loved, I froze it. Then I had actual ice cream.

Did you do this by yourself, or did you have a team that helped?

It depends. I traveled a lot, and worked in **dairies** all around the world. I depended on technicians at these plants in other countries to help me [create large amounts of mix]. I passed on my formulas to them, and they scaled it up. And the next day, we'd come back and flavor it, then turn that liquid mix into the product we know as ice cream.

Were you planning to become an ice-cream scientist when you went to graduate school for a PhD?

I had no clue where it would take me, but I followed my heart and did something that truly made me happy. I followed my curiosity, too. I thought, "What is going to **intrigue** me so much mentally that I can do it every day?"

What was your first job in ice cream?

My first job out of graduate school was at Cold Stone Creamery, as the head of research and development on the international side. That took me to places such as India, Taiwan, Brazil, and Egypt. I would go to other countries and

help design dairies so they could start making ice-cream mix and turn it into ice cream, or I would teach existing dairies how to manufacture mix using local ingredients. There were lots of tea flavors in Taiwan and Japan, and flavors ranging from squid ink to wasabi. Creating ice-cream flavors is not just a science. It's also an art. There are endless possibilities.

—By Brian S. McGrath

Power Words

dairy *noun*: a farm or business that produces milk products

intrigue *verb*: to make curious

your  job
— FIND YOUR FUTURE —

Did you like learning about what it takes to be an ice-cream scientist? Visit ti.me/science to discover other exciting science careers, such as . . .

METEOROLOGIST
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SCIENCE WRITER

THIS INTERVIEW HAS BEEN EDITED FOR LENGTH AND CLARITY.



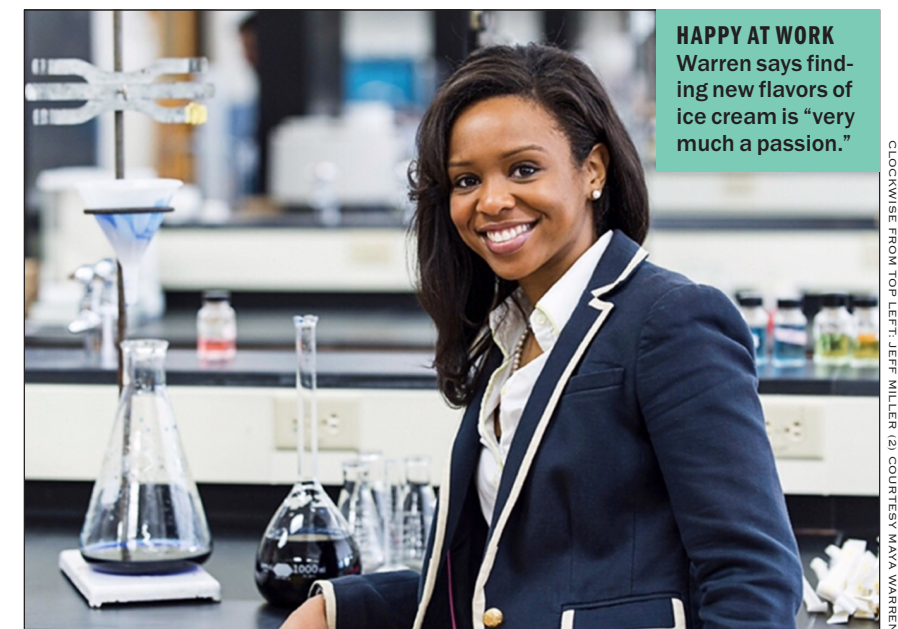
TASTY TRAVEL
Maya Warren samples a gelato in Brazil in 2019.



SWEET JOB Warren loves ice cream. "It's the ultimate comfort food," she says.



TIME TO FREEZE When she's satisfied with a liquid ice-cream mix, Warren pours it into a freezer so it can set.



HAPPY AT WORK Warren says finding new flavors of ice cream is "very much a passion."

CLOCKWISE FROM TOP LEFT: JEFF MILLER (2) COURTESY MAYA WARREN; INSET: COURTESY MAYA WARREN

ICE-CREAM CALCULATIONS

Read “Sweet Science” (September 1, 2023). Then read the ice-cream recipe below. Calculate how much of each ingredient would be needed for your whole class.

Ice Cream in a Bag

You will need:

- 1 cup** half-and-half
- 2 tablespoons** sugar
- ½ teaspoon** vanilla extract
- 3 cups** ice
- ⅓ cup** kosher salt
- 1 sealable plastic bag**, quart size
- 1 sealable plastic bag**, gallon size
- 1 handful** mix-ins (optional)

Steps:

- 1.** In the quart-size bag, combine half-and-half, sugar, and vanilla.
- 2.** Taste your mix to make sure you like it. Add your mix-ins if you choose. Seal bag and press out as much air as you can.
- 3.** In the gallon-sized bag, add ice and sprinkle salt over it.
- 4.** Put the bag with the mix inside the bag of ice and salt. Seal the larger bag.
- 5.** Shake your bags for at least 10 minutes, or until mix is frozen. You may need to add more ice and salt.
- 6.** Remove your ice cream, rinse the outside of the bag, and enjoy!

- 1.** How many students are in your class? _____ Use the space below to calculate the amounts of ingredients you would need for your whole class.

Half-and-half: _____

Sugar: _____

Vanilla extract: _____

Ice: _____

Salt: _____

- 2.** Half-and-half is sold in pints and quarts. There are two cups in a pint and four cups in a quart. Explain how much half-and-half you would buy. _____
- 3.** Vanilla extract is sold in ounces. There are six teaspoons in an ounce. How many ounces of vanilla would your class need? _____