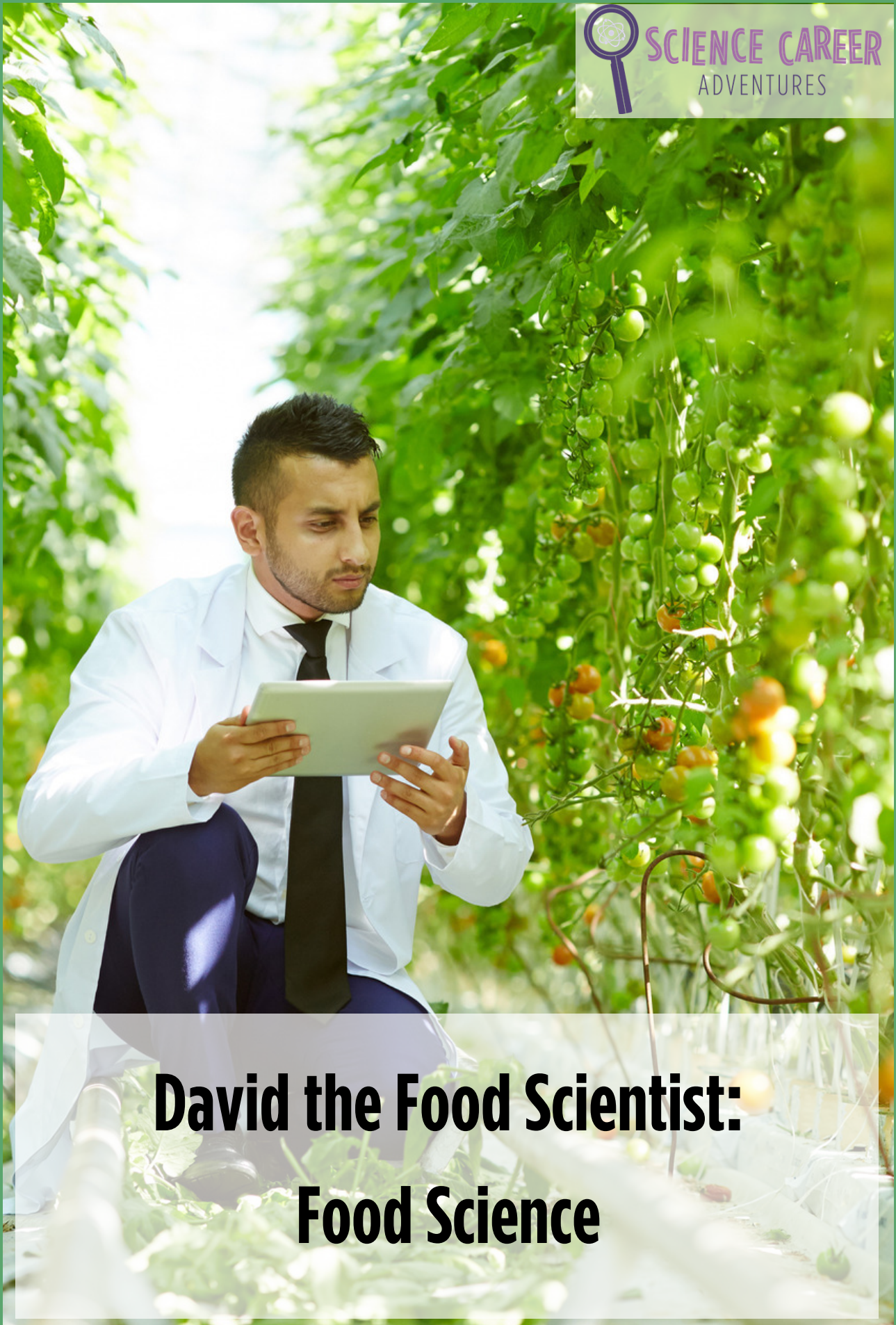




SCIENCE CAREER
ADVENTURES



David the Food Scientist: Food Science

Meet David!



Hi! My name is David, and I'm a food scientist!

Did you know that some scientists do experiments to learn about food? As a food scientist, I do experiments to learn about how foods taste, what makes foods healthy, and what foods are made of.



Being a Food Scientist

A food scientist can have many different responsibilities. Here are a few examples:



Check foods before they are sent to grocery stores to make sure they do not contain dangerous bacteria. Bacteria are tiny living organisms that can cause diseases.



Create a new recipe for cookie dough.



Understand how food becomes rotten. Food rots because microorganisms, like bacteria and fungi, start to grow in it. That means tiny living things start to take over our food! When they do, it is no longer safe for people to eat.



Fun Fact:

Soozie's Doozie's is a real life cookie dough company that is owned by a food scientist!



What I am Working On

I am researching a new food preservative made for beef. A preservative is a substance added to food to stop bacteria from growing. Bacteria cause the beef to go through a chemical change. The preservatives stop the beef from going through a chemical reaction. If a chemical reaction occurs, then the beef changes color and feels slimy. This also means a new substance has formed. When preservatives are added, food stays fresher for longer periods of time. For example, preservatives are added to hotdogs so people can still eat them months after they are made. Without preservatives, hotdogs would rot after a week!

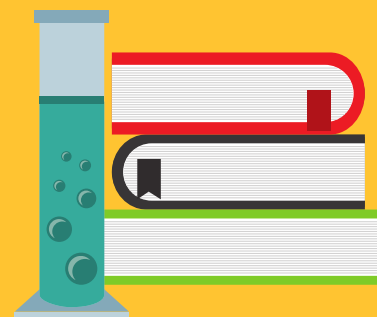


Rotten meat



Preserved meat

To research something means to study it very closely. Research can mean to read a lot about what other scientists have written about a topic. Research can also mean answering questions by conducting experiments.



Understanding Preservatives

As a food scientist, I need to understand what happens to foods when preservatives are added to them.



When a preservative is added to food, there should not be a chemical reaction. A chemical reaction occurs when two or more substances combine and are changed into new, different substances. If a chemical reaction occurs, it means the food has been changed and may no longer be safe to eat.

Instead, the preservative and food should be mixed together without a chemical reaction occurring. This means that the food won't be changed. This is a good thing, so the food will taste the same!



What I am Working On

Today, I am going to conduct an experiment. I want to figure out if a new preservative for beef will keep food fresh compared to beef without a preservative.

To do this, I am going to place a preservative in one container of meat and not in the other container. That way, I can compare the two containers of meat over time. If the preservative works well, it will keep the meat fresher much longer than the meat without the preservative.

To conduct an experiment, I am going to take the following steps:

1

Make a hypothesis. A hypothesis is a statement about what I think is going to happen in the experiment. A hypothesis is like a prediction.

2

Gather materials.

3

Create steps for the experiment.

4

Collect data. I am going to record the information I learn during the experiment.

5

Come up with a conclusion. I am going to write a statement about what I learned based on the data I collected.

Experiment Steps

Step 1: Make a Hypothesis

My hypothesis is the preservative will keep the meat fresher longer than meat without the preservative.

Step 2: Gather Materials

I will need the following materials for the experiment:



Fresh Hamburger Meat



Refrigerator



Petri Dishes
(Clear round containers with lids)



The Meat Preservative

Experiment Steps

Step 3: Create Steps for the Experiment

Here are the steps for my experiment:

- 1** Measure 1/4 cup of beef and put it in a Petri dish. Label the dish, "Meat with Preservative."
- 2** Measure 1/4 cup of beef and put it in another Petri dish. Label the dish, "Meat without Preservative."
- 3** Add the preservative to the dish labeled "Meat with Preservative." Make sure the preservative is mixed in!
- 4** Place the two dishes into a refrigerator for a week.
- 5** Collect data each day on any changes to the meat. I will write down notes on the color, smell, texture of the meat in both dishes.



Experiment Steps

Step 4: Collect Data

| Meat Samples | Day | Color of Meat | Texture of Meat | Smell of Meat |
|---------------------|-------|---------------|------------------------|-------------------|
| Meat Only | Day 1 | Bright Red | Smooth to Touch | No Odor |
| Meat + Preservative | Day 1 | Bright Red | Smooth to Touch | No Odor |
| Meat Only | Day 2 | Dull Red | Little Sticky to Touch | Slight Sour Smell |
| Meat + Preservative | Day 2 | Bright Red | Smooth to Touch | No Odor |
| Meat Only | Day 3 | Turned Brown | Looks Slimy | Very Gross Smell |
| Meat + Preservative | Day 3 | Bright Red | Smooth to Touch | No Odor |



Experiment Steps

Step 5: Come up with a Conclusion

After observing the dishes of meat for a week, I look at the data to come up with a conclusion! The data shows that the meat with the preservative was fresh for three days longer than the meat without it. The meat that did not have preservatives experienced a chemical reaction and a new substance was formed. The meat with the preservatives did not experience a chemical reaction. My conclusion is the preservative does help keep the meat fresher for longer, but not by much.

I email my conclusion to other food scientists. We need to brainstorm ways to keep meat fresher for longer!

