

Asking a Testable Question

A practice of science is to ask and refine questions that lead to descriptions and explanations of how the natural and world(s) works. A good question can be empirically tested, meaning it is possible to collect data based on observations to answer the question.

Your Project

What do you want to cook/prepare?

fry pork

What characteristic(s) of the final product do you care about or want to manipulate or measure?

the color and taste

How do you think you might affect that/those characteristic(s)?

by the amount of sauce to marinate

How can you combine the information above into a question?

how does marinating affect your meat color and taste

Types of Questions

Type 1 Curiosity Driven Question: *Ask questions that arise from careful observation of phenomena, or unexpected results, to clarify and/or seek additional information.*

Example Questions:

- I wonder why adding salt to my eggs makes them more yellow.
- Why do some baking recipes get modified for altitude?
- Does it matter whether I slice, press or crush my garlic?

Type 2 Understanding Relationships: *Ask questions to determine relationships, including quantitative relationships, between independent and dependent variables.*

Example Questions:

- How does the amount of time I whip cream affect its fluffiness?
- How does the concentration of salt in a marinade affect the moisture content of cooked chicken?

Type 3 Explanation Seeking Question: *Ask questions that arise from examining models or a theory, to clarify and/or seek additional information and relationships.*

Example Questions:

- Why do recipes recommend blanching vegetables?
- Why do some recipes recommend heating spices in oil?
- Why do some people recommend cutting meat right away to stop it cooking and others recommend 'resting' it first?

What type of question are you asking?

1-Curiosity Driven, 2-Understanding Relationships or 3-Explanation Seeking?

understanding relationship and curiosity driven

Can this question be investigated within the scope of a kitchen and with the resources you have available to you? Make a list of resources you will need to acquire, create, borrow etc.

I have access pork, fryer and oil and sauce

Do some research on your question. Have other people explored it before? What did they find? Is there a molecular level model or theory that might explain previous results or lead you to expect certain results?

people have done this before. marinating meat will make the meat taste more salty and sweet a

Summary of Research (Find at least 2 sources)

Source Researched	Their Results	Molecular Explanation for Results	How credible is this source? How did you decide?
https://www.discovermagazine.com/health/science-of-marinades	taste more sweet	Acids, such as lemon juice or vinegar, work by denaturing proteins through disruption of hydrogen bonds in the collagen fibrils.	reliable
https://www.scientificamerican.com/article/saucy-science-exploring-the-science	very salty	ingredients affect the adsorption (yes, with a "d") of a marinade ingredient onto the surface of a food.	reliable

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Does your research cause you to want to alter or refine your question? How?

no

Proposed Question

How does marinating the meat affect the moisture of the meat

Prediction *What do you expect to happen or find through your experiment?*

Example

- I expect that as I increase the amount of baking soda in my cookies they will become taller, fluffier and eventually more bitter tasting.

I expect the meat to get more salty the more I marinate it



Stop here for now. You will fill in the questions below after the Gallery Walk Question Critique

Summarize the student feedback you received from the *Online Gallery Walk Question Critique*.

that my question is not really testable because i can really measure moisture

How, if at all, are you refining your question based on the feedback you received?

measure the taste and color rather than moisture

Refined Question

how does marinating affect the color and taste of meat and the moisture