

How to Cookie with Science Introduction

Watch “How to Cookie with Science” EdPuzzle (3:23). After watching the EdPuzzle, answer the questions below.

- 1) In the first minute of the video three characteristics of cookies and what can be done to affect those characteristics are mentioned. What is one of the mentioned characteristics and something that can be done to affect it?

The size and the butter temperature.

- 2) What question is she investigating?

she was investigating the size, taste and texture of the cookie

- 3) What is her independent variable? *The **independent variable** is the variable the experimenter changes. They expect a change in the independent variable will have an impact on the results. Whatever is being measured in the results is called the **dependent variable(s)**.*

The independent variable is the butter

- 4) In a well-designed experiment only the independent variable is changed and the rest of the experiment is kept constant. What are some aspects of the experiment design that she is keeping constant?

the temperature and time.

- 5) How does she expect her experiment will turn out? This expectation for the results of an experiment is called a **hypothesis**.

she expected the warmer one to expand more

- 6) What is/are the dependent variable(s) she is going to measure?
Hint: She mentions three but only measures 1!

size

- 7) Are her dependent variables qualitative or quantitative? **Qualitative data** is observed or described but does not have measurements associated with it. **Quantitative data** involves measuring and will have numbers and units associated with it.

it is qualitative

- 8) What were her results? Did the results support her hypothesis or disprove it?

the warmer butter expand more

- 9) What is one way she could have refined her experiment to make it better?

differentiate the cookie by the butter, because we cannot tell

Now it's your turn. This can be done hypothetically or if you want you can actually make cookies tonight if you'd like. Here is a link to the [Nestle Toll House Chocolate Chip Cookie Recipe](#).

- 1) What question would you like to investigate?

how does different heat affect the texture of the cookie

- 2) What is your independent variable?

heat

- 3) Describe your experimental design. How many different tests are you doing? How are you changing the independent variable for each test? How many cookies are in each 'test'?

I will do the test 3 time with different heat

- 4) What is/are your dependent variable? State how you intend to observe or measure each dependent variable. State whether each dependent variable is quantitative or qualitative.

texture, to test the texture of the cookie

- 5) What is your hypothesis for how the experiment will turn out? *How will the changes in the independent variable affect the dependent variable?*

I think the more heat you cook it with, the crispier and drier the cookie will be.

- 6) What is an explanation that uses chemistry that supports your hypothesis?

I think when you heat it more, the liquid inside the cookie will evaporate to make the cookie drier

- 7) If you actually did the experiment, what were your results?

maddie said I can leave blank