

How to Write a Problem Statement in Science

What is a problem statement?

Your problem question must be able to be tested through experimentation. The question should come out of your observations as something that sparked your interest or curiosity. A discrepant event if you will.

Exactly what do you hope to figure out? What is the "WHAT IF" question? For example: "What is the affect of _____ on _____?" You should be able to write the research question in a simple sentence. In fact, keep the whole project simple. This is important to the scientific process: the simpler the experiment, the easier it is to keep "all other conditions" the same and change only one thing. That's how you can be sure that the thing you are changing is actually causing any difference you measure.

Criteria for Testable Questions:

- Uses something from your "What I will change" group
- Uses something from your "What I will measure" group
- A broad question that is something to investigate

Ways to improve my Problem Statements:

Try putting different words in these blanks...

What is the effect of _____ on _____?

detergent ----- germination of seeds

temperature-----the volume of air

How/to what extent does the _____ affect _____?

humidity-----growth of fungi

color of a material-----its absorption of heat

fertilizer -----the growth of plants

Which/what _____ (verb) _____?

detergent----- makes ----- --the most bubbles

Problem statement samples with Mrs. Weimer's feedback

1. How can we create a shoe that increases your speed when sprinting?
2. How can we make a shoe that has flexibility, lightness, and stickiness?
3. What are your ideas for a sneaker that has never been made before?

Comment [JW1]: This student explained that they are creating a shoe that is for sprinting. It is a testable question. This would be accomplished.

Comment [JW2]: This student explained the characteristics for their shoe but did not explain for what sport. This would be a developing problem statement.

Comment [JW3]: Even though this is an interesting problem statement, it is too general and needs to be more specific. It would not be a problem that could be scientifically tested and would be considered as not met.