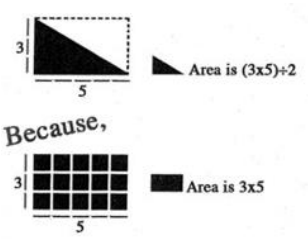
Name_____Period_____Assignment #_____

What makes a justification sound?

Analysis
Detailed examination of the elements or structure of something

Interpretation
Explaining the meaning of something

Justification
Showing something to be right or reasonable based on verifiable evidence



Notes:

The 3 elements of a valid justification

- Knowledge
- Specific data from analysis related to knowledge
- Explanation of HOW the data relate to knowledge

Guiding Question: Who does the bachelorette want to marry?

Our Claim:

Our Evidence:

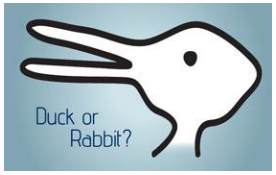
Analysis: break it down (What did you see and hear? Body language, tone, etc.)

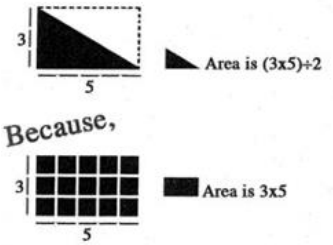
Interpretation: What does the analysis mean?

Our Justification of the Evidence:

Use your analysis and worldly knowledge to support your interpretation

How are analysis, interpretation, and justification different?





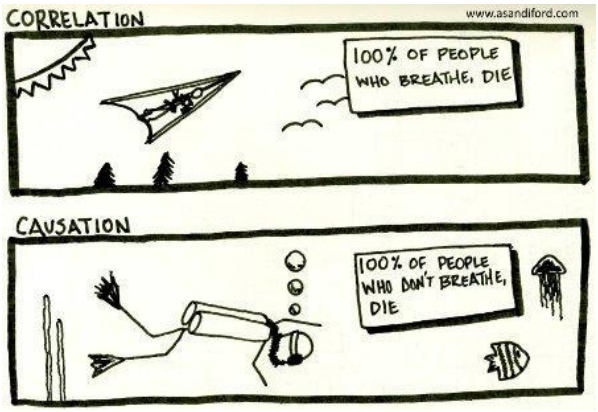
Examples of analysis from the bachelorette	Examples of interpretation from the bachelorette	Example of one complete justification from the bachelorette

What is the difference between correlation and causation?

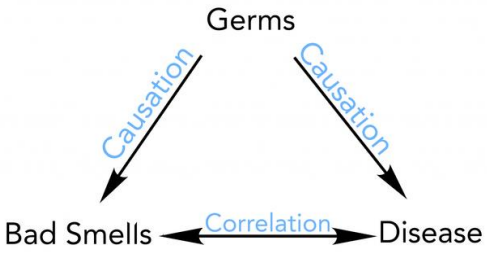
Correlation
A relationship between two variables

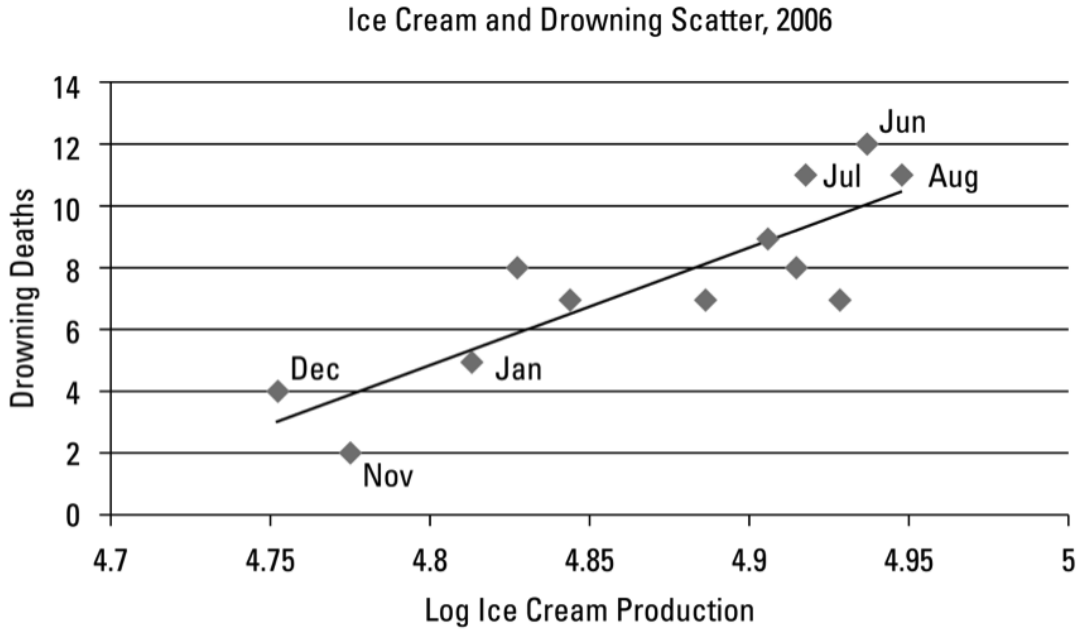
Causation
A variable causes a change in another variable in a predictable way

Explain the difference between correlation and causation using the cartoon below.

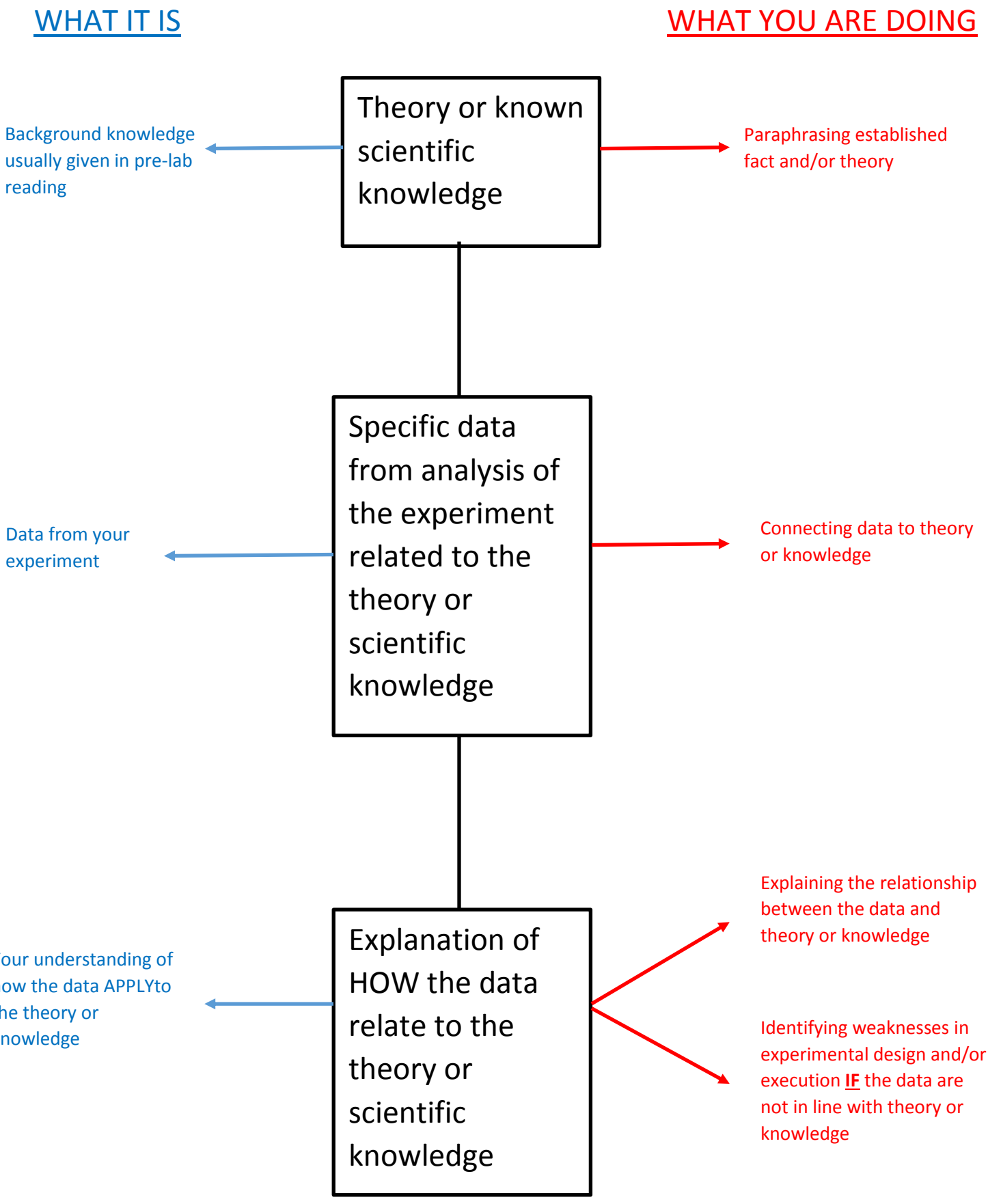


Explain the difference between correlation and causation using the diagram below.





The 3 Elements of a Valid Justification



Guiding Question: What causes drownings?

Our Claim:

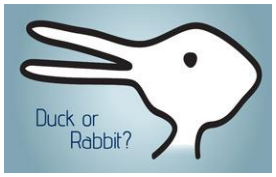
Our Evidence:

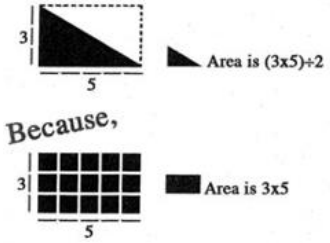
Analysis: break it down (Illustrate and describe your data)

Interpretation: What does the analysis mean?

Our Justification of the Evidence:

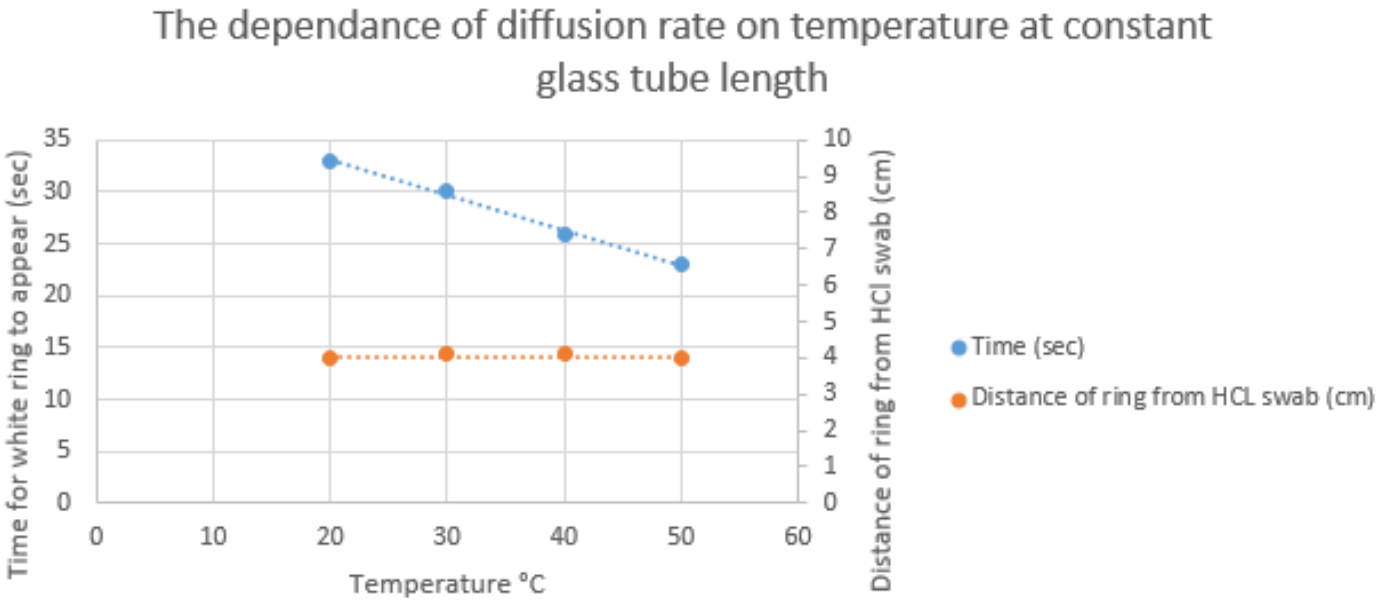
Use your analysis and worldly knowledge to support your interpretation

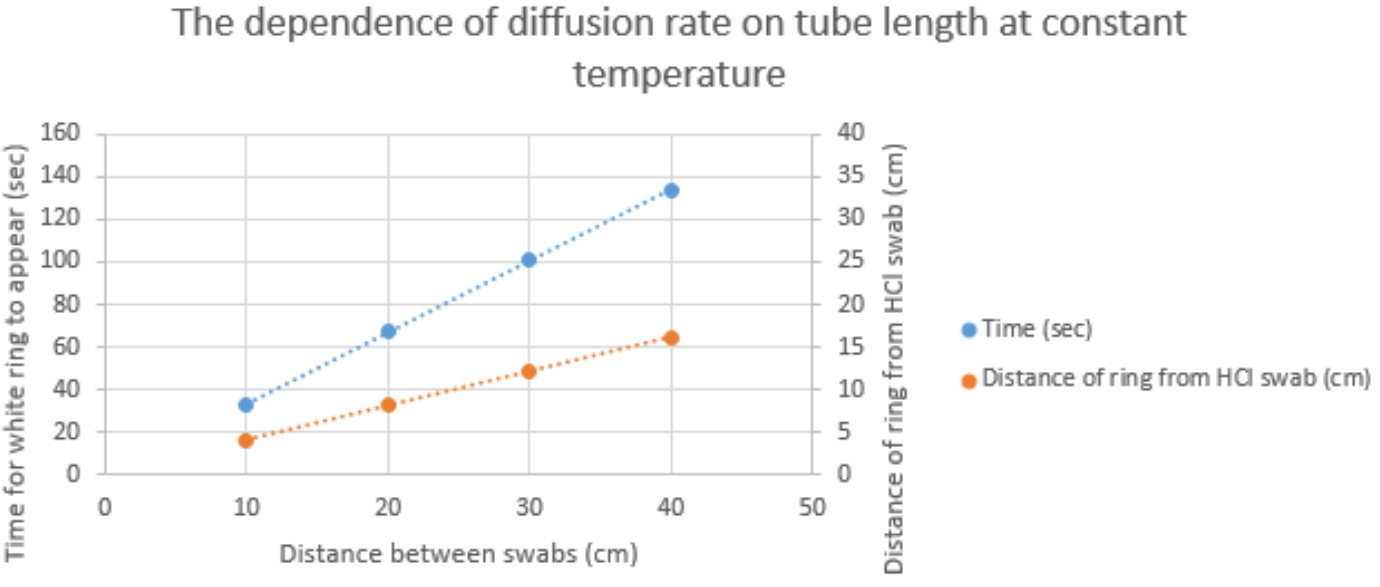




Examples of analysis from drowning data	Examples of interpretation from drowning data	Example of one complete justification from from drowning data

All molecules are in constant motion. Molecules in liquids and gases bump into each other causing them to change directions. These direction changing collisions and constant motion cause diffusion. Diffusion is the net movement of molecules from relatively high concentrations towards lower concentrations. The rate of diffusion of a given molecule is dependent on the mass and kinetic energy (energy of motion) of the molecule. Temperature measures the average kinetic energy of matter. HCl has a molecular weight of 36.5g/mol. NH_3 has a molecular weight of 17.0g/mol. Both HCl and NH_3 readily evaporate under typical laboratory conditions. HCl reacts with NH_3 forming a white solid (NH_4Cl). Cotton swabs soaked in HCl and NH_3 were simultaneously placed at opposite ends of a 10cm glass tube. See below. The appearance of the white ring tells us where the molecules of HCl and NH_3 met, and therefore how far each traveled in the same amount of time.





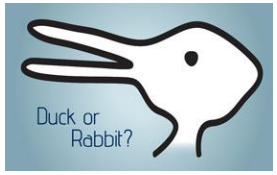
Guiding Question: What affects the rate of diffusion?

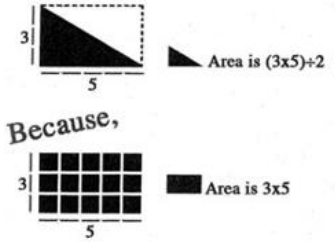
Our Claim:

Our Evidence:

Our Justification of the Evidence:

Use your scientific knowledge and analysis to support your interpretation





Examples of analysis from diffusion experiment	Examples of interpretation from diffusion experiment	Example of one complete justification from diffusion experiment