

Claim, Evidence, Reasoning

A framework for the Scientific Method

“Curiosity—the desire to explain how the world works—drives the questions we ask and the investigations we conduct.”

-Kerry

Emmanuel (MIT Professor of Meteorology)

Claim + Evidence + Reasoning = Explanation

CER

- **Claim** - A statement that answers the original question. Usually one sentence in length. Must be specific and answer the question completely.
- **Evidence** - Scientific data that supports the claim. Can be numbers or observations (visual, auditory, olfactory, tactile).
- **Reasoning** - An explanation that connects evidence to the claim. Involves a rule or scientific principle that describes why the evidence supports the claim.



Show ~ First 2 minutes

Let's Do One Together



What is the big question?

- Who is my dad?

What is her claim?

- My dad is a space alien.

What is Her Evidence?

- He speaks a weird language.
- He drinks green stuff.
- He says he's from Albuquerque (i'm not buying it).
- I mean - just look at him.
- He has a spaceship.

What is her Reasoning?

- ~~The evidence doesn't lie.~~
- The reasoning must be explicit and link all evidence to the claim.

Let's try reasoning for her - Link evidence to claim

- He speaks a weird language.
 - Aliens are not from Earth so they will speak a different language.
- He drinks green stuff.
 - Aliens would be green and drink green liquids.
- He says he's from Albuquerque (i'm not buying it).
 - Albuquerque is in New Mexico about 200 mi from Roswell NM where a supposed UFO landed in 1947.
- I mean - just look at him.
 - Aliens wear space suits for protection.
- He has a spaceship.
 - Aliens use spaceships for travel.

Does the claim hold up?

- No!

Why Not?

- The reasoning must use **scientific principles** **that are accurate.**
- **NONE** of our reasoning uses **ANY ACCURATE scientific principles** or **data.**