# Claim, Evidence, Reasoning

A framework for the Scientific Method

"Curiosity—the desire to <u>explain</u> how the world works—drives the questions we ask and the investigations we conduct."

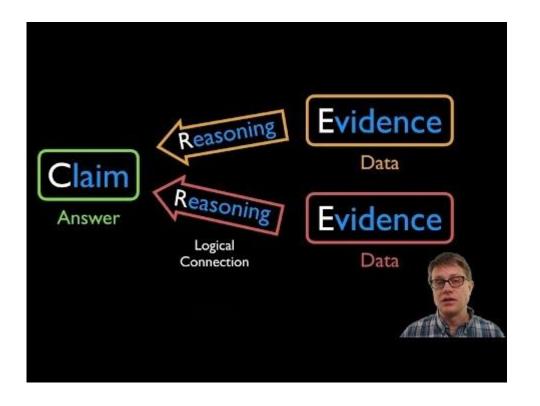
-Kerry

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.
- <u>Evidence</u> 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 <u>scientific principles</u> that are accurate.
- NONE of our reasoning uses ANY
  ACCURATE scientific principles or data.