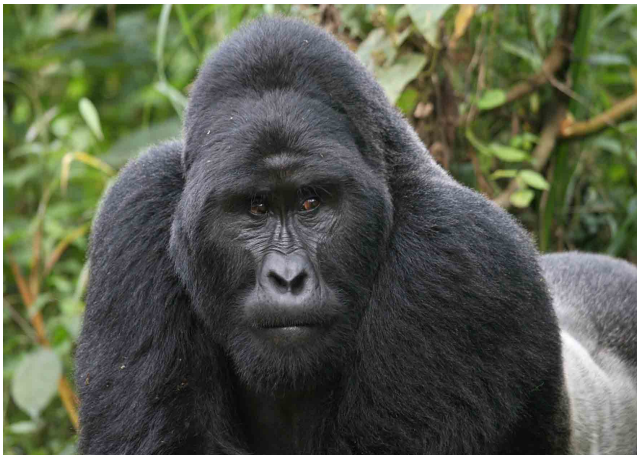


The Science of Biology

1.1: What is Science?

The Goals of Science

- 1) Explain and propose explanations for events in the **natural universe** that can be tested



*the supernatural is outside the realm of science

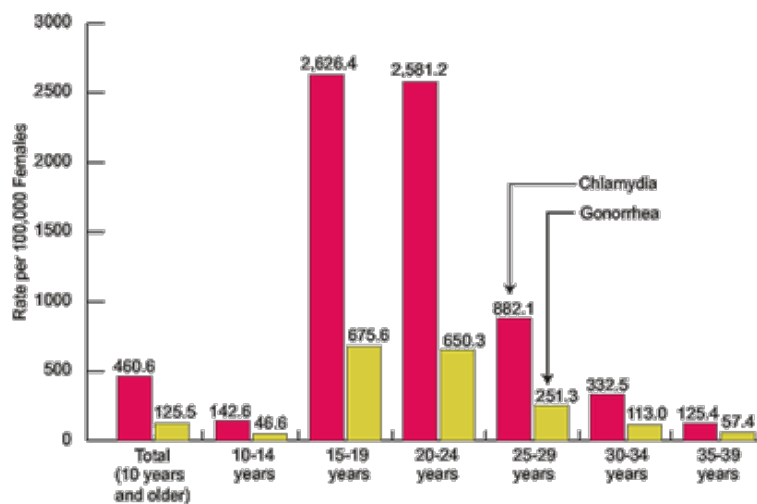


The Goals of Science

2) Collect and organize information

STDs Among Females Aged 10 and Older, by Age, 2002

Source (II.15): Centers for Disease Control and Prevention,
Sexually Transmitted Disease Surveillance



The Goals of Science

3) Use explanations and data to understand patterns and make useful predictions



Brainstorm some additional goals of science?

Science begins with OBSERVATIONS



Selective Attention

<https://youtu.be/vJG698U2Mvo>

Data - information gathered from observations

Qualitative Data	Quantitative Data
Overview: <ul style="list-style-type: none">• Deals with descriptions.• Data can be observed but not measured.• Colors, textures, smells, tastes, appearance, beauty, etc.• Qualitative → Quality	Overview: <ul style="list-style-type: none">• Deals with numbers.• Data which can be measured.• Length, height, area, volume, weight, speed, time, temperature, humidity, sound levels, cost, members, ages, etc.• Quantitative → Quantity



Inference vs. Hypothesis

Inference:

using your observations
to make a **guess** about
an object or an outcome

**THIS CAN BE A
SCIENTIFIC
OPINION**



Based on my
observations, I **think** that
this can is **old** and is
leaking a **toxic** substance.

***Not necessarily
testable**



Inference vs. Hypothesis

Hypothesis - A proposed explanation, must be testable

Examples:

1. Purina dog food will reduce a dog's shedding.
2. Putting Miracle Grow on tomato plants will make them produce more tomatoes.
3. The drug Avapro will lower a person's blood pressure.