Inductive Reasoning:

- Involves observing data
- Recognizing patterns
- Making generalizations from your observations.
- Involves "guessing"
- Goes from specific to general.

Conjecture:

1) (noun) the generalization you make using inductive reasoning.
   ie: Make a conjecture using inductive reasoning.
2) (verb) to make a guess or prediction
   Ie: "What can you conjecture from your observations?"

Postulates:

In math, concepts we accept as true, based on inductive reasoning. (They cannot be proven.)

Task 1:
List some possible drawbacks to inductive reasoning.

- can guess wrong

- small # of observations

- different pattern

Task 2: *Use Inductive Reasoning to make a conjecture.*

1) You eat a new kind of fruit and then suffer from hives for the first time in your life. A week later you try the fruit again, only to have hives again. You have a similar experience a month later.

   allergic to that fruit

2) A teacher gave all her classes true-false tests on seven consecutive Tuesdays.

   8ᵗʰ Tues. another T/F test

3) Make a conjecture about the next number in each pattern.

   a. 1, 2, 4, 8, 16, 32, 64   x2

   b. 1, 2, 3, 5, 8, 13, 21   adding 2 previous terms

   c. 1, 3, 6, 10, 15, 21, 28   previous term + term #

4) Make a conjecture about the next letter in the pattern: O, T, T, F, F, S, S, E, N, T

   counting #'s

Deductive Reasoning:

- Process of demonstrating that if certain statements are accepted as true, then other true statements can be show to follow them
- Proving something is factual
- Formulas, definitions, postulates, properties
- Goes from general to specific.

Theorems:

In math, general statements that CAN BE PROVEN using postulates, definitions, algebraic properties, and rules of logic.

Task 3: Use deductive reasoning to solve each problem.

a) Beatrice is older than Catherine, and Michelle is younger than Catherine. Is Beatrice older or younger than Michelle?

older

b) Every cheerleader at Washington High School is a junior. Mary is a cheerleader at Washington High School. Is May a junior at Washington High School?

yes

c) Edith, Ernie, and Eva have careers as an economist, an electrician, and an engineer, but not necessarily in that order. The economist does consulting work for Eva's business. Ernie hired the electrician to rewire his new kitchen. Edith earns less than the engineer but more than Ernie. Match the names with the occupations.

Edith Electrician   Eva Engineer
Ernie Economist

Task 4: Tell whether the process used is inductive, deductive, or neither of these.

a) The boys present at a meeting of their club give their ages as 11, 12, 11, 11, 13, 12, 12, 11, & 12. A visit decides, "All boys in this club are at least eleven years old."

inductive

b) A juror serves on a case in which the charge is speeding. Upon finding out that the defendant has already been convicted several times for speeding, a juror mutters to himself, "That speeder is guilty."

inductive

c) On his way to the office, Elmer said to himself, "I was late because the bell rang early."

neither

d) Since today is Tuesday, tomorrow will be Wednesday.

either, depends on explanation

e) A child examines eight acorns and concludes that all acorns are hard.

inductive

f) If $3x = 12$, then $x = 4$.

deductive

g) Some scientists have controlled a gorilla's environment so that the gorilla has never seen any kind of tool used. One day, after gazing hungrily for some times at a banana that is just out of reach, the gorilla suddenly seizes a stick and rakes the banana up to his cage.

neither

Still need help with:

	Ec	El	En
Edith	X	O	X
Ernie	O	X	X
Eva	X	X	O