

INDUCTIVE vs. DEDUCTIVE REASONING

When you are constructing an argument or reaching a conclusion, there are two basic styles of reasoning that are used: inductive and deductive reasoning. **Inductive reasoning** relies on specific premises to reach a general conclusion, while **deductive reasoning** uses general premises that are certain by definition to reach a specific conclusion. Note that inductive conclusions are not always true.

Inductive Reasoning

1. Specific Observations

Inductive reasoning begins with observations.

- John is from Atlanta.
- John has brown hair.
- Mary is from Atlanta.
- Mary has brown hair.

2. Generalization

Patterns are drawn from the observations and then generalized.

- John and Mary are both people from Atlanta.
- John and Mary both have brown hair.

3. General Conclusion

The generalizations are combined to form a general conclusion.

All people from Atlanta have brown hair.

Deductive Reasoning

1. General Premises

Inductive reasoning begins with observations that lead to a generalization.

- All peaches are fruits.
- All fruits have seeds.



TRANSFORMATIVE LAW

If $A = B$ and $B = C$, then $A = C$

A: peaches B: fruits C: have seeds



2. Specific Conclusion

The general premises are combined to form a specific conclusion.

Peaches have seeds.

OTHER EXAMPLES:

INDUCTIVE

Lisa is a grandmother. Lisa has gray hair. Therefore, all grandmothers have gray hair.
I always see Sam eat lunch at noon. Therefore, Sam will probably eat lunch at noon today.

DEDUCTIVE

All birds have feathers. All pigeons are birds. Therefore, pigeons have feathers.
All apples are fruits. Granny Smith is an apple. Therefore, Granny Smith is a fruit.

