

## Worksheet 9/11/2023

Inductive argument: a conclusion is formed by generalizing more specific premise(s). An inductive argument is **strong** if it makes a compelling case for its conclusion.

Deductive argument: a conclusion is formed as a specific case of more general premise(s). A deductive argument is **valid** if its conclusion follows necessarily from its premises. If a deductive argument is valid *and* its premises are true, then we say that the argument is **sound**.

### Practice:

Determine the truth of the premises of the following arguments. Then assess the strength of each argument and the truth of its conclusion.

1. Sara went to the library, and then Ann went. Sara went to sharpen her pencil, and then Ann went. Ann is copying Sara today.
2. Today, the sun came up and shone in the windows on the back of our house. Tomorrow, the sun will also shine through the windows on the back of the house when it arises.
3. If I eat ice cream, I gain weight. If I eat cake, I gain weight. Eating dessert causes me to gain weight.
4. We surveyed 1,000 people across the county and 520 of them said they will vote to re-elect the mayor. We estimate that 52% of the county will vote for the mayor and he will be re-elected.
5. Michelangelo, Manet, Monet, Modigliani, Munch, and Miró were great painters.
6. For five years in a row, I have seen bears in the woods in June but not May. This year, I expect to wait until June to see a bear in the woods.

Draw a Venn diagram to determine whether the argument is valid. Evaluate the truth of the premises and state whether the argument is sound.

7. All European countries are countries in the European Union. Denmark is a European country. Denmark is a country in the European Union.
  
8. All vegetables are green. Beans are green. Beans are vegetables.
  
9. If it is a two-axle car, then it has four wheels. Volkswagens are two-axle cars. Volkswagens have four wheels.
  
10. All banks are closed on national holidays. Today is Memorial Day, so my bank must be closed today.
  
11. If I don't sleep well, I wake up feeling absent-minded. If I am absent-minded, I forget to eat lunch. Therefore, if I don't sleep well, I miss lunch.
  
12. Everyone in my family is right-handed, so my children will be right-handed.