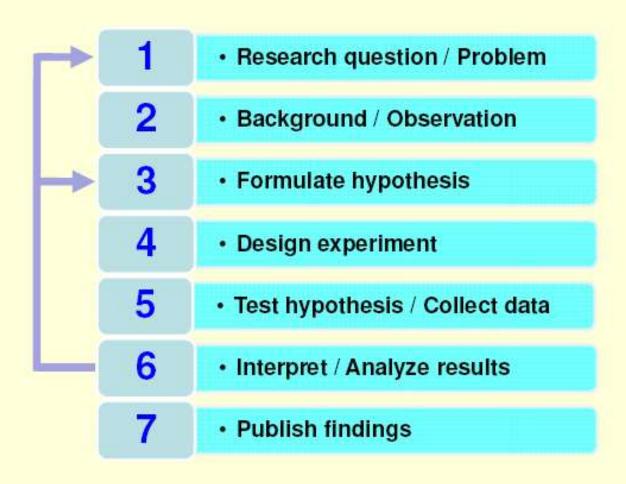
# RESEARCH METHODS

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#### CLASSICAL PHASES



### CLASSICAL PHASES

	1	Research question /     Problem	What are you interested in? What do you have to know about it?
	2	Background /     Observation	Make observations & gather background information about the problem.
	3	Formulate hypothesis	An educated guess It shall be possible to measure / test it. It should help answer the original question.
	4	Design experiment	How will you test your hypothesis? What tests will answer your question?
	5	Test hypothesis / Collect data	Test your hypothesis by executing your experiments. Collect data from them.
	6	Interpret / Analyze results	What do your results tell you? Do they prove or disprove the hypothesis? It is OK to be wrong.
	7	Publish findings	Write papers for conferences & journals. Write dissertation.

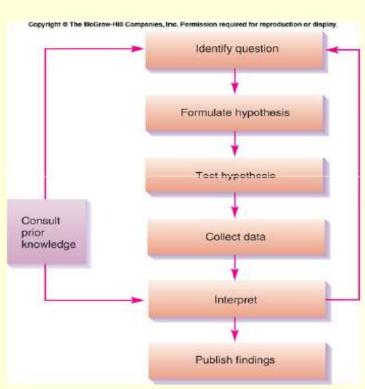
#### OTHER VARIANTS

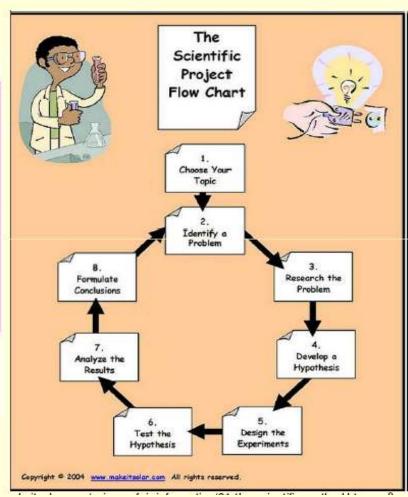


- 1. Define the question
- 2. Gather information and resources (observe)
- 3. Form hypothesis
- 4. Perform experiment and collect data
- 5. Analyze data
- Interpret data and draw conclusions that serve as a starting point for new hypothesis
- 7. Publish results
- 8. Retest (frequently done by other scientists)

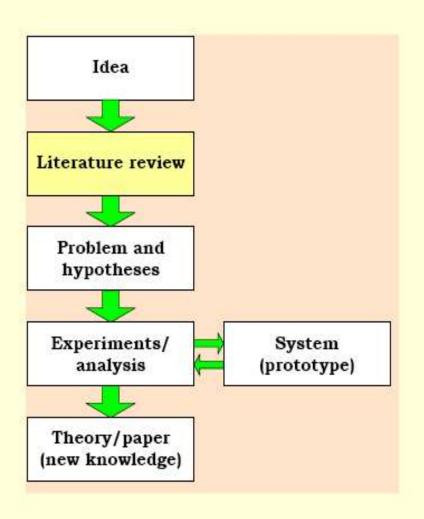
[Wikipedia]

#### OTHER VARIANTS





#### OTHER VARIANTS



#### The Scientific Method Made Easy



http://www.youtube.com/watch?v=zcavPAFiG14

## ERRORS OF EXPERTS WHO DID NOT FOLLOW THE SCIENTIFIC METHOD

- "Computers in the future may weigh no more than 1.5 tons."
   Popular Mechanics, forecasting the relentless march of science, 1949
- "I think there is a world market for maybe five computers."
  Thomas Watson, chairman of IBM, 1943
- "Airplanes are interesting toys but of no military value."
  Marechal Ferdinand Foch, Professor of Strategy, Ecole Superieure de Guerre.
- "Louis Pasteur's theory of germs is ridiculous fiction".
   Pierre Pachet, Professor of Physiology at Toulouse, 1872
- "Heavier-than-air flying machines are impossible." Lord Kelvin, president, Royal Society, 1895.