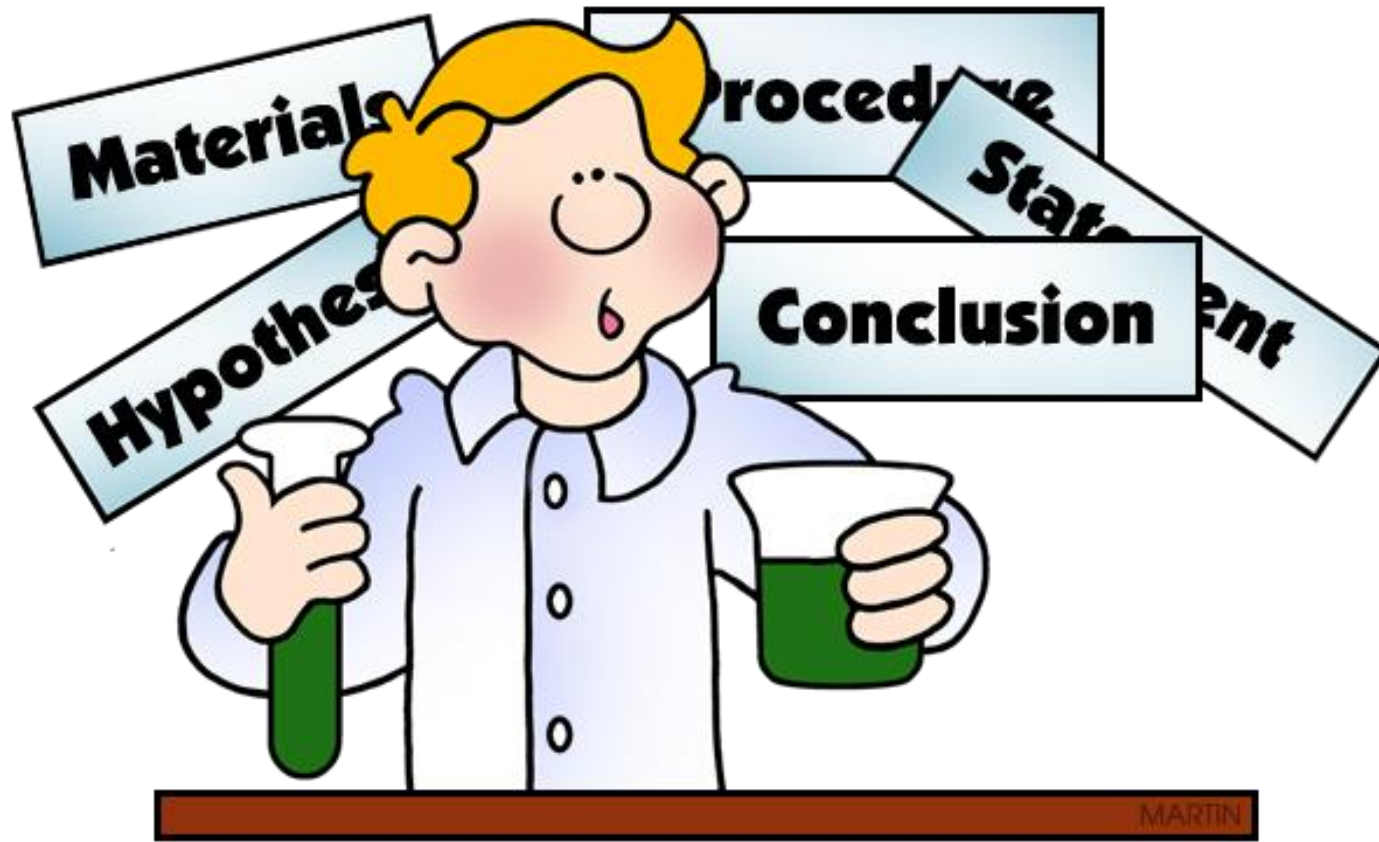




**THE
SCIENTIFIC
METHOD**

Created by Marie @ [The Homeschool Daily](#)

What is the Scientific Method?



- **A series of steps used to help solve a question or test a hypothesis.**

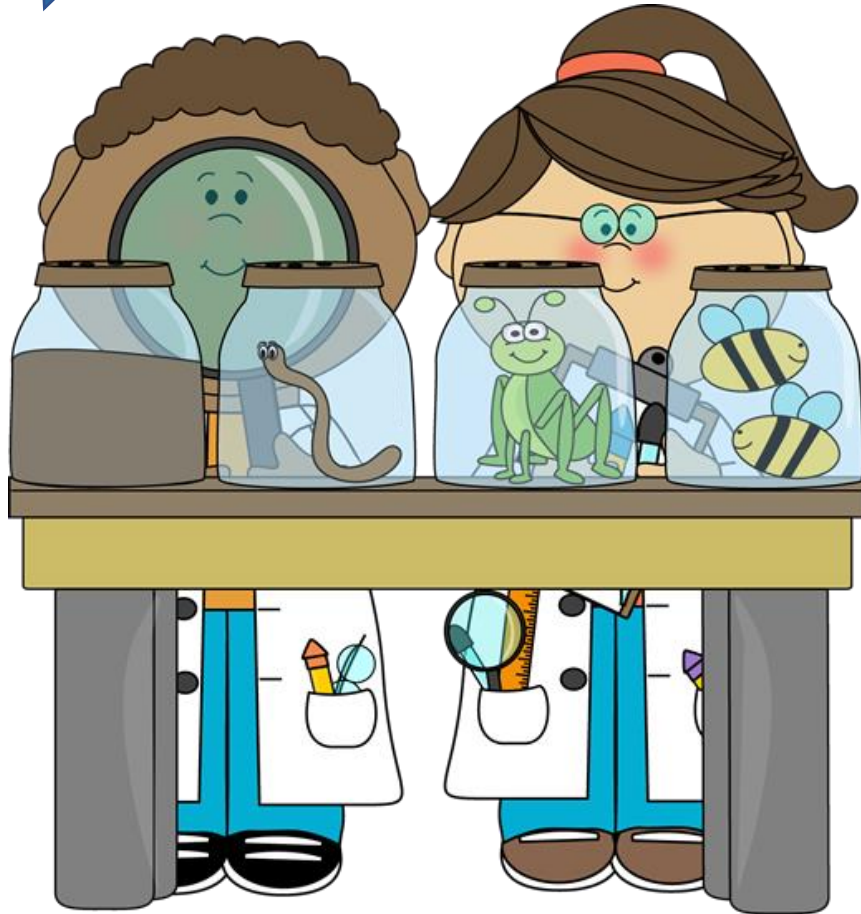
What is the Scientific Method?

- 1) **Ask a Question**
- 2) **Research Topic**
- 3) **Develop Hypothesis**
- 4) **Test Hypothesis**
- 5) **Record Data**
- 6) **Analyze Data**
- 7) **State Conclusion**



1st Step

Ask a Question



- **People ask questions everyday.**
 - **Why is it hotter in the summer?**
 - **Why don't all balloons float?**
- **A question may arise after making observations or it may be a question about a topic you are interested in.**
- **Not all questions can be tested.**

Look at
these
Posing
Questions.

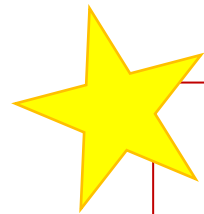
Which one of these questions is based on opinion?

- A. Does my cat or dog eat more food?**
- B. Does air temperature affect the chirping of crickets?**
- C. Does water freeze faster in different containers?**
- D. Which makes a better pet- cat or dog?**

Look at
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Which one of these questions is based on opinion?

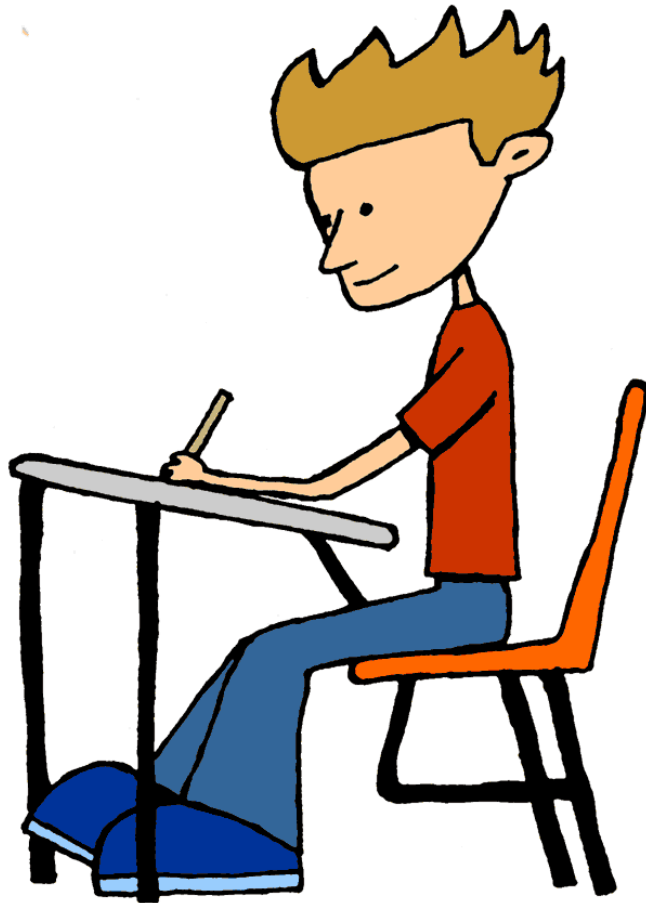
- A. Does my cat or dog eat more food?**
- B. Does air temperature affect the chirping of crickets?**
- C. Does water freeze faster in different containers?**
- D. Which makes a better pet- cat or dog?**



You can ask people what type of pet they prefer, but it is only based on opinion. The other 3 questions can be tested.

2nd Step

Research Topic



- **Gather information about your topic through research.**
 - **Read Books**
 - **Review Internet Resources**
- **When possible, use your 5 senses to collect information about your topic.**

3rd Step

Develop a Hypothesis

- **A hypothesis is a possible explanation for a set of observations or answer to a scientific question.**
- **Another term for hypothesis is 'educated guess'.**



3rd Step




Develop a Hypothesis

Remember:
A hypothesis is
an educated
guess.

- **After doing your research, make a hypothesis to answer your question.**
- **This is usually stated like, "If I...(do something) then...(this will occur)"**
 - **For example, "If I grow grass seeds in a sunny window, then they will grow faster than seeds growing in a shady window."**
- **Your hypothesis must be testable.**



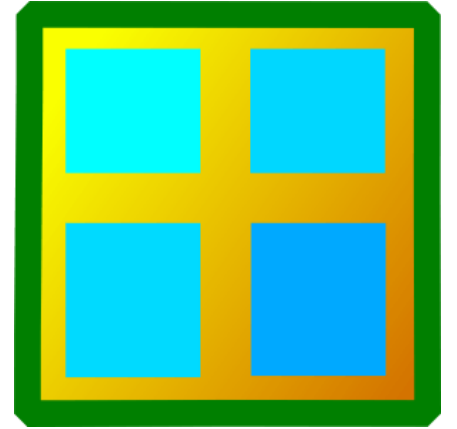
Before you can test your hypothesis, you must **DESIGN** your experiment and **IDENTIFY**:

- Manipulated Variable (Independent variable): A variable that is changed. *For example, the amount of light seeds are given.* 
- Responding Variable (Dependent variable): A variable that changes in response to the manipulated variable. *For example, the rate at which the seeds grow.* 
- Controlled Variable: Variables that remain constant in an experiment. *For example, the same seeds, amount of water, etc.* 

A variable is a factor that can change in an experiment.

4th Step

Test Hypothesis

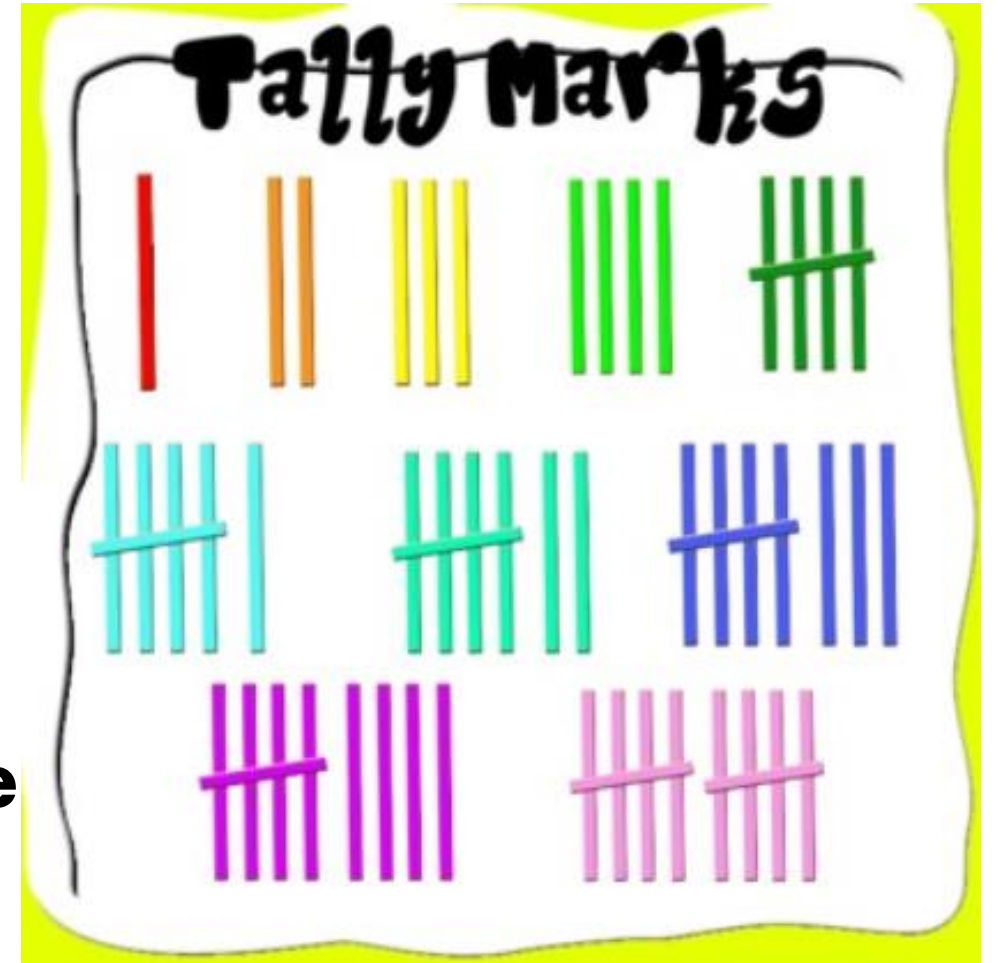


- **This is the FUN part! EXPERIMENT TIME!**
- **In this case, you would take two flat containers and plant the same amount of seeds in them.**
- **You would water them the same.**
- **The only difference is that one of the containers would be placed in a sunny window, while the other would be placed in a shady window.**

5th Step

Record Data

- **Data is facts, figures, and evidence collected in an experiment.**
- **Collect data from your experiment.**
- **The data gathered in your experiment is what will prove or disprove your hypothesis.**



6th Step

Analyze Data

- **Graphs, tables, charts, and statistics are used to organize the data collected.**
- **Graphs reveal patterns or trends in data.**
- **Graphs help others understand your data.**



7th Step

State Conclusion

- **Communicate your findings in a paper, poster, or oral presentation.**
- **Was your hypothesis right or wrong?**
- **Use the data you collected to prove or disprove your hypothesis.**
- **It is not bad if your hypothesis is wrong, you learned something, right?**



**THE
SCIENTIFIC
METHOD**

Ask a
Question

Research
Topic

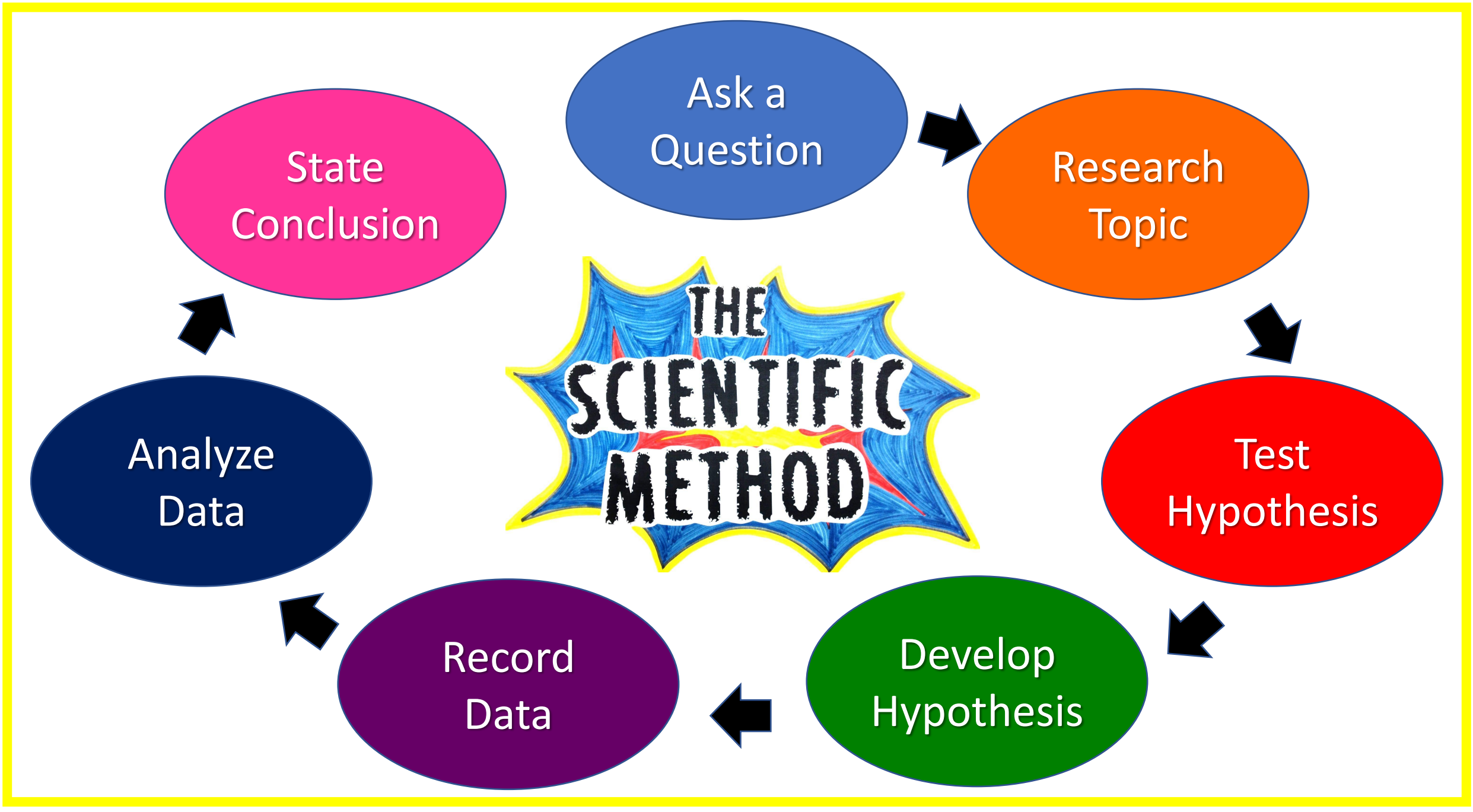
Test
Hypothesis

Develop
Hypothesis

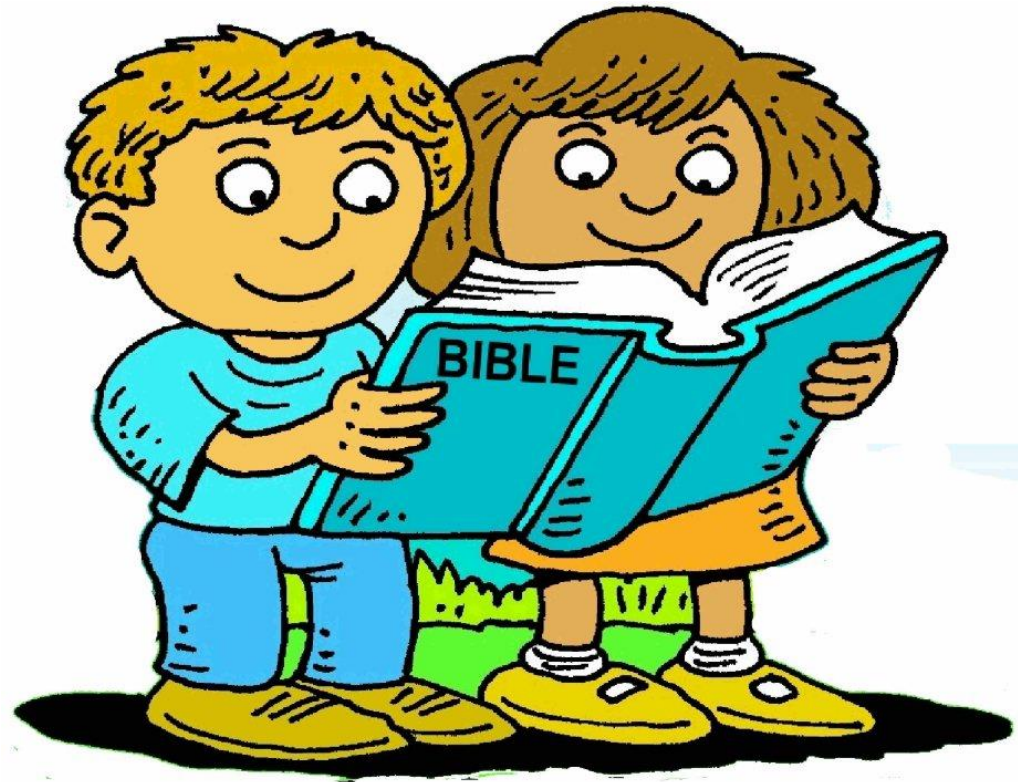
Record
Data

Analyze
Data

State
Conclusion



**Check out our
other learning
resources at
The
Homeschool
Daily!**



Timothy, guard what has been entrusted to your care. Turn away from godless chatter and the opposing ideas of what is falsely called knowledge, which some have professed and in so doing have departed from the faith. Grace be with you all.

I Timothy 6: 20-21