**Chapter 2- Section 2**

**Scientific Method in Earth Science**

**Learning about the Natural World**

* Asking questions is the beginning process of the scientific method

**What are Scientific Methods?**

**Scientific Method**- Series of steps followed to solve problems

* It is not a set procedure; you may or may not use all the steps
* The goal is **to gain insight and come up with reliable answers/solutions.**

**Ask a Question**

* The purpose of asking a question is to **focus the investigation**

**Form a Hypothesis**

**Hypothesis – an explanation that is based on prior scientific research of observations that can be tested.**

* A hypothesis is formed when a scientist wants to investigate a question
* It is testable!

**Test the Hypothesis**

* Scientists test hypothesis by gathering data. Helps tell whether or not a hypothesis is valid or not.

**Controlled Experiments**

* To test the hypothesis, scientists must do a controlled experiment
* **Controlled experiment** – tests only one factor
* **Variable** is a factor that changes in an experiment to test hypothesis.
* It is important for scientists to be able to change just one variable because scientists can see results of just that one change.

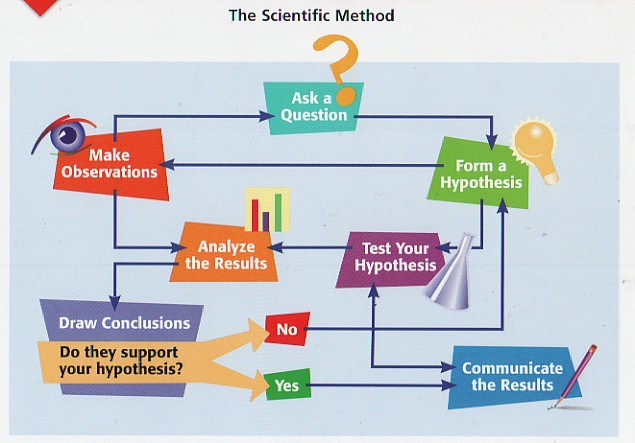
**Making Observations**

* At times, observations are more important than doing experiments

**Keeping Accurate Record**

* Need to have accurate and clear records of data
* No opinions
* It is also important for scientists to repeat experiments to verify findings.

**Analyze the Results**

* Happens after testing
* Two common ways scientists organize and summarize their data is by making tables and graphs.
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**Draw Conclusions**

* After analyzing the results, scientists determine if results support the hypothesis
* Results are valuable even if doesn’t support hypothesis
* Repeat experiment/investigation if necessary or ask new questions or form new hypothesis.

**Communicate Results**

* It is important to share results with others because other scientists evaluate experiment and science depends on sharing of information.
* Scientists share results by writing reports for scientific journals or give lectures.
* If there is new evidence, other scientists may do further testing.

**Case Closed**

* New evidence may come available after results are accepted
* Scientists may have more questions to test