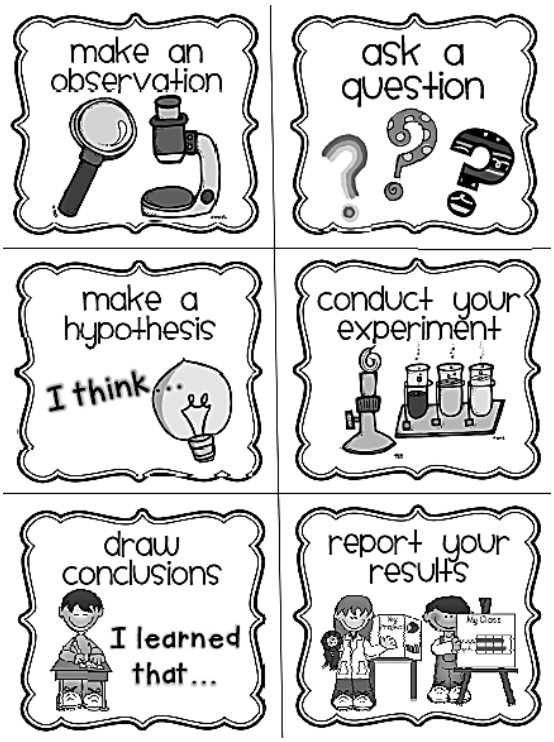
Name: _____ **Galileo and the Scientific Method**

The Scientific Method



The scientific method is the way in which scientists study and learn about the world around us. It is a continuous process in which scientists come-up with ideas, test them, and share them with others.

The process starts with an *observation*. A scientist notices (observes) something. He is curious and asks himself a *question* about what he saw (e.g. why or how it happened?).

He wants to understand what he saw, so he tries to come up with an explanation for it. After thinking about it, he comes up with a *possible* answer to his question (a *possible* explanation for what he observed). This explanation is called a *hypothesis*.

He doesn't let it go at that. He must come up with some way of testing his *hypothesis* (his explanation) to see if it is really correct. He designs *experiments* (tests) that will help him decide if his *hypothesis* is right or wrong.

After performing the experiments, he carefully looks over the results to see if the *conclusions* he draws from them support his *hypothesis*. If not, he needs to come up with a different hypothesis (a different answer to his question).

If the experiments support his *hypothesis*, he how *shares the results* with other scientists. He tells them about his observation and his explanation for it. He also tells them how he tested his *hypothesis*. He describes his experiments in detail, so that other scientists can try out the experiments for themselves.

Other scientists then repeat the experiments. They may also do other experiments of their own. If they are satisfied that the results of these experiments support the hypothesis, then the hypothesis is accepted as *probably* being correct.

Name: _____ **Galileo and the Scientific Method**

Did Galileo apply the Scientific Method to his study of falling objects? Let's see. Use information from the story we read about Galileo and Massimo to answer the following questions:

1. The scientific investigation starts with an *observation*. Galileo wrote that he first began to doubt Aristotle's theory (that heavier objects fall faster than lighter ones) during a hailstorm, when he noticed that both large and small hailstones hit the ground at the same time. In the story we read, what did Galileo *observe* (notice) that first attracted his attention?

2. What *question* did he ask himself?

3. What *hypothesis* did he come up with? (What did he think was the correct answer to his question?)

4. How did Massimo and Galileo test this hypothesis? (What experiments did they do to see if Galileo was right?)

5. What conclusion did they draw from their experiments? (Did the experiments support the hypothesis?)

6. Did Galileo report what he had done and share his results with others?