

Scientific Method

Aug 30 - 11:50 AM

Current biological problems or questions.

over population

Cancer

endangered species

Global warming

Hunger

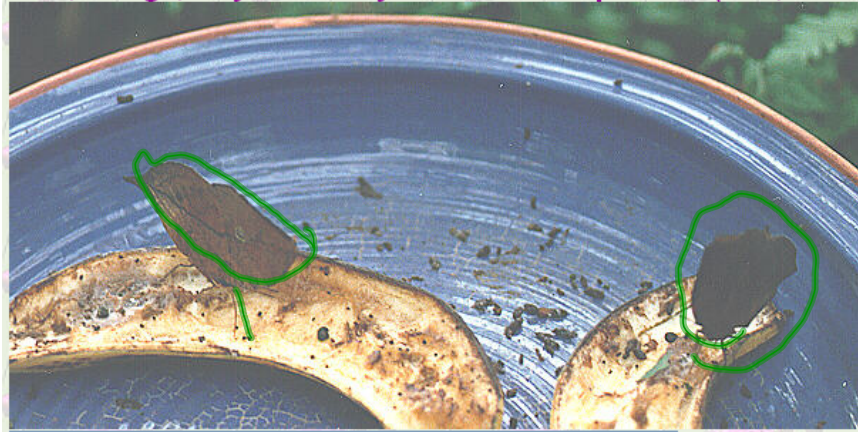
disease

drought

tornado

hurricane
Wild fire

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http://biology.clc.uc.edu/courses/bio104/sci_meth.htm



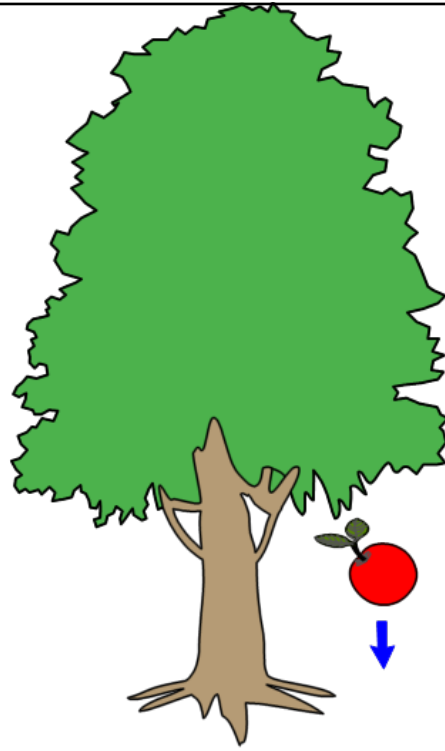
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First step in the scientific method.

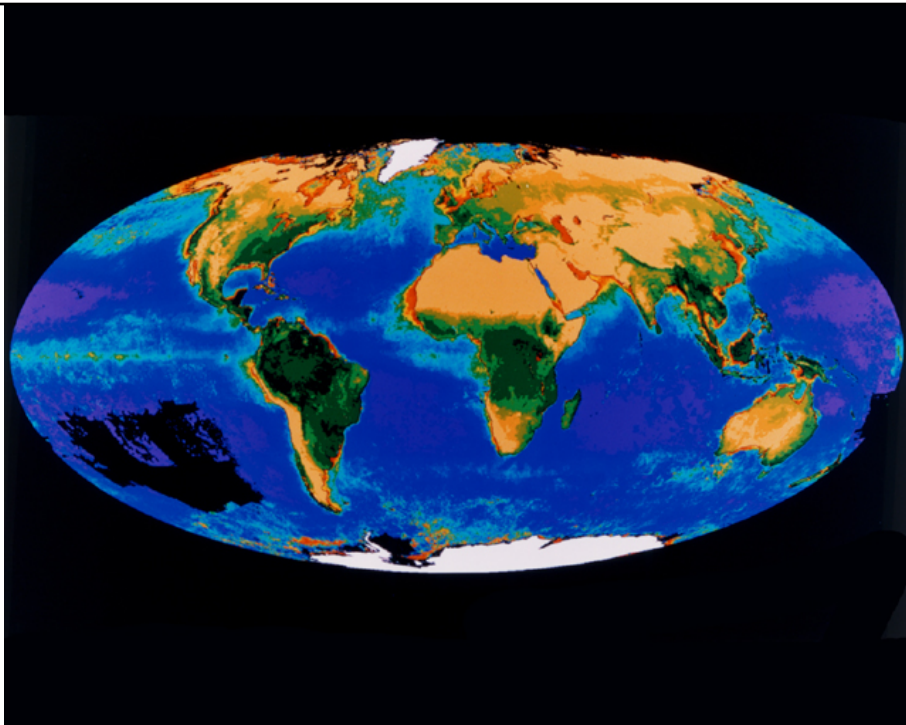
Observation

Observation

The apple
fell on
Newton's
head.



Falling apple



Aug 29-9:20 PM

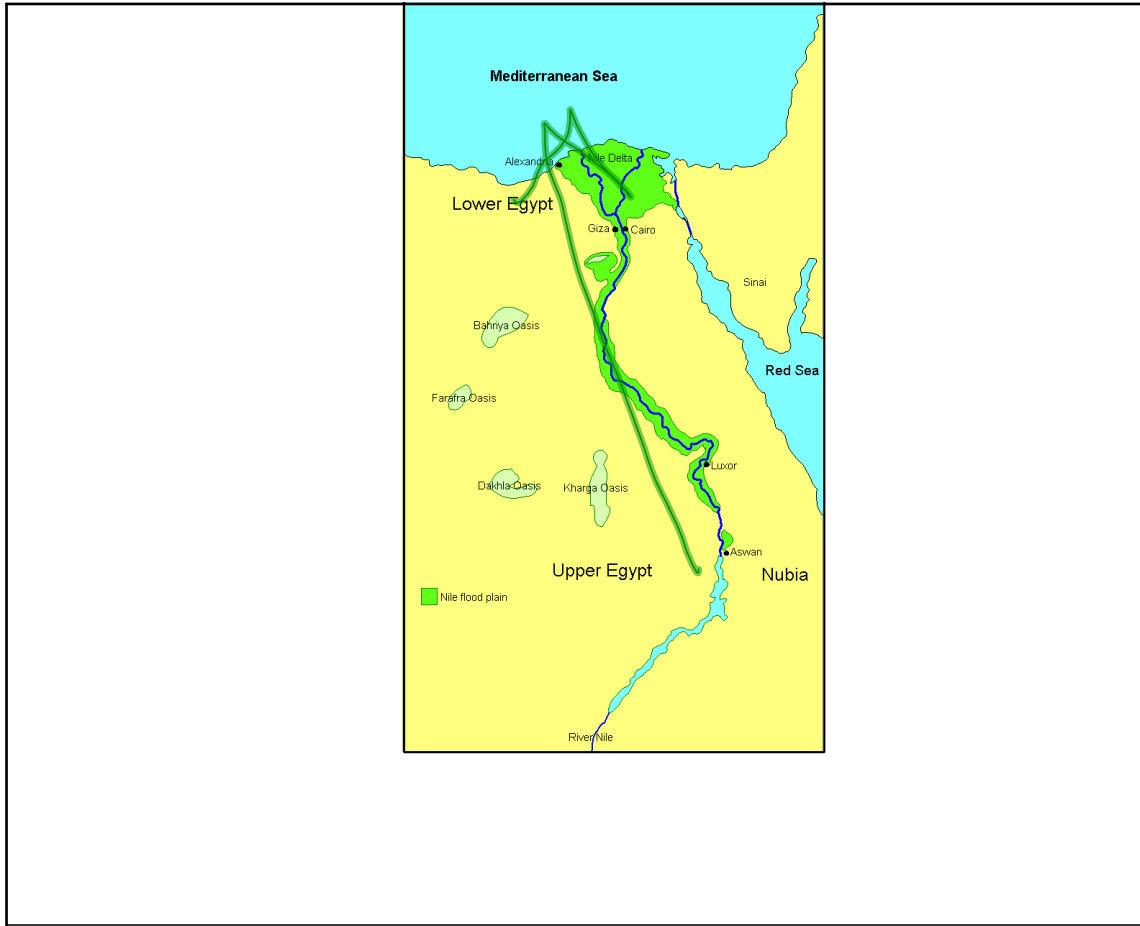


Galileo
knew that
you could
not fall
off the
earth.

Aug 29-9:21 PM



Africa



Map of Ancient Egypt

Observation: Every year in the spring, the Nile River flooded areas of Egypt along the river, leaving behind nutrient-rich mud that enabled the people to grow that year's crop of food. However, along with the muddy soil, large numbers of frogs appeared that weren't around in drier times.



Observation: In many parts of Europe, medieval farmers stored grain in barns with thatched roofs (like Shakespeare's house). As a roof aged, it was not uncommon for it to start leaking. This could lead to spoiled or moldy grain, and of course there were lots of mice around.



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Recipe for Bees:



Kill a young bull, and bury it in an upright position so that its horns protrude from the ground. After a month a swarm of bees will fly out of the corpse.

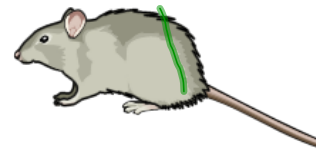


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Jan Baptista van Helmont's recipe for mice:



Place a dirty shirt of some rags in an open pot or barrel containing a few grains of wheat or some wheat bran, and in 21 days some mice will appear. There will be adult males and females present, and they will be capable of mating and reproducing mice.



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Second step in the scientific method.

Question

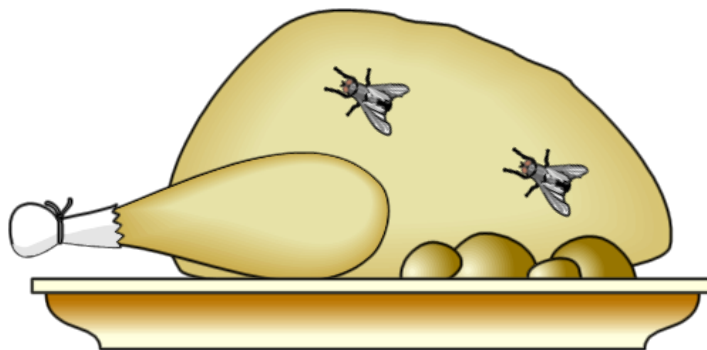
Questions

“How many students came to school today?”

“Why did you come to school today?”

Aug 30 - 2:59 PM

Question: Where do the flies at the butcher shop really come from?
Does rotting meat turn into or produce the flies?



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Third step in the scientific method.

Hypothesis
"an educated
guess"

Hypothesis

- **Hypothesis:** Rotten meat does not turn into flies. Only flies can make more flies.



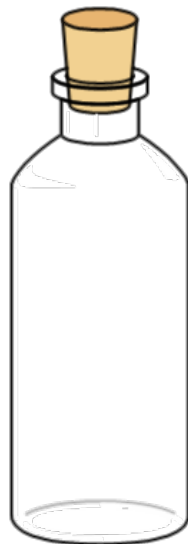
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Fourth step in the scientific method.

Prediction

Prediction

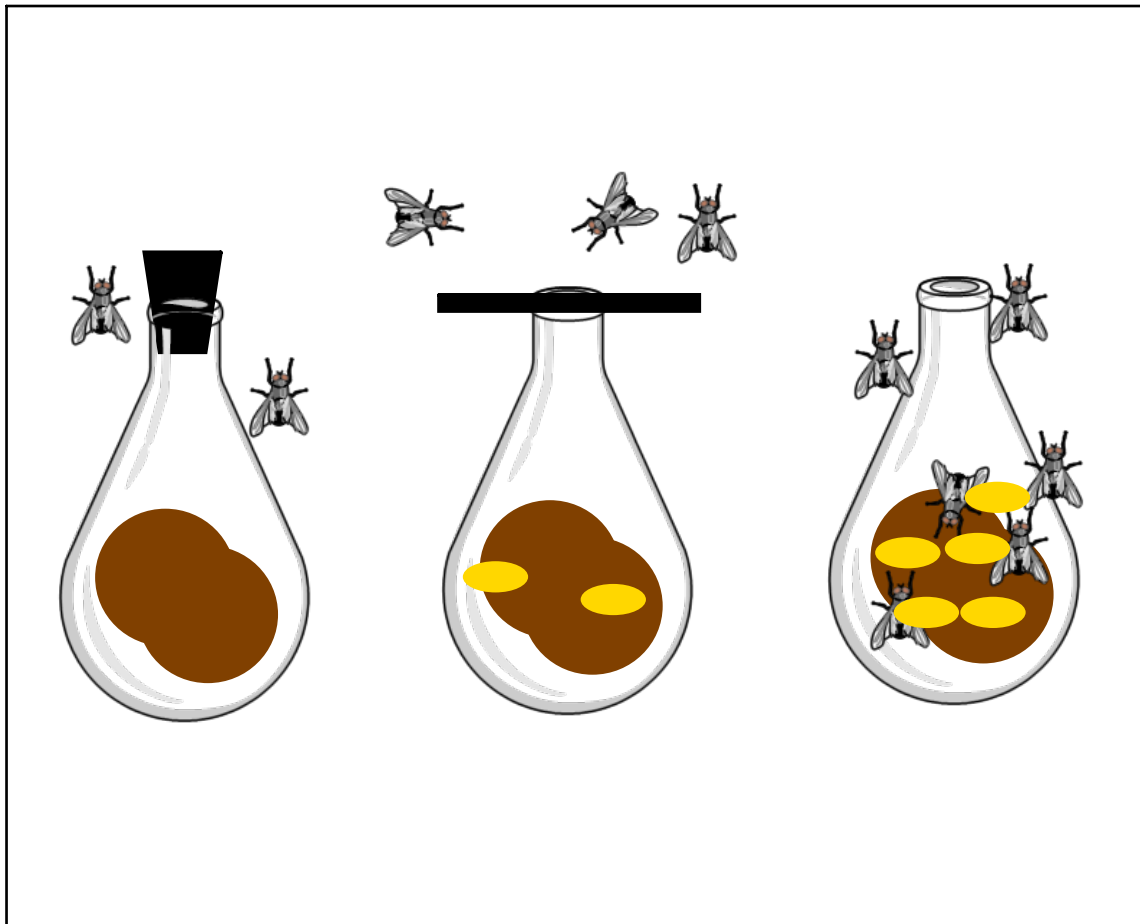
- **Prediction:** If meat cannot turn into flies, rotting meat in a sealed (fly-proof) container should not produce flies or maggots.



Fifth step in the scientific method.

Experiment

Experiment



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Sixth step in the scientific method.

Conclusion

Conclusion

Seventh step in the scientific method.

Repeat

Repeat

Put on your thinking caps

- An insurance company is claiming that white cars are safer than other cars. Work with a partner and form a model for a research project that would determine the validity of the "white- car claim."

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Experiment Observation Hypothesis
Question Repeat Conclusion Prediction

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