

The scientific method

Easton White

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Changes to the syllabus

Week	Date	Topic	In-class activity	Homework
1	9-Jan	Introduction, code of conduct, class goals		Read Baloney Detection Kit and answer questions on Canvas
2	16-Jan	Discuss Sagan's kit. Logical fallacies	In-class: Logical fallacy detection	Assignment: Online video and questions
3	23-Jan	Scientific method	Group project: Black box activity	Finish group project
4	30-Jan	Quantitative thinking	Group project: Fermi problems	Finish group project
5	6-Feb	Common marketing strategies		Paper: Write about short video/news article
6	13-Feb	Prosecutors fallacy and the courtroom		Assignment: Breast cancer problem
7	20-Feb	Guest Lecture: Navigating the Web		
8	27-Feb	Guest Lecture: Media and Politics		
9	6-Mar	How to call out bullshit and teach others about detecting bullshit		Paper: Choose tool to add or expand on
10	13-Mar	TBD		

Think-pair-share exercise

What is science?

One definition

Science: collecting facts about natural processes

So, what is science?

Oxford dictionary: the intellectual and practical activity encompassing the systematic study of the structure and behavior of the physical and natural world through observation and experiment

Black box activity
You have 25 minutes

Two steps:

- Answer questions about the object in your box
- Trade boxes and papers with another group (peer review), have them evaluate the evidence that you presented

Questions about black box activity

- What do you think was in your box? What is your evidence?

Questions about black box activity

- What do you think was in your box? What is your evidence?
- Did you agree with the group you evaluated in peer review?

Questions about black box activity

- What do you think was in your box? What is your evidence?
- Did you agree with the group you evaluated in peer review?
- How does this activity related to science is done?

The scientific method

Scientific Method



PURPOSE

What do I want to learn?



RESEARCH

Find out as much about your topic as you can.



HYPOTHESIS

Predict what the answer to the problem is.



EXPERIMENT

Design a test to confirm or disprove your hypothesis.



ANALYSIS

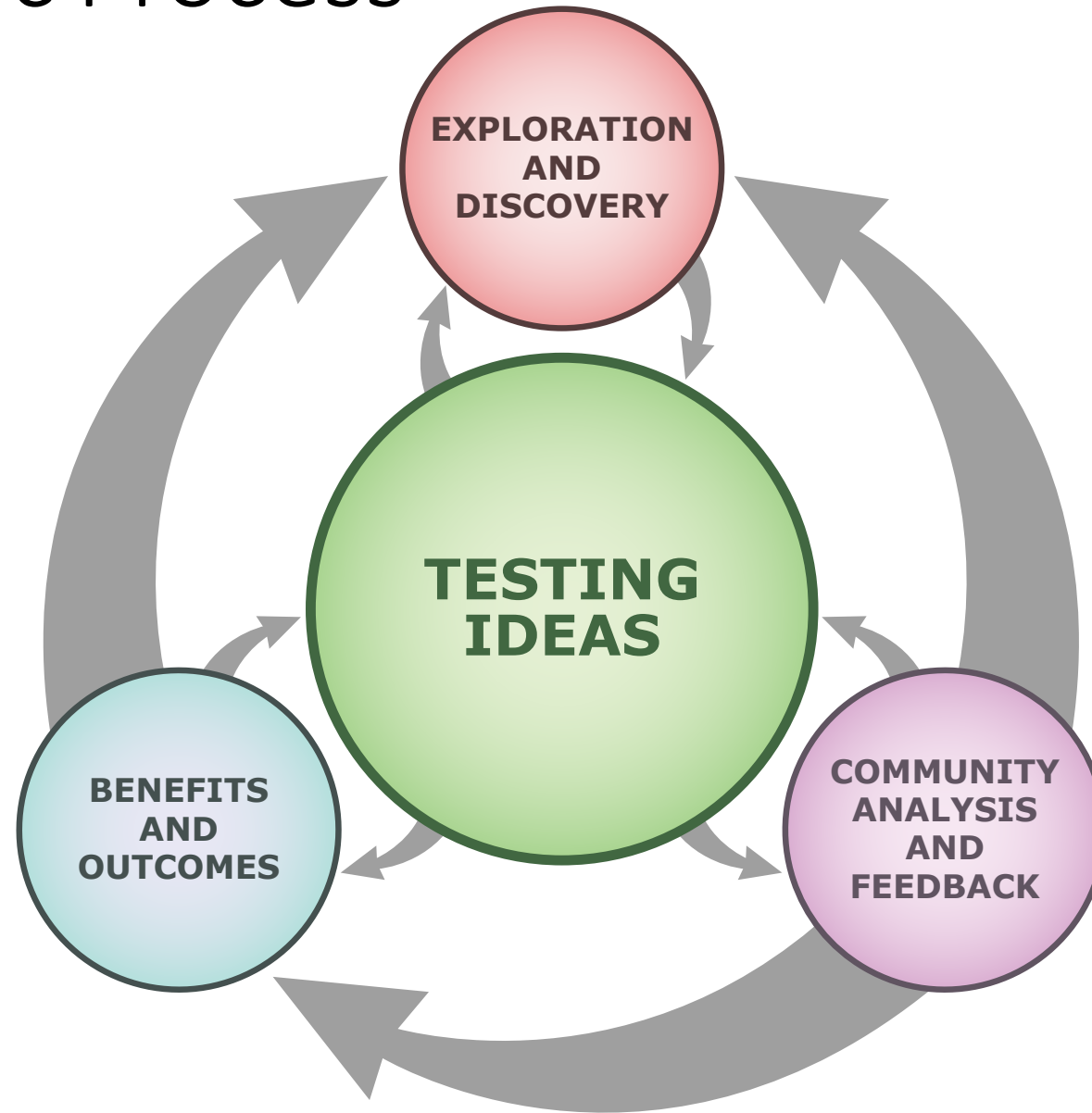
Record what happened during the experiment.

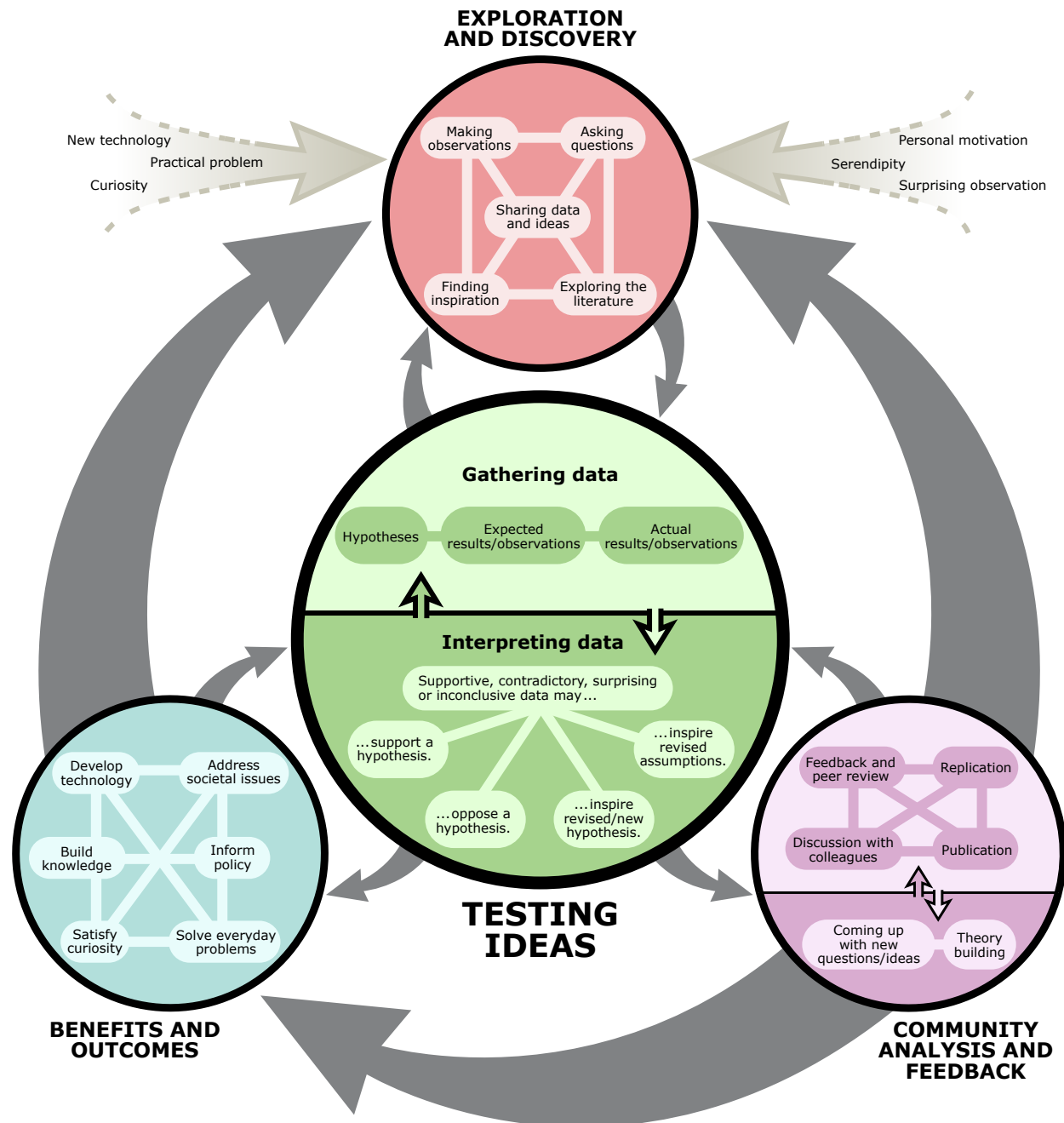


CONCLUSION

Was my hypothesis correct?

The Scientific Process





Homework for next week

- Online exercises in preparation for next week
- This will be posted on Thursday