
home

Scientific Method & Cybersecurity Event Analysis

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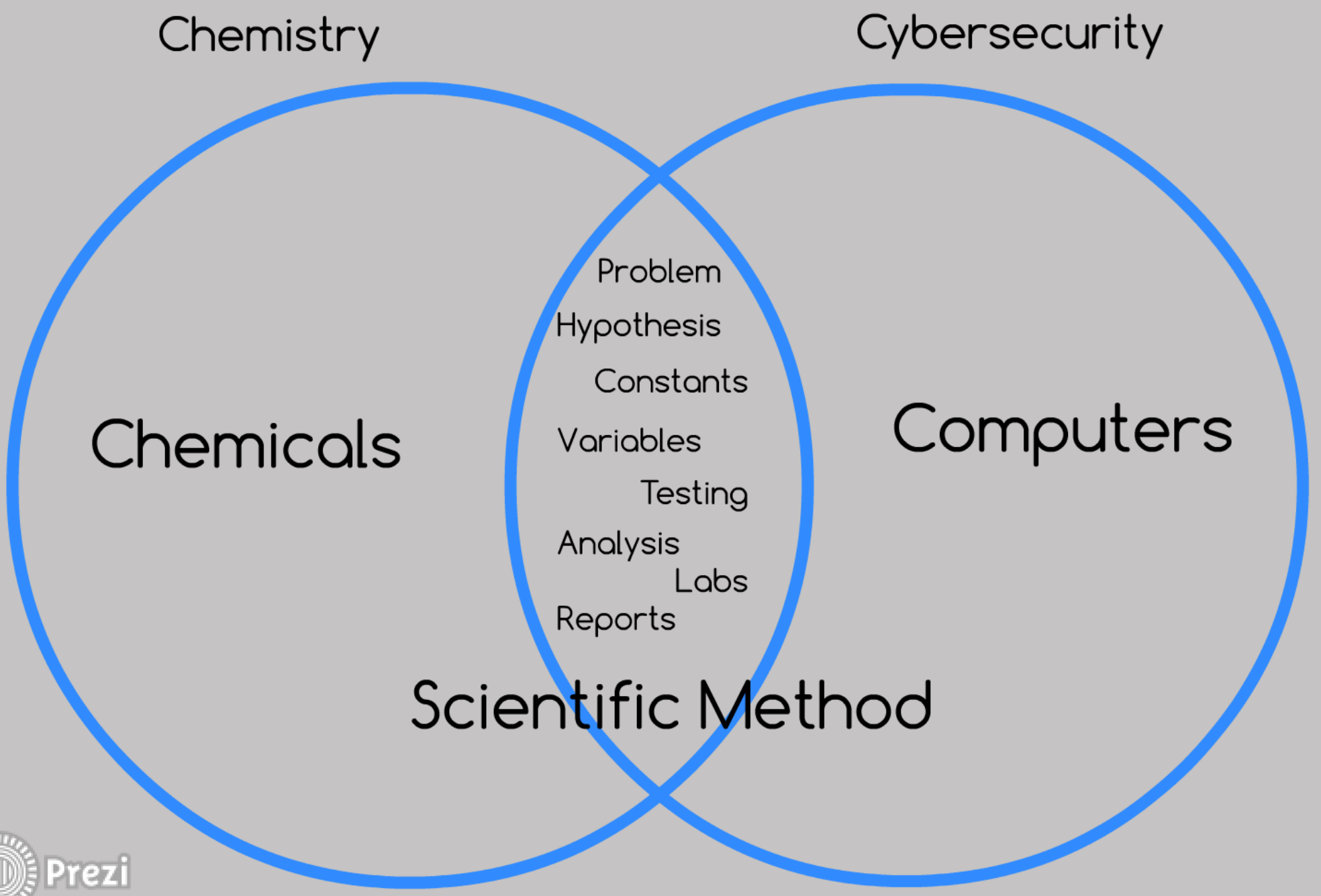
Overview

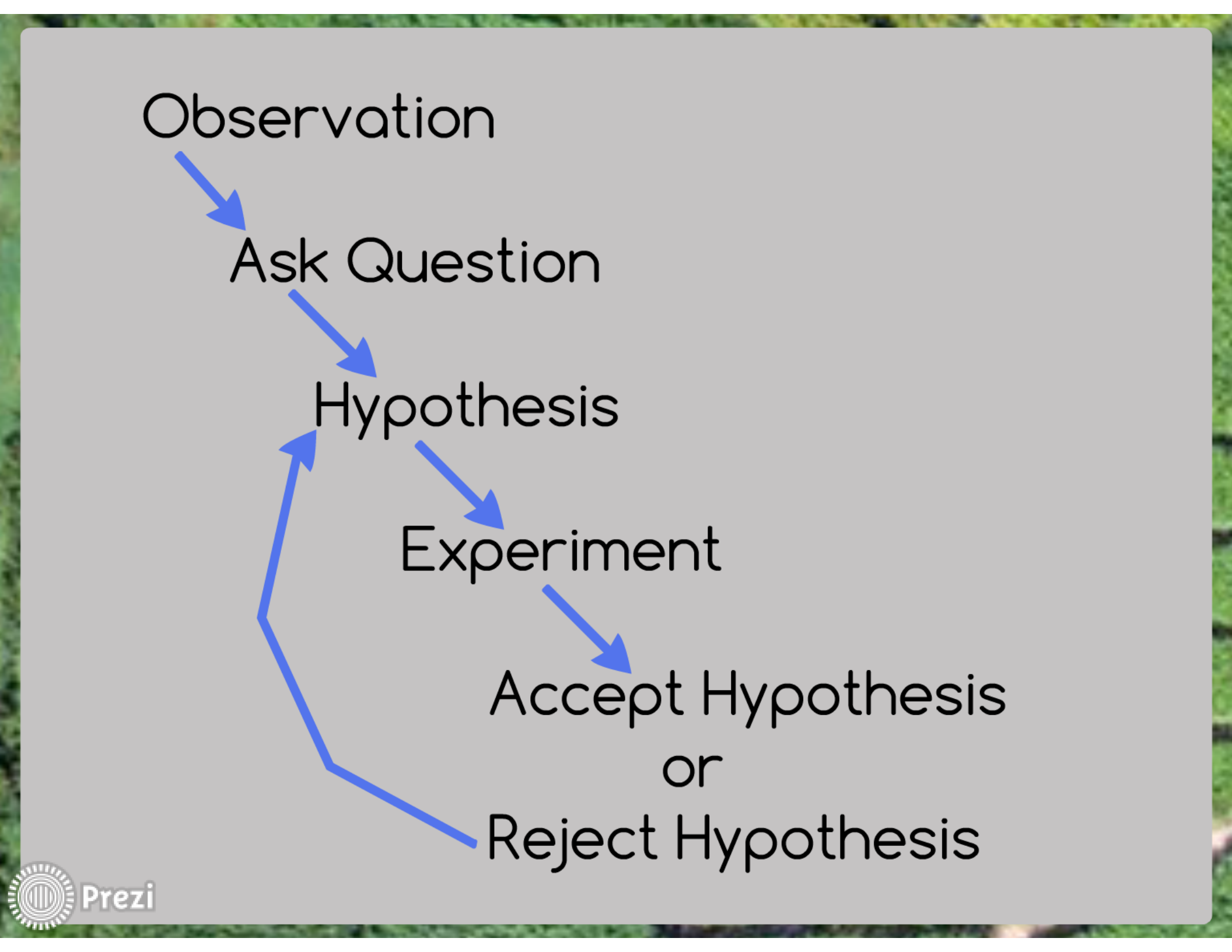
- My background
- Scientific approach to cybersecurity
- Scientific Method
- Scientific Method related to cybersecurity
- Examples
- Summary
- Q&A

About Me

- Mother to one year old son, Oliver
- UNCC- double major Chemistry and Criminal Justice
- Found love for cybersecurity along the way
- Utica College- Class of 2016
- Information Security Analyst Novant Health- 3 years
- Network+, Security+, GCIH

Reoccurring Theme




Observation
Ask Question
Hypothesis
Experiment
Accept Hypothesis
or
Reject Hypothesis

Scientific Method

- Focused thought process
- Helps keep main goal in mind
- Even if you go down a path with experiment that didn't work, can take direct path back to main goal


ENTER

Observation

SIEM alert for Brute Force Logons from one user account to internal server

Question

Why is user account failing logons?

Hypothesis

User changed password recently and has cached credentials on server

Experiment

Check date user last changed password

Check last logoff from server

Accept or Reject

Accept

User had not logged off of server after password was changed the server was still trying to authenticate using the user's old credentials

Observation

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Observation

SIEM alert for multiple devices showing malware infection

Question

What is causing the malware outbreak?

Hypothesis

Infected file on file share

Experiment

Check file causing AV alert

Accept or Reject

Reject

Hypothesis

One website hosting malicious content

Experiment

Check to see if same website

Accept or Reject

Reject

Hypothesis

Different malicious sites

Experiment

Check reputation of websites

Accept or Reject

Reject

Question

What is the AV alert?

Hypothesis

New AV signature

Experiment

Check threat database for AV signature

Accept or Reject

Accept

Question

What is triggering AV alert?

Hypothesis

Something in common on websites

Experiment

Look for similarity of all websites being visited (/wp-content/plugins)

Accept or Reject

Accept

Hypothesis

WordPress plugin is vulnerable to spyware

Experiment

WordPress plugin vulnerability Google search

Accept or Reject

Accept

Question

What can be done about AV alert?

Hypothesis

Web browsing denied by AV policy

Experiment

All web browsing to sites with URL string (/wp-content/plugins) that were triggered for AV alert was being denied by AV policy for spyware

Accept or Reject

Accept

AV alert was being triggered due to new AV signature for spyware. Users were web browsing to sites that were hosting vulnerable WordPress plugins. Web browsing was being denied for AV policy for spyware and only remediation is for sites to update vulnerable WordPress plugins

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Questions?

Resources

Google Images

https://www.google.com/search?q=corn+maze+entrance&rlz=1C1GGRV_enUS791US791&pws=0&tbm=isch&source=iu&ictx=1&fir=_Sva5enRLo7hkM%253A%252CveEb5jU68kxgcM%252C_&usg=AI4_-kQC9YZiHy5dMxO04mUmePsTS5lqxg&sa=X&ved=2ahUKEwjojIvkmPrdAhWqr1kKHQBBBngQ9QEwAHoECAUQBA&safe=active&ssui=on#imgrc=_Sva5enRLo7hkM:

https://www.google.com/search?rlz=1C1GGRV_enUS791US791&pws=0&biw=1920&bih=1009&tbm=isch&sa=1&ei=NQ-9W7_RCMXz5gLTrb_YCw&q=north+carolina+and+south+carolina+corn+maze&oq=north+carolina+and+south+carolina+corn+maze&gs_l=img.3...30699.37458..37519...0.0..6.0.0.....39....1..gws-wiz-img._xqZxKWDMOQ&safe=active&ssui=on#imgrc=psfbMAInBEN6kM:

https://science.howstuffworks.com/innovation/scientific-experiments/scientific-method6.htm

https://www.zdnet.com/article/thousands-of-wordpress-sites-backdoored-with-malicious-code/