

Fermilab Education and Public Engagement Activity Template

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Activity Name Mobile Phone Vulnerabilities, Threat and Risk Analysis	
Grade Level Secondary	Unit Topic Connection

The Hook

(Write a two- to three-sentence introduction, including thought-provoking questions related to the activity.)

Scenario/Background Information

(Write a few paragraphs with further information about the activity. What is the problem that is to be investigated? Explain the problem/challenge in terms of a real-world situation that is to be solved.)

Safety

(Explain what cautions students should take during the activity.)

Student Question/Problem/Challenge

(Explain what the student teams will do in their activity.)

Learning Goals/NGSS Performance Expectations

(Explain what students will learn during the activity, including practices and content.)

What will you need?

<u>Supplies</u>	<u>Setup</u> <u>Tips</u>
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Process

(Write a process that will **guide the facilitation** of the activity. Remember that the point of the activity is for the students to think about what **they** need to do to achieve their goals.)

Work in Pairs:

Identify Vulnerabilities of Mobile Phones

- less embedded than a desktop PC
- more apps
- sharing location
- looking for open wifi
- bluetooth

Consider Threats

- experiencing identity theft
- selling private information
- manipulating videos and photos
- clickjacking

Mitigate Risks

- authenticate
- use prepaid credit cards
- avoid linking bank accounts
- read security reports
- utilize security researchers

Wrapping it up

(Provide suggestions for classroom discussion and pacing from lesson to lesson as well as connecting to the curriculum unit topic and learning goal.)

Assessment

(This activity may serve as a performance assessment for a unit. How can the students apply their content knowledge and be aware of the many practices they utilized during the challenge activity? Provide suggestions on how to assess student success. Suggestions may include student logbooks, including notes, data and reflection on their thinking.)

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Standards Connections (Connect to learning goals/performance expectations.)

NGSS Disciplinary Core Ideas	NGSS Science and Engineering Practices	NGSS Crosscutting Concepts
CCSS Math		CCSS ELA
SEL	CTE	
Other		

Resources and References

(List any useful links for teacher background information. List student resources that may be needed.)

We are one Fermilab

<https://news.fnal.gov/wp-content/uploads/2018/10/we-are-one-fermilab.jpg>

How Particle Physics Discovery Works

<https://www.fnal.gov/pub/science/particle-physics-101/how-works.html>

Fermilab Ecology

<https://ecology.fnal.gov/>

NGSS - Science and Engineering

Practices <https://www.nextgenscience.org/sites/default/files/Appendix%20F%20%20Science%20and%20Engineering%20Practices%20in%20the%20NGSS%20-%20FINAL%20060513.pdf>

Science, Technology, Engineering and Mathematics Career Cluster Knowledge and Skill Statements (2008)

<https://cte.careertech.org/sites/default/files/K%26S-CareerCluster-ST-2008.pdf>

CCTC - Career Ready Practices

<https://cte.careertech.org/sites/default/files/CareerReadyPractices-FINAL.pdf>

Project Lead the Way, Engineering

Design <https://www.pltw.org/our-programs/pltw-engineering-curriculum>

5Es

<https://ngss.sdcoe.net/Evidence-Based-Practices/5E-Model-of-Instruction>

Claim, Evidence, and Reasoning

- **BSCS Scientific Explanation Tool -**
https://www.amnh.org/content/download/146458/2328830/file/Explanation_Tool_MASTER.pdf
 - **Rubric**
https://www.amnh.org/content/download/146460/2328840/file/Explanation_Tool%20RUBRIC.pdf
- **Scientific Argument Tool -**
http://sepuplhs.org/pdfs/Argument_Tool_MARCH2016.pdf
 - **Rubric -**
http://www.argumentationtoolkit.org/uploads/2/1/4/1/21417276/evidence_rubric.pdf
- **Sentence Starters for CER -**
<http://www.thinksrsd.com/wp-content/uploads/2014/02/CER-Sentence-Starters-CER.pdf>
- **NSTA Resources on CER -**
https://learningcenter.nsta.org/mylibrary/collection.aspx?id=GBdqFKABr0U_E