

Read Me File – Product Archaeology

Background:

Currently, there is no PathFinder Chapter on Product Archaeology; instead, Students will complete activities in the un-lecture and lab periods over a four week period.

Activities associated with some of the PathFinder Chapters are related to Product Archaeology (PA) and may be re-aligned to cover during this 4-week time period.

Learning Objectives Addressed by this Project

- Collect, record, analyze and interpret technical data to evaluate an object or system of engineering interest;
- Demonstrate curiosity about and articulate how the context (social, environmental, and economic) in which engineering is practiced impacts solutions and designs;
- Differentiate and make connections between the contributions of different engineers (majors and professions) in the development of a product, process or system;
- Function effectively on a team with individual and joint accountability;
- Communicate engineering concepts, ideas and decisions effectively in a variety of formats

Product Archaeology (PA):

This Project provides a great segue into exploring the KEEN 3Cs: Curiosity, Connections, and Creating Value. As Students (via Teams) explore their particular Products, they will demonstrate curiosity about how the Products work; how they ‘fit’ into an ever-changing consumer world; and consider contrarian views regarding typically accepted solutions.

Working via Teams, connections will be formed as research is completed and shared; as this data is compiled, Teams will also learn about creating value by understanding and possibly improving the Products’ usefulness and effectiveness. Teams will conduct testing and analysis to further understand how this value measured as well as potential ideas for improvement.

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There will be a ‘Library’ of Products to Select from for your PA Assignment:

Flashlights	Mugs & Cups
Speakers	Paper Towels
Shampoo	Diapers
Glue	Tennis Balls
Wrist-mounted blood pressure monitor	

You can select as many different Products for your Section / Class as you wish; in other words, if you have 5 Product Teams, you could have each Team assess a different Product; each Team do the same Product; or any combination you desire.

This Library will be available on the Google Drive and will use a common template to guide Instructors on how to best evaluate each Product listed.

WEEK 1 – Week 1 highlights the **PREPARATION Phase** of Product Archaeology

- Determine Product Selection
- Conduct Product Research
- Plan Dissection
- Investigate Product Life Cycle

WEEK 2 – Week 2 highlights the **EXCAVATION Phase** of Product Archaeology

- Dissect the Product
- Complete Reverse Engineering

WEEK 3 – Week 3 highlights the **EVALUATION Phase** of Product Archaeology

- Ask “What If?” type questions
- Conduct Product and Material Experiments

INSTRUCTOR NOTE: Depending upon the Products selected, Instructors may choose to complete the Evaluation Phase prior to the Excavation Phase if they believe the product dissection will impact its performance. For example, a Flashlight can be dissected and re-assembled to continue with Evaluation, other products might not.

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WEEK 4 – Week 4 highlights the EXPLANATION Phase of Product Archaeology

- Draw Conclusions based on Evidence
- Create Presentation based information in meaningful fashion

WEEK 5

- Present Product Archaeology Findings to Class
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Weekly Activities with Project Teams

WEEK 1:

- Determine Projects to Complete
- Conduct Library and On-Line Research
 - Students will generate questions for each of the 4 areas (Social, Environmental, Global, and Economic)
 - Research papers to address the questions they developed
- Construct a Product Timeline
- Summarize Product Economic Data
- Plan for Phase 2 and Phase 3
- **Deliverable for Week 2: Annotated Bibliography**
 - Properly formatted sources
 - Short summaries of the information in those sources
 - 1-sentence analysis of the reliability of the source
 - Focus on the context (social, environmental, global, and economic)

WEEK 2:

- Begin Planning of Experiments, Testing, Evaluation
 - Based on Experimental Design Chapter of PathFinder
 - Students / Teams will determine what types of Experiments / Testing to be performed
- Determine how to take accurate measurements
- Begin layout / organization of Data / Information (Documentation)

WEEK 3:

- Continue / Complete Experiments, Testing, and Evaluation
- Complete accurate measurements
- Compile Data / Information (Documentation)

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WEEK 4:

- Develop a Final Deliverable in Lab Report format to explain:
 - Possible outline:
 - Intro (includes explanation of 4 aspects of Product Archaeology)
 - Background/Lit Review (sourced from Annotated Bibliography)
 - Materials
 - Methods
 - Results & Discussion
 - Properly formatted graphs/tables
 - Discussion of 4 aspects of PA and how they relate to the product and the completed testing
 - Conclusion (includes mention of 4 aspects of PA)
- Execute Oral Presentation / Video Deliverable