



WPI



# Developing Public Interest in the Natural Sciences at the ZHAW, Wädenswil, Switzerland

Meredith Juers

Spencer Keilich

Caitlin Walde

# Outline

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- Student Biographies
- Project Background and Introduction
- Essential Goal and Project Objectives
- Research
- Collection Assessment and Analysis
- Recommendations
- Conclusions

# Student Biographies



**Meredith Juers**

- Industrial Engineering
- Schenectady, NY



**Spencer Keilich**

- Biomedical Engineering
- Windsor, CT



**Caitlin Walde**

- Mechanical Engineering
- Seattle, WA

# Project Background and Introduction

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- ZHAW Formation
- 2007 Chemistry Department Relocation
- Artifacts uncovered
- Disposal or display?



# Essential Project Goal

***Convey the legacy of the ZHAW Chemistry Institute through the preservation and exhibition of its samples, artifacts, and experiments to generate public interest in the natural sciences.***

# Objectives to Achieve this Goal

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- Research means of conservation, conveyance, fundraising, and historical background
- Catalogue the items in the ZHAW collection
- Produce a written feasible exhibition recommendation

# Research

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- History of Chemical Industry in Switzerland
- History of the ZHAW
- Presentation Methods
- Artifact Cataloging and Conservation
- Financing Museums in Switzerland





# Collection Assessment



Experiments and Artifacts



Chemical Vials



Rock and Fossil Samples



Iron Caster



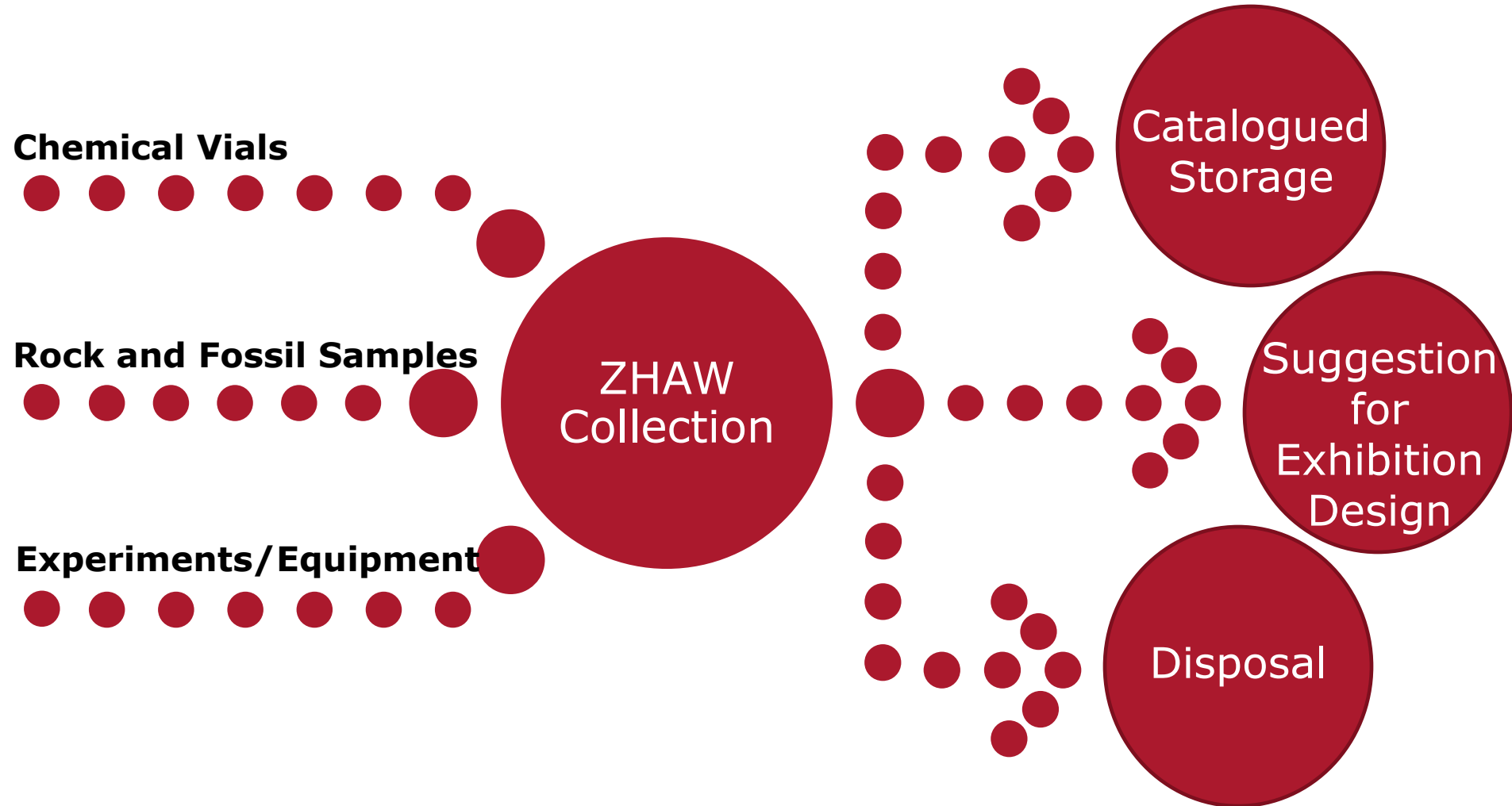
Malachit



Ammonite

# Collection Assessment Methodology

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# Overall Project Direction

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## Sources

- Samples
- Literature
- Interviews
- On-site Evaluation

## Pathways

- Budget
- Implementation
- Future IQP's
- Media/convention
- Space

## Scope

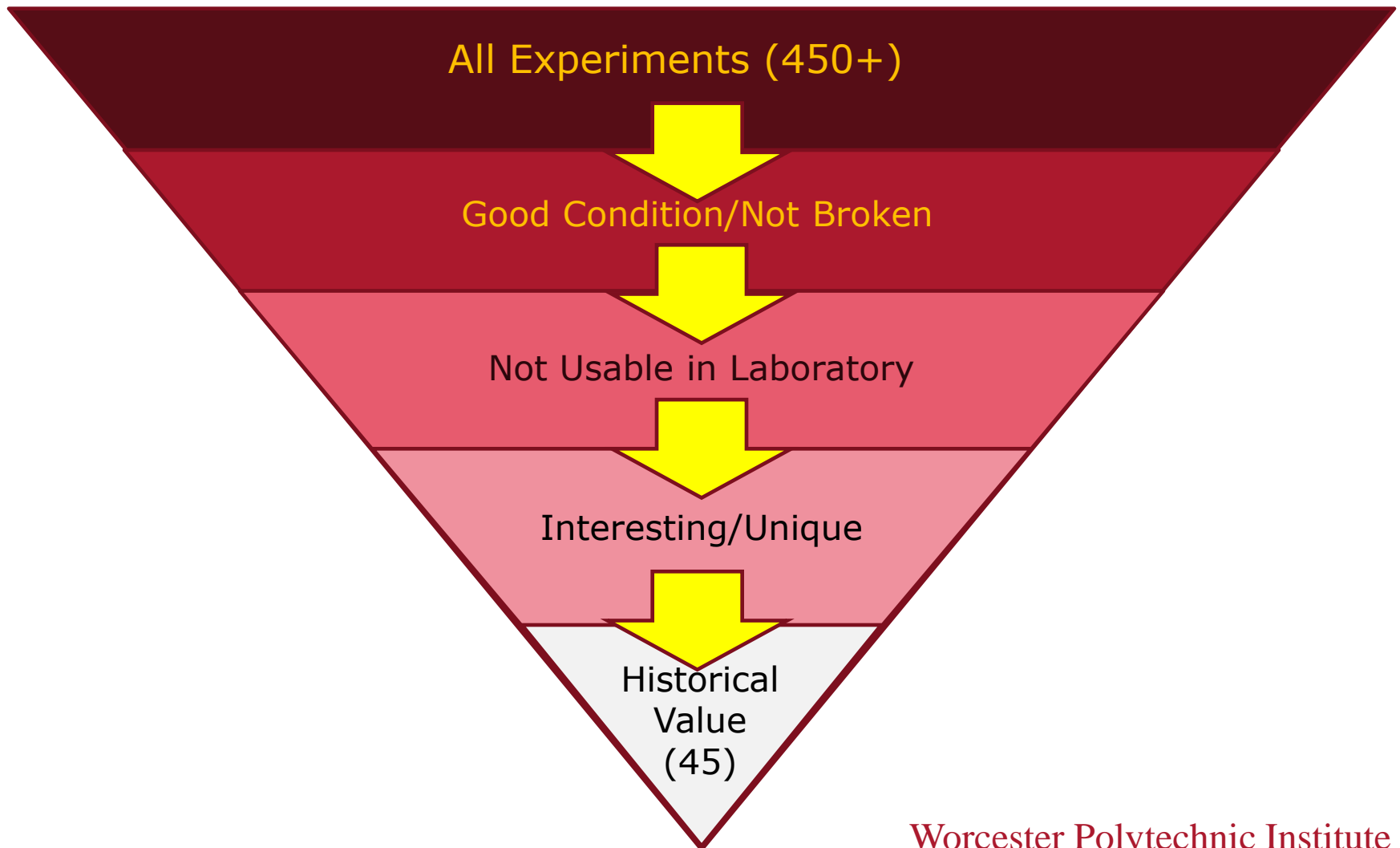
- Chemistry Materials
- Material Science
- Science Fair

## Users

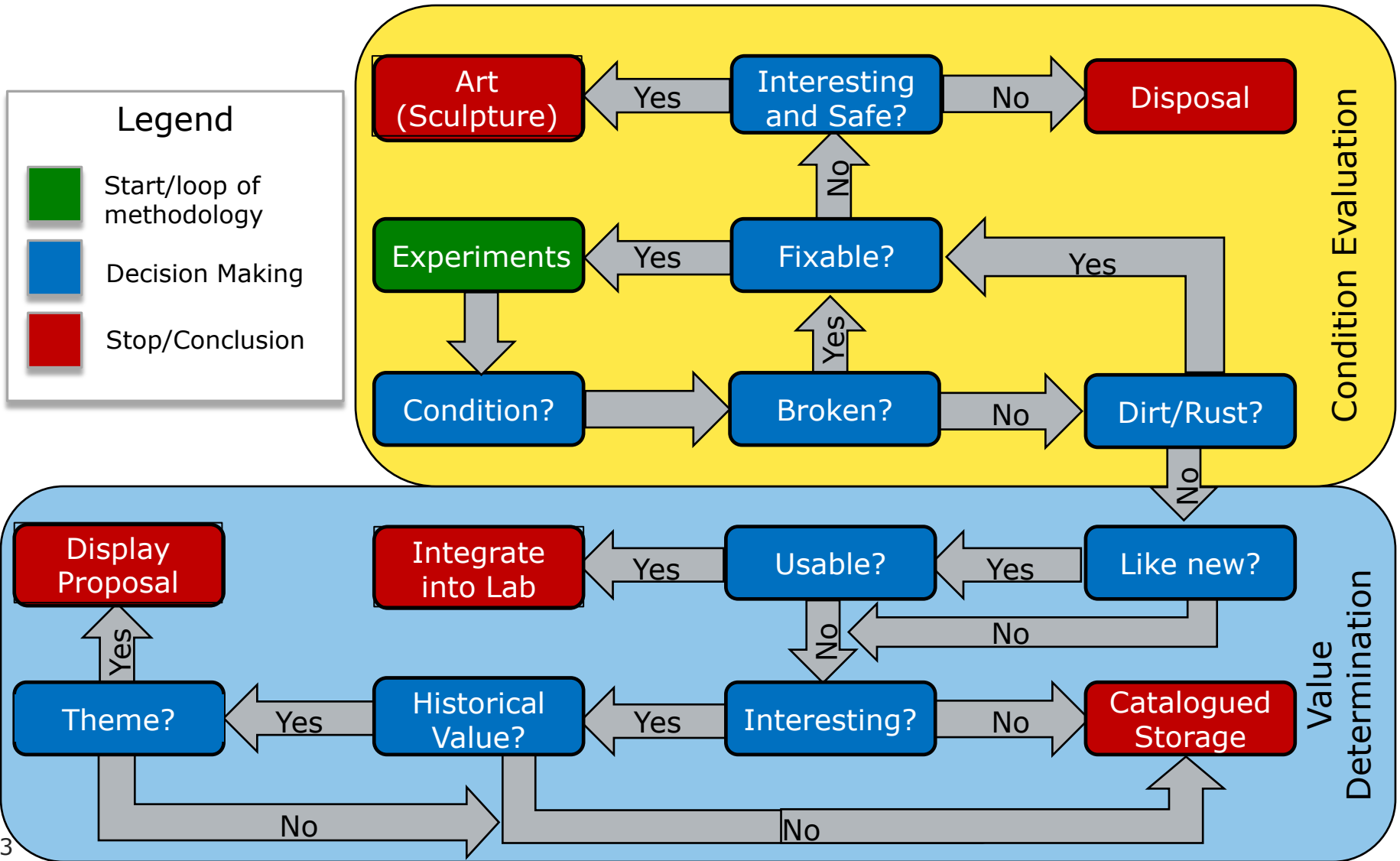
- Education
- Public:
  - General science
  - Mobile exhibition
  - Internet
  - Video
  - Publication

# Equipment and Experiment Analysis

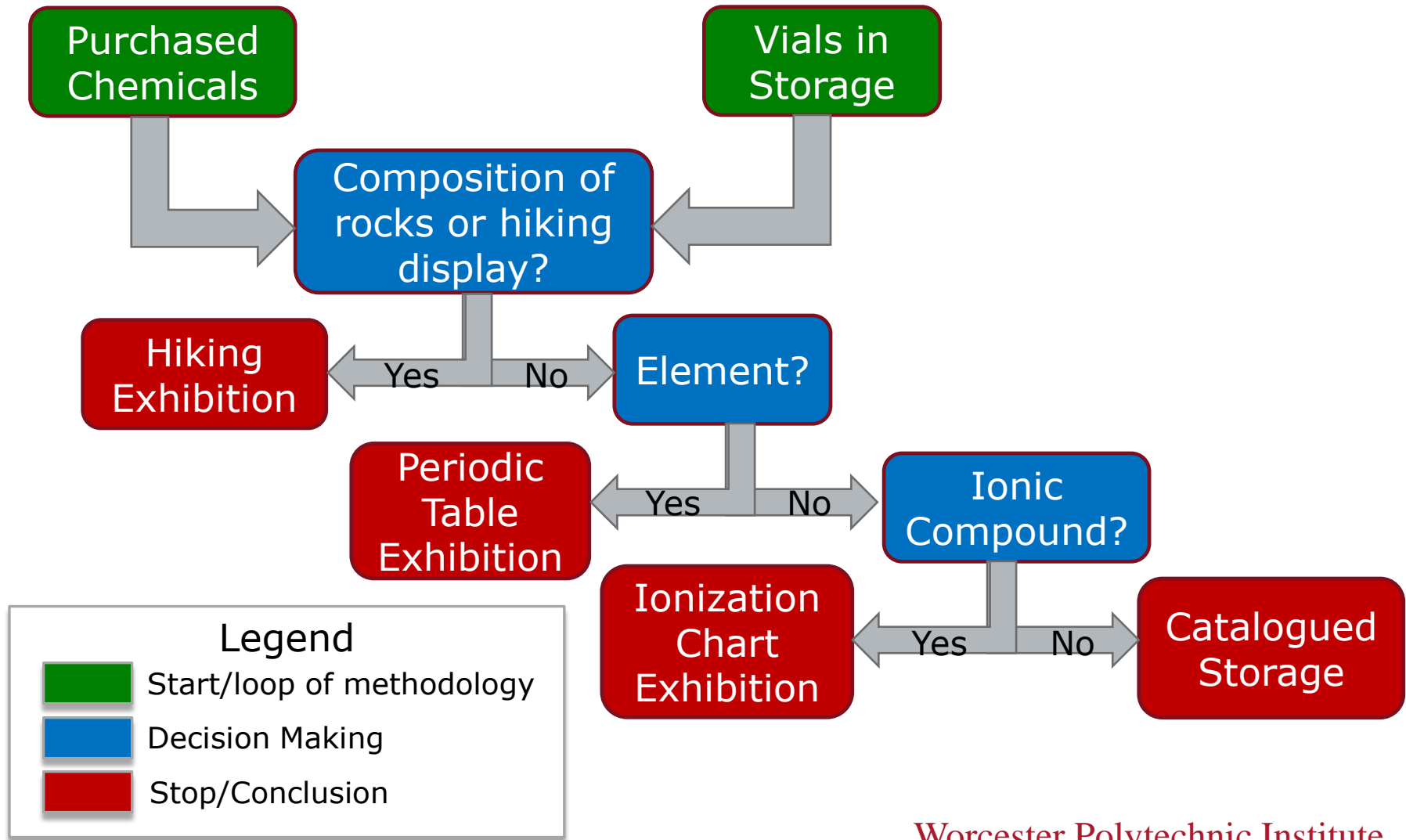
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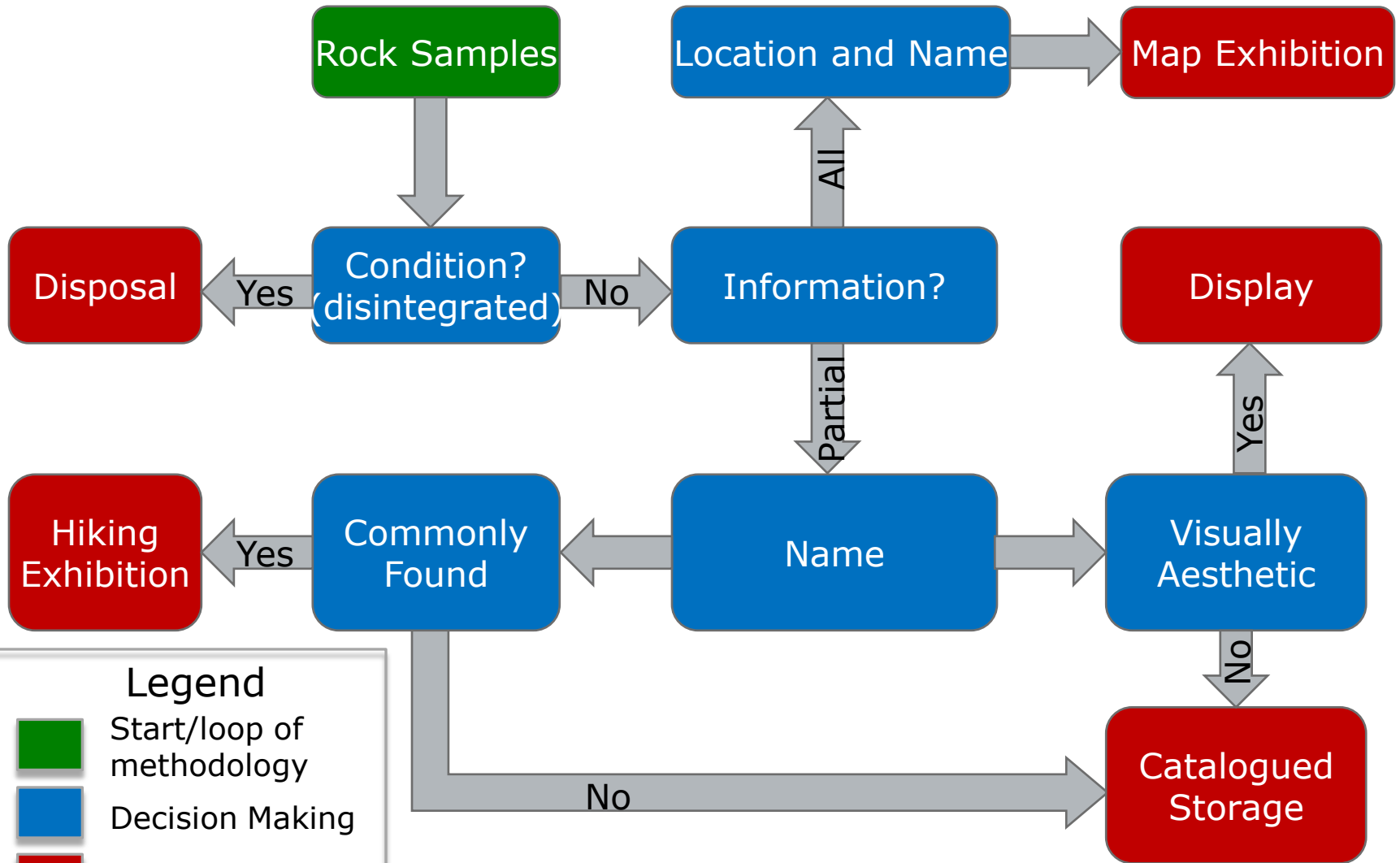
# Equipment and Experiments Methodology



# Chemical Vial Methodology



# Rocks and Fossils Methodology



**Legend**

- Start/loop of methodology
- Decision Making
- Stop/Conclusion

# Phase Development

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- **Feasibility**
- **Value**
- **Condition**
- **Jeopardy**
- **Audience**
- **Interactivity**





# Multi-Phase Plan

## Phase I

- Chemistry and ZHAW history on walls in framed posters
- Basic shelf display of equipment, in a sectioned bookshelf

## Phase II

- Expand the Bookshelf Exhibition
- Add a Hiking Exhibition

## Phase III

- Make Hiking Exhibition Interactive
- Expand Bookshelf and improve equipment
- Add a periodic table wall display

## Phase IV

- Add a molecule building set and ion wall chart
- Maintenance of all other Exhibitions

# Exhibition Recommendation

Common Ion Table

Molecule Building Table

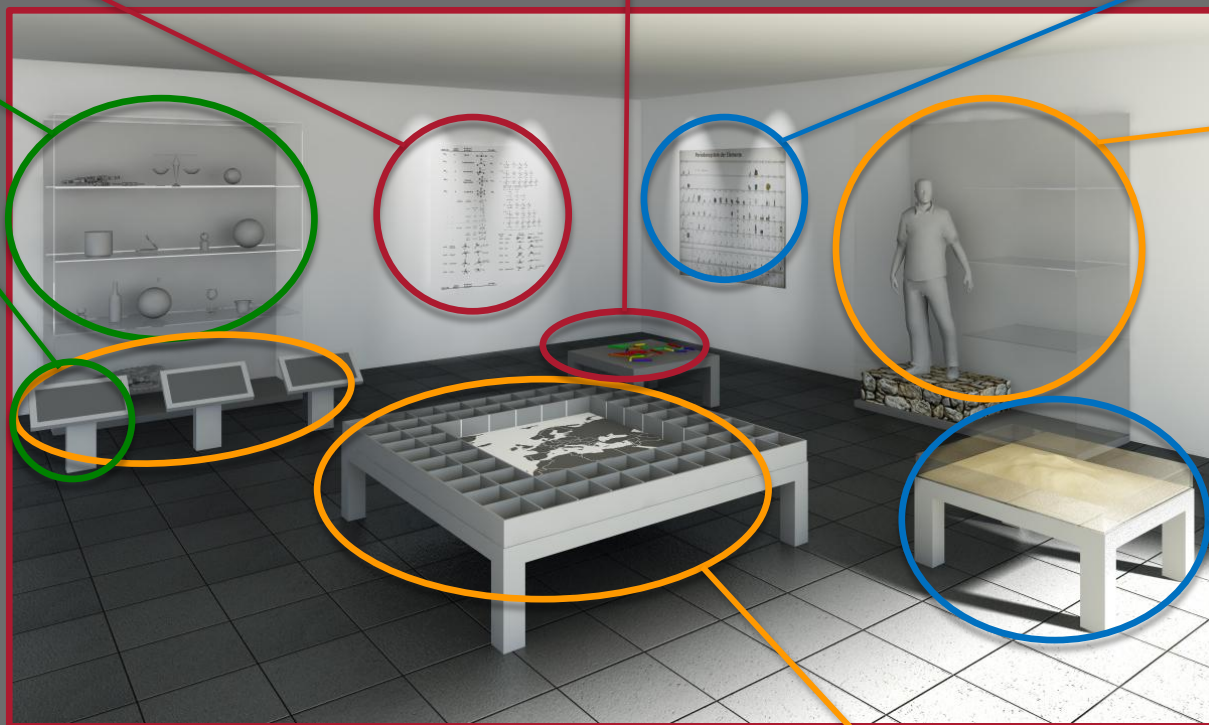
Periodic Table

Bookshelf Exhibition

Interactive Displays

Hiker Exhibition

Sandbox



Map with unique rock locations

# Implementation Cost Charts

<u>Item:</u>	<u>Low Cost:</u>	<u>High Cost:</u>
Experiment Restoration	200 USD	600 USD
Shelving/casing	850 USD	6,000 USD
Lighting	25 USD	100 USD
Touchpad Display	333 USD	600 USD
Framed Posters	60 USD	120 USD
Aesthetics	20 USD	100 USD
Labor	0 USD	1,400 USD
<b>Phase I Total:</b>	<b>1,498 USD</b>	<b>8,920 USD</b>

<u>Item:</u>	<u>Low Cost:</u>	<u>High Cost:</u>
Shelving/casing	500 USD	2,000 USD
Lighting	50 USD	250 USD
Mannequins	280 USD	360 USD
Hiking gear	600 USD	1,500 USD
Aesthetics (map, cards, etc.)	40 USD	200 USD
Touchpad Display	667 USD	1,200 USD
Maintenance	0 USD	100 USD
Labor	0 USD	1,000 USD
<b>Phase II Total:</b>	<b>2,337 USD</b>	<b>6,610 USD</b>

<u>Item:</u>	<u>Low Cost:</u>	<u>High Cost:</u>
Periodic Table Chemicals	100 USD	2,500 USD
Sandbox	90 USD	1,240 USD
Lighting	100 USD	300 USD
Programming, audio, speakers	600 USD	2,000 USD
Aesthetics	50 USD	200 USD
Maintenance	0 USD	100 USD
Labor	0 USD	1,400 USD
<b>Phase III Total:</b>	<b>940 USD</b>	<b>7,740 USD</b>

<u>Item:</u>	<u>Low Cost:</u>	<u>High Cost:</u>
Maintenance	0 USD	100 USD
Shelving/casing	100 USD	500 USD
Lighting	50 USD	300 USD
Molecule (rod/balls)	50 USD	240 USD
Aesthetics (map, cards, etc.)	20 USD	60 USD
Labor	0 USD	500 USD
<b>Phase IV Total:</b>	<b>220 USD</b>	<b>1,700 USD</b>

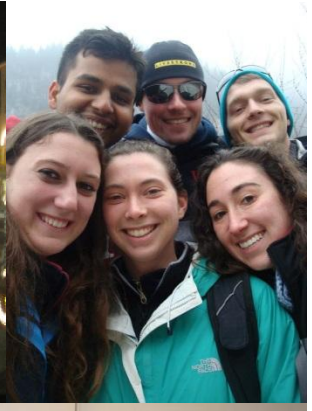
# Conclusions

- Developed and refined clear, achievable deadlines and goals
- Communication
- Identified sponsor needs
- Decision impact
- United individuals separated by:
  - Time
  - Space
  - Cultures
- Became more aware of:
  - Personal
  - Societal
  - Professional Decision Processes





# Our thanks for your support



Worcester Polytechnic Institute



# Questions?



Zurich IQP 2013

