



# **Malcolm Price Laboratory School**

## **Rigor and Relevance: Making Sense of the Quadrants**

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Price Laboratory School/  
Northern University High School  
University of Northern Iowa  
College of Education

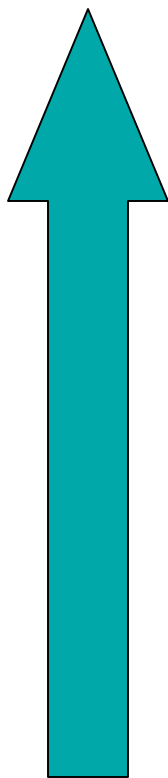
***Iowa High School Project***

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# Why Rigor & Relevance?

- **The Iowa DE has adopted this model as a tool to improve instruction because it . . .**
    - Engages all teachers in school-wide efforts to improve instruction,
    - Focuses on instruction,
    - Provides a common vocabulary with which to discuss teaching and learning.
-

# Rigor



6. Evaluation

Compare and contrast alternate forms of the periodic table.

5. Synthesis

Test known compounds and devise a list of properties for different families on the periodic table.

4. Analysis

Identify periodic relationships of unknown substances based on their physical properties.

3. Application

Calculate the molecular mass of a molecule.

2. Comprehension

Write the atomic mass and atomic number of a missing element on the table.

1. Knowledge/  
Awareness

Memorize the first 20 elements on the periodic table.

**Examples from a Chemistry Unit**

# Relevance



1  
Gains knowledge in one discipline

2  
Uses knowledge in one discipline

3  
Connects knowledge across disciplines

4  
Uses knowledge in real-world situations

5  
Uses knowledge in real-world unpredictable situations

Label foods by nutritional groups.

Rank foods by nutritional group.

Make cost comparisons of different foods considering nutritional value.

Develop a high protein nutritional plan for yourself.

Interview an individual & develop a nutritional plan to address their needs.

**Examples from a Nutrition Unit**

Daggett (2005)

# Rigor/Relevance Framework

Rigor

Evaluation

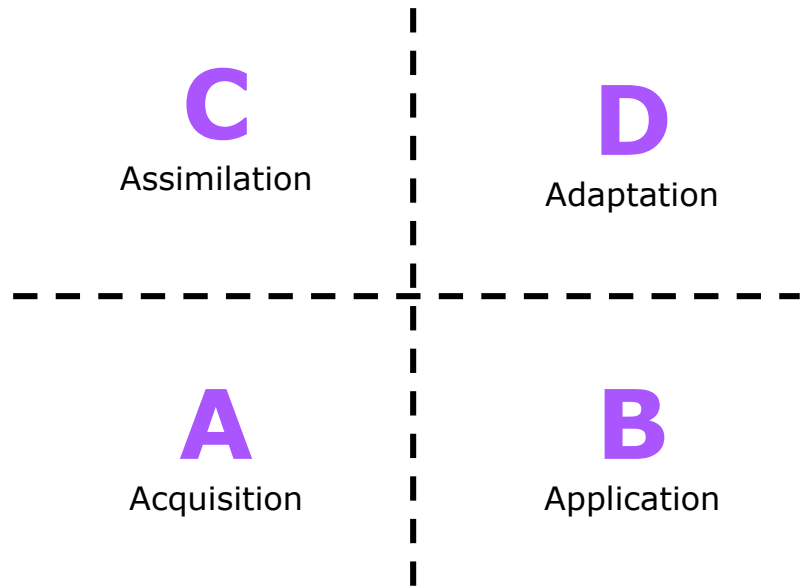
Synthesis

Analysis

Application

Comprehension

Knowledge/  
Awareness



Knowledge  
in one  
discipline

Apply in  
one  
discipline

Apply  
across  
disciplines

Apply to  
real-world  
predictable  
situations

Apply to real-  
world  
unpredictable  
situations

Relevance

# Quadrant A

- Represents simple recall & basic understanding of knowledge for its own sake.
- Students gather and store bits of knowledge and information.
- Students are primarily expected to remember or understand this acquired knowledge.
- Example: Conduct experiments to observe the properties of acids and bases.
- **Low Rigor – Low Relevance**

C	D
<b>A</b>	B

# Quadrant B

- Students use acquired knowledge to solve problems, design solutions, and complete work.
- The highest level of application is to apply appropriate knowledge to new and unpredictable situations.
- Example: Test the pH of various household items and make generalizations about which types of products tend to be acids and which tend to be basic.
- **Low Rigor – High Relevance**

C	D
A	<b>B</b>

# Quadrant C

- Represents more complex thinking but still knowledge for its own sake.
- Students extend and refine their acquired knowledge to be able to use that knowledge automatically and routinely to analyze and solve problems and create unique solutions.
- Example: Conduct tests on a number of samples of acids and bases to determine the general properties of acids and bases.
- **High Rigor – Low Relevance**

C	D
A	B

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# Quadrant D

- Students have the competence to think in complex ways & to apply knowledge and skills they have acquired.
- Even when confronted with unknowns, students are able to use extensive knowledge & skills to create solutions & take action that further develops their skills & knowledge.
- Example: Design your own experiment to determine which antacid neutralizes the most stomach acid & present your results as a “Consumer Reports” article.
- **High Rigor – High Relevance**

C	<b>D</b>
A	B

## Rigor & Relevance: Student – Teacher Engagement

**R  
I  
G  
O  
R**

**Students are thinking deeply about teacher-directed questions**

**C**

**Students are working and thinking.**

**D**

**Teacher is working & thinking.**

**A**

**Student are working on teacher-directed real-life problems.**

**B**

**RELEVANCE**

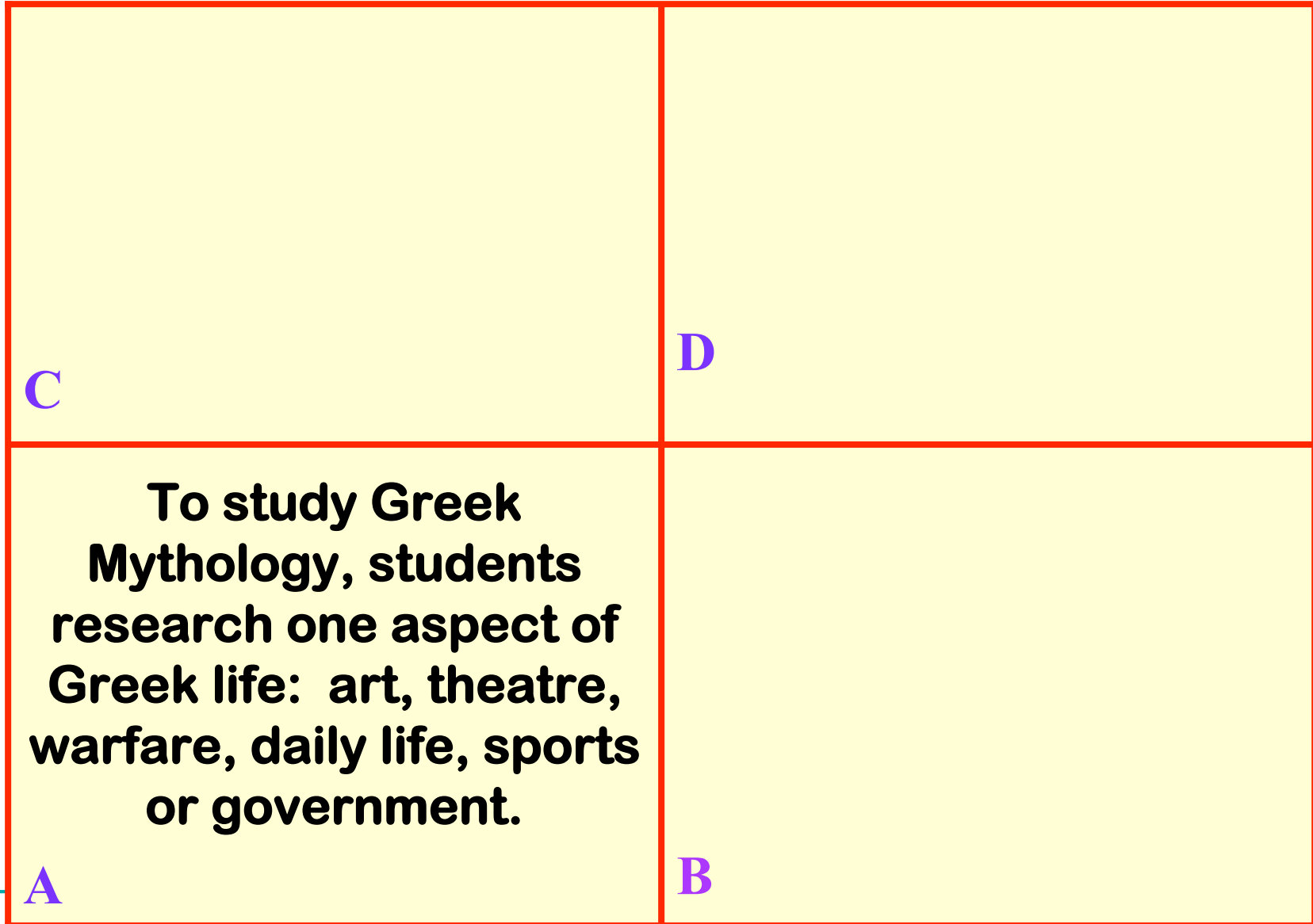
How could you move this in the quadrants?

C	D
<b>Identify the major muscles used when completing a push-up.</b> A	B

How could you move this in the quadrants?

C	D
A	<b>Students participate on a bike ride through a local state park.</b> B

How could you move this in the quadrants?



## How could you move this in the quadrants?

C	D
A	<b>Students select a song of their choice and identify the use of metaphor or imagery in the song.</b> B

## How could you move this in the quadrants?

C	D
A	<b>Visit a cemetery and identify the different types of weathering on the headstone. Determine the best type of rock to use.</b> B

How could you move this in the quadrants?

C

D

**Create a scale model of the solar system that is 100 m long using clay spheres to represent the sun and each of the planets**

A

B

# Relevance



1

2

3

4

5

Gains  
knowledge  
in one  
discipline

Uses  
knowledge  
in one  
discipline

Connects  
knowledge  
across  
disciplines

Uses  
knowledge in  
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# Rigor

6. Evaluation

5. Synthesis

4. Analysis

3. Application

2. Comprehension

1. Knowledge/  
Awareness

