ABSS Math Unit Planning Template

Introduction:

<table>
<thead>
<tr>
<th>Grade/Course:</th>
<th>9_12</th>
<th>Discrete Mathematics</th>
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<tbody>
<tr>
<td>Unit Number and Title:</td>
<td>Unit 4 - Matrices</td>
<td></td>
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<tr>
<td>Suggested Pacing (# of days):</td>
<td>8 days</td>
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Mathematical Practices

P1 Make sense of problems and persevere in solving them.
P2 Reason abstractly and quantitatively.
P3 Construct viable arguments and critique the reasoning of others.
P4 Model with mathematics.
P5 Use appropriate tools strategically.
P6 Attend to precision.
P7 Look for and make use of structure.
P8 Look for and express regularity in repeated reasoning.

Conceptual Overview

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P2 Reason abstractly and quantitatively.
P3 Construct viable arguments and critique the reasoning of others.
P4 Model with mathematics.
P5 Use appropriate tools strategically.
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P7 Look for and make use of structure.
P8 Look for and express regularity in repeated reasoning.

Essential Understandings

CCSS Vector and Matrix Quantities CCSS.9_12.MA.N.VM.6 (+) Use matrices to represent and manipulate data, e.g., to represent payoffs or incidence relationships in a network.

CCSS Vector and Matrix Quantities CCSS.9_12.MA.N.VM.8 (+) Add, subtract, and multiply matrices of appropriate dimensions.

CCSS Vector and Matrix Quantities CCSS.9_12.MA.N.VM.9 (+) Understand that, unlike multiplication of numbers, matrix multiplication for square matrices is not a commutative operation, but still satisfies the associative and distributive properties.

SCS The learner will use matrices and graphs to model relationships and solve problems.

SCS.9_12.MA.1.01.a Display and interpret data.

SCS The learner will use matrices and graphs to model relationships and solve problems.

SCS.9_12.MA.1.01.b Write and evaluate matrix expressions to solve problems.

Learning Targets

- Determine the dimensions of a matrix
- Identify which matrices can be added, subtracted or multiplied.
- Add, subtract and multiply matrices using the calculator.
- Define categories for the rows and columns of a matrix.
- Multiply matrices to solve problems.
- Show associative and distributive properties hold for multiplication but commutative does not.
- Create a transition matrix using given probabilities of an occurrence
- Use matrix multiplication to calculate from Markov Chain information
- Use Leslie population model to predict populations in the future
- Use matrices to calculate the Leslie Population Model to predict populations in the future
- Use matrices to calculate the total population in the future
- Make inferences of what may happen to a population and use matrices to support
- Create the equations and calculate for the input/output of a one sector economy
- Use matrices to determine the input/output for a two- or more sector economy

Essential Terminology

Literacy Integration

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Technology Integration

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Websites

Assessment

Formative Performance Tasks

Summative

Resources

Learning Plan

Instructional Sequence

1- intro matrices (add, subtract, multiply)
2- matrix multiplication
3- Markov Chains
4- Leslie pt 1
5- Leslie pt 2 (be sure to talk about inferences of what happens with the table)
6- Leontief input/output
7- Review
8- Test

Differentiation

Remediation

Enrichment