

Mathematical Models with Applications
Correlation to TEKS with materials from MMIST/CCCC CD/Clarifying Lessons

Note TEKS 1a, 1b, and 1c are omitted as specific student expectations since they should be done throughout the course.

Data

2a. Interpret line graphs, bar graphs, circle graphs, histograms, and scatter plots

Institute Sections:

I. 1.2, 2.1, 2.2, 3.1, 3.2

Intro to II (pp130-132)

II. 3.1

IV. 1.1, 2.1, 3.2

Institute Student Activities:

I. 1.1, 2.1, 2.2, 3.1

II. 1.2, 2.2, 3.1

III. 3.2

IV. 1.1, 2.1, 3.2

CCCC CD:

Prediction, Rain, Animation, Motion, Testing, Oscillation, Wildlife

Clarifying Lessons

The Sounds of Music

What's Your Rate of Change?

2b. Analyze data, central tendency, variability and correlation to make inferences

Institute Sections:

I. 2.1, 2.2, 4.2

Institute Student Activities:

I. 2.1, 2.2, 4.2

II. 1.1

III. 3.2

CCCC CD:

Prediction, Testing, Growth

2c. Analyze graphs from journals, newspapers to determine validity of argument

Institute Sections:

I. 1.2, 2.1, 3.2

III. 1.2

Institute Student Activities:

II. 1.2

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2d. Use regression to describe linear, quadratic, and exponential data, select model and interpret information

Institute Sections:

- I. 2.2, 4.2
- II. 1.2
- IV. 1.2, 2.1

Institute Student Activities:

- I. 1.2, 2.2, 3.1, 4.2
- III. 3.2
- IV. 1.1, 2.1

CCCC CD:

Prediction, Testing, Oscillation, Growth

Clarifying Lesson

What's Your Rate of Change?

Data

3a. Develop questions, gather and analyze data, draw conclusions

Institute Sections:

- I. 4.2
- Intro to II (pp. 130-132)
- II. 1.1, 1.2, 3.2, 4.1, 4.2
- Intro to III (pp. 208-210)
- III. 3.1
- IV. 3.2

Institute Student Activities:

- I. 2.2, 4.2
- II. 1.1, 2.1, 2.2, 3.2
- III. 1.1, 3.2
- IV. 3.2

CCCC CD:

All

3b. Communicate by written report, visual display, oral report, or multi-media presentation

Institute Sections:

- II. 1.1
- III. 3.1

Institute Student Activities:

- III. 3.2

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CCCC CD:

Rain, Motion, Testing, Oscillation, Wildlife, Growth

3c. Determine the model for making predictions from a given set of data

Institute Sections:

I. 1.2

Intro to II (pp130-132)

II. 2.1, 2.2, 3.2, 4.1

III. 1.2

IV. 1.1, 1.2

Institute Student Activities:

II. 1.2, 2.1, 3.2

III. 1.2, 3.2

IV. 1.1

CCCC CD:

Rain, Animation, Motion, Testing, Oscillation, Wildlife, Growth

Clarifying Lesson

What's Your Rate of Change?

Probability

4a. Compare theoretical and empirical probability

Institute Sections:

Intro to I (pp1-6)

Institute Student Activities:

None

CCCC CD:

Rain, Testing, Wildlife

4b. Use experiments to determine reasonableness of theoretical binomial or geometric models

Institute Sections:

None

Institute Student Activities:

None

CCCC CD:

Prediction, Testing

Finance

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5a. Use rates, linear functions, and direct variation for personal finance, budgeting, compensations, deductions

Institute Sections:

- I. 1.1
- III. 1.1

Institute Student Activities:

- III. 1.1, 1.2, 3.2

5b. Personal taxes

Institute Sections:

None

Institute Student Activities:

None

5c. Decisions about banking

Institute Sections:

- III. 3.1

Institute Student Activities:

None

Finance

6a. Analyze payments in retail purchasing

Institute Sections:

None

Institute Student Activities:

None

6b. Use amortization on home financing, compare buying/renting

Institute Sections:

- III. 2.2, 3.1

Institute Student Activities:

None

6c. Use amortization on automobile financing, compare buying/leasing

Institute Sections:

- III. 2.1, 2.2, 3.1

Institute Student Activities:

- III. 2.1, 2.2

Finance

Mathematical Models with Applications
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7a. Analyze types of savings (simple and compound interest)

Institute Sections:

- I. 1.1
- III. 2.2

Institute Student Activities:

None

7b. Analyze coverage options and rates on insurance

Institute Sections:

None

Institute Student Activities:

None

7c. Compare investment options including stocks, bonds, annuities and retirement

Institute Sections:

III. 2.1, 3.1

Institute Student Activities:

None

Science

8a. Use geometric models for growth and decay (population, biology, and ecology)

Institute Sections:

- I. 1.1
- III. 1.2
- Intro to IV (pp. 331-333)
- IV. 2.2

Institute Student Activities:

- II. 2.1
- IV. 2.2

CCCC CD:

Wildlife, Growth

8b. Use trig ratios and functions to calculate distances and model periodic motion

Institute Sections:

II. 3.2, 4.2

Institute Student Activities:

II. 3.2

CCCC CD:

Oscillation

Mathematical Models with Applications
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8c. Use direct and inverse variation to describe physical laws (Hook's, Newton's, Boyle's)

Institute Sections:

II. 1.1, 4.1

IV. 3.2

Institute Student Activities:

IV. 3.2

CCCC CD:

Prediction, Animation, Motion

Clarifying Lesson

The Sounds of Music

Art and Music

9a. Use geometric transformations, symmetry and perspective drawings to describe patterns in art and architecture

Institute Sections:

I. 4.1

IV. 3.1

Institute Student Activities:

I. 4.1

IV. 3.1

Clarifying Lesson

Two-Point Perspective Drawing

9b. Use geometric transformations, proportions, and periodic motion to describe patterns in music

Institute Sections:

II. 4.2

IV. 2.1, 2.2

Institute Student Activities:

II. 4.2

IV. 2.1, 2.2

Clarifying Lesson

The Sounds of Music