

A Correlation of
Population Connection Materials

from

Nuestro Mundo, Nuestro Futuro
(Our World, Our Future)

to

New Jersey Core Curriculum
Content Standards

Organized by:

1. Subject

2. Grade

3. Standard

4. Population Connection Activity

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Language Arts

Grade 3

Language Arts.3.3.3 (Speaking)

All Students Will Speak In Clear, Concise, Organized Language That Varies In Content And Form For Different Audiences And Purposes.

A. Discussion (small group and whole class)

1. Listen and follow a discussion in order to contribute appropriately.
If the World Was an Apple
Timber!

B. Questioning (Inquiry) and Contributing

1. Develop appropriate questions to explore a topic.
Timber!

Language Arts.3.3.4 (Listening)

All Students Will Listen Actively To Information From A Variety Of Sources In A Variety Of Situations.

B. Listening Comprehension

1. Follow two-and three-step directions.
Timber!

Grade 4

Language Arts.4.3.1 (Reading)

All Students Will Understand And Apply The Knowledge Of Sounds, Letters, And Words In Written English To Become Independent And Fluent Readers, And Will Read A Variety Of Materials And Texts With Fluency And Comprehension.

G. Comprehension Skills and Response to Text

5. Follow simple multiple-steps in written instructions.
Timber!

Language Arts.4.3.3 (Speaking)

All Students Will Speak In Clear, Concise, Organized Language That Varies In Content And Form For Different Audiences And Purposes.

B. Questioning (Inquiry) and Contributing

6. Solve a problem or understand a task through group cooperation.
Timber!

Grade 5

Language Arts.5.3.3 (Speaking)

All Students Will Speak In Clear, Concise, Organized Language That Varies In Content And Form For Different Audiences And Purposes.

A. Discussion (small group and whole class)

5. Participate in class discussions appropriately.
If the World Was an Apple
Timber!

B. Questioning (Inquiry) and Contributing

6. Solve a problem or understand a task through group cooperation.
Timber!

Language Arts.5.3.5 (Viewing And Media Literacy)

All Students Will Access, View, Evaluate, And Respond To Print, Nonprint, And Electronic Texts And Resources.

A. Constructing Meaning

2. Use graphs, charts, and diagrams to report data.
Timber!

Grade 6

Language Arts.6.3.1 (Reading)

All Students Will Understand And Apply The Knowledge Of Sounds, Letters, And Words In Written English To Become Independent And Fluent Readers, And Will Read A Variety Of Materials And Texts With Fluency And Comprehension.

G. Comprehension Skills and Response to Text

4. Construct meaning from text by making conscious connections to self, an author, and others.
Maria's Education

H. Inquiry and Research

4. Interpret and use graphic sources of information such as maps, graphs, timelines, or tables to address research questions.

People Count: Facing the Population Challenge

5. Summarize and organize information by taking notes, outlining ideas, and/or making charts.
Everything Is Connected

Language Arts.6.3.3 (Speaking)

All Students Will Speak In Clear, Concise, Organized Language That Varies In Content And Form For Different Audiences And Purposes.

A. Discussion (small group and whole class)

1. Support a position with organized, appropriate details.
Environmental Dilemmas

2. Stay focused on a topic and ask relevant questions.
Environmental Dilemmas

5. Participate in class discussion appropriately.
Environmental Dilemmas
Everything Is Connected
Maria's Education

B. Questioning (Inquiry) and Contributing

4. Discuss information heard, offer personal opinions, and ask for restatement or general explanation to clarify meaning.
Environmental Dilemmas

6. Solve a problem or understand a task through group cooperation.
Everything Is Connected

Language Arts.6.3.5 (Viewing And Media Literacy)

All Students Will Access, View, Evaluate, And Respond To Print, Nonprint, And Electronic Texts And Resources.

A. Constructing Meaning

4. Identify the central theme in a movie, film, or illustration.
Timber!

Grade 7

Language Arts.7.3.2 (Writing)

All Students Will Write In Clear, Concise, Organized Language That Varies In Content And Form For Different Audiences And Purposes.

D. Writing Forms, Audiences, and Purposes (exploring a variety of forms)

9. Demonstrate writing clarity and supportive evidence when answering open-ended and essay questions across the curriculum.

Environmental Dilemmas

Language Arts.7.3.3 (Speaking)

All Students Will Speak In Clear, Concise, Organized Language That Varies In Content And Form For Different Audiences And Purposes.

A. Discussion (small group and whole class)

1. Support a position, acknowledging opposing views.

Environmental Dilemmas

2. Present ideas and opinions spontaneously in response to a topic or other speakers.

Environmental Dilemmas

Maria's Education

5. Participate in an informal debate (e.g., small group discussion).

Environmental Dilemmas

7. Participate in class discussions appropriately.

Environmental Dilemmas

Everything Is Connected

Maria's Education

B. Questioning (Inquiry) and Contributing

3. Talk with others to identify and explore issues and problems.

Environmental Dilemmas

Everything Is Connected

4. Solve a problem or understand a task through group cooperation.

Environmental Dilemmas

Everything Is Connected

Timber!

Language Arts.7.3.4 (Listening)

All Students Will Listen Actively To Information From A Variety Of Sources In A Variety Of Situations.

A. Active Listening

1. Demonstrate active listening behaviors in a variety of situations (e.g., one-on-one or small group).

Environmental Dilemmas

Grade 8

Language Arts.8.3.3 (Speaking)

All Students Will Speak In Clear, Concise, Organized Language That Varies In Content And Form For Different Audiences And Purposes.

A. Discussion (small group and whole class)

1. Support a position, acknowledging opposing views.
Environmental Dilemmas
 2. Present ideas and opinions spontaneously in response to a topic or other speakers.
Environmental Dilemmas
Maria's Education
 7. Participate in class discussion appropriately.
Environmental Dilemmas
Maria's Education
- B. Questioning (Inquiry) and Contributing
4. Solve a problem or understand a task through group cooperation.
Environmental Dilemmas
Everything Is Connected
Timber!

Language Arts.8.3.4 (Listening)

All Students Will Listen Actively To Information From A Variety Of Sources In A Variety Of Situations.

A. Active Listening

1. Demonstrate active listening behaviors in a variety of situations (e.g., one-on-one or small group).
Environmental Dilemmas

Grades 9-12

Language Arts.9-12.3.3 (Speaking)

All Students Will Speak In Clear, Concise, Organized Language That Varies In Content And Form For Different Audiences And Purposes.

A. Discussion

2. Support, modify, or refute a position in small or large-group discussions.

Language Arts.9-12.3.4 (Listening)

All Students Will Listen Actively To Information From A Variety Of Sources In A Variety Of Situations.

A. Active Listening

1. Explore and reflect on ideas while hearing and focusing attentively.
Environmental Dilemmas

Mathematics

Grades K - 12

Math.K-12.4.5 (Mathematical Processes)

All Students Will Use Mathematical Processes Of Problem Solving, Communication, Connections, Reasoning, Representations, And Technology To Solve Problems And Communicate Mathematical Ideas.

A. Problem Solving

1. Learn mathematics through problem solving, inquiry, and discovery.

If the World Was an Apple

Life and Death

Timber!

2. Solve problems that arise in mathematics and in other contexts (cf. workplace readiness standard 8.3).

- Open-ended problems.

- Non-routine problems.

- Problems with multiple solutions.

- Problems that can be solved in several ways.

Life and Death

Timber!

4. Pose problems of various types and levels of difficulty.

Life and Death

Timber!

B. Communication

1. Use communication to organize and clarify their mathematical thinking.

- Reading and writing.

- Discussion, listening, and questioning.

If the World Was an Apple

Life and Death

Timber!

2. Communicate their mathematical thinking coherently and clearly to peers, teachers, and others, both orally and in writing.

If the World Was an Apple

Life and Death

Timber!

4. Use the language of mathematics to express mathematical ideas precisely.

If the World Was an Apple

Life and Death

Timber!

C. Connections

3. Recognize that mathematics is used in a variety of contexts outside of mathematics.

If the World Was an Apple

Life and Death

Timber!

4. Apply mathematics in practical situations and in other disciplines.

If the World Was an Apple

Life and Death

Timber!

D. Reasoning

2. Use reasoning to support their mathematical conclusions and problem solutions.

Life and Death

Timber!

E. Representations

1. Create and use representations to organize, record, and communicate mathematical ideas.

- Concrete representations (e.g., base-ten blocks or algebra tiles).

- Pictorial representations (e.g., diagrams, charts, or tables).

- Symbolic representations (e.g., a formula).

- Graphical representations (e.g., a line graph).

If the World Was an Apple

Life and Death

Timber!

2. Select, apply, and translate among mathematical representations to solve problems.

Life and Death

Timber!

3. Use representations to model and interpret physical, social, and mathematical phenomena.

If the World Was an Apple

Life and Death

Timber!

Grades K-2

Math.K-2.4.1 (Number And Numerical Operations)

All Students Will Develop Number Sense And Will Perform Standard Numerical Operations And Estimations On

All Types Of Numbers In A Variety Of Ways.

A. Number Sense

1. Use real-life experiences, physical materials, and technology to construct meanings for numbers (unless otherwise noted, all indicators for grade 2 pertain to these sets of numbers as well).

- Whole numbers through hundreds.

- Ordinals.

- Proper fractions (denominators of 2, 3, 4, 8, 10).

If the World Was an Apple

Timber!

5. Compare and order whole numbers.

Timber!

B. Numerical Operations

4. Construct, use, and explain procedures for performing addition and subtraction calculations with:

- Pencil-and-paper.

- Mental math.

- Calculator.

Timber!

C. Estimation

1. Judge without counting whether a set of objects has less than, more than, or the same number of objects as a reference set.

Life and Death

Grade 3

Math.3.4.1 (Number And Numerical Operations)

All Students Will Develop Number Sense And Will Perform Standard Numerical Operations And Estimations On All Types Of Numbers In A Variety Of Ways.

A. Number Sense

1. Use real-life experiences, physical materials, and technology to construct meanings for numbers (unless otherwise noted, all indicators for grade 3 pertain to these sets of numbers as well).

- Whole numbers through hundred thousands.
- Commonly used fractions (denominators of 2, 3, 4, 5, 6, 8, 10) as part of a whole, as a subset of a set, and as a location on a number line.

If the World Was an Apple
Life and Death
Timber!

6. Compare and order numbers.

Timber!

C. Estimation

2. Construct and use a variety of estimation strategies (e.g., rounding and mental math) for estimating both quantities and the result of computations.

Life and Death

Math.3.4.2 (Geometry And Measurement)

All Students Will Develop Spatial Sense And The Ability To Use Geometric Properties, Relationships, And Measurement To Model, Describe And Analyze Phenomena.

D. Units of Measurement

2. Select and use appropriate standard units of measure and measurement tools to solve real-life problems.

- Length - fractions of an inch ($\frac{1}{4}$, $\frac{1}{2}$), mile, decimeter, kilometer.
- Area - square inch, square centimeter.
- Weight - ounce.
- Capacity - fluid ounce, cup, gallon, milliliter.

Life and Death

Math.3.4.3 (Patterns And Algebra)

All Students Will Represent And Analyze Relationships Among Variable Quantities And Solve Problems Involving Patterns, Functions, And Algebraic Concepts And Processes.

B. Functions and Relationships

1. Use concrete and pictorial models to explore the basic concept of a function.

- Input/output tables, T-charts.

Life and Death
Timber!

C. Modeling

1. Recognize and describe change in quantities.

- Graphs representing change over time (e.g., temperature, height).

Life and Death
Timber!

Math.3.4.4 (Data Analysis, Probability, And Discrete Mathematics)

All Students Will Develop An Understanding Of The Concepts And Techniques Of Data Analysis, Probability, And Discrete Mathematics, And Will Use Them To Model Situations, Solve Problems, And Analyze And Draw Appropriate Inferences From Data.

A. Data Analysis

2. Read, interpret, construct, analyze, generate questions about, and draw inferences from displays of data.
 - Pictograph, bar graph, table.
 - If the World Was an Apple
 - Timber!

D. Discrete Mathematics - Vertex- Edge Graphs and Algorithms

1. Follow, devise, and describe practical sets of directions (e.g., to add two 2-digit numbers).
 - Timber!

Grade 4

Math.4.4.1 (Number And Numerical Operations)

All Students Will Develop Number Sense And Will Perform Standard Numerical Operations And Estimations On All Types Of Numbers In A Variety Of Ways.

A. Number Sense

1. Use real-life experiences, physical materials, and technology to construct meanings for numbers (unless otherwise noted, all indicators for grade 4 pertain to these sets of numbers as well).
 - Whole numbers through millions
 - Commonly used fractions (denominators of 2, 3, 4, 5, 6, 8, 10, 12, and 16) as part of a whole, as a subset of a set, and as a location on a number line
 - Decimals through hundredths.
 - If the World Was an Apple
 - Life and Death
 - Timber!
3. Demonstrate a sense of the relative magnitudes of numbers.
 - Life and Death
 - Timber!
6. Compare and order numbers.
 - Timber!

B. Numerical Operations

3. Construct, use, and explain procedures for performing whole number calculations and with:
 - Pencil-and-paper.
 - Mental math.
 - Calculator.
 - If the World Was an Apple
 - Life and Death
 - Timber!

C. Estimation

2. Construct and use a variety of estimation strategies (e.g., rounding and mental math) for estimating both quantities and the results of computations.
 - Life and Death

Math.4.4.2 (Geometry And Measurement)

All Students Will Develop Spatial Sense And The Ability To Use Geometric Properties, Relationships, And Measurement To Model, Describe And Analyze Phenomena.

D. Units of Measurement

2. Select and use appropriate standard units of measure and measurement tools to solve real-life problems.
 - Length - fractions of an inch ($1/8$, $1/4$, $1/2$), mile, decimeter, kilometer
 - Area - square inch, square centimeter.
 - Volume - cubic inch, cubic centimeter.
 - Weight - ounce.

- Capacity - fluid ounce, cup, gallon, milliliter.
Life and Death

4. Incorporate estimation in measurement activities (e.g., estimate before measuring).
Life and Death

5. Solve problems involving elapsed time.
Timber!

Math.4.4.3 (Patterns And Algebra)

All Students Will Represent And Analyze Relationships Among Variable Quantities And Solve Problems Involving Patterns, Functions, And Algebraic Concepts And Processes.

A. Patterns

1. Recognize, describe, extend, and create patterns.
 - Descriptions using words, number sentences/expressions, graphs, tables, variables (e.g., shape, blank, or letter).Timber!

C. Modeling

1. Recognize and describe change in quantities.
 - Graphs representing change over time (e.g., temperature, height).
 - How change in one physical quantity can produce a corresponding change in another (e.g., pitch of a sound depends on the rate of vibration).Life and Death
Timber!

Math.4.4.4 (Data Analysis, Probability, And Discrete Mathematics)

All Students Will Develop An Understanding Of The Concepts And Techniques Of Data Analysis, Probability, And Discrete Mathematics, And Will Use Them To Model Situations, Solve Problems, And Analyze And Draw Appropriate Inferences From Data.

A. Data Analysis

1. Collect, generate, organize, and display data in response to questions, claims, or curiosity.
 - Data collected from the school environment.Timber!
2. Read, interpret, construct, analyze, generate questions about, and draw inferences from displays of data.
 - Pictograph, bar graph, line plot, line graph, table.
 - Average (mean), most frequent (mode), middle term (median).If the World Was an Apple
Timber!

B. Probability

D. Discrete Mathematics- Vertex- Edge Graphs and Algorithms

1. Follow, devise, and describe practical sets of directions (e.g., to add two 2-digit numbers).
Life and Death
Timber!

Grade 5

Math.5.4.1 (Number And Numerical Operations)

All Students Will Develop Number Sense And Will Perform Standard Numerical Operations And Estimations On All Types Of Numbers In A Variety Of Ways.

A. Number Sense

1. Use real-life experiences, physical materials, and technology to construct meanings for numbers (unless otherwise noted, all indicators for grade 5 pertain to these sets of numbers as well).
 - All fractions as part of a whole, as subset of a set, as a location on a number line, and as divisions of whole numbers.

- All decimals.

If the World Was an Apple
Life and Death
Timber!

4. Use whole numbers, fractions, and decimals to represent equivalent forms of the same number.

If the World Was an Apple

6. Compare and order numbers.

Timber!

C. Estimation

1. Use a variety of estimation strategies for both number and computation.

Life and Death

Math.5.4.2 (Geometry And Measurement)

All Students Will Develop Spatial Sense And The Ability To Use Geometric Properties, Relationships, And Measurement To Model, Describe And Analyze Phenomena.

D. Units of Measurement

2. Convert measurement units within a system (e.g., 3 feet = ___ inches).

Life and Death

4. Use measurements and estimates to describe and compare phenomena.

If the World Was an Apple

Life and Death

Math.5.4.3 (Patterns And Algebra)

All Students Will Represent And Analyze Relationships Among Variable Quantities And Solve Problems Involving Patterns, Functions, And Algebraic Concepts And Processes.

A. Patterns

1. Recognize, describe, extend, and create patterns involving whole numbers.

- Descriptions using tables, verbal rules, simple equations, and graphs.

Life and Death

Timber!

B. Functions & Relationships

2. Graph points satisfying a function from T-charts, from verbal rules, and from simple equations.

Timber!

C. Modeling

1. Use number sentences to model situations.

- Using variables to represent unknown quantities.

- Using concrete materials, tables, graphs, verbal rules, algebraic expressions/equations.

Life and Death

Timber!

2. Draw freehand sketches of graphs that model real phenomena and use such graphs to predict and interpret events.

- Changes over time.

- Rates of change (e.g., when is plant growing slowly/rapidly, when is temperature dropping most rapidly/slowly).

Timber!

Math.5.4.4 (Data Analysis, Probability, And Discrete Mathematics)

All Students Will Develop An Understanding Of The Concepts And Techniques Of Data Analysis, Probability, And Discrete Mathematics, And Will Use Them To Model Situations, Solve Problems, And Analyze And Draw Appropriate Inferences From Data.

A. Data Analysis

2. Read, interpret, select, construct, analyze, generate questions about, and draw inferences from displays of data.

- Bar graph, line graph, circle graph, table.

- Range, median, and mean.

If the World Was an Apple

Timber!

3. Respond to questions about data and generate their own questions and hypotheses.

If the World Was an Apple

Life and Death

Timber!

Grade 6

Math.6.4.1 (Number And Numerical Operations)

All Students Will Develop Number Sense And Will Perform Standard Numerical Operations And Estimations On All Types Of Numbers In A Variety Of Ways.

A. Number Sense

1. Use real-life experiences, physical materials, and technology to construct meanings for numbers (unless otherwise noted, all indicators for grade 6 pertain to these sets of numbers as well).

- All integers.

- All fractions as part of a whole, as subset of a set, as a location on a number line, and as divisions of whole numbers.

- All decimals.

If the World Was an Apple

Life and Death

Timber!

4. Explore the use of ratios and proportions in a variety of situations.

If the World Was an Apple

Life and Death

5. Understand and use whole-number percents between 1 and 100 in a variety of situations.

If the World Was an Apple

6. Use whole numbers, fractions, and decimals to represent equivalent forms of the same number.

If the World Was an Apple

8. Compare and order numbers.

Timber!

B. Numerical Operations

1. Recognize the appropriate use of each arithmetic operation in problem situations.

Timber!

2. Construct, use, and explain procedures for performing calculations with fractions and decimals with:

- Pencil-and-paper.
 - Mental math.
 - Calculator.
- Timber!

C. Estimation

1. Use a variety of strategies for estimating both quantities and the results of computations.
Life and Death

Math.6.4.2 (Geometry And Measurement)

All Students Will Develop Spatial Sense And The Ability To Use Geometric Properties, Relationships, And Measurement To Model, Describe And Analyze Phenomena.

D. Units of Measurement

3. Convert measurement units within a system (e.g., 3 feet = ___ inches).
Life and Death

5. Use measurements and estimates to describe and compare phenomena.
Life and Death

Math.6.4.3 (Patterns And Algebra)

All Students Will Represent And Analyze Relationships Among Variable Quantities And Solve Problems Involving Patterns, Functions, And Algebraic Concepts And Processes.

A. Patterns

1. Recognize, describe, extend, and create patterns involving whole numbers and rational numbers.
 - Descriptions using tables, verbal rules, simple equations, and graphs.
 - Formal iterative formulas (e.g., NEXT = NOW * 3).
 - Recursive patterns, including Pascal's Triangle (where each entry is the sum of the entries above it) and the Fibonacci Sequence: 1, 1, 2, 3, 5, 8, . . . (where NEXT = NOW + PREVIOUS).

Timber!

C. Modeling

1. Use patterns, relations, and linear functions to model situations.
 - Using variables to represent unknown quantities.
 - Using concrete materials, tables, graphs, verbal rules, algebraic expressions/equations/inequalities.
If the World Was an Apple
Life and Death
Timber!

2. Draw freehand sketches of graphs that model real phenomena and use such graphs to predict and interpret events.
 - Changes over time.
 - Relations between quantities.
 - Rates of change (e.g., when is plant growing slowly/rapidly, when is temperature dropping most rapidly/slowly).
Timber!

Math.6.4.4 (Data Analysis, Probability, And Discrete Mathematics)

All Students Will Develop An Understanding Of The Concepts And Techniques Of Data Analysis, Probability, And Discrete Mathematics, And Will Use Them To Model Situations, Solve Problems, And Analyze And Draw Appropriate Inferences From Data.

A. Data Analysis

2. Read, interpret, select, construct, analyze, generate questions about, and draw inferences from displays of data.

- Bar graph, line graph, circle graph, table, histogram.
- Range, median, and mean.
- Calculators and computers used to record and process information.

If the World Was an Apple
Timber!

3. Respond to questions about data, generate their own questions and hypotheses, and formulate strategies for answering their questions and testing their hypotheses.

If the World Was an Apple
Life and Death
Timber!

Grade 7

Math.7.4.1 (Number And Numerical Operations)

All Students Will Develop Number Sense And Will Perform Standard Numerical Operations And Estimations On All Types Of Numbers In A Variety Of Ways.

A. Number Sense

1. Extend understanding of the number system by constructing meanings for the following (unless otherwise noted, all indicators for grade 7 pertain to these sets of numbers as well):

- Rational numbers.
- Percents.
- Whole numbers with exponents.

Timber!

3. Understand and use ratios, proportions, and percents (including percents greater than 100 and less than 1) in a variety of situations.

If the World Was an Apple
Life and Death

5. Use whole numbers, fractions, decimals, and percents to represent equivalent forms of the same number.

If the World Was an Apple

B. Numerical Operations

1. Use and explain procedures for performing calculations with integers and all number types named above with:

- Pencil-and-paper.
- Mental math.
- Calculator.

Timber!

Math.7.4.3 (Patterns And Algebra)

All Students Will Represent And Analyze Relationships Among Variable Quantities And Solve Problems Involving Patterns, Functions, And Algebraic Concepts And Processes.

A. Patterns

1. Recognize, describe, extend, and create patterns involving whole numbers, rational numbers, and integers.

- Descriptions using tables, verbal and symbolic rules, graphs, simple equations or expressions.
- Finite and infinite sequences.
- Generating sequences by using calculators to repeatedly apply a formula.

Timber!

C. Modeling

2. Use patterns, relations, symbolic algebra, and linear functions to model situations.

- Using manipulatives, tables, graphs, verbal rules, algebraic expressions/ equations/ inequalities.
- Growth situations, such as population growth and compound interest, using recursive (e.g., NOW-NEXT) formulas (cf. science standard 5.5 and social studies standard 6.6).

If the World Was an Apple
Life and Death
Timber!

Math.7.4.4 (Data Analysis, Probability, And Discrete Mathematics)

All Students Will Develop An Understanding Of The Concepts And Techniques Of Data Analysis, Probability, And Discrete Mathematics, And Will Use Them To Model Situations, Solve Problems, And Analyze And Draw Appropriate Inferences From Data.

A. Data Analysis

1. Select and use appropriate representations for sets of data, and measures of central tendency (mean, median, and mode).

- Type of display most appropriate for given data.
- Box-and-whisker plot, upper quartile, lower quartile.
- Scatter plot.
- Calculators and computer used to record and process information.

Timber!

2. Make inferences and formulate and evaluate arguments based on displays and analysis of data.

If the World Was an Apple
Timber!

Grade 8

Math.8.4.1 (Number And Numerical Operations)

All Students Will Develop Number Sense And Will Perform Standard Numerical Operations And Estimations On All Types Of Numbers In A Variety Of Ways.

A. Number Sense

1. Extend understanding of the number system by constructing meanings for the following (unless otherwise noted, all indicators for grade 8 pertain to these sets of numbers as well):

- Rational numbers.
- Percents.
- Exponents.
- Roots.
- Absolute values.
- Numbers represented in scientific notation.

Timber!

3. Understand and use ratios, proportions, and percents (including percents greater than 100 and less than 1) in a variety of situations.

If the World Was an Apple
Life and Death

5. Use whole numbers, fractions, decimals, and percents to represent equivalent forms of the same number.

If the World Was an Apple

B. Numerical Operations

1. Use and explain procedures for performing calculations involving addition, subtraction, multiplication, division, and exponentiation with integers and all number types named above with:

- Pencil-and-paper.
- Mental math.
- Calculator.

Timber!

Math.8.4.2 (Geometry And Measurement)

All Students Will Develop Spatial Sense And The Ability To Use Geometric Properties, Relationships, And Measurement To Model, Describe And Analyze Phenomena.

D. Units of Measurement

3. Recognize that the degree of precision needed in calculations depends on how the results will be used and the instruments used to generate the measurements.

Life and Death
Timber!

Math.8.4.3 (Patterns And Algebra)

All Students Will Represent And Analyze Relationships Among Variable Quantities And Solve Problems Involving Patterns, Functions, And Algebraic Concepts And Processes.

A. Patterns

1. Recognize, describe, extend, and create patterns involving whole numbers, rational numbers, and integers.
 - Descriptions using tables, verbal and symbolic rules, graphs, simple equations or expressions.
 - Finite and infinite sequences.
 - Arithmetic sequences (i.e., sequences generated by repeated addition of a fixed number, positive or negative).
 - Geometric sequences (i.e., sequences generated by repeated multiplication by a fixed positive ratio, greater than 1 or less than 1).
 - Generating sequences by using calculators to repeatedly apply a formula.

Timber!

B. Functions and Relationships

2. Recognize and describe the difference between linear and exponential growth, using tables, graphs, and equations.

Timber!

C. Modeling

2. Use patterns, relations, symbolic algebra, and linear functions to model situations.
 - Using concrete materials (manipulatives), tables, graphs, verbal rules, algebraic expressions/ equations/ inequalities.
 - Growth situations, such as population growth and compound interest, using recursive (e.g., NOW-NEXT) formulas (cf. science standard 5.5 and social studies standard 6.6).

If the World Was an Apple

Life and Death

Timber!

Math.8.4.4 (Data Analysis, Probability, And Discrete Mathematics)

All Students Will Develop An Understanding Of The Concepts And Techniques Of Data Analysis, Probability, And Discrete Mathematics, And Will Use Them To Model Situations, Solve Problems, And Analyze And Draw Appropriate Inferences From Data.

A. Data Analysis

1. Select and use appropriate representations for sets of data, and measures of central tendency (mean, median, and mode).
 - Type of display most appropriate for given data.
 - Box-and-whisker plot, upper quartile, lower quartile.
 - Scatter plot.
 - Calculators and computer used to record and process information.
 - Finding the median and mean (weighted average) using frequency data.
 - Effect of additional data on measures of central tendency.

Timber!

2. Make inferences and formulate and evaluate arguments based on displays and analysis of data.

If the World Was an Apple
Timber!

Grades 9-12

Math.9-12.4.3 (Patterns And Algebra)

All Students Will Represent And Analyze Relationships Among Variable Quantities And Solve Problems Involving Patterns, Functions, And Algebraic Concepts And Processes.

C. Modeling

1. Use functions to model real-world phenomena and solve problems that involve varying quantities.
 - Linear, quadratic, exponential, periodic (sine and cosine), and step functions (e.g., price of mailing a first-class letter over the past 200 years).
 - Direct and inverse variation.
 - Absolute value.
 - Expressions, equations and inequalities.
 - Same function can model variety of phenomena.
 - Growth/decay and change in the natural world.
 - Applications in mathematics, biology, and economics (including compound interest).
- Life and Death
Timber!

Science

Grades 3-4

Science.3-4.5.1 (Scientific Processes)

All Students Will Develop Problem-Solving, Decision-Making And Inquiry Skills, Reflected By Formulating Usable Questions And Hypotheses, Planning Experiments, Conducting Systematic Observations, Interpreting And Analyzing Data, Drawing Conclusions, And Communicating Results.

A. Habits of Mind

1. Raise questions about the world around them and be willing to seek answers through making careful observations and experimentation.

If the World Was an Apple
Life and Death
Timber!

2. Keep records that describe observations, carefully distinguish actual observations from ideas and speculations, and are understandable weeks and months later.

Timber!

B. Inquiry and Problem Solving

1. Develop strategies and skills for information-gathering and problem-solving, using appropriate tools and technologies.

Environmental Dilemmas
If the World Was an Apple
Life and Death
Timber!

2. Identify the evidence used in an explanation.

If the World Was an Apple
Life and Death
Timber!

Science.3-4.5.3 (Mathematical Applications)

All Students Will Integrate Mathematics As A Tool For Problem-Solving In Science, And As A Means Of Expressing And/Or Modeling Scientific Theories.

A. Numerical Operations

1. Determine the reasonableness of estimates, measurements, and computations of quantities when doing science.

If the World Was an Apple
Life and Death

3. Express quantities using appropriate number formats, such as:

- integers.
- fractions.

If the World Was an Apple
Life and Death
Timber!

B. Geometry and Measurement

1. Select appropriate measuring instruments based on the degree of precision required.

If the World Was an Apple
Life and Death

2. Use a variety of measuring instruments and record measured quantities using the appropriate units.
If the World Was an Apple
Life and Death
Timber!

D. Data Analysis and Probability

1. Use tables and graphs to represent and interpret data.
Timber!

Science.3-4.5.8 (Earth Science)

All Students Will Gain An Understanding Of The Structure, Dynamics, And Geophysical Systems Of The Earth.

B. Atmosphere and Water

2. Recognize that most of Earth's surface is covered by water and be able to identify the characteristics of those sources of water.
 - oceans.
 - rivers.
 - lakes.
 - underground sources.
 - glaciers.If the World Was an Apple

Grades 5-6

Science.5-6.5.10 (Environmental Studies)

All Students Will Develop An Understanding Of The Environment As A System Of Interdependent Components Affected By Human Activity And Natural Phenomena.

B. Human Interactions and Impact

1. Describe the effect of human activities on various ecosystems.
If the World Was an Apple
Everything Is Connected
Timber!
2. Evaluate the impact of personal activities on the local environment.
Environmental Dilemmas

Grades 7-8

Science.7-8.5.1 (Scientific Processes)

All Students Will Develop Problem-Solving, Decision-Making And Inquiry Skills, Reflected By Formulating Usable Questions And Hypotheses, Planning Experiments, Conducting Systematic Observations, Interpreting And Analyzing Data, Drawing Conclusions, And Communicating Results.

A. Habits of Mind

1. Evaluate the strengths and weaknesses of data, claims, and arguments.
Environmental Dilemmas

B. Inquiry and Problem Solving

1. Identify questions and make predictions that can be addressed by conducting investigations.
Timber!
3. Collect, organize, and interpret the data that result from experiments.
Timber!

Science.7-8.5.3 (Mathematical Applications)

All Students Will Integrate Mathematics As A Tool For Problem-Solving In Science, And As A Means Of Expressing And/Or Modeling Scientific Theories.

B. Geometry and Measurement

1. Perform mathematical computations using labeled quantities and express answers in correctly derived units.
Timber!

C. Patterns and Algebra

1. Express physical relationships in terms of mathematical equations derived from collected data.
If the World Was an Apple
Life and Death
Timber!

D. Data Analysis and Probability

1. Represent and describe mathematical relationships among variables using:
 - graphs.
 - tables.If the World Was an Apple
Timber!

Science.7-8.5.4 (Nature And Process Of Technology)

All Students Will Understand The Interrelationships Between Science And Technology And Develop A Conceptual Understanding Of The Nature And Process Of Technology.

B. Nature of Technology

1. Analyze a product or system to determine the problem it was designed to solve, the design constraints, trade-offs and risks involved in using the product or system, how the product or system might fail, and how the product or system might be improved.
If the World Was an Apple
Environmental Dilemmas

Science.7-8.5.5 (Characteristics Of Life)

All Students Will Gain An Understanding Of The Structure, Characteristics, And Basic Needs Of Organisms And Will Investigate The Diversity Of Life.

B. Diversity and Biological Evolution

2. Discuss how changing environmental conditions can result in evolution or extinction of a species.

Science.7-8.5.10 (Environmental Studies)

All Students Will Develop An Understanding Of The Environment As A System Of Interdependent Components Affected By Human Activity And Natural Phenomena.

B. Human Interactions and Impact

1. Compare and contrast practices that affect the use and management of natural resources.
If the World Was an Apple
Environmental Dilemmas
Everything Is Connected
Timber!

Grades 9-12

Science.9-12.5.1 (Scientific Processes)

All Students Will Develop Problem-Solving, Decision-Making And Inquiry Skills, Reflected By Formulating Usable Questions And Hypotheses, Planning Experiments, Conducting Systematic Observations, Interpreting And Analyzing Data, Drawing Conclusions, And Communicating Results.

A. Habits of Mind

1. When making decisions, evaluate conclusions, weigh evidence, and recognize that arguments may not have equal merit.

If the World Was an Apple
Environmental Dilemmas
Everything Is Connected

2. Assess the risks and benefits associated with alternative solutions.

Environmental Dilemmas
Everything Is Connected

4. Explore cases that demonstrate the interdisciplinary nature of the scientific enterprise.

Environmental Dilemmas
Everything Is Connected
If the World Was an Apple
Life and Death
Timber!

Science.9-12.5.2 (Science And Society)

All Students Will Develop An Understanding Of How People Of Various Cultures Have Contributed To The Advancement Of Science And Technology, And How Major Discoveries And Events Have Advanced Science And Technology.

A. Cultural Contributions

1. Recognize the role of the scientific community in responding to changing social and political conditions and how scientific and technological achievement effect historical events.

If the World Was an Apple

B. Historical Perspectives

2. Discuss significant technological achievements in which science has played an important part as well as technological advances that have contributed directly to the advancement of scientific knowledge.

If the World Was an Apple

Science.9-12.5.3 (Mathematical Applications)

All Students Will Integrate Mathematics As A Tool For Problem-Solving In Science, And As A Means Of Expressing And/Or Modeling Scientific Theories.

A. Numerical Operations

1. Reinforce indicators from previous grade level.

If the World Was an Apple
Life and Death
Timber!

D. Data Analysis and Probability

1. Construct and interpret graphs of data to represent inverse and non-linear relationships, and statistical distributions.

Timber!

Science.9-12.5.4 (Nature And Process Of Technology)

All Students Will Understand The Interrelationships Between Science And Technology And Develop A Conceptual Understanding Of The Nature And Process Of Technology.

B. Nature of Technology

1. Assess the impacts of introducing a new technology in terms of alternative solutions, costs, tradeoffs, risks, benefits and environmental impact.

If the World Was an Apple

C. Technological Design

1. Plan, develop, and implement a proposal to solve an authentic, technological problem.
If the World Was an Apple
Environmental Dilemmas

Science.9-12.5.10 (Environmental Studies)

All Students Will Develop An Understanding Of The Environment As A System Of Interdependent Components Affected By Human Activity And Natural Phenomena.

B. Human Interactions and Impact

2. Use scientific, economic, and other data to assess environmental risks and benefits associated with societal activity.
If the World Was an Apple
Life and Death
Timber!

Social Studies

Grades 3-4

Social Studies.3-4.6.2 (Civics)

All Students Will Know, Understand And Appreciate The Values And Principles Of American Democracy And The Rights, Responsibilities, And Roles Of A Citizen In The Nation And The World.

E. International Education: Global Challenges, Cultures, and Connections

5. Identify current issues that may have a global impact (e.g., pollution, diseases) and discuss ways to address them.

If the World Was an Apple
Life and Death
Timber!

9. Examine common and diverse traits of other cultures and compare to their own culture.

Life and Death

Social Studies.3-4.6.5 (Economics)

All Students Will Acquire An Understanding Of Key Economic Principles.

A. Economic Literacy

4. Discuss how natural, human, and capital resources are used to produce goods and to provide services.

If the World Was an Apple

Social Studies.3-4.6.6 (Geography)

All Students Will Apply Knowledge Of Spatial Relationships And Other Geographic Skills To Understand Human Behavior In Relation To The Physical And Cultural Environment.

B. Places and Regions

1. Identify the physical and human characteristics of places and regions in New Jersey and the United States (e.g., landforms, climate, vegetation, housing).

If the World Was an Apple

C. Physical Systems

1. Describe the basic components of the Earth's physical systems, including landforms, water, erosion, weather, and climate and discuss their impact on human development.

If the World Was an Apple

E. Environment and Society

1. Differentiate between living and non-living natural resources.

If the World Was an Apple
Timber!

2. Explain the nature, characteristics, and distribution of renewable and non-renewable resources.

If the World Was an Apple
Timber!

Grades 5-8

Social Studies.5-8.6.1

All Students Will Utilize Historical Thinking, Problem Solving, And Research Skills To Maximize Their Understanding Of Civics, History, Geography, And Economics.

A. Social Studies Skills

1. Analyze how events are related over time.

People Count: Facing the Population Challenge

2. Use critical thinking skills to interpret events, recognize bias, point of view, and context.

Environmental Dilemmas

Maria's Education

Life and Death

People Count: Facing the Population Challenge

4. Analyze data in order to see persons and events in context.

If the World Was an Apple

Timber!

People Count: Facing the Population Challenge

5. Examine current issues, events, or themes and relate them to past events.

Life and Death

People Count: Facing the Population Challenge

11. Summarize information in written, graphic, and oral formats.

If the World Was an Apple

Environmental Dilemmas

Everything Is Connected

Maria's Education

The More The Merrier?

Life and Death

Timber!

Social Studies.5-8.6.2 (Civics)

All Students Will Know, Understand And Appreciate The Values And Principles Of American Democracy And The Rights, Responsibilities, And Roles Of A Citizen In The Nation And The World.

A. Civic Life, Politics, and Government

1. Discuss the sources, purposes, and functions of law and the importance of the rule of law for the preservation of individual rights and the common good.

The More The Merrier?

D. Citizenship

5. Discuss basic contemporary issues involving the personal, political, and economic rights of American citizens (e.g., dress codes, sexual harassment, fair trial, free press, minimum wage).

Environmental Dilemmas

People Count: Facing the Population Challenge

E. International Education: Global Challenges, Cultures, and Connections

6. Describe how one's heritage includes personal history and experiences, culture, customs, and family background.

Maria's Education

8. Discuss how global challenges are interrelated, complex, and changing and that even local issues may have a global dimension (e.g., environmental issues, transportation).

Environmental Dilemmas

If the World Was an Apple

Life and Death

9. Discuss how cultures may change and that individuals may identify with more than one culture.

Maria's Education

Social Studies.5-8.6.3 (World History)

All Students Will Demonstrate Knowledge Of World History In Order To Understand Life And Events In The Past And How They Relate To The Present And The Future.

A. The Birth of Civilization to 1000 BCE

1. Describe the physical and cultural changes that shaped the earliest human communities as revealed through scientific methods, including:

- Differences between wild and domestic plants and animals.
- Differences between hunter/gatherer, fishing, and agrarian communities.

People Count: Facing the Population Challenge

Social Studies.5-8.6.4 (United States And New Jersey History)

All Students Will Demonstrate Knowledge Of United States And New Jersey History In Order To Understand Life And Events In The Past And How They Relate To The Present And Future.

F. Expansion and Reform (1801-1861)

1. Describe the political, economic, and social changes in New Jersey and American society preceding the Civil War, including the early stages of industrialization, the growth of cities, and the political, legal, and social controversies surrounding the expansion of slavery.

People Count: Facing the Population Challenge

Social Studies.5-8.6.5 (Economics)

All Students Will Acquire An Understanding Of Key Economic Principles.

B. Economics and Society

1. Discuss how meeting the needs and wants of a growing world population impacts the environment and economic growth.

If the World Was an Apple

Timber!

People Count: Facing the Population Challenge

3. Discuss how societies have been affected by industrialization and by different political and economic philosophies.

People Count: Facing the Population Challenge

4. Describe how inventions and innovations have improved standards of living over the course of history.

Life and Death

Timber!

People Count: Facing the Population Challenge

7. Discuss the need for ethical behavior in economic decisions and financial transactions.

Environmental Dilemmas

Social Studies.5-8.6.6 (Geography)

All Students Will Apply Knowledge Of Spatial Relationships And Other Geographic Skills To Understand Human Behavior In Relation To The Physical And Cultural Environment.

A. The World in Spatial Terms

5. Use geographic tools and technologies to pose and answer questions about spatial distributions and patterns on Earth.

If the World Was an Apple

8. Use thematic maps to describe places (e.g., patterns of population, diseases, rainfall).

If the World Was an Apple

B. Places and Regions

1. Compare and contrast the physical and human characteristics of places in regions in New Jersey, the United States, and the world.

If the World Was an Apple

Life and Death

The More The Merrier?

People Count: Facing the Population Challenge

2. Describe how regions change over time.

People Count: Facing the Population Challenge

3. Compare the natural characteristics used to define a region.

If the World Was an Apple

6. Discuss the similarities and differences among rural, suburban, and urban communities.

The More The Merrier?

People Count: Facing the Population Challenge

C. Physical Systems

1. Describe the characteristics and spatial distribution of major Earth ecosystems.

If the World Was an Apple

2. Discuss how ecosystems function locally and globally.

If the World Was an Apple

4. Discuss how the community and its environment function as an ecosystem.

Environmental Dilemmas

If the World Was an Apple

5. Describe how the physical environment affects life in different regions (e.g., population density, architecture, transportation systems, industry, building materials, land use, recreation).

If the World Was an Apple

The More The Merrier?

People Count: Facing the Population Challenge

D. Human Systems

2. Analyze demographic characteristics to explain reasons for variations between populations.

Life and Death

The More The Merrier?

People Count: Facing the Population Challenge

5. Discuss how and why people cooperate, but also engage in conflict, to control the Earth's surface.

The More The Merrier?

8. Describe how physical and human characteristics of regions change over time.

People Count: Facing the Population Challenge

E. Environment and Society

1. Discuss the environmental impacts or intended and unintended consequences of major technological changes (e.g., autos and fossil fuels, nuclear power and nuclear waste).

People Count: Facing the Population Challenge

2. Analyze the impact of various human activities and social policies on the natural environment and describe how humans have attempted to solve environmental problems through adaptation and modification.

If the World Was an Apple

People Count: Facing the Population Challenge

5. Describe world, national, and local patterns of resource distribution and utilization, and discuss the political and social impact.

If the World Was an Apple

People Count: Facing the Population Challenge

Grades 9-12

Social Studies.9-12.6.1

All Students Will Utilize Historical Thinking, Problem Solving, And Research Skills To Maximize Their Understanding Of Civics, History, Geography, And Economics.

A. Social Studies Skills

3. Gather, analyze, and reconcile information from primary and secondary sources to support or reject hypotheses.

Maria's Education

6. Apply problem-solving skills to national, state, or local issues and propose reasoned solutions.

If the World Was an Apple

Environmental Dilemmas

Maria's Education

7. Analyze social, political, and cultural change and evaluate the impact of each on local, state, national, and international issues and events.

Everything Is Connected

Maria's Education

Social Studies.9-12.6.2 (Civics)

All Students Will Know, Understand And Appreciate The Values And Principles Of American Democracy And The Rights, Responsibilities, And Roles Of A Citizen In The Nation And The World.

A. Civic Life, Politics, and Government

3. Analyze how individual responsibility and commitment to law are related to the stability of American society.

Environmental Dilemmas

5. Discuss how participation in civic and political life can contribute to the attainment of individual and public good.

Environmental Dilemmas

B. American Values and Principles

2. Propose and justify new local, state, or federal governmental policies on a variety of contemporary issues (e.g., definition of marriage, voting systems and procedures, censorship, religion in public places).

If the World Was an Apple

E. International Education: Global Challenges, Cultures, and Connections

4. Analyze and evaluate the interconnections of local, regional, and national issues with global challenges and issues, and recommend possible solutions.

If the World Was an Apple

Everything Is Connected

Maria's Education

5. Discuss how global interconnections can have both positive and negative consequences (e.g., international companies, transfer of jobs to foreign plants, international security and access to transportation).

Everything Is Connected

10. Compare and contrast common social and behavioral practices in various cultures (e.g., birth, marriage, death, gender issues, family structure, health issues).

Maria's Education

Social Studies.9-12.6.4 (United States And New Jersey History)

All Students Will Demonstrate Knowledge Of United States And New Jersey History In Order To Understand Life And Events In The Past And How They Relate To The Present And Future.

L. Contemporary America (1968-present)

6. Compare and contrast population trends and immigration and migration patterns in the United States (e.g., growth of Hispanic population, demographic and residential mobility).

Maria's Education

7. Discuss major contemporary social issues, such as the evolution of governmental rights for individuals with disabilities, multiculturalism, bilingual education, gay rights, free expression in the media, and the modern feminist movement.

Maria's Education

Social Studies.9-12.6.5 (Economics)

All Students Will Acquire An Understanding Of Key Economic Principles.

B. Economics and Society

6. Analyze the connections and potential effects of the widening gap between the rich and the poor in the United States, the decline in labor union membership since 1950, rapidly advancing technology, globalization, and problems of public schools.

Maria's Education

Social Studies.9-12.6.6 (Geography)

All Students Will Apply Knowledge Of Spatial Relationships And Other Geographic Skills To Understand Human Behavior In Relation To The Physical And Cultural Environment.

A. The World in Spatial Terms

2. Use maps of physical and human characteristics of the world to answer complex geographical questions.
If the World Was an Apple

4. Use geographic tools and technologies to pose and answer questions about spatial distributions and patterns on Earth.

If the World Was an Apple

C. Physical Systems

2. Analyze the effects of both physical and human changes in ecosystems, such as acid rain, ozone layer, carbon-dioxide levels, and clean water issues.

Environmental Dilemmas

If the World Was an Apple

D. Human Systems

1. Analyze the impact of human migration on physical and human systems.

Maria's Education

E. Environment and Society

1. Discuss the global impacts of human modification of the physical environment (e.g., the built environment).
If the World Was an Apple

3. Analyze examples of changes in the physical environment that have altered the capacity of the environment to support human activity, including pollution, salinization, deforestation, species extinction, population growth, and natural disasters.

If the World Was an Apple

5. Evaluate policies and programs related to the use of local, national and global resources.

If the World Was an Apple

6. Analyze the human need for respect for and informed management of all resources (sustainability), including human populations, energy, air, land, and water to insure that the earth will support future generations.

If the World Was an Apple