Council of Chief State School Officers
Wisconsin Center for Education Research

# SURVEYS OF ENACTED CURRICULUM ©

# Teacher Survey
# For
# High School
# Mathematics

Thank you for agreeing to participate in this survey on science and mathematics instruction. The enclosed survey is part of a collaborative effort to provide education policymakers, administrators, and most importantly, teachers like yourself with comparative information about mathematics and science instruction in districts participating in the Mathematics and Science Partnership Program. To learn more about the surveys of enacted curriculum and their use in other projects, please visit the project website; http://www.ccsso.org/sec.html

Your participation in this survey is voluntary. If you choose to participate, all of your responses will be kept confidential. No one outside of the research team will have access to your responses, nor will any individual responses be shared with staff in your school, district or state. No individuals will be identified in any of the reports. The questionnaire poses no risk to you and there is no penalty for refusal to participate. You may withdraw from the study simply by returning the questionnaire without completing it, without penalty or loss of services or benefits to which you would be otherwise entitled.

If you have any questions regarding your rights as a research participant, please contact the University of Wisconsin-Madison School of Education's Human Subjects Committee office at (608) 262-2463.

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The following pages request information regarding students in the target mathematics class for the **2002-2003 school year (last school year)**.

Please read each question and the possible responses carefully, and then mark your response by filling in the appropriate circle in the response section. A pen or pencil may be used to complete the survey.

## SCHOOL DESCRIPTION

1 Which of these categories best describes the way classes at this school are organized?

① Departmentalized Instruction
② Taught by Subject Area Specialist (non-departmental)
③ Self-contained
④ Team taught

2 If your school is departmentalized, or you are a subject area specialist, how many different mathematics courses do you currently teach?

⓪ ① ② ③ ④ ⑤ ⑥ ⑦
(Number of courses taught)

## TARGET CLASS DESCRIPTION

**Selecting the Target Class**-- *For all questions about instructional content and practices please refer only to activities in the mathematics class that you teach. If you teach more than one mathematics class, select the first class that you teach each week. If you teach a split class (i.e. the class is split into more than one group for mathematics instruction) select only one group to describe as the target class.*

3 Which term best describes the target class, or course, you are teaching?

⓪ Other
① Elementary Math
② Middle School Math
③ Pre-algebra
④ Algebra
⑤ Integrated Math
⑥ Geometry
⑦ Trigonometry
⑧ Advanced Math
⑨ Calculus

4 Indicate the grade level of the majority of students in the target class.

| ⓪ | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ | ⑨ | ⑩ | ⑪ | ⑫ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

5 How many students are in the target class?

⓪ 10 or less
① 11 to 15
② 16 to 20
③ 21 to 25
④ 26 to 30
⑤ 31 or more

6 What percentage of the students in the target class are **female**? (Estimate to the nearest ten percent.)

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
Less than 10 10 20 30 40 50 60 70 80 90+ %

7 What percentage of the students in the target class are **not** Caucasian?
(Estimate to the nearest ten percent.)

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
Less than 10 10 20 30 40 50 60 70 80 90+ %

8 *During a typical week*, approximately how many hours will the target class spend in mathematics instruction?

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
(Number of instructional hours)

9 What is the average length of each class period for this targeted mathematics class?

⓪ Not applicable
① 30 to 40 minutes
② 41 to 50 minutes
③ Varies due to block scheduling or integrated instruction
④ 51 to 60 minutes
⑤ 61 to 90 minutes
⑥ 91 to 120 minutes

10 How many weeks total will the target mathematics class/course meet for this school year?

| | ⓪ | ① | ② |
|---|---|---|---|
| **Total # weeks =** | 1 to 12 | 13 to 24 | 25 to 36 |

11 Estimate the achievement level of the majority of students in the target class, based on national standards.

① High Achievement Levels
② Average Achievement Levels
③ Low Achievement Levels
④ Mixed Levels of Achievement

12 What percentage of students in the target class are Limited English Proficient (LEP)?
(Estimate to the nearest ten percent.)

⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨
Less than 10 10 20 30 40 50 60 70 80 90+ %

13 What is considered most in scheduling students into this class?

⓪ Ability or Achievement
① Limited English Proficiency
② Teacher Recommendation
③ Parent Request
④ No one factor more than
⑤ Student selects

**Please read the instructions on the next two pages carefully before proceeding.**

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# Instructional Content For High School Mathematics

The content matrix that follows contains lists of discrete topics associated with mathematics instruction. The categories and the level of specificity are intended to gather information about content across a wide variety of programs. It is not intended to reflect any recommended or prescribed content for the grade level and may or may not be reflective of your local curriculum. The following pages request information regarding topic coverage and your expectations for students in the target mathematics class for the **2002-2003 school year (last school year).**

## Step 1: Indicate topics not covered in this class

Begin by reviewing the entire list of topics identified in the topics column of each table, noting how topics are grouped. After reviewing each topic within a given grouping, if none of the topics listed within that group receive any instructional coverage, circle the "<None>" in the "Time on Topic" column for that group. For any individual topic which is not covered in this mathematics class, fill in the circled "zero" in the "Time on Topic" column. (Not necessary for those groups with "<None>" circled.) Any topics or topic group so identified will not require further response. [Note, for example, that the class described in the example below did not cover any topics under "Instructional Technology" and so "<None>" is circled.]

## Step 2: Indicate the amount of time spent on each topic covered in this class

Examine the list of topics a second time. This time note the amount of coverage devoted to each topic by filling in the appropriately numbered circle in the "Time on Topic" column based upon the following codes:

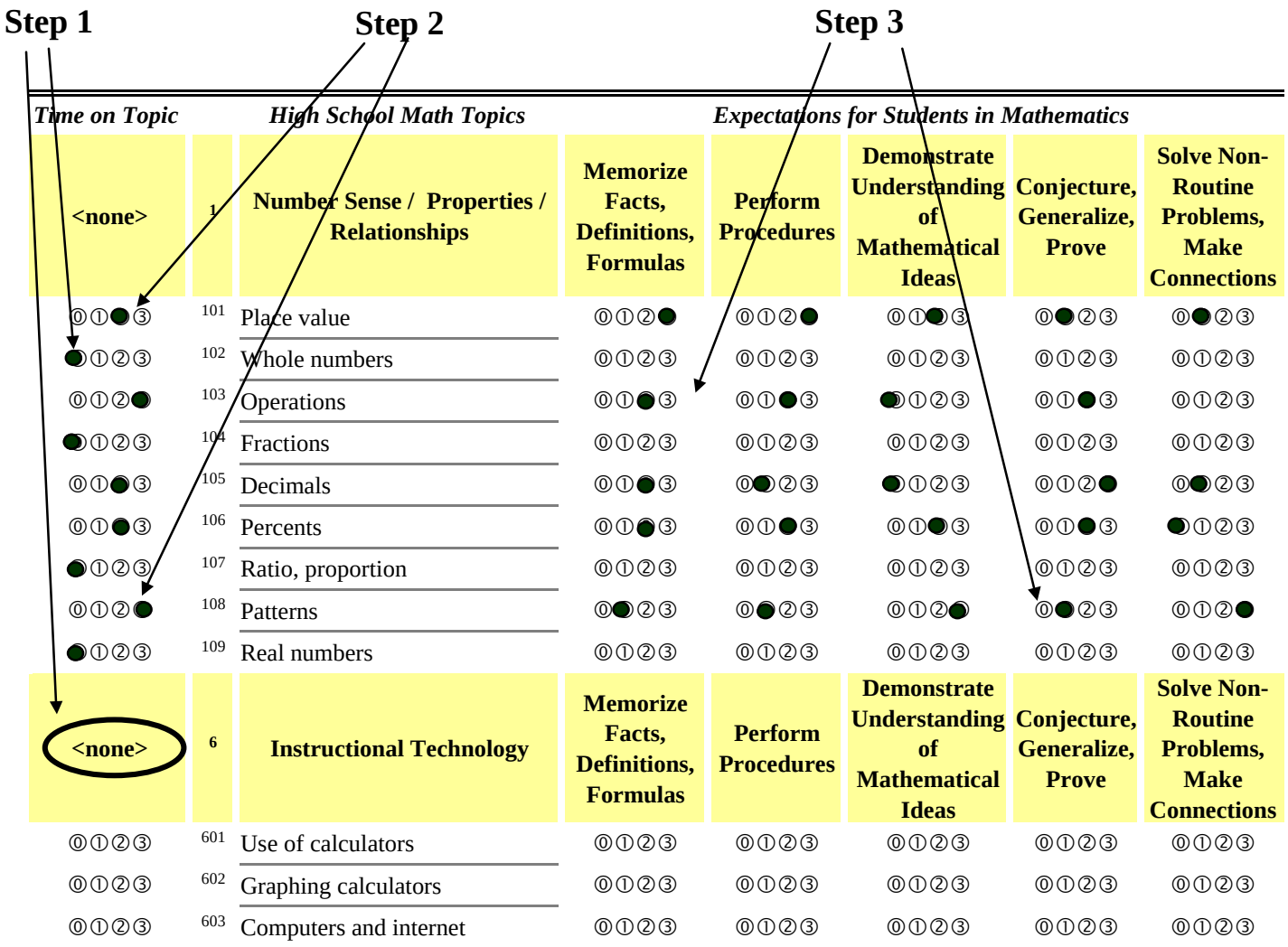
**0 = None, not covered**
**1 = Slight Coverage** (less than one class/lesson)
**2 = Moderate Coverage** (one to five classes/lessons)
**3 = Sustained Coverage** (more than five classes/lessons)

## Step 3: Indicate relative emphasis of each student expectation for every topic taught

The final step in completing this section of the survey concerns your expectations for what students should know and be able to do. For each topic area, please provide information about the relative amount of instructional time spent on work designed to help students reach each of the listed expectations by filling in the appropriately numbered circle using the response codes listed below. (Note: To the left of each content sheet you will find a list of descriptors for each of the five expectations for students.)

| | |
|---|---|
| **0 = No emphasis** | (Not an expectation for this topic) |
| **1 = Slight emphasis** | (Accounts for less than 25% of the time spent on this topic) |
| **2 = Moderate emphasis** | (Accounts for 25% to 33% of the time spent on this topic) |
| **3 = Sustained emphasis** | (Accounts for more than 33% of the time spent on this topic) |

**Note:** A code of "3" should typically be given for only one, and no more than two expectation categories within any given topic. No expectation codes should be filled-in for those topics for which no coverage is provided (i.e., circled "0" or "<None>").



# Expectations for Students in Mathematics

## Memorize Facts/ Definitions/ Formulas

- Recite basic mathematics facts
- Recall mathematics terms & definitions
- Recall formulas and computational procedures

## Perform Procedures

- Use numbers to count, order, denote
- Do computational procedures or algorithms
- Follow procedures/instructions
- Solve equations/formulas/routine word problems
- Organize or display data
- Read or produce graphs and tables
- Execute geometric constructions

## Conjecture/ Generalize/ Prove

- Determine the truth of a mathematical pattern or proposition
- Write formal or informal proofs
- Recognize, generate or create patterns
- Find a mathematical rule to generate a pattern or number sequence
- Make and investigate mathematical conjectures
- Identify faulty arguments or misrepresentations of data
- Reason inductively or deductively

## Demonstrate Understanding of Mathematical Ideas

- Communicate mathematical ideas
- Use representations to model mathematical ideas
- Explain findings and results from data analysis strategies
- Develop/explain relationships between concepts
- Show or explain relationships between models, diagrams, and/or other representations

## Solve Non-routine Problems/ Make Connections

- Apply and adapt a variety of appropriate strategies to solve non-routine problems
- Apply mathematics in contexts outside of mathematics
- Analyze data, recognize patterns
- Synthesize content and ideas from several sources

**Response Codes**

## Time on Topic

- **0 = None**
  (Not Covered)
- **1 = Slight coverage**
  (Less than one class/lesson)
- **2 = Moderate coverage**
  (One to five classes/lessons)
- **3 = Sustained coverage**
  (More than five classes/lessons)

**Response Codes**

## Expectations for Students

- **0 = No emphasis**
  (Not a performance goal for this topic)
- **1 = Slight emphasis**
  (Less than 25% of time on this topic)
- **2 = Moderate emphasis**
  (25% to 33% of time on this topic)
- **3 = Sustained emphasis**
  (More than 33% of time on this topic)

| *Time on Topic* | | *High School Mathematics* | *Expectations for Students in Mathematics* | | | | |
|---|---|---|---|---|---|---|---|
| <none> | 1 | **Number sense / Properties / Relationships** | Memorize Facts Definitions Formulas | Perform Procedures | Demonstrate Understanding of Mathematical Ideas | Conjecture Generalize Prove | Solve Non-Routine Problems Make Connections |
| ⓪ ① ② ③ | 101 | Estimation | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 102 | Computational Algorithms | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 103 | Fractions | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 104 | Decimals | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 105 | Ratio & Proportion | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 106 | Percents | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 107 | Real numbers | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 108 | Number theory | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 109 | Order of operations | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 110 | Relationships between operations | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 111 | Mathematical properties (e.g. distributive property) | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| <none> | 2 | **Measurement** | Memorize Facts Definitions Formulas | Perform Procedures | Demonstrate Understanding of Mathematical Ideas | Conjecture Generalize Prove | Solve Non-Routine Problems Make Connections |
| ⓪ ① ② ③ | 201 | Use of measuring instruments | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 202 | Theory (arbitrary, standard units, unit size) | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 203 | Conversions | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 204 | Metric (SI) system | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 205 | Length, perimeter | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 206 | Area, volume | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 207 | Surface Area | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 208 | Angles | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 209 | Circles (e.g., pi, radius, area) | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 210 | Pythagorean Theory | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 211 | Mass (weight) | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 212 | Time, temperature | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 213 | Speed | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| <none> | 3 | **Consumer Applications** | Memorize Facts Definitions Formulas | Perform Procedures | Demonstrate Understanding of Mathematical Ideas | Conjecture Generalize Prove | Solve Non-Routine Problems Make Connections |
| ⓪ ① ② ③ | 301 | Simple interest | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 302 | Compound interest | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 303 | Rates (e.g., discount, commission) | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 304 | Spreadsheets | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |

| *Time on Topic* | | *High School Mathematics* | *Expectations for Students in Mathematics* | | | | |
|---|---|---|---|---|---|---|---|
| <none> | 4 | **Data Analysis / Probability** | **Memorize Facts Definitions Formulas** | **Perform Procedures** | **Demonstrate Understanding of Mathematical Ideas** | **Conjecture Generalize Prove** | **Solve Non-Routine Problems Make Connections** |
| ⓪ ① ② ③ | 401 | Bar-graph, histogram | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 402 | Pictographs | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 403 | Line graphs | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 404 | Stem and Leaf plots | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 405 | Scatter Plots | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 406 | Box Plots | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 407 | Mean, median, mode | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 408 | Mean deviation | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 409 | Smoothing of graphs | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| <none> | 5 | **Pre-Algebra** | **Memorize Facts Definitions Formulas** | **Perform Procedures** | **Demonstrate Understanding of Mathematical Ideas** | **Conjecture Generalize Prove** | **Solve Non-Routine Problems Make Connections** |
| ⓪ ① ② ③ | 501 | Integers | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 502 | Absolute value | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 503 | Exponents, scientific notation | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 504 | Use of variables | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 505 | Expressions | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 506 | Evaluation of formulas | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 507 | One-step equations | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 508 | Coordinate Plane | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| <none> | 6 | **Basic Algebra** | **Memorize Facts Definitions Formulas** | **Perform Procedures** | **Demonstrate Understanding of Mathematical Ideas** | **Conjecture Generalize Prove** | **Solve Non-Routine Problems Make Connections** |
| ⓪ ① ② ③ | 601 | Multi-step equations | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 602 | Inequalities | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 603 | Literal equations | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 604 | Line/slopes and intercept | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 605 | Operations on polynomials | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 606 | Factoring | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 607 | Square roots & radicals | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 608 | Operations on radicals | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 609 | Rational expressions | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |

| *Time on Topic* | | *High School Mathematics* | *Expectations for Students in Mathematics* | | | | |
|---|---|---|---|---|---|---|---|
| <none> | 7 | **Advanced Algebra** | **Memorize Facts Definitions Formulas** | **Perform Procedures** | **Demonstrate Understanding of Mathematical Ideas** | **Conjecture Generalize Prove** | **Solve Non-Routine Problems Make Connections** |
| ⓪ ① ② ③ | 701 | Quadratic equations | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 702 | Systems of equations | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 703 | Systems of inequalities | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 704 | Compound inequalities | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 705 | Matrices/determinants | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 706 | Conic sections | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 707 | Rational, negative exponents/radicals | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 708 | Rules for exponents | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 709 | Complex numbers | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 710 | Binomial theorem | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 711 | Factor / remainder theorem | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 712 | Field properties of real number system | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| <none> | 8 | **Functions** | **Memorize Facts Definitions Formulas** | **Perform Procedures** | **Demonstrate Understanding of Mathematical Ideas** | **Conjecture Generalize Prove** | **Solve Non-Routine Problems Make Connections** |
| ⓪ ① ② ③ | 801 | Notation | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 802 | Relations | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 803 | Linear | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 804 | Quadratic | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 805 | Polynomial | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 806 | Rational | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 807 | Logarithmic | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 808 | Exponential | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 809 | Trigonometric / circular | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 810 | Inverse | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 811 | Composition | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| <none> | 9 | **Basic Geometry** | **Memorize Facts Definitions Formulas** | **Perform Procedures** | **Demonstrate Understanding of Mathematical Ideas** | **Conjecture Generalize Prove** | **Solve Non-Routine Problems Make Connections** |
| ⓪ ① ② ③ | 901 | Basic terminology | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 902 | Relationships between lines, angles, planes | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 903 | Triangles | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 904 | Quadrilaterals | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 905 | Polygons | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 906 | Congruence | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 907 | Similarity | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 908 | Parallels | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 909 | Circles | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 910 | Construction | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |

| *Time on Topic* | | *High School Mathematics* | *Expectations for Students in Mathematics* | | | | |
|---|---|---|---|---|---|---|---|
| <none> | 10 | **Advanced Geometry** | **Memorize Facts Definitions Formulas** | **Perform Procedures** | **Demonstrate Understanding of Mathematical Ideas** | **Conjecture Generalize Prove** | **Solve Non-Routine Problems Make Connections** |
| ⓪ ① ② ③ | 1001 | Logic, reasoning, proof | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1002 | Symmetries | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1003 | Loci | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1004 | Spheres, cones, cylinders | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1005 | Polyhedra | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1006 | 3-dimensional relationships | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1007 | Transformation | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1008 | Coordinate | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1009 | Vectors | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1010 | Analytic | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1011 | Non-Euclidean | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1012 | Topology | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| <none> | 11 | **Trigonometry** | **Memorize Facts Definitions Formulas** | **Perform Procedures** | **Demonstrate Understanding of Mathematical Ideas** | **Conjecture Generalize Prove** | **Solve Non-Routine Problems Make Connections** |
| ⓪ ① ② ③ | 1101 | Basic ratios | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1102 | Radian measure | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1103 | Right triangle trigonometry | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1104 | Law of Sines, Cosines | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1105 | Identities | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1106 | Trigonometric equations | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1107 | Polar coordinates | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1108 | Periodicity | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1109 | Amplitude | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| <none> | 12 | **Statistics** | **Memorize Facts Definitions Formulas** | **Perform Procedures** | **Demonstrate Understanding of Mathematical Ideas** | **Conjecture Generalize Prove** | **Solve Non-Routine Problems Make Connections** |
| ⓪ ① ② ③ | 1201 | Variability, standard deviation | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1202 | Quartiles, percentiles | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1203 | Bivariate distribution | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1204 | Sampling | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1205 | Confluence intervals | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1206 | Correlation | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1207 | Lines of best fit | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1208 | Hypothesis testing | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1209 | Chi-square | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1210 | Data transformation | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1211 | Central Limit Theorem | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |

| *Time on Topic* | | *High School Mathematics* | *Expectations for Students in Mathematics* | | | | |
|---|---|---|---|---|---|---|---|
| <none> | 13 | **Probability** | **Memorize Facts Definitions Formulas** | **Perform Procedures** | **Demonstrate Understanding of Mathematical Ideas** | **Conjecture Generalize Prove** | **Solve Non-Routine Problems Make Connections** |
| ⓪ ① ② ③ | 1301 | Sample spaces | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1302 | Compound probability | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1303 | Conditional probability | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1304 | Independent / dependent events | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1305 | Empirical probability | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1306 | Expected value | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1307 | Binomial distribution | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1308 | Normal curve | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| <none> | 14 | **Finite Mathematics / Special Topics** | **Memorize Facts Definitions Formulas** | **Perform Procedures** | **Demonstrate Understanding of Mathematical Ideas** | **Conjecture Generalize Prove** | **Solve Non-Routine Problems Make Connections** |
| ⓪ ① ② ③ | 1401 | Sets | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1402 | Logic | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1403 | Mathematical induction | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1404 | Linear programming | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1405 | Networks | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1406 | Iteration, recursion | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1407 | Permutations combinations | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1408 | Simulations | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1409 | Fractals | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| <none> | 15 | **Analysis** | **Memorize Facts Definitions Formulas** | **Perform Procedures** | **Demonstrate Understanding of Mathematical Ideas** | **Conjecture Generalize Prove** | **Solve Non-Routine Problems Make Connections** |
| ⓪ ① ② ③ | 1501 | Sequences and series | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1502 | Limits | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1503 | Continuity | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1504 | Rates of change | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1505 | Maxima, minima | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1506 | Differentiation | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1507 | Integration | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| <none> | 16 | **Technology** | **Memorize Facts Definitions Formulas** | **Perform Procedures** | **Demonstrate Understanding of Mathematical Ideas** | **Conjecture Generalize Prove** | **Solve Non-Routine Problems Make Connections** |
| ⓪ ① ② ③ | 1601 | Learning to operate calculators, computers and the Internet | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |
| ⓪ ① ② ③ | 1602 | Computer programming | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ | ⓪ ① ② ③ |

**Please continue to the next section of the survey.**

Council of Chief State School Officers
Wisconsin Center for Education Research

# Classroom Practices & Teacher Characteristics
# For
# High School
# Mathematics

**Selecting the Target Class**-- *For all questions about instructional content and practices please refer only to activities in the mathematics class that you teach. If you teach more than one mathematics class, select the first class that you teach each week. If you teach a split class (i.e. the class is split into more than one group for mathematics instruction) select only one group to describe as the target class.*

The following pages request information regarding students in the target mathematics class for the **2002-2003 school year (last school year)**.

## HOMEWORK (work assigned to be done *outside of class*)

## Answer the following questions with regard to your target class:

14 How often do you usually assign mathematics homework to be done outside of class?

⓪ Never (Skip to # 18)
① Less than once per week
② Once or twice per week
③ 3-4 times per week
④ Every day

15 How many minutes does the typical student spend on a normal homework assignment completed outside of class?

⓪ I do not assign homework
① Less than 15 minutes
② 15-30 minutes
③ 31-60 minutes
④ 61-90 minutes
⑤ More than 90 minutes

16 Does homework done outside of class count towards student grades?

⓪ Never
① Usually does not
② Usually does
③ Always does

17 How often do you assign homework to be completed in a small group outside of class?

⓪ Never
① Less than once per week
② Once or twice per week
③ 3-4 times per week
④ Every day

***AMOUNT OF HOMEWORK TIME*** ***(for the school year)***

**0 - None**
**1 - Little** *(10% or less of homework time for the school year)*
**2 - Some** *(11-25 % of homework time for the school year)*
**3 - Moderate** *(26-50% of homework time for the school year)*
**4 - Considerable** *(more than 50% of homework time for the school year)*

**For the target class, how much of the time that students spend on mathematics homework done *outside of class* do they:**

| | | None | Little | Some | Moderate | Considerable |
|---|---|---|---|---|---|---|
| 18 | Complete computational exercises or procedures from a textbook or worksheet. | ⓪ | ① | ② | ③ | ④ |
| 19 | Solve word problems from a textbook or worksheet. | ⓪ | ① | ② | ③ | ④ |
| 20 | Explain their reasoning or thinking in solving a problem, using several sentences. | ⓪ | ① | ② | ③ | ④ |
| 21 | Work on a demonstration or proof of their mathematics work. | ⓪ | ① | ② | ③ | ④ |
| 22 | Collect data as part of mathematics homework. | ⓪ | ① | ② | ③ | ④ |
| 23 | Work on an assignment, report, or project that takes longer than one week to complete . | ⓪ | ① | ② | ③ | ④ |
| 24 | Solve novel or non-routine mathematical problems. | ⓪ | ① | ② | ③ | ④ |

# INSTRUCTIONAL ACTIVITIES IN MATHEMATICS

*Listed below are questions about the types of activities that students in the target class engage in during mathematics instruction. For each activity, you are asked to estimate the relative amount of time a typical student will spend engaged in that activity during classroom instruciton over the course of a school year. The activities are not necessarily mutually exclusive; across activities, your answers will undoubtedly greatly exceed 100%. Consider each activity on its own, estimating the range that bests indicates the relative amount of mathematics instructional time that a typical student spends over the course of a school year engaged in that activity.*

***AMOUNT OF INSTRUCTIONAL TIME** (for the school year)*

**0 - None**
**1** - **Little** *(10% or less of instructional time for the school year)*
**2 - Some** *(11-25 % of instructional time for the school year)*
**3 - Moderate** *(26-50% of instructional time for the school year)*
**4 - Considerable** *(more than 50% of instructional time for the school year)*

| **How much of the total mathematics instructional time do students in the target class:** | | **None** | **Little** | **Some** | **Moderate** | **Considerable** |
|---|---|---|---|---|---|---|
| 25 | Watch the teacher demonstrate how to do a procedure or solve a problem. | ⓪ | ① | ② | ③ | ④ |
| 26 | Read about mathematics in books, magazines, or articles (**not** textbooks). | ⓪ | ① | ② | ③ | ④ |
| 27 | Take notes from lectures or the textbook. | ⓪ | ① | ② | ③ | ④ |
| 28 | Complete *computational exercises or procedures* from a textbook or a worksheet. | ⓪ | ① | ② | ③ | ④ |
| 29 | Present or demonstrates solutions to a math problem to the whole class. | ⓪ | ① | ② | ③ | ④ |
| 30 | Use manipulatives (for example, geometric shapes or algebraic tiles), measurement instruments (for example, rulers or protractors), and data collection devices (for example, surveys or probes). | ⓪ | ① | ② | ③ | ④ |
| 31 | Work *individually* on mathematics exercises, problems, investigations, or tasks. | ⓪ | ① | ② | ③ | ④ |
| 32 | Work *in pairs or small groups* on math exercises, problems, investigations, or tasks. | ⓪ | ① | ② | ③ | ④ |
| 33 | Do a mathematics activity with the class outside the classroom. | ⓪ | ① | ② | ③ | ④ |
| 34 | Use computers, calculators, or other technology to learn mathematics. | ⓪ | ① | ② | ③ | ④ |
| 35 | Maintain and reflect on a mathematics portfolio of their own work. | ⓪ | ① | ② | ③ | ④ |
| 36 | Take a quiz or test. | ⓪ | ① | ② | ③ | ④ |

***AMOUNT OF INSTRUCTIONAL TIME*** ***(working individually)***

**0 - None**

**1** - **Little** *(10% or less of individual work time on mathematical exercises, problems or tasks)*

**2 - Some** *(11-25 % of individual work time on mathematical exercises, problems or tasks*)

**3 - Moderate** *(26-50% of individual work time on mathematical exercises, problems or tasks)*

**4 - Considerable** *(more than 50% of individual work time on mathematical exercises, problems or tasks)*

| **When students in the target class work *individually* on mathematics exercises, problems, investigations, or tasks, how much time do they:** | | **None** | **Little** | **Some** | **Moderate** | **Considerable** |
|---|---|---|---|---|---|---|
| 37 | Solve *word problems* from a textbook or worksheet. | ⓪ | ① | ② | ③ | ④ |
| 38 | Solve non-routine mathematical problems (for example, problems that require novel or non-formulaic thinking). | ⓪ | ① | ② | ③ | ④ |
| 39 | Explain their reasoning or thinking in solving a problem, using several sentences orally or in writing. | ⓪ | ① | ② | ③ | ④ |
| 40 | Apply mathematical concepts to "real-world" problems. | ⓪ | ① | ② | ③ | ④ |
| 41 | Make estimates, predictions or hypotheses. | ⓪ | ① | ② | ③ | ④ |
| 42 | Analyze data to make inferences or draw conclusions. | ⓪ | ① | ② | ③ | ④ |
| 43 | Work on a problem that takes at least 45 minutes to solve. | ⓪ | ① | ② | ③ | ④ |
| 44 | Complete or conduct proofs or demonstrations of their mathematical reasoning. | ⓪ | ① | ② | ③ | ④ |

***AMOUNT OF INSTRUCTIONAL TIME*** ***(in pairs or small groups)***

**0 - None**
**1 - Little** *(10% or less of instructional time in pairs or small groups)*
**2 - Some** *(11-25 % of instructional time in pairs or small groups)*
**3 - Moderate** *(26-50% of instructional time in pairs or small groups)*
**4 - Considerable** *(more than 50% of instructional time in pairs or small groups)*

| **When students in the target class work *in pairs or small groups* on math exercises, problems, investigations, or tasks, how much time do they:** | | **None** | **Little** | **Some** | **Moderate** | **Considerable** |
|---|---|---|---|---|---|---|
| 45 | Solve *word problems* from a textbook or worksheet. | ⓪ | ① | ② | ③ | ④ |
| 46 | Solve non-routine mathematical problems (for example, problems that require novel or non-formulaic thinking). | ⓪ | ① | ② | ③ | ④ |
| 47 | Talk about their reasoning or thinking in solving a problem. | ⓪ | ① | ② | ③ | ④ |
| 48 | Apply mathematical concepts to "real-world" problems. | ⓪ | ① | ② | ③ | ④ |
| 49 | Make estimates, predictions or hypotheses. | ⓪ | ① | ② | ③ | ④ |
| 50 | Analyze data to make inferences or draw conclusions. | ⓪ | ① | ② | ③ | ④ |
| 51 | Work on a problem that takes at least 45 minutes to solve. | ⓪ | ① | ② | ③ | ④ |
| 52 | Complete or conduct proofs or demonstrations of their mathematical reasoning. | ⓪ | ① | ② | ③ | ④ |

***AMOUNT OF INSTRUCTIONAL TIME (using hands-on materials)***

**0 - None**
**1 - Little** *(10% or less of instructional time using hands-on materials)*
**2 - Some** *(11-25 % of instructional time using hands-on materials)*
**3 - Moderate** *(26-50% of instructional time using hands-on materials)*
**4 - Considerable** *(more than 50% of instructional time using hands-on materials)*

| **When students in the target class use *hands-on materials*, how much time do they:** | | **None** | **Little** | **Some** | **Moderate** | **Considerable** |
|---|---|---|---|---|---|---|
| 53 | Work with manipulatives (for example, counting blocks, geometric shapes, or algebraic tiles) to understand concepts. | ⓪ | ① | ② | ③ | ④ |
| 54 | Measure objects using tools such as rulers, scales, or protractors. | ⓪ | ① | ② | ③ | ④ |
| 55 | Build models or charts. | ⓪ | ① | ② | ③ | ④ |
| 56 | Collect data by counting, observing, or conducting surveys. | ⓪ | ① | ② | ③ | ④ |
| 57 | Present information to others using manipulatives (for example, chalkboard, whiteboard, posterboard, projector). | ⓪ | ① | ② | ③ | ④ |

***AMOUNT OF INSTRUCTIONAL TIME (using calculators, computers or other ed. tech.)***

**0 - None**
**1 - Little** *(10% or less of instructional time using calculators, computers, or other ed. tech.)*
**2 - Some** *(11-25 % of instructional time using calculators, computers, or other ed. tech.)*
**3 - Moderate** *(26-50% of instructional time using calculators, computers, or other ed. tech.)*
**4 - Considerable** *(more than 50% of instructional time using calculators, computers, or other ed. tech.)*

| **When students in the target class are engaged in activities that involve the use of *calculators, computers, or other educational technology* as part of mathematics instruction, how much time do they:** | | **None** | **Little** | **Some** | **Moderate** | **Considerable** |
|---|---|---|---|---|---|---|
| 58 | Learn facts | ⓪ | ① | ② | ③ | ④ |
| 59 | Practice procedures | ⓪ | ① | ② | ③ | ④ |
| 60 | Use sensors and probes | ⓪ | ① | ② | ③ | ④ |
| 60 | Retrieve or exchange data or information (for example, using the Internet or partnering with another class) | ⓪ | ① | ② | ③ | ④ |
| 61 | Display and analyze data | ⓪ | ① | ② | ③ | ④ |
| 62 | Develop geometric concepts (for example, using simulations) | ⓪ | ① | ② | ③ | ④ |

## ASSESSMENTS

**For items 63-70, indicate how often you use each of the following when assessing students in the target mathematics class.**

| | | Never | 1 - 4 times per year | 1 - 3 times per month | 1 - 3 times per week | 4 - 5 times per week |
|---|---|---|---|---|---|---|
| 63 | Objective items (for example, multiple choice, true/false). | ⓪ | ① | ② | ③ | ④ |
| 64 | Short answer questions such as performing a mathematical procedure. | ⓪ | ① | ② | ③ | ④ |
| 65 | Extended response item for which student must explain or justify solution. | ⓪ | ① | ② | ③ | ④ |
| 66 | Performance tasks or events (for example, hands-on activities). | ⓪ | ① | ② | ③ | ④ |
| 67 | Individual or group demonstration, presentation. | ⓪ | ① | ② | ③ | ④ |
| 68 | Mathematics projects. | ⓪ | ① | ② | ③ | ④ |
| 69 | Portfolios. | ⓪ | ① | ② | ③ | ④ |
| 70 | Systematic observation of students. | ⓪ | ① | ② | ③ | ④ |

## INSTRUCTIONAL INFLUENCES

**For items 71-80, indicate the degree to which each of the following influences what you teach in the target mathematics class.**

| | | Not Applicable | Strong Negative Influence | Somewhat Negative Influence | Little or No Influence | Somewhat Positive Influence | Strong Positive Influence |
|---|---|---|---|---|---|---|---|
| 71 | Your state's curriculum framework or content standards. | ⓪ | ① | ② | ③ | ④ | ⑤ |
| 72 | Your district's curriculum framework or guidelines. | ⓪ | ① | ② | ③ | ④ | ⑤ |
| 73 | Textbook / instructional materials. | ⓪ | ① | ② | ③ | ④ | ⑤ |
| 74 | State tests or results. | ⓪ | ① | ② | ③ | ④ | ⑤ |
| 75 | District tests or results. | ⓪ | ① | ② | ③ | ④ | ⑤ |
| 76 | National mathematics education standards. | ⓪ | ① | ② | ③ | ④ | ⑤ |
| 77 | Your experience in pre-service preparation. | ⓪ | ① | ② | ③ | ④ | ⑤ |
| 78 | Students' special needs. | ⓪ | ① | ② | ③ | ④ | ⑤ |
| 79 | Parents/community. | ⓪ | ① | ② | ③ | ④ | ⑤ |
| 80 | Preparation of students for the next grade or level. | ⓪ | ① | ② | ③ | ④ | ⑤ |

## CLASSROOM INSTRUCTIONAL PREPARATION

| **For items 81-90, please indicate how well prepared you are to:** | | Not Well Prepared | Somewhat Prepared | Well Prepared | Very Well Prepared |
|---|---|---|---|---|---|
| 81 | Teach mathematics at your assigned level. | ⓪ | ① | ② | ③ |
| 82 | Integrate mathematics with other subjects. | ⓪ | ① | ② | ③ |
| 83 | Provide mathematics instruction that meets mathematics content standards (district, state, or national). | ⓪ | ① | ② | ③ |
| 84 | Use a variety of assessment strategies (including objective and open-ended formats). | ⓪ | ① | ② | ③ |
| 85 | Teach problem solving strategies. | ⓪ | ① | ② | ③ |
| 86 | Teach mathematics with manipulatives, such as counting blocks or geometric shapes. | ⓪ | ① | ② | ③ |
| 87 | Teach students with physical disabilities. | ⓪ | ① | ② | ③ |
| 88 | Teach classes with students with diverse abilities. | ⓪ | ① | ② | ③ |
| 89 | Teach mathematics to students from a variety of cultural backgrounds. | ⓪ | ① | ② | ③ |
| 90 | Teach mathematics to students who have Limited English Proficiency. | ⓪ | ① | ② | ③ |

## TEACHER OPINIONS

| **Please indicate your opinion about each of the statements below:** | | Strongly Disagree | Disagree | Neutral / Undecided | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| 91 | Students learn mathematics best when they ask a lot of questions. | ⓪ | ① | ② | ③ | ④ |
| 92 | It is important for students to learn basic mathematics skills before solving problems. | ⓪ | ① | ② | ③ | ④ |
| 93 | I am supported by colleagues to try out new ideas in teaching mathematics. | ⓪ | ① | ② | ③ | ④ |
| 94 | I am required to follow rules at this school that conflict with my best professional judgment about teaching and learning mathematics. | ⓪ | ① | ② | ③ | ④ |
| 95 | Mathematics teachers in this school regularly observe each other teaching classes. | ⓪ | ① | ② | ③ | ④ |
| 96 | Mathematics teachers in this school trust each other. | ⓪ | ① | ② | ③ | ④ |
| 97 | It's OK in this school to discuss feelings, worries, and frustrations with other mathematics teachers. | ⓪ | ① | ② | ③ | ④ |
| 98 | Mathematics teachers respect other teachers who take the lead in school improvement efforts. | ⓪ | ① | ② | ③ | ④ |
| 99 | It's OK in this school to discuss feelings, worries, and frustrations with the principal. | ⓪ | ① | ② | ③ | ④ |
| 100 | The principal takes personal interest in the professional development of the teachers. | ⓪ | ① | ② | ③ | ④ |

## PROFESSIONAL DEVELOPMENT ACTIVITIES IN MATHEMATICS EDUCATION

*In answering the following items, consider all the professional development activities related to mathematics content or mathematics education that you have participated in between June 1, 2002 and May 31, 2003. Professional development refers to a variety of activities intended to enhance your professional knowledge and skills, including in-service training, teacher networks, course work, institutes, committee work, and mentoring. In-service training is professional development offered by your school or district to enhance your professional responsibilities and knowledge. Workshops are short term learning opportunities that can be located in your school or elsewhere. Institutes are longer term professional learning opportunities, for example, of a week or longer in duration.*

| | | ⓪ Never ③ 3-4 times<br>① Once ④ 5-10 times<br>② Twice ⑤ > 10 times | ⓪ N/A ③ 16-35<br>① 1-6 hrs. ④ 36-60<br>② 7-15 hrs. ⑤ 61+ hrs. |
|---|---|---|---|
| | | **How Often?** | **How many hours?** |
| 101 | Between June 1, 2002 and May 31, 2003, how often, and for how many total hours, have you participated in *workshops or in-service training related to mathematics or math education* ? | ⓪ ① ② ③ ④ ⑤ | ⓪ ① ② ③ ④ ⑤ |
| 102 | Between June 1, 2002 and May 31, 2003, how often, and for how many total hours, have you participated in *summer institutes related to mathematics or math education* ? | ⓪ ① ② ③ ④ ⑤ | ⓪ ① ② ③ ④ ⑤ |
| 103 | Between June 1, 2002 and May 31, 2003, how often have you attended *college courses related to mathematics or math education* and about how many hours did you spend in class? | ⓪ ① ② ③ ④ ⑤ | ⓪ ① ② ③ ④ ⑤ |

**Between June 1, 2002 and May 31, 2003, how frequently have you engaged in each of the following activities related specifically to the teaching and learning of mathematics?**

| | | **Never** | Once or twice a **year** | Once or twice a **term** | Once or twice a **month** | Once or twice a **week** | **Almost daily** |
|---|---|---|---|---|---|---|---|
| 104 | Attended conferences related to mathematics or math education. | ⓪ | ① | ② | ③ | ④ | ⑤ |
| 105 | Participated in a teacher study group. | ⓪ | ① | ② | ③ | ④ | ⑤ |
| 106 | Participated in a teacher network or collaborative of teachers supporting professional development. | ⓪ | ① | ② | ③ | ④ | ⑤ |
| 107 | Acted as a coach or mentor to other teachers or staff in your school. | ⓪ | ① | ② | ③ | ④ | ⑤ |
| 108 | Received coaching or mentoring. | ⓪ | ① | ② | ③ | ④ | ⑤ |
| 109 | Participated in a committee or task force focused on curriculum and instruction. | ⓪ | ① | ② | ③ | ④ | ⑤ |
| 110 | Engaged in informal self-directed learning (for example, discussion with colleague about math or math education topics, read a journal article on math or math education, use the internet to enrich knowledge and skills). | ⓪ | ① | ② | ③ | ④ | ⑤ |

**Thinking again about all of your professional development activities in mathematics or mathematics education between June 1, 2002 and May 31, 2003, how often have you:**

| | | Never | Rarely | Some times | Often |
|---|---|---|---|---|---|
| 111 | Observed demonstrations of teaching techniques. | ⓪ | ① | ② | ③ |
| 112 | Led group discussions. | ⓪ | ① | ② | ③ |
| 113 | Developed curricula or lesson plans, which other participants or the activity leader reviewed. | ⓪ | ① | ② | ③ |
| 114 | Reviewed student work or scored assessments. | ⓪ | ① | ② | ③ |
| 115 | Developed assessments or tasks as as part of a formal professional development activity. | ⓪ | ① | ② | ③ |
| 116 | Practiced what you learned and received feedback as part of a professional development activity. | ⓪ | ① | ② | ③ |
| 117 | Received coaching or mentoring in the classroom. | ⓪ | ① | ② | ③ |
| 118 | Given a lecture or presentation to colleagues. | ⓪ | ① | ② | ③ |

**Thinking about all of your professional development activities between June 1, 2002 and May 31, 2003, indicate how often they have been:**

| | | N/A | Never | Rarely | Some times | Often |
|---|---|---|---|---|---|---|
| 119 | Designed to support the school-wide improvement plan adopted by your school. | ⑨ | ⓪ | ① | ② | ③ |
| 120 | Consistent with your mathematics department or grade level plan to improve teaching. | ⑨ | ⓪ | ① | ② | ③ |
| 121 | Consistent with your own goals for your professional development. | ⑨ | ⓪ | ① | ② | ③ |
| 122 | Based explicitly on what you had learned in earlier professional development activities. | ⑨ | ⓪ | ① | ② | ③ |
| 123 | Followed up with related activities that built upon what you learned as part of the activity. | ⑨ | ⓪ | ① | ② | ③ |

**Between June 1, 2002 and May 31, 2003, have you participated in professional development activities in mathematics or mathematics education in the following ways?**

| | | No | Yes |
|---|---|---|---|
| 124 | I participated in professional development activities with most or all of the teachers from my school. | ⓪ | ① |
| 125 | I participated in professional development activities with most or all of the teachers from my department or grade level. | ⓪ | ① |
| 126 | I participated in professional development activities *not* attended by other staff members from my school. | ⓪ | ① |
| 127 | I discussed what I learned with other teachers in my school or department who did *not* attend the activity. | ⓪ | ① |

**How much *emphasis* did your professional development activities in math or math education place on the following topics?**

| | | None | Slight | Moderate | Great |
|---|---|---|---|---|---|
| 128 | State mathematics content standards (for example, what they are and how they are used). | ⓪ | ① | ② | ③ |
| 129 | Alignment of mathematics instruction to curriculum. | ⓪ | ① | ② | ③ |
| 130 | Instructional approaches (for example, use of manipulatives). | ⓪ | ① | ② | ③ |
| 131 | In-depth study of mathematics or specific concepts within mathematics (for example, fractions). | ⓪ | ① | ② | ③ |
| 132 | Study of how children learn particular topics in mathematics. | ⓪ | ① | ② | ③ |
| 133 | Individual differences in student learning. | ⓪ | ① | ② | ③ |
| 134 | Meeting the learning needs of special populations of students (for example, second language learners; students with disabilities). | ⓪ | ① | ② | ③ |
| 135 | Classroom mathematics assessment (for example, diagnostic approaches, textbook-developed tests, teacher-developed tests). | ⓪ | ① | ② | ③ |
| 136 | State or district mathematics assessment (for example, preparing for assessments, understanding assessments, or interpreting assessments). | ⓪ | ① | ② | ③ |
| 137 | Interpretation of assessment data for use in mathematics instruction. | ⓪ | ① | ② | ③ |
| 138 | Technology to support student learning in mathematics. | ⓪ | ① | ② | ③ |

## TEACHER CHARACTERISTICS

139 Please indicate your gender.

| Female | Male |
|---|---|
| ① | ② |

140 Please indicate your ethnicity/race.

Indicate all that apply

① American Indian or Alaska Native
② Asian
③ Black or African American
④ Hispanic or Latino
⑤ Native Hawaiian or Other Pacific Islander
⑥ White

| | Less than 1 year | 1 - 2 years | 3 - 5 years | 6 - 8 years | 9 - 11 years | 12 - 15 years | More than 15 years |
|---|---|---|---|---|---|---|---|
| 141 How many years have you taught mathematics prior to this year? | ⓪ | ① | ② | ③ | ④ | ⑤ | ⑥ |
| 142 How long have you been assigned to teach at your current school? | ⓪ | ① | ② | ③ | ④ | ⑤ | ⑥ |

| | Does not apply | BA or BS | MA or MS | Multiple MA or MS | Ph.D. or Ed.D. | Other |
|---|---|---|---|---|---|---|
| 143 What is the highest degree you hold? | ⓪ | ① | ② | ③ | ④ | ⑤ |

144 What was your major field of study for the bachelors degree?

① Elementary Education
② Middle School Education
③ Mathematics Education
④ Mathematics
⑤ Mathematics Education **and** Mathematics
⑥ Other Disciplines (includes other Education fields, Science, History, English, Foreign Languages, etc.)

145 **If applicable**, what was your **major field** of study for the **highest degree you hold** beyond a bachelors degree?

① Elementary Education
② Middle School Education
③ Mathematics Education
④ Mathematics
⑤ Mathematics Education **and** Mathematics
⑥ Other Disciplines (includes other Education fields, Science, History, English, Foreign Languages, etc.)

146 What type(s) of state certification do you currently have?

Indicate all that apply

① Emergency or Temporary Certification
② Elementary Grades Certification
③ Middle Grades Certification
④ Secondary certification in a field **other** than mathematics
⑤ Secondary Mathematics Certification

## FORMAL COURSE PREPARATION

**Please indicate the number of *quarter or semester courses* that you have taken at the undergraduate or graduate level in each of the following areas:**

| | | (Number of courses) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0 | 1-2 | 3-4 | 5-6 | 7-8 | 9-10 | 11-12 | 13-14 | 15-16 | 17+ |
| 147 | Refresher mathematics courses (e.g., algebra, geometry) | ⓪ | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ | ⑨ |
| 148 | Advanced mathematics courses (e.g., calculus, statistics) | ⓪ | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ | ⑨ |
| 149 | Mathematics Education | ⓪ | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ | ⑧ | ⑨ |

**This is the end of the survey. Thank you for your participation.**

**PLEASE TURN TO THE BACK COVER AND FILL IN YOUR CONTACT INFORMATION.**

Please provide the following information:

(Note: Your personal information will be kept confidential.)

Name: _____

Home address: _____

City: _____ State: _____ Zipcode: _____

Home phone: _____

Email address: _____

(required for on-line access to individual results)

District: _____

School: _____

Providing your name and email address will allow you to gain access to your individual results along with results for your school and/or district.