

Council of Chief State School Officers
Wisconsin Center for Education Research

SURVEYS OF ENACTED CURRICULUM®

Survey Of Instructional Practices

Teacher Survey

High School

Mathematics

Thank you for agreeing to participate in this survey of instructional practice and content. This survey is part of a collaborative effort to provide education researchers, policymakers, administrators, and most importantly, teachers like yourself with comparative information about instruction in districts participating in the SEC Collaborative or associated initiatives from states and districts around the country. To learn more about the surveys of enacted curriculum and their use in other projects, please visit the project website; <http://www.secsurvey.org>

Your participation in this survey is voluntary. If you choose to participate, your personal information will remain strictly confidential. Information that could be used to identify you or used to connect you to individual results will not be shared with staff in your school, district or state. Individual respondents are never identified in any reports of results. 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.

Instructions for Selecting the Target Class --

Mathematics Instruction -- For all questions about classroom 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.

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.

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?

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

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

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

TARGET CLASS DESCRIPTION

- 4 Indicate the grade level of the majority of students in the target class.
- ① K ② 1 ③ 2 ④ 3 ⑤ 4 ⑥ 5 ⑦ 6 ⑧ 7 ⑨ 8 ⑩ 9 ⑪ 10 ⑫ 11 ⑬ 12
- 5 How many students are in the target class?
- ① 10 or less ② 11 to 15 ③ 16 to 20 ④ 21 to 25 ⑤ 26 to 30 ⑥ 31 or more
- 6 What percentage of the students in the target class are **female**? (Estimate to the nearest ten percent.)
- ① Less than 10 ② 10 ③ 20 ④ 30 ⑤ 40 ⑥ 50 ⑦ 60 ⑧ 70 ⑨ 80 ⑩ 90+ %
- 7 What percentage of the students in the target class are **not** Caucasian? (Estimate to the nearest ten percent.)
- ① Less than 10 ② 10 ③ 20 ④ 30 ⑤ 40 ⑥ 50 ⑦ 60 ⑧ 70 ⑨ 80 ⑩ 90+ %
- 8 *During a typical week*, approximately how many hours will the target class spend in mathematics instruction?
- 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?
- ① Not applicable ② 30 to 40 minutes ③ 41 to 50 minutes ④ 51 to 60 minutes ⑤ 61 to 90 minutes ⑥ 91 to 120 minutes ⑦ Varies due to block scheduling or integrated instruction
- 10 How many weeks total will the target mathematics class/course meet for this school year?
- ① ② ③
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.)
- ① Less than 10 ② 10 ③ 20 ④ 30 ⑤ 40 ⑥ 50 ⑦ 60 ⑧ 70 ⑨ 80 ⑩ 90+ %
- 13 What is considered most in scheduling students into this class?
- ① Ability or Achievement ② Limited English Proficiency ③ Teacher Recommendation ④ Parent Request ⑤ No one factor more than another ⑥ Student selects

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? | <input type="radio"/> ① Never (Skip to # 18)
<input type="radio"/> ② Once or twice per week | <input type="radio"/> ③ 3-4 times per week
<input type="radio"/> ④ Every day |
| 15 | How many minutes does the typical student spend on a normal homework assignment completed outside of class? | <input type="radio"/> ① I do not assign homework
<input type="radio"/> ② 15-30 minutes | <input type="radio"/> ③ 31-60 minutes
<input type="radio"/> ④ 61-90 minutes
<input type="radio"/> ⑤ More than 90 minutes |
| 16 | Does homework done outside of class count towards student grades? | <input type="radio"/> ① Never
<input type="radio"/> ② Usually does not | <input type="radio"/> ③ Usually does
<input type="radio"/> ④ Always does |
| 17 | How often do you assign homework to be completed in a small group outside of class? | <input type="radio"/> ① Never
<input type="radio"/> ② Less than once per week
<input type="radio"/> ③ Once or twice per week | <input type="radio"/> ④ 3-4 times per week
<input type="radio"/> ⑤ 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** (50% or more of homework time for the school year)

What percentage of the time that students in the target class spend on mathematics homework done *outside of class* do you expect them to:

- | | None | Little | Some | Moderate | Considerable |
|----|---|---------------|-------------|-----------------|---------------------|
| 18 | Complete computational exercises or procedures from a textbook or worksheet. | ① | ② | ③ | ④ |
| 19 | Solve word problems from a textbook or worksheet. | ① | ② | ③ | ④ |
| 20 | Explain their reasoning or thinking in solving a problem, using several sentences. | ① | ② | ③ | ④ |
| 21 | Work on a demonstration or proof of their mathematics work. | ① | ② | ③ | ④ |
| 22 | Collect data as part of mathematics homework. | ① | ② | ③ | ④ |
| 23 | Work on an assignment, report, or project that takes longer than one week to complete . | ① | ② | ③ | ④ |
| 24 | Solve novel or non-routine mathematical problems. | 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 instruction 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 best 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 (50% or more 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.	①	②	③	④	⑤
26 Read about mathematics in books, magazines, or articles (not textbooks).	①	②	③	④	⑤
27 Take notes from lectures or the textbook.	①	②	③	④	⑤
28 Complete <i>computational exercises</i> or <i>procedures</i> from a textbook or a worksheet.	①	②	③	④	⑤
29 Present or demonstrates solutions to a math problem to the whole class.	①	②	③	④	⑤
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).	①	②	③	④	⑤
31 Work <i>individually</i> on mathematics exercises, problems, investigations, or tasks.	①	②	③	④	⑤
32 Work <i>in pairs</i> or <i>small groups</i> on math exercises, problems, investigations, or tasks.	①	②	③	④	⑤
33 Do a mathematics activity with the class outside the classroom.	①	②	③	④	⑤
34 Use computers, calculators, or other technology to learn mathematics.	①	②	③	④	⑤
35 Maintain and reflect on a mathematics portfolio of their own work.	①	②	③	④	⑤
36 Take a quiz or test.	①	②	③	④	⑤

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 (*50% or more 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 <i>word problems</i> from a textbook or worksheet.	①	②	③	④	⑤
38 Solve non-routine mathematical problems (for example, problems that require novel or non-formulaic thinking).	①	②	③	④	⑤
39 Explain their reasoning or thinking in solving a problem, using several sentences orally or in writing.	①	②	③	④	⑤
40 Apply mathematical concepts to "real-world" problems.	①	②	③	④	⑤
41 Make estimates, predictions or hypotheses.	①	②	③	④	⑤
42 Analyze data to make inferences or draw conclusions.	①	②	③	④	⑤
43 Work on a problem that takes at least 45 minutes to solve.	①	②	③	④	⑤
44 Complete or conduct proofs or demonstrations of their mathematical reasoning.	①	②	③	④	⑤

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 (50% or more 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 <i>word problems</i> from a textbook or worksheet.	①	②	③	④	⑤
46 Solve non-routine mathematical problems (for example, problems that require novel or non-formulaic thinking).	①	②	③	④	⑤
47 Talk about their reasoning or thinking in solving a problem.	①	②	③	④	⑤
48 Apply mathematical concepts to "real-world" problems.	①	②	③	④	⑤
49 Make estimates, predictions or hypotheses.	①	②	③	④	⑤
50 Analyze data to make inferences or draw conclusions.	①	②	③	④	⑤
51 Work on a problem that takes at least 45 minutes to solve.	①	②	③	④	⑤
52 Complete or conduct proofs or demonstrations of their mathematical reasoning.	①	②	③	④	⑤

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 (50% or more 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.	①	②	③	④	⑤
54 Measure objects using tools such as rulers, scales, or protractors.	①	②	③	④	⑤
55 Build models or charts.	①	②	③	④	⑤
56 Collect data by counting, observing, or conducting surveys.	①	②	③	④	⑤
57 Present information to others using manipulatives (for example, chalkboard, whiteboard, posterboard, projector).	①	②	③	④	⑤

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 (50% or more 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	①	②	③	④	⑤
59 Practice procedures	①	②	③	④	⑤
60 Use sensors and probes	①	②	③	④	⑤
61 Retrieve or exchange data or information (for example, using the Internet or partnering with another class)	①	②	③	④	⑤
62 Display and analyze data	①	②	③	④	⑤
63 Develop geometric concepts (for example, using simulations)	①	②	③	④	⑤

ASSESSMENTS

For items 64-71, 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
64 Objective items (for example, multiple choice, true/false).	①	②	③	④	⑤
65 Short answer questions such as performing a mathematical procedure.	①	②	③	④	⑤
66 Extended response item for which student must explain or justify solution.	①	②	③	④	⑤
67 Performance tasks or events (for example, hands-on activities).	①	②	③	④	⑤
68 Individual or group demonstration, presentation.	①	②	③	④	⑤
69 Mathematics projects.	①	②	③	④	⑤
70 Portfolios.	①	②	③	④	⑤
71 Systematic observation of students.	①	②	③	④	⑤

INSTRUCTIONAL INFLUENCES

For items 72-81, 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
72 Your state's curriculum framework or content standards.	①	②	③	④	⑤	⑥
73 Your district's curriculum framework or guidelines.	①	②	③	④	⑤	⑥
74 Textbook / instructional materials.	①	②	③	④	⑤	⑥
75 State tests or results.	①	②	③	④	⑤	⑥
76 District tests or results.	①	②	③	④	⑤	⑥
77 National mathematics education standards.	①	②	③	④	⑤	⑥
78 Your experience in pre-service preparation.	①	②	③	④	⑤	⑥
79 Students' special needs.	①	②	③	④	⑤	⑥
80 Parents/community.	①	②	③	④	⑤	⑥
81 Preparation of students for the next grade or level.	①	②	③	④	⑤	⑥

CLASSROOM INSTRUCTIONAL PREPARATION

For items 82-91, please indicate how well prepared you are to:

	Not Well Prepared	Somewhat Prepared	Well Prepared	Very Well Prepared
82 Teach mathematics at your assigned level.	①	②	③	④
83 Integrate mathematics with other subjects.	①	②	③	④
84 Provide mathematics instruction that meets mathematics content standards (district, state, or national).	①	②	③	④
85 Use a variety of assessment strategies (including objective and open-ended formats).	①	②	③	④
86 Teach problem solving strategies.	①	②	③	④
87 Teach mathematics with manipulatives, such as counting blocks or geometric shapes.	①	②	③	④
88 Teach students with physical disabilities.	①	②	③	④
89 Teach classes with students with diverse abilities.	①	②	③	④
90 Teach mathematics to students from a variety of cultural backgrounds.	①	②	③	④
91 Teach mathematics to students who have Limited English Proficiency.	①	②	③	④

TEACHER OPINIONS

Please indicate your opinion about each of the statements below:

	Strongly Disagree	Disagree	Neutral / Undecided	Agree	Strongly Agree
92 Students learn mathematics best when they ask a lot of questions.	①	②	③	④	⑤
93 It is important for students to learn basic mathematics skills before solving problems.	①	②	③	④	⑤
94 I am supported by colleagues to try out new ideas in teaching mathematics.	①	②	③	④	⑤
95 I am required to follow rules at this school that conflict with my best professional judgment about teaching and learning mathematics.	①	②	③	④	⑤
96 Mathematics teachers in this school regularly observe each other teaching classes.	①	②	③	④	⑤
97 Mathematics teachers in this school trust each other.	①	②	③	④	⑤
98 It's OK in this school to discuss feelings, worries, and frustrations with other mathematics teachers.	①	②	③	④	⑤
99 Mathematics teachers respect other teachers who take the lead in school improvement efforts.	①	②	③	④	⑤
100 It's OK in this school to discuss feelings, worries, and frustrations with the principal.	①	②	③	④	⑤
101 The principal takes personal interest in the professional development of the teachers.	①	②	③	④	⑤

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 1st of last year and May 31st of this year**. 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.

How Often?		How many hours?	
① Never	③ 3-4 times	① N/A	③ 16-35
② Once	④ 5-10 times	② 1-6 hrs.	④ 36-60
⑤ Twice	⑤ > 10 times	⑤ 7-15 hrs.	⑤ 61+ hrs.

102 For the time period referenced above, how often, and for how many total hours, have you participated in *workshops or in-service training related to mathematics or math education* ?

① ② ③ ④ ⑤ ① ② ③ ④ ⑤

103 For the time period referenced above, how often, and for how many total hours, have you participated in *summer institutes related to mathematics or math education* ?

① ② ③ ④ ⑤ ① ② ③ ④ ⑤

104 For the time period referenced above, how often have you attended *college courses related to mathematics or math education* and about how many hours did you spend in class?

① ② ③ ④ ⑤ ① ② ③ ④ ⑤

Between June 1st of last year and May 31st of this year, 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
105 Attended conferences related to mathematics or math education.	①	②	③	④	⑤	
106 Participated in a teacher study group.	①	②	③	④	⑤	
107 Participated in a teacher network or collaborative of teachers supporting professional development.	①	②	③	④	⑤	
108 Acted as a coach or mentor to other teachers or staff in your school.	①	②	③	④	⑤	
109 Received coaching or mentoring.	①	②	③	④	⑤	
110 Participated in a committee or task force focused on curriculum and instruction.	①	②	③	④	⑤	
111 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).	①	②	③	④	⑤	

Thinking again about all of your professional development activities in mathematics or mathematics education between June 1st of last year and May 31st of this year, how often have you:

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

Thinking about all of your professional development activities between June 1st of last year and May 31st of this year, indicate how often they have been:

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

Between June 1st of last year and May 31st of this year, have you participated in professional development activities in mathematics or mathematics education in the following ways?

	No	Yes
125 I participated in professional development activities with most or all of the teachers from my school.	①	②
126 I participated in professional development activities with most or all of the teachers from my department or grade level.	①	②
127 I participated in professional development activities <i>not</i> attended by other staff members from my school.	①	②
128 I discussed what I learned with other teachers in my school or department who did <i>not</i> attend the activity.	①	②

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

	None	Slight	Moderate	Great
129 State mathematics content standards (for example, what they are and how they are used).	①	②	③	④
130 Alignment of mathematics instruction to curriculum.	①	②	③	④
131 Instructional approaches (for example, use of manipulatives).	①	②	③	④
132 In-depth study of mathematics or specific concepts within mathematics (for example, fractions).	①	②	③	④
133 Study of how children learn particular topics in mathematics.	①	②	③	④
134 Individual differences in student learning.	①	②	③	④
135 Meeting the learning needs of special populations of students (for example, second language learners; students with disabilities).	①	②	③	④
136 Classroom mathematics assessment (for example, diagnostic approaches, textbook-developed tests, teacher-developed tests).	①	②	③	④
137 State or district mathematics assessment (for example, preparing for assessments, understanding assessments, or interpreting assessments).	①	②	③	④
138 Interpretation of assessment data for use in mathematics instruction.	①	②	③	④
139 Technology to support student learning in mathematics.	①	②	③	④

TEACHER CHARACTERISTICS

- 140 Please indicate your gender.
- Female Male
① ②
- 141 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
- 142 How many years have you taught mathematics prior to this year?
- | | Less than 1 year | 1 - 2 years | 3 - 5 years | 6 - 8 years | 9 - 11 years | 12 - 15 years | More than 15 years |
|--|------------------|-------------|-------------|-------------|--------------|---------------|--------------------|
| | ① | ② | ③ | ④ | ⑤ | ⑥ | ⑦ |
- 143 How long have you been assigned to teach at your current school?
- | | | | | | | |
|--|---|---|---|---|---|---|
| | ① | ② | ③ | ④ | ⑤ | ⑥ |
|--|---|---|---|---|---|---|
- 144 What is the highest degree you hold?
- | | Does not apply | BA or BS | MA or MS | Multiple MA or MS | Ph.D. or Ed.D. | Other |
|--|----------------|----------|----------|-------------------|----------------|-------|
| | ① | ② | ③ | ④ | ⑤ | ⑥ |
- 145 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.)
- 146 **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.)
- 147 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+
148 Refresher mathematics courses (e.g., algebra, geometry)	①	①	②	③	④	⑤	⑥	⑦	⑧	⑨
149 Advanced mathematics courses (e.g., calculus, statistics)	①	①	②	③	④	⑤	⑥	⑦	⑧	⑨
150 Mathematics Education	①	①	②	③	④	⑤	⑥	⑦	⑧	⑨

This is the end of the Instructional Practices portion of the survey. Please continue on to complete the Instructional Content portion. Thank you.

Council of Chief State School Officers
Wisconsin Center for Education Research

SURVEYS OF ENACTED CURRICULUM[®]

Survey Of Instructional Content Teacher Survey High School Mathematics

The following pages request information regarding topic coverage and your expectations for students in the target mathematics class **for the current school year**. 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.

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

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 1		Step 2						
<i>Time on Topic</i>		<i>High School Math Topics</i>	<i>Expectations for Students in Mathematics</i>					
<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	
① ① ● ③	101	Place value	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	
● ① ② ③	102	Whole numbers	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	
① ① ② ●	103	Operations	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	
● ① ② ③	104	Fractions	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	
① ① ● ③	105	Decimals	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	
① ① ● ③	106	Percents	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	
● ① ② ③	107	Ratio, proportion	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	
① ① ② ●	108	Patterns	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	
● ① ② ③	109	Real numbers	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	
<none>	6	Instructional Technology	Memorize Facts, Definitions, Formulas	Perform Procedures	Demonstrate Understanding of Mathematical Ideas	Conjecture, Generalize, Prove	Solve Non-Routine Problems, Make Connections	
① ① ② ③	601	Use of calculators	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	
① ① ② ③	602	Graphing calculators	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	
① ① ② ③	603	Computers and internet	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	

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>").

Step 3

Time on Topic		High School Math Topics	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
① ① ● ③	101	Place value	① ① ② ●	① ① ② ●	① ① ● ③	① ● ② ③	① ● ② ③
● ① ② ③	102	Whole numbers	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③
① ① ② ●	103	Operations	① ① ● ③	① ① ● ③	● ① ② ③	① ① ● ③	① ① ② ③
● ① ② ③	104	Fractions	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③
① ① ● ③	105	Decimals	① ① ● ③	① ● ② ③	● ① ② ③	① ① ② ●	① ● ② ③
① ① ● ③	106	Percents	① ① ● ③	① ① ● ③	① ① ● ③	① ① ● ③	● ① ② ③
● ① ② ③	107	Ratio, proportion	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③
① ① ② ●	108	Patterns	① ● ② ③	① ● ② ③	① ① ② ●	① ● ② ③	① ① ② ●
● ① ② ③	109	Real numbers	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③
① ① ② ③	6	Instructional Technology	Memorize Facts, Definitions, Formulas	Perform Procedures	Demonstrate Understanding of Mathematical Ideas	Conjecture, Generalize, Prove	Solve Non-Routine Problems, Make Connections
① ① ② ③	601	Use of calculators	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③
① ① ② ③	602	Graphing calculators	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③
① ① ② ③	603	Computers and internet	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③	① ① ② ③

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

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

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

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)

<i>Time on Topic</i>	<i>High School Mathematics</i>		<i>Expectations for Students in Mathematics</i>				
<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

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

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

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)

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

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 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>	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	Linear 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

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

Demonstrate Understanding of Mathematical Ideas

Communicate mathematical ideas
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Response Codes Expectations for Students

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(Not a performance goal for this topic)
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(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>	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

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

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

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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

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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

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<i>Time on Topic</i>	<i>High School Mathematics</i>	<i>Expectations for Students in Mathematics</i>					
<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

Thank you for your participation in this survey.

Please provide the following information:
(Note: Your personal information will be kept confidential.)

Name: _____

Email address: _____
(required for on-line access to individual results)

District: _____

School: _____

Date: _____

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.