

SURVEYS OF ENACTED CURRICULUM[®]

Survey Of Instructional Practices

Teacher Survey

Grades K-12

Science

Thank you for agreeing to participate in this survey of instructional practices 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 in 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 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.

Reporting Period: Most recent school year (current year, if reporting after March 1st)

Instructions for Selecting the Target Class

Science Instruction: For all questions about classroom practices, please refer only to activities in the science class that you teach. If you teach more than one science 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 science 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.

Survey of Instructional Practices for Science

SCHOOL DESCRIPTION

- SD.1 Which of these categories best describes the way your science classes at this school are organized? (Check all that apply)
- Ⓐ Departmentalized Instruction
 - Ⓑ Taught by Subject-Area Specialist (non-departmental)
 - Ⓒ Self-Contained (e.g., teach multiple subjects)
 - Ⓓ Team Taught
- SD.2 If your school is departmentalized, or you are a subject-area specialist, how many different science classes do you currently teach?
- Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ Ⓚ Ⓛ Ⓜ
- (Number of classes taught)

CLASS DESCRIPTION

- CD.1 Which term best describes the target class, or course, you are teaching?
- Ⓐ Other
 - Ⓑ Elem./Middle Sch. Science
 - Ⓒ General Science
 - Ⓓ Life Science
 - Ⓔ Physical Science
 - Ⓚ Earth Science
 - Ⓛ Biology
 - Ⓛ Chemistry
 - Ⓚ Physics
 - Ⓛ Coordinated/Integrated

CLASS DESCRIPTION (cont.)

CD.2	What is the grade level of most of the students in the target class?	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
CD.3	How many students are in the target class?	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	
		①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	
		①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	
		①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	
CD.4	What percentage of the students in the target class are <u>not</u> Caucasian? (Mark nearest 10%)	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	
		Less than 10	10	20	30	40	50	60	70	80	90+	%		
CD.5	What percentage of the students in the target class are Limited English Proficiency? (Mark nearest 10%)	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	
		Less than 10	10	20	30	40	50	60	70	80	90+	%		
CD.6	What percentage of the students in the target class HAVE IEP's? (Mark nearest 10%)	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	
		Less than 10	10	20	30	40	50	60	70	80	90+	%		
CD.7	How many students with significant cognitive disabilities are in the target class?	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	
		None	1	2	3	4	5	More than 5						
CD.8	<u>During a typical week</u> , approximately how many hours will the target class spend in science instruction? Number of instructional hours=	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	
		①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	
CD.9	What is the average length of each class period for the target science class?	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	
		①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	
		①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	
		①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	
		①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	
CD.10	For how many weeks will the target science class meet this school year in total?	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	
	Total number of weeks=	1 to 12	13 to 24	25 or more										
CD.11	What is the achievement level of most of the students in the target class, compared to national norms?	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	
		①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	
		①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	
		①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	
CD.12	What is considered <u>most</u> in scheduling students into the target class?	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	
		①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	
		①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	
		①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	

HOMEWORK (work assigned to be completed *outside of class*)

Answer the following questions with regard to your target class:

- HW.1 How often do you usually assign science homework to be completed outside of class?
- ① Never (Skip to Question IP.1)
 ① Less than once per week
 ② Once or twice per week
 ③ Three to four times per week
 ④ Every day
- HW.2 How many minutes do you expect a typical student to spend on a normal homework assignment completed outside of class?
- ① I do not assign homework
 ① Less than 15 minutes
 ② 15 to 30 minutes
 ③ 31 to 60 minutes
 ④ 61 to 90 minutes
 ⑤ More than 90 minutes
- HW.3 Does homework completed outside of class count toward student grades?
- ① Never
 ① Usually does not
 ② Usually does
 ③ Always does
- HW.4 How often do you assign homework to be completed in a small group outside of class?
- ① Never
 ① Less than once per week
 ② Once or twice per week
 ③ Three to four times per week
 ④ Every day

AMOUNT OF HOMEWORK TIME

- 0 - None**
1 - Little (*Less than 10% of homework time outside of class*)
2 - Some (*10-25% of homework time outside of class*)
3 - Moderate (*26-50% of homework time outside of class*)
4 - Considerable (*More than 50% of homework time outside of class*)

What percentage of the time that students in the target class spend on science homework done <i>outside of class</i> do you expect them to:	None	Little	Some	Moderate	Considerable
HW.5 Read about science in books, magazines, or articles	①	①	②	③	④
HW.6 Answer questions from a science book or worksheet	①	①	②	③	④
HW.7 Solve science problems that require computation	①	①	②	③	④
HW.8 Revise and improve their own work (e.g., tests, homework assignments)	①	①	②	③	④
HW.9 Collect data or information about science	①	①	②	③	④
HW.10 Work on an assignment, report, or project that takes longer than one week to complete	①	①	②	③	④
HW.11 Write about science	①	①	②	③	④

INSTRUCTIONAL ACTIVITIES IN SCIENCE

Listed below are questions about the types of activities *that students in the target class* may engage in during science instruction. Please estimate the relative amount of time a typical student in your class will spend engaged in *each activity* over the course of a school year. The activities are not necessarily mutually exclusive; across activities, **your answers will probably exceed 100%**. Consider each activity on its own, estimating the range that best indicates the relative amount of science instructional time that a typical student in your target class engages in over the course of a school year for that category.

<i>AMOUNT OF INSTRUCTIONAL TIME</i>	
0 - None	
1 - Little (<i>Less than 10% of instructional time for the school year</i>)	
2 - Some (<i>10-25% of instructional time for the school year</i>)	
3 - Moderate (<i>26-50% of instructional time for the school year</i>)	
4 - Considerable (<i>More than 50% of instructional time for the school year</i>)	

How much of the science instructional time in the target class do students use to engage in the following tasks?	None	Little	Some	Moderate	Considerable
IP.1 Listen to the teacher explain, or observe the teacher demonstrate or model a science concept or procedure	①	②	③	④	⑤
IP.2 Read and comprehend science information from multiple sources	①	②	③	④	⑤
IP.3 Collect, summarize, and/or analyze information or data from multiple sources	①	②	③	④	⑤
IP.4 Present or demonstrate to others	①	②	③	④	⑤
IP.5 Work individually on science assignments	①	②	③	④	⑤
IP.6 Participate in whole-class discussions about science	①	②	③	④	⑤
IP.7 Engage in a writing process to support arguments with evidence	①	②	③	④	⑤
IP.8 Use hands-on materials	①	②	③	④	⑤
IP.9 Work in pairs or small groups on science problems, lab activities, or investigations or tasks	①	②	③	④	⑤
IP.10 Engage in learning activities outside the classroom	①	②	③	④	⑤
IP.11 Use computers, calculators, or other educational technology to learn, practice or explore science	①	②	③	④	⑤
IP.12 Maintain and reflect on a portfolio of their own work	①	②	③	④	⑤
IP.13 Practice test-taking strategies	①	②	③	④	⑤
IP.14 Take a quiz or test	①	②	③	④	⑤

Listed below are some questions about what students in the target class do in science. For each activity pick one of the choices to indicate the percentage of instructional time that students spend doing each activity. Please think of an average student in the class while responding.

AMOUNT OF INSTRUCTIONAL TIME (in laboratory activities, investigations ,or experiments)

0 - None

1 - Little (*Less than 10% of instructional time in laboratory activities, investigations, or experiments*)

2 - Some (*10-25 % of instructional time in laboratory activities, investigations, or experiments*)

3 - Moderate (*26-50% of instructional time in laboratory activities, investigations, or experiments*)

4 - Considerable (*More than 50% of instructional time in laboratory activities, investigations, or experiments*)

When students in the target class are engaged in <i>laboratory activities, investigations, or experiments</i> as part of science instruction, how much of that time do they:		None	Little	Some	Moderate	Considerable
IPa.1	Answer questions in a textbook and/or complete a worksheet	①	②	③	④	⑤
IPa.2	Solve science problems that require novel or non-formulaic thinking	①	②	③	④	⑤
IPa.3	Explain their reasoning or thinking in solving a problem, using several sentences orally or in writing	①	②	③	④	⑤
IPa.4	Apply science concepts to real-world problems	①	②	③	④	⑤
IPa.5	Make predictions and/or generate hypotheses	①	②	③	④	⑤
IPa.6	Analyze data to make inferences or draw conclusions	①	②	③	④	⑤
IPa.7	Assess the accuracy, credibility, and relevance of scientific assertions	①	②	③	④	⑤
IPa.8	Work with manipulatives to understand science concepts	①	②	③	④	⑤
IPa.9	Design their own investigation or experiment to solve a scientific question	①	②	③	④	⑤
IPa.10	Change a variable in an experiment to test a hypothesis	①	②	③	④	⑤

AMOUNT OF INSTRUCTIONAL TIME (in pairs or small groups)

0 - None

1 - Little (*Less than 10% of instructional time in pairs or small groups*)

2 - Some (*10-25% 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* as part of science instruction (other than in the science laboratory), how much of that time do they:

	None	Little	Some	Moderate	Considerable
IPb.1 Answer questions in a textbook and/or complete a worksheet	①	②	③	④	⑤
IPb.2 Solve science problems that require novel or non-formulaic thinking	①	②	③	④	⑤
IPb.3 Talk about their reasoning or thinking in solving a problem	①	②	③	④	⑤
IPb.4 Apply science concepts to real-world problems	①	②	③	④	⑤
IPb.5 Analyze data to make inferences or draw conclusions	①	②	③	④	⑤
IPb.6 Review assignments or prepare for a quiz or test	①	②	③	④	⑤
IPb.7 Make predictions and/or generate hypotheses	①	②	③	④	⑤
IPb.8 Work on an assignment, report, or project over an extended period of time	①	②	③	④	⑤
IPb.9 Participate in simulations	①	②	③	④	⑤
IPb.10 Work on a project in which group members seek peer comments to improve work	①	②	③	④	⑤
IPb.11 Work with manipulatives/ equipment to understand science concepts	①	②	③	④	⑤

AMOUNT OF INSTRUCTIONAL TIME (collecting science data or information)

0 - None

1 - Little (*Less than 10% of instructional time collecting science data or information*)

2 - Some (*10-25% of instructional time collecting science data or information*)

3 - Moderate (*26-50% of instructional time collecting science data or information*)

4 - Considerable (*More than 50% of instructional time collecting science data or information*)

When students in the target class *collect data or information* about science from books, magazines, computers, or other sources (other than laboratory activities), how much of that time do they:

	None	Little	Some	Moderate	Considerable
IPc.1 Collect data by counting, measuring or observing	①	②	③	④	⑤
IPc.2 Collect data by questioning, interviewing or conducting surveys	①	②	③	④	⑤
IPc.3 Organize data using models, charts, graphs, exhibits, and/or maps	①	②	③	④	⑤
IPc.4 Analyze and interpret data	①	②	③	④	⑤
IPc.5 Document sources of information	①	②	③	④	⑤

AMOUNT OF INSTRUCTIONAL TIME (using calculators, computers, or other educational technology)

0-None

1-Little (*Less than 10% of instructional time using calculators, computers, or other educational technology*)

2-Some (*10-25% of instructional time using calculators, computers, or other educational technology*)

3-Moderate (*26-50% of instructional time using calculators, computers, or other educational technology*)

4-Considerable (*More than 50% of instructional time using calculators, computers, or other educational technology*)

When students in the target class are engaged in activities that involve the use of *calculators, computers, or other educational technology* as part of science instruction, how much of that time do they:

	None	Little	Some	Moderate	Considerable
IPd.1 Learn facts	①	②	③	④	⑤
IPd.2 Practice skills and procedures	①	②	③	④	⑤
IPd.3 Collect information	①	②	③	④	⑤
IPd.4 Store, retrieve or share data or information	①	②	③	④	⑤
IPd.5 Display and analyze data	①	②	③	④	⑤
IPd.6 Create multi-media presentations	①	②	③	④	⑤
IPd.7 Use technology to solve problems	①	②	③	④	⑤
IPd.8 Take an assessment online	①	②	③	④	⑤
IPd.9 Communicate electronically	①	②	③	④	⑤
IPd.10 Organize, outline, or summarize information	①	②	③	④	⑤

ASSESSMENT STRATEGIES

Please indicate how often you use each of the following strategies when assessing students in the target science class.

	Never	1 - 4 times per <u>year</u>	1 - 3 times per <u>month</u>	1 - 3 times per <u>week</u>	4 - 5 times per <u>week</u>
AS.1 Objective items (e.g., multiple choice, true/false)	①	②	③	④	⑤
AS.2 Short answer (e.g., fill-in-the-blank)	①	②	③	④	⑤
AS.3 Extended response item for which student must explain or justify solution	①	②	③	④	⑤
AS.4 Performance tasks or events (e.g., hands-on activities)	①	②	③	④	⑤
AS.5 Individual or group demonstration or presentation	①	②	③	④	⑤
AS.6 Science projects	①	②	③	④	⑤
AS.7 Portfolios	①	②	③	④	⑤
AS.8 Systematic observation of students	①	②	③	④	⑤

ASSESSMENT CHARACTERISTICS

EXTENT OF USE (answers may exceed 100% across items)

0 - None

1 - Little (Less than 10% of assessments for the school year)

2 - Some (10-25% of assessments for the school year)

3 - Moderate (26-50% of assessments for the school year)

4 - Considerable (More than 50% of assessments for the school year)

Please indicate the extent to which the following characteristics describe your assessment practices for the target class.

	None	Little	Some	Moderate	Considerable
AC.1 Focused on application of content	①	②	③	④	⑤
AC.2 Focused on information recall	①	②	③	④	⑤
AC.3 Focused on applying understandings and knowledge	①	②	③	④	⑤
AC.4 Use authentic contexts (e.g., real-world simulation, project- based or cross-disciplinary problems)	①	②	③	④	⑤
AC.5 Provide written feedback to develop further student understanding	①	②	③	④	⑤
AC.6 Provide verbal feedback to develop further student understanding	①	②	③	④	⑤
AC.7 Require students to explain, reason, support conclusions, and use appropriate sources as evidence	①	②	③	④	⑤
AC.8 Use of rubrics/scoring guides to analyze student work	①	②	③	④	⑤
AC.9 Results used to adjust teaching methods within current unit	①	②	③	④	⑤
AC.10 Provide students opportunities to evaluate their own work	①	②	③	④	⑤
AC.11 Intentionally use informal assessments during a unit (e.g., exit cards, check for understanding, etc.)	①	②	③	④	⑤
AC.12 Use of assessment data in adjusting the curriculum and/or instruction	①	②	③	④	⑤

AMOUNT OF INSTRUCTIONAL TIME (in pairs or small groups)

0 - None

1 - Little (*Less than 10% of instructional time in pairs or small groups*)

2 - Some (*10-25% 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* as part of science instruction (other than in the science laboratory), how much of that time do they:

	None	Little	Some	Moderate	Considerable
IPb.1 Answer questions in a textbook and/or complete a worksheet	①	②	③	④	⑤
IPb.2 Solve science problems that require novel or non-formulaic thinking	①	②	③	④	⑤
IPb.3 Talk about their reasoning or thinking in solving a problem	①	②	③	④	⑤
IPb.4 Apply science concepts to real-world problems	①	②	③	④	⑤
IPb.5 Analyze data to make inferences or draw conclusions	①	②	③	④	⑤
IPb.6 Review assignments or prepare for a quiz or test	①	②	③	④	⑤
IPb.7 Make predictions and/or generate hypotheses	①	②	③	④	⑤
IPb.8 Work on an assignment, report, or project over an extended period of time	①	②	③	④	⑤
IPb.9 Participate in simulations	①	②	③	④	⑤
IPb.10 Work on a project in which group members seek peer comments to improve work	①	②	③	④	⑤
IPb.11 Work with manipulatives/ equipment to understand science concepts	①	②	③	④	⑤

AMOUNT OF INSTRUCTIONAL TIME (collecting science data or information)

0 - None

1 - Little (*Less than 10% of instructional time collecting science data or information*)

2 - Some (*10-25% of instructional time collecting science data or information*)

3 - Moderate (*26-50% of instructional time collecting science data or information*)

4 - Considerable (*More than 50% of instructional time collecting science data or information*)

When students in the target class *collect data or information* about science from books, magazines, computers, or other sources (other than laboratory activities), how much of that time do they:

	None	Little	Some	Moderate	Considerable
IPc.1 Collect data by counting, measuring or observing	①	②	③	④	⑤
IPc.2 Collect data by questioning, interviewing or conducting surveys	①	②	③	④	⑤
IPc.3 Organize data using models, charts, graphs, exhibits, and/or maps	①	②	③	④	⑤
IPc.4 Analyze and interpret data	①	②	③	④	⑤
IPc.5 Document sources of information	①	②	③	④	⑤
IPc.6 Design their own investigation or experiment to solve a scientific question Moved to IPa9	①	②	③	④	⑤
IPc.7 Change a variable in an experiment to test a hypothesis Moved to IPa10	①	②	③	④	⑤

AMOUNT OF INSTRUCTIONAL TIME (using calculators, computers, or other educational technology)

0-None

1-Little (*Less than 10% of instructional time using calculators, computers, or other educational technology*)

2-Some (*10-25% of instructional time using calculators, computers, or other educational technology*)

3-Moderate (*26-50% of instructional time using calculators, computers, or other educational technology*)

4-Considerable (*More than 50% of instructional time using calculators, computers, or other educational technology*)

When students in the target class are engaged in activities that involve the use of *calculators, computers, or other educational technology* as part of science instruction, how much of that time do they:

	None	Little	Some	Moderate	Considerable
IPd.1 Learn facts	①	②	③	④	⑤
IPd.2 Practice skills and procedures	①	②	③	④	⑤
IPd.3 Collect information	①	②	③	④	⑤
IPd.4 Store, retrieve or share data or information	①	②	③	④	⑤
IPd.5 Display and analyze data	①	②	③	④	⑤
IPd.6 Create multi-media presentations	①	②	③	④	⑤
IPd.7 Use technology to solve problems	①	②	③	④	⑤
IPd.8 Take an assessment online	①	②	③	④	⑤
IPd.9 Communicate electronically	①	②	③	④	⑤
IPd.10 Organize, outline, or summarize information	①	②	③	④	⑤

ASSESSMENT STRATEGIES

Please indicate how often you use each of the following strategies when assessing students in the target science class.

	Never	1 - 4 times per <u>year</u>	1 - 3 times per <u>month</u>	1 - 3 times per <u>week</u>	4 - 5 times per <u>week</u>
AS.1 Objective items (e.g., multiple choice, true/false)	①	②	③	④	⑤
AS.2 Short answer (e.g., fill-in-the-blank)	①	②	③	④	⑤
AS.3 Extended response item for which student must explain or justify solution	①	②	③	④	⑤
AS.4 Performance tasks or events (e.g., hands-on activities)	①	②	③	④	⑤
AS.5 Individual or group demonstration or presentation	①	②	③	④	⑤
AS.6 Science projects	①	②	③	④	⑤
AS.7 Portfolios	①	②	③	④	⑤
AS.8 Systematic observation of students	①	②	③	④	⑤

ASSESSMENT CHARACTERISTICS

EXTENT OF USE (answers may exceed 100% across items)

0 - None

1 - Little (Less than 10% of assessments for the school year)

2 - Some (10-25% of assessments for the school year)

3 - Moderate (26-50% of assessments for the school year)

4 - Considerable (More than 50% of assessments for the school year)

Please indicate the extent to which the following characteristics describe your assessment practices for the target class.

	None	Little	Some	Moderate	Considerable
AC.1 Focused on application of content	①	②	③	④	⑤
AC.2 Focused on information recall	①	②	③	④	⑤
AC.3 Focused on applying understandings and knowledge	①	②	③	④	⑤
AC.4 Use authentic contexts (e.g., real-world simulation, project- based or cross-disciplinary problems)	①	②	③	④	⑤
AC.5 Provide written feedback to develop further student understanding	①	②	③	④	⑤
AC.6 Provide verbal feedback to develop further student understanding	①	②	③	④	⑤
AC.7 Require students to explain, reason, support conclusions, and use appropriate sources as evidence	①	②	③	④	⑤
AC.8 Use of rubrics/scoring guides to analyze student work	①	②	③	④	⑤
AC.9 Results used to adjust teaching methods within current unit	①	②	③	④	⑤
AC.10 Provide students opportunities to evaluate their own work	①	②	③	④	⑤
AC.11 Intentionally use informal assessments during a unit (e.g., exit cards, check for understanding, etc.)	①	②	③	④	⑤
AC.12 Use of assessment data in adjusting the curriculum and/or instruction	①	②	③	④	⑤

INSTRUCTIONAL INFLUENCES

Please indicate the degree to which each of the following influences what you teach in the target science class.

	N/A	Strong Negative Influence	Somewhat Negative Influence	Little or No Influence	Somewhat Positive Influence	Strong Positive Influence
IN.1 Your state's curriculum framework or content standards	①	②	③	④	⑤	
IN.2 Your district's curriculum framework, standards, or guidelines	①	②	③	④	⑤	
IN.3 Textbook or instructional materials	①	②	③	④	⑤	
IN.4 State tests or results from test	①	②	③	④	⑤	
IN.5 District tests or results from test	①	②	③	④	⑤	
IN.6 National science education standards	①	②	③	④	⑤	
IN.7 Your pre-service preparation	①	②	③	④	⑤	
IN.8 Students' special needs	①	②	③	④	⑤	
IN.9 Preparation of students for the next grade or level	①	②	③	④	⑤	
IN.10 Local priorities, directives, or policies	①	②	③	④	⑤	
IN.11 Your professional development experiences	①	②	③	④	⑤	
IN.12 Screening, diagnostic, or classroom assessment results	①	②	③	④	⑤	

CLASSROOM INSTRUCTIONAL READINESS

For the following items please indicated how well prepared you are to:

	Not Well Prepared	Somewhat Prepared	Well Prepared	Very Well Prepared
IR.1 Use/manage cooperative learning groups as part of science instruction	①	②	③	④
IR.2 Integrate science with other subjects	①	②	③	④
IR.3 Provide science instruction that meets state content standards (e.g., district, state, or national)	①	②	③	④
IR.4 Use a variety of assessment strategies (including objective and open-ended formats)	①	②	③	④
IR.5 Teach problem-solving strategies	①	②	③	④
IR.6 Teach science with manipulatives (e.g., models, maps, diagrams, equipment)	①	②	③	④
IR.7 Teach science at your assigned level	①	②	③	④
IR.8 Develop students' communication skills in expressing science concepts and procedures	①	②	③	④
IR.9 Teach students to reason scientifically, and to evaluate science claims	①	②	③	④
IR.10 Select and/or adapt instructional materials to implement the prescribed curriculum	①	②	③	④
IR.11 Teach students with physical disabilities	①	②	③	④
IR.12 Help students document and evaluate their own work	①	②	③	④
IR.13 Teach classes with students with diverse abilities and learning styles	①	②	③	④
IR.14 Teach science to students from a variety of cultural backgrounds	①	②	③	④
IR.15 Teach science to students who have limited English proficiency	①	②	③	④
IR.16 Teach students who have learning disabilities that impact science learning	①	②	③	④
IR.17 Organize and manage the classroom	①	②	③	④
IR.18 Support students' developmental and maturational needs	①	②	③	④
IR.19 Involve parents in the science education of their children	①	②	③	④
IR.20 Adapt instructional materials to enhance understanding of science content	①	②	③	④
IR.21 Integrate instruction of science content with real-world or life skills	①	②	③	④
IR.22 Teach students who are persistently low performers	①	②	③	④

TEACHER OPINIONS AND BELIEFS

Please indicate your opinion about each of the statements below:

	Strongly Disagree	Disagree	Neutral/ Undecided	Agree	Strongly Agree
TO.1 Students learn science best when they ask a lot of questions	①	②	③	④	⑤
TO.2 Students need to learn good test-taking skills to perform well on standardized tests	①	②	③	④	⑤
TO.3 All students can learn challenging science content	①	②	③	④	⑤
TO.4 Students learn science best in classes with students of similar abilities	①	②	③	④	⑤
TO.5 It is important for students to learn basic scientific terms and formulas before learning underlying concepts and principles	①	②	③	④	⑤
TO.6 I enjoy teaching science	①	②	③	④	⑤
TO.7 I am supported by colleagues to try out new ideas in teaching science	①	②	③	④	⑤
TO.8 I am required to follow rules at this school that conflict with my best professional judgment about teaching and learning science	①	②	③	④	⑤
TO.9 Science teachers in this school regularly share ideas and materials	①	②	③	④	⑤
TO.10 Science teachers in this school regularly observe each other teaching classes	①	②	③	④	⑤
TO.11 I have adequate curriculum materials available for instruction	①	②	③	④	⑤
TO.12 I have many opportunities to learn new things about teaching science in my present job	①	②	③	④	⑤
TO.13 I have adequate time during the regular school week to work with my peers on science curriculum or instruction	①	②	③	④	⑤
TO.14 Most teachers in this school contribute actively to making decisions about the curriculum	①	②	③	④	⑤
TO.15 My school supports co-teaching and collaboration between general and special educators in the teaching of science	①	②	③	④	⑤
TO.16 My school supports co-teaching and collaboration between general and ESL educators in the teaching of science	①	②	③	④	⑤

PROFESSIONAL DEVELOPMENT ACTIVITIES IN SCIENCE

In answering the following items, consider all the professional development activities related to science content or instruction that you have participated in since June 1st of last 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.

Since June 1st of last year, how much time have you spent engaged in professional development activities focused on science or science education?

0 = N/A 1 = 1-5 hrs. 2 = 6-15 hrs. 3 = 16-35 hrs. 4 = 36-60 hrs. 5 = 60+ hrs.

- PD.1 Workshops or in-service training related to science or science education?
 PD.2 Summer institutes related to science or science education?
 PD.3 College courses related to science or science education

Amount of Time					
①	②	③	④	⑤	⑥
⑦	⑧	⑨	⑩	⑪	⑫
⑬	⑭	⑮	⑯	⑰	⑱

Since June 1st of last year, how frequently have you engaged in each of the following activities related specifically to the teaching and learning of science?

	Never	Once or twice a <u>year</u>	Once or twice a <u>term</u>	Once or twice a <u>month</u>	Once or twice a <u>week</u>	Almost <u>daily</u>
PDa.1 Attended conferences related to science or science education	①	②	③	④	⑤	⑥
PDa.2 Participated in teacher study groups	①	②	③	④	⑤	⑥
PDa.3 Participated in teacher networks or collaboratives of teachers supporting professional development	①	②	③	④	⑤	⑥
PDa.4 Acted as a coach or mentor to other teachers or staff in your school	①	②	③	④	⑤	⑥
PDa.5 Received coaching or mentoring about my instruction from an activity leader, coach, or mentor	①	②	③	④	⑤	⑥
PDa.6 Worked on a committee or task force focused on curriculum and instruction	①	②	③	④	⑤	⑥
PDa.7 Engaged in informal self-directed learning (e.g., discussed science or science education topics with a colleague, read a journal article on science or science education, or used the Internet to enrich knowledge and skills)	①	②	③	④	⑤	⑥

Thinking again about all of your professional development activities in science or science education since June 1st of last year, how often has the following occurred for you?

	Never	Rarely	Sometimes	Often
PDB.1 Observed demonstrations of teaching techniques	①	②	③	④
PDB.2 Led group discussions	①	②	③	④
PDB.3 Developed curricula or lesson plans that other participants or the activity leader reviewed	①	②	③	④
PDB.4 Reviewed student work or scored assessments	①	②	③	④
PDB.5 Developed assessments or tasks as part of a formal professional development activity	①	②	③	④
PDB.6 Practiced what you learned and received feedback as part of a professional development activity	①	②	③	④
PDB.7 Received coaching or mentoring in the classroom	①	②	③	④
PDB.8 Given a lecture or presentation to colleagues	①	②	③	④

Still thinking about all your professional development activities since June 1st of last year, indicate how often they have been:

	Never	Rarely	Sometimes	Often
PDC.1 Designed to support the school-wide improvement plan adopted by your school	①	②	③	④
PDC.2 Consistent with your science department or grade- level plan to improve teaching	①	②	③	④
PDC.3 Consistent with your own goals for your professional development	①	②	③	④
PDC.4 Built on what you had learned in earlier professional development activities	①	②	③	④
PDC.5 Provided follow-up activities that related clearly to what you learned	①	②	③	④

Since June 1st of last year, have you participated in professional development activities in science or science education in the following ways?

		No	Yes
PDD.1	I participated in professional development activities with most or all of the teachers from my school.	①	②
PDD.2	I participated in professional development activities with most or all of the teachers from my department or grade level.	①	②
PDD.3	I participated in professional development activities <i>NOT</i> attended by other staff members from my school.	①	②
PDD.4	I discussed what I learned with other teachers in my school or department who did <i>NOT</i> attend the activity.	①	②

Since June 1st of last year, how much emphasis did your professional development activities in science or science education place on the following topics?

		None	Minor	Moderate	Major
PDE.1	Alignment of science instruction to curriculum frameworks and/or state content standards	①	②	③	④
PDE.2	Instructional approaches (e.g., use of manipulatives)	①	②	③	④
PDE.3	In-depth study of science or specific concepts within science (e.g., earth science)	①	②	③	④
PDE.4	Study of how children learn particular topics in science	①	②	③	④
PDE.5	Individual differences in student learning	①	②	③	④
PDE.6	Meeting the learning needs of special populations of students (e.g., English language learners and students with disabilities)	①	②	③	④
PDE.7	Classroom science assessment (e.g., diagnostic approaches, textbook-developed tests, or teacher-developed tests)	①	②	③	④
PDE.8	State or district science assessment (e.g., preparing, understanding, or interpreting assessment data)	①	②	③	④
PDE.9	Interpretation of assessment data for use in science instruction	①	②	③	④
PDE.10	Technology to support student learning in science	①	②	③	④

TEACHER CHARACTERISTICS

		Female	Male					
TC.1	Please indicate your gender.	①	①					
TC.2	Please indicate your ethnicity/race. (Indicate all that apply)	①	②	③	④	⑤	⑥	
		American Indian or Alaska Native	Asian	Black or African American	Hispanic or Latino/a	Native Hawaiian or Other Pacific Islander	White	
								More than 15 years
		Less than 1 year	1 - 2 years	3 - 5 years	6 - 8 years	9 - 11 years	12 - 15 years	
TC.3	How many years have you taught science prior to this year?	①	①	②	③	④	⑤	⑥
TC.4	How long have you been assigned to teach at your current school?	①	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	
TC.5	What is the highest degree you hold?	①	①	②	③	④	⑤	
TC.6	What was your major field of study for the bachelor's degree?	①	②	③	④	⑤		
		Elementary Education	Middle School Education	Science Education	Science	Science Education and Science	Other Disciplines (includes other Education fields, Math, History, English, Foreign Languages, etc.)	
TC.7	If applicable , what was your major field of study for the highest degree you hold beyond a bachelor's degree?	①	②	③	④	⑤		
		Elementary Education	Middle School Education	Science Education	Science	Science Education and Science	Other Disciplines (includes other Education fields, Mathematics, History, English, Foreign Languages, etc.)	
TC.8	What type(s) of state certification do you currently have? (Indicate all that apply)	①	②	③	④	⑤		
		Emergency, provisional or temporary certification	Elementary/Early Childhood Certification	Middle School Certification	Secondary Certification, in a field other than science	Secondary Science Certification	National Board Certification	

FORMAL COURSE PREPARATION

Please estimate the total number of *quarter or semester courses* you have taken at the undergraduate and/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+
FC.1 Biology/Life Science	①	②	③	④	⑤	⑥	⑦	⑧	⑨	
FC.2 Physics/Chemistry/Physical Science	①	②	③	④	⑤	⑥	⑦	⑧	⑨	
FC.3 Geology/Astronomy/Earth Science	①	②	③	④	⑤	⑥	⑦	⑧	⑨	
FC.4 Science Education	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.

SURVEYS OF ENACTED CURRICULUM[®]

Survey Of Instructional Content

Teacher Survey

Grades K-12

Science

The following pages request information regarding topic coverage and your expectations for students in the target science class for **the most recent school year (current year if reporting after March 1st)**. The content matrix that follows contains lists of discrete topics associated with science 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 that 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 groups 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>K-12 Science Topics</i>	<i>Expectations for Students in Science</i>				
		Memorize Facts/Definitions/Formulas	Conduct Investigations/Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts/Make Connections
<none>	1	Energy				
0 1 2 3	101	Potential energy	p 1 s 2	p 1 s 2	p 1 s s 2	p 1 s 2
0 1 2 3	102	Kinetic energy	p 1 s 2	p 1 s 2	p 1 s s 2	p 1 s 2
0 1 2 3	103	Work and force	p 1 s 2	p 1 s 2	p 1 s s 2	p 1 s 2
0 1 2 3	104	Conservation of energy	p 1 s 2	p 1 s 2	p 1 s s 2	p 1 s 2
0 1 2 3	105	Heat energy and transfer	p 1 s 2	p 1 s 2	p 1 s s 2	p 1 s 2
<none>	6	Kinetics				
0 1 2 3	107	Nuclear energy	p 1 s 2	p 1 s 2	p 1 s s 2	p 1 s 2
0 1 2 3	108	Pressure	p 1 s 2	p 1 s 2	p 1 s s 2	p 1 s 2
0 1 2 3	109	Kinetics and temperature	p 1 s 2	p 1 s 2	p 1 s s 2	p 1 s 2

Step 3: The final step in completing this section of the survey concerns your expectations for what students should be able to do. For each topic listed, please indicate the performance expectations that you consider to be the primary goal of your instruction on that topic, as well as the performance expectation that most supports or helps to scaffold the primary performance expectation.

Primary The performance expectation that represents the primary performance goal for instruction on this topic at this grade level for this class of students.

Supporting The performance expectation that most supports (provides scaffolding) for achieving the goal indicated by the primary performance expectation

Step 3

Time on Topic		K-12 Science Topics	Expectations for Students in Science				
<none>	1	Energy	Memorize Facts/ Definitions/ Formulas	Conduct Investigations/ Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts/ Make Connections
⓪①●③	101	Potential energy	p ① s ②	p ① s ●	p ● s ②	p ① s ②	p ① s ②
●①②③	102	Kinetic energy	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪①②●	103	Work and force	p ① s ②	p ① s ●	p ● s ②	p ① s ②	p ① s ②
●①②③	104	Conservation of energy	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪①●③	105	Heat energy and transfer	p ① s ②	p ① s ②	p ① s ②	p ① s ●	p ● s ②
<none>	6	Kinetics	Memorize Facts/ Definitions/ Formulas	Conduct Investigations/ Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts/ Make Connections
⓪①②③	601	Nuclear energy	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪①②③	602	Pressure	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪①②③	603	Kinetics and temperature	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②

Expectations for Students in Science

Memorize Facts/Definitions/ Formulas

- Recite basic science facts
- Recall science terms and definitions
- Recall scientific formulas

Conduct Investigations/ Perform Procedures

- Make observations
- Collect and record data
- Use appropriate tools
- Make measurements and do computations
- Execute procedures
- Test effects of different variables

Communicate Understanding of Science Concepts

- Explain concepts
- Observe and explain teacher demonstrations
- Explain procedures and methods of science and inquiry
- Organize and display data in tables or charts

Analyze Information

- Classify and compare data
- Analyze data and recognize patterns
- Generate questions and make predictions
- Infer from data
- Draw conclusions

Apply Concepts/Make Connections

- Use and integrate science concepts
- Apply and adapt science information to real-world situations
- Build or revise theory
- Apply science ideas outside the context of science

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

Grades K-12 Science Topics

Expectations for Students in Science

<none>	100	Nature of Science	Memorize Facts/ Definitions/ Formulas	Conduct Investigations/ Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts/ Make Connections
⓪ ① ② ③	101	Nature and structure of science	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	102	Nature of scientific inquiry/method	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	103	Scientific habits of mind, logic, and reasoning	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	104	Issues of diversity, culture, and gender in science	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	105	History of scientific innovations	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	106	Ethical issues and critiques of science	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
<none>	200	Science & Technology	Memorize Facts/ Definitions/ Formulas	Conduct Investigations/ Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts/ Make Connections
⓪ ① ② ③	201	Technological benefits, trade-offs, and consequences	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	202	Relationship between scientific inquiry and technological design	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	203	Science tools and lab safety	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	204	Design or implement a solution or product	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
<none>	300	Science, Health & Environment	Memorize Facts/ Definitions/ Formulas	Conduct Investigations/ Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts/ Make Connections
⓪ ① ② ③	301	Personal health, behavior, disease, and nutrition	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	302	Environmental health, pollution, and waste disposal	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	303	Acid rain	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	304	Ozone depletion	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	305	Resources and conservation	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	306	Toxic and nuclear waste	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	307	Greenhouse effect	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	308	Natural and human-caused hazards	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
<none>	400	Measurement & Calculation in Science	Memorize Facts/ Definitions/ Formulas	Conduct Investigations/ Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts/ Make Connections
⓪ ① ② ③	401	The International System	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	402	Mass and weight	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	403	Length	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	404	Volume	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	405	Time	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	406	Temperature	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	407	Accuracy and precision/estimation	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	408	Significant digits	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	409	Derived units (e.g., rate, speed)	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	410	Conversion factors	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	411	Density	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	412	Data displays (e.g., tables, charts, maps, graphs)	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②

Expectations for Students in Science

Memorize Facts/Definitions/ Formulas

- Recite basic science facts
- Recall science terms and definitions
- Recall scientific formulas

Conduct Investigations/ Perform Procedures

- Make observations
- Collect and record data
- Use appropriate tools
- Make measurements and do computations
- Execute procedures
- Test effects of different variables

Communicate Understanding of Science Concepts

- Explain concepts
- Observe and explain teacher demonstrations
- Explain procedures and methods of science and inquiry
- Organize and display data in tables or charts

Analyze Information

- Classify and compare data
- Analyze data and recognize patterns
- Generate questions and make predictions
- Infer from data
- Draw conclusions

Apply Concepts/Make Connections

- Use and integrate science concepts
- Apply and adapt science information to real-world situations
- Build or revise theory
- Apply science ideas outside the context of science

Response Codes Time on Topic

- 0 = None**
(Not covered)
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(Less than one class/lesson)
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(One to five classes/lessons)
- 3 = Sustained coverage**
(More than five classes/lessons)

Response Codes Expectations for Students

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(25% to 33% of time on this topic)
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(More than 33% of time on this topic)

Time on Topic

Grades K-12 Science Topics

Expectations for Students in Science

<none>		500	Components of Living Systems	Memorize Facts/ Definitions/ Formulas	Conduct Investigations/ Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts/ Make Connections	
⓪	①	②	③	501	Cell structure/function	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪	①	②	③	502	Cell theory	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪	①	②	③	503	Transport of cellular material	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪	①	②	③	504	Cell metabolism	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪	①	②	③	505	Cell response	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪	①	②	③	506	Cellular respiration	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪	①	②	③	507	Cell specialization	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪	①	②	③	508	Organs	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪	①	②	③	509	Organ systems	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪	①	②	③	510	Microbiology	p ① s ②	p ① s ②	p ① s ②	p ① s ②
<none>		600	Biochemistry	Memorize Facts/ Definitions/ Formulas	Conduct Investigations/ Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts/ Make Connections	
⓪	①	②	③	601	Living elements (C, H, O, N, P)	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪	①	②	③	602	Atomic structure and bonding	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪	①	②	③	603	Synthesis reactions (proteins)	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪	①	②	③	604	Hydrolysis	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪	①	②	③	605	Organic compounds (e.g., carbon, proteins, nucleic/amino acids, enzymes)	p ① s ②	p ① s ②	p ① s ②	p ① s ②
<none>		700	Botany	Memorize Facts/ Definitions/ Formulas	Conduct Investigations/ Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts/ Make Connections	
⓪	①	②	③	701	Nutrition and photosynthesis	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪	①	②	③	702	Circulation	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪	①	②	③	703	Respiration	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪	①	②	③	704	Growth/development/behavior	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪	①	②	③	705	Health and disease	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪	①	②	③	706	Structure and function	p ① s ②	p ① s ②	p ① s ②	p ① s ②
<none>		800	Animal Biology	Memorize Facts/ Definitions/ Formulas	Conduct Investigations/ Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts/ Make Connections	
⓪	①	②	③	801	Nutrition	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪	①	②	③	802	Circulation	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪	①	②	③	803	Excretion	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪	①	②	③	804	Respiration	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪	①	②	③	805	Growth/development/behavior	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪	①	②	③	806	Health and disease	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪	①	②	③	807	Structure and function	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪	①	②	③	808	Skeletal and muscular systems	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪	①	②	③	809	Nervous and endocrine systems	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪	①	②	③	810	Habitat	p ① s ②	p ① s ②	p ① s ②	p ① s ②

Expectations for Students in Science

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Time on Topic

Grades K-12 Science Topics

Expectations for Students in Science

<none>	900	Human Biology	Memorize Facts/ Definitions/ Formulas	Conduct Investigations/ Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts/ Make Connections
⓪ ① ② ③	901	Nutrition and digestive system	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	902	Circulatory system and blood	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	903	Excretory system	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	904	Respiration and respiratory system	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	905	Growth/development/behavior	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	906	Health and disease/immune system	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	907	Skeletal and muscular systems	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	908	Nervous and endocrine systems	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
<none>	1000	Genetics	Memorize Facts/ Definitions/ Formulas	Conduct Investigations/ Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts/ Make Connections
⓪ ① ② ③	1001	Mendelian genetics	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1002	Modern genetics	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1003	Inherited diseases	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1004	Biotechnology	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1005	Human genetics	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1006	Transcription and translation	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1007	Mutation	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
<none>	1100	Evolution	Memorize Facts/ Definitions/ Formulas	Conduct Investigations/ Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts/ Make Connections
⓪ ① ② ③	1101	Evidence for evolution	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1102	Lamarckian theories	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1103	Modern evolutionary theory	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1104	Life origin theories	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1105	Human evolution	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1106	Classification	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1107	Causes	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1108	Natural selection	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
<none>	1200	Reproduction and Development	Memorize Facts/ Definitions/ Formulas	Conduct Investigations/ Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts/ Make Connections
⓪ ① ② ③	1201	Mitotic and meiotic cell division	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1202	Asexual reproduction	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1203	Inherited traits	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1204	Reproduction and development in plants	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1205	Reproduction and development in animals	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1206	Reproduction and development in humans	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②

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Time on Topic

Grades K-12 Science Topics

Expectations for Students in Science

<none>	1300	Ecology	Memorize Facts/ Definitions/ Formulas		Conduct Investigations/ Perform Procedures		Communicate Understanding of Science Concepts		Analyze Information		Apply Concepts/ Make Connections	
			p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1301	Food webs/chains	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1302	Competition and cooperation	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1303	Energy flow relationships	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1304	Biotic and abiotic factors	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1305	Ecological succession	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1306	Ecosystems	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1307	Population dynamics	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1308	Environmental chemistry	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1309	Adaptation and variation	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1310	Niche populations	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
<none>	1400	Energy	Memorize Facts/ Definitions/ Formulas		Conduct Investigations/ Perform Procedures		Communicate Understanding of Science Concepts		Analyze Information		Apply Concepts/ Make Connections	
⓪ ① ② ③	1401	Potential energy	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1402	Kinetic energy	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1403	Conservation of mass/energy	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1404	Heat energy and transfer	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1405	Light energy	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1406	Sound energy	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1407	Laws of thermodynamics and entropy	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1408	Work and energy	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1409	Mechanical energy and machines	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1410	Nuclear energy	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
<none>	1500	Motion and Forces	Memorize Facts/ Definitions/ Formulas		Conduct Investigations/ Perform Procedures		Communicate Understanding of Science Concepts		Analyze Information		Apply Concepts/ Make Connections	
⓪ ① ② ③	1501	Vector and scalar quantities	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1502	Displacement as a vector quantity	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1503	Velocity as a vector quantity	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1504	Relative position and velocity	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1505	Acceleration	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1506	Newton's First Law	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1507	Newton's Second Law	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1508	Newton's Third Law	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1509	Momentum, impulse, and conservation	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1510	Equilibrium	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1511	Friction	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2
⓪ ① ② ③	1512	Universal gravitation	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2	p 1	s 2

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- Infer from data
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Time on Topic

Grades K-12 Science Topics

Expectations for Students in Science

<none>	1600	Electricity	Memorize Facts/ Definitions/ Formulas	Conduct Investigations/ Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts/ Make Connections
⓪ ① ② ③	1601	Static electricity (production, transfer, distribution)	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1602	Coulomb's law	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1603	Electric fields	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1604	Current electricity	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1605	Current, voltage, and resistance	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1606	Series and parallel circuits	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1607	Magnetism	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1608	Effects of interacting fields	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1609	Conductors and insulators	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
<none>	1700	Waves	Memorize Facts/ Definitions/ Formulas	Conduct Investigations/ Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts/ Make Connections
⓪ ① ② ③	1701	Characteristics and behavior	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1702	Visible light (direction/speed/transformation)	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1703	Non-visible light/electromagnetic spectrum (e.g., ultraviolet, infrared)	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1704	Sound (e.g. direction, speed, transformation)	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1705	Earthquakes, tsunamis, ocean waves	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
<none>	1800	Kinetics and Equilibrium	Memorize Facts/ Definitions/ Formulas	Conduct Investigations/ Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts/ Make Connections
⓪ ① ② ③	1801	Molecular motion	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1802	Pressure	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1803	Kinetics and temperature	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1804	Equilibrium	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1805	Reaction rates	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
<none>	1900	Properties of Matter	Memorize Facts/ Definitions/ Formulas	Conduct Investigations/ Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts/ Make Connections
⓪ ① ② ③	1901	Characteristics and composition	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1902	Elements, molecules, and compounds	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1903	States of matter (S-L-G-P)	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1904	Solutions and mixtures	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1905	Physical and chemical changes	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1906	Physical and chemical properties	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1907	Isotopes, atomic number, and atomic mass	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1908	Photons and spectra	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1909	Atomic theory	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	1910	Quantum theory and electron clouds	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②

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Time on Topic

Grades K-12 Science Topics

Expectations for Students in Science

		Earth Systems	Memorize Facts/ Definitions/ Formulas	Conduct Investigations/ Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts/ Make Connections
<none>	2000						
⓪ ① ② ③	2001	Earth's shape, dimension, and composition	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2002	Earth's origins and history	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2003	Maps, locations, and scales	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2004	Measuring using relative and absolute time	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2005	Mineral and rock formations and types	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2006	Erosion and weathering	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2007	Plate tectonics	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2008	Formation of volcanoes, earthquakes, and mountains	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2009	Topography	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2010	Dynamics and energy transfer	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2011	Oceanography	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
<none>	2100						
		Astronomy	Memorize Facts/ Definitions/ Formulas	Conduct Investigations/ Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts/ Make Connections
⓪ ① ② ③	2101	Stars	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2102	Galaxies	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2103	Origins of the universe	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2104	Asteroids and comets	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2105	The solar system	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2106	The moon	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2107	The Earth's motion: rotation and revolution	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2108	Relationship of Earth, moon, and sun	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2109	Location, navigation, and time	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
<none>	2200						
		Meteorology	Memorize Facts/ Definitions/ Formulas	Conduct Investigations/ Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts/ Make Connections
⓪ ① ② ③	2201	Earth's atmosphere	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2202	Air pressure and winds	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2203	Evaporation, condensation, and precipitation	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2204	Weather	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2205	Climate	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
<none>	2300						
		Elements and The Periodic System	Memorize Facts/ Definitions/ Formulas	Conduct Investigations/ Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts/ Make Connections
⓪ ① ② ③	2301	Early classification system(s)	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2302	Modern periodic table	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2303	Interaction of elements	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2304	Element characteristics (families and periods)	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②

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Time on Topic

Grades K-12 Science Topics

Expectations for Students in Science

<none>	2400	Chemical Formulas and Reactions	Memorize Facts/ Definitions/ Formulas	Conduct Investigations/ Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts/ Make Connections
⓪ ① ② ③	2401	Names, symbols, and formulas	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2402	Molecular and empirical formulas	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2403	Representing chemical change	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2404	Balancing chemical equations	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2405	Stoichiometric relationships	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2406	Oxidation/reduction reactions	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2407	Chemical bonds	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2408	Electrochemistry	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2409	The Mole	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2410	Types of reactions	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
<none>	2500	Acids, Bases, and Salts	Memorize Facts/ Definitions/ Formulas	Conduct Investigations/ Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts/ Make Connections
⓪ ① ② ③	2501	Arrhenius/Bronsted-Lowry/Lewis Theories	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2502	Naming acids	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2503	Acid/base behavior and strengths	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2504	Salts	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2505	pH	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2506	Hydrolysis	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2507	Buffers	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2508	Indicators	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2509	Titration	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
<none>	2600	Organic Chemistry	Memorize Facts/ Definitions/ Formulas	Conduct Investigations/ Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts/ Make Connections
⓪ ① ② ③	2601	Hydrocarbons, alkenes, alkanes, and alkynes	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2602	Aromatic hydrocarbons	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2603	Isomers and polymers	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2604	Aldehydes, ether, ketones, esters, alcohols, and organic acids	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2605	Organic reactions	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2606	Carbohydrates, proteins, and lipids	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
<none>	2700	Nuclear Chemistry	Memorize Facts/ Definitions/ Formulas	Conduct Investigations/ Perform Procedures	Communicate Understanding of Science Concepts	Analyze Information	Apply Concepts/ Make Connections
⓪ ① ② ③	2701	Nuclear structure	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2702	Nuclear equations	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2703	Fission	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2704	Radioactivity	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2705	Half-life	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②
⓪ ① ② ③	2706	Fusion	p ① s ②	p ① s ②	p ① s ②	p ① s ②	p ① s ②

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.