Definitions of Teacher Composites
Years 1996 - 1999

Core Evaluation Question I[1]

Composite T1*	**K-8 S**				**K-8 M**				**6-12 M**			**6-12 S**
Quality of LSC Professional Development	**99**	**98**	**97**	**96**	**99**	**98**	**97**	**96**	**99**	**98**	**97**	**99**
I am involved in planning my science/mathematics-related professional development.	23a	15a	15b	8c	22a	13a	14b	8c	21a	13a	14b	21a
I am encouraged to develop an individual professional development plan to address my needs and interests related to science/mathematics education.	23b	15b	15c	8d	22b	13b	14c	8d	21b	13b	14c	21b
I am given time to work with other teachers as part of my professional development.	23c	15c	15d	8f	22c	13c	14d	8f	21c	13c	14d	21c
I am given time to reflect on what I've learned and how to apply it to the classroom.	23d	15d	15e	8e	22d	13d	14e	8e	21d	13d	14e	21d
I receive support as I try to implement what I've learned.	23e	15e	15f	8g	22e	13e	14f	8g	21e	13e	14f	21e
Number of Items in Composite	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**	**5**
Maximum Score	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**	**25**
Reliability (Cronbach's Coefficient Alpha)	**.87**	**.86**	**.86**	**.86**	**.86**	**.84**	**.84**	**.88**	**.86**	**.82**	**.82**	**.93**

* In 1996, teachers were asked about science/mathematics professional development in general, not LSC specifically. In 1997, 1998, and 1999 this composite was computed only for teachers participating in LSC professional development.

Core Evaluation Question III

Composite T2	**K-8 S**				**K-8 M**				**6-12 M**			**6-12 S**
Attitudes Toward Teaching	**99**	**98**	**97**	**96**	**99**	**98**	**97**	**96**	**99**	**98**	**97**	**99**
Provide concrete experience before abstract concepts.	7ia	2a1	2a1	2a1	7ia	2a1	2a1	2a1	8ia	2a1	2a1	8ia
Develop students' conceptual understanding of science/mathematics.	7ib	2b1	2b1	2b1	7ib	2b1	2b1	2b1	8ib	2b1	2b1	8ib
Make connections between science/mathematics and other disciplines.	7id	2d1	2d1	2f1	7ie	2e1	2e1	2g1	8ie	2e1	2e1	8id
Have students work in cooperative learning groups.	7ie	2e1	2e1	2h1	7if	2f1	2f1	2i1	8if	2f1	2f1	8ie
Have students participate in appropriate hands-on activities.	7if	2f1	2f1	2i1	7ig	2g1	2g1	2j1	8ig	2g1	2g1	8if
Engage students in inquiry-oriented activities.	7ig	2g1	2g1	2j1	7ih	2h1	2h1	2k1	8ih	2h1	2h1	8ig
Use computers.	7ih	2h1	2h1	2k1	7ij	2j1	2j1	2m1	8ik	2j1	2j1	8ij
Engage students in applications of science/mathematics in a variety of contexts.	7ii	2i1	2i1	2l1	7ik	2k1	2k1	2n1	8il	2k1	2k1	8ik
Use portfolios.	7ik	2k1	2k1	2n1	7im	2m1	2m1	2p1	8in	2m1	2m1	8im
Use informal questioning to assess student understanding.	7il	2l1	2l1	2o1	7in	2n1	2n1	2q1	8io	2n1	2n1	8in

[1] Core Evaluation questions can be found under Tab I of the printed version of the 1999 Core Evaluation Data Collection Manual (online version a t www.horizon-research.com/LSC/ .)

Number of Items in Composite	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**
Maximum Score	**40**	**40**	**40**	**40**	**40**	**40**	**40**	**40**	**40**	**40**	**40**	**40**
Reliability (Cronbach's Coefficient Alpha)	**.80**	**.80**	**.80**	**.77**	**.80**	**.79**	**.80**	**.80**	**.84**	**.83**	**.84**	**.78**

Composite T3	**K-8 S**				**K-8 M**				**6-12 M**			**6-12 S**
Pedagogical Preparedness	**99**	**98**	**97**	**96**	**99**	**98**	**97**	**96**	**99**	**98**	**97**	**99**
Provide concrete experience before abstract concepts.	7pa	2a2	2a2	2a2	7pa	2a2	2a2	2a2	8pa	2a2	2a2	8pa
Develop students' conceptual understanding of science/mathematics.	7pb	2b2	2b2	2b2	7pb	2b2	2b2	2b2	8pb	2b2	2b2	8pb
Take students' prior understanding into account when planning curriculum and instruction.	7pc	2c2	2c2	2d2	7pc	2c2	2c2	2d2	8pc	2c2	2c2	8pc
Make connections between science/mathematics and other disciplines.	7pd	2d2	2d2	2f2	7pe	2e2	2e2	2g2	8pe	2e2	2e2	8pd
Have students work in cooperative learning groups.	7pe	2e2	2e2	2h2	7pf	2f2	2f2	2i2	8pf	2f2	2f2	8pe
Have students participate in appropriate hands-on activities.	7pf	2f2	2f2	2i2	7pg	2g2	2g2	2j2	8pg	2g2	2g2	8pf
Engage students in inquiry-oriented activities.	7pg	2g2	2g2	2j2	7ph	2h2	2h2	2k2	8ph	2h2	2h2	8pg
Engage students in applications of science/mathematics in a variety of contexts.	7pi	2i2	2i2	2l2	7pk	2k2	2k2	2n2	8pl	2k2	2k2	8pk
Use performance-based assessment.	7pj	2j2	2j2	2m2	7pl	2l2	2l2	2o2	8pm	2l2	2l2	8pl
Use portfolios.	7pk	2k2	2k2	2n2	7pm	2m2	2m2	22	8pn	2m2	2m2	8pm
Use informal questioning to assess student understanding.	7pl	2l2	2l2	2o2	7pn	2n2	2n2	2q2	8po	2n2	2n2	8pn
Lead a class of students using investigative strategies.	11a	6a	6a	*	12a	6a	6a	*	14a	6a	6a	12a
Manage a class of students engaged in hands-on/project-based work.	11b	6b	6b	6a	12b	6b	6b	6a	14b	6b	6b	12b
Help students take responsibility for their own learning.	11c	6c	6c	6b	12c	6c	6c	6b	14c	6c	6c	12c
Recognize and respond to student diversity.	11d	6d	6d	6c	12d	6d	6d	6c	14d	6d	6d	12d
Encourage students' interest in science/mathematics.	11e	6e	6e	6d	12e	6e	6e	6d	14e	6e	6e	12e
Use strategies that specifically encourage participation of females and minorities in science/mathematics.	11f	6f	6f	6e	12f	6f	6f	6e	14f	6f	6f	12f
Involve parents in the science/mathematics education of their students.	11g	6g	6g	6f	12g	6g	6g	6f	14g	6g	6g	12g
Number of Items in Composite	**18**	**18**	**18**	**17***	**18**	**18**	**18**	**17***	**18**	**18**	**18**	**18**
Maximum Score	**72**	**72**	**72**	**68**	**72**	**72**	**72**	**68**	**72**	**72**	**72**	**72**
Reliability (Cronbach's Coefficient Alpha)	**.94**	**.94**	**.93**	**.93**	**.93**	**.92**	**.93**	**.92**	**.92**	**.92**	**.92**	**.92**

* 1996 questionnaires did not contain the item "Lead a class of students using investigative strategies".

Composite T4	**K-8 S**				**K-8 M**				**6-12 M***		
Content Preparedness	**99**	**98**	**97**	**96**	**99**	**98**	**97**	**96**	**99**	**98**	**97**
The human body	10a	5a	5a	5a							
Ecology	10b	5b	5b	5d							
Rocks and soils	10c	5c	5c	5e							
Astronomy	10d	5d	5d	5g							
Processes of change over time (e.g., evolution)	10e	5e	5e	5h							
Mixtures and solutions	10f	5f	5f	5j							
Electricity	10g	5g	5g	5k							
Sound	10h	5h	5h	5l							
Forces and motion	10i	5i	5i	5m							
Machines	10j	5j	5j	5n							
Engineering and design principles (e.g., structures, models)	10k	5k	5k	5o							
Estimation									12a	7c	7c
Measurement									12b	7d	7d
Pre-algebra					10e	5e	5e	5l**	12c	7e	7e
Algebra					10f	5f	5f	5l**	12d	7f	7f
Patterns and relationships									12e	7g	7g
Geometry and spatial sense					10h	5h	5h	5e	12f	7h	7h
Functions (including trigonometric functions) and pre-calculus concepts									12g	7i	7i
Data collection and analysis					10i	5i	5i	5g**	12h	7j	7j
Probability					10j	5j	5j	5g**	12i	7k	7k
Statistics (e.g., hypothesis tests, curve fitting and regression)									12j	7l	7l
Topics from discrete mathematics (e.g., combinatorics, graph theory, recursion)									12k	7m	7m
Mathematical structures (e.g., vector spaces; groups, rings, fields)									12l	7n	7n
Calculus									12m	7o	7o
Technology (calculators, computers) in support of mathematics					10k	5k	5k	5j	12n	7p	7p
Number of Items in Composite (6-12 math items that are on K-8 math)	**11**	**11**	**11**	**11**	**6**	**6**	**6**	**6**	**14** **(6)**	**14** **(6)**	**14** **(6)**
Maximum Score (6-12 math items that are on K-8 math)	**44**	**44**	**44**	**44**	**24**	**24**	**24**	**24**	**56** **(24)**	**56** **(24)**	**56** **(24)**
Reliability (Cronbach's Coefficient Alpha) (6-12 math items that are on K-8 math)	**.91**	**.91**	**.90**	**.91**	**.86**	**.84**	**.85**	**.88**	**.91** **(.82)**	**.91** **(.81)**	**.91** **(.82)**

* Note: There are two versions of the 6-12 mathematics composite. One contains items found on the K-8 mathematics questionnaire to enable comparison between grade level groups; the other includes a broader range of topics more applicable for secondary mathematics.

** Note: The 1996 mathematics questionnaire contained items that were split in 1997 (e.g., algebra/pre-algebra was split into two items in 1997). To maintain consistency in the composites, these items were counted twice when computing 1996 composites.

Composite T4 – 6-12 Science*	**1999**							
Content Preparedness	**Bio/Life Sci.**	**Earth Sci.**	**Env. Sci.**	**Chem.**	**Physics**	**Phys. Sci.**	**Integ. Sci.**	**Tech.**
Earth's features and physical processes		13a1	13a1			13a1	13a1	
The solar system and universe		13a2				13a2	13a2	
Climate and weather		13a3	13a3			13a3	13a3	
Structure and function of human systems	13b1		13b1				13b1	
Plant biology	13b2						13b2	
Animal behavior	13b3						13b3	
Interactions of living things/ecology	13b4						13b4	
Genetics and evolution	13b5						13b5	
Structure of matter and chemical bonding				13c1		13c1	13c1	
Properties and states of matter				13c2		13c2	13c2	
Chemical reactions				13c3		13c3	13c3	
Energy and chemical change				13c4		13c4	13c4	
Forces and motion					13d1	13d1	13d1	13d1
Energy					13d2	13d2	13d2	13d2
Light and sound					13d3	13d3	13d3	13d3
Electricity and magnetism					13d4	13d4	13d4	13d4
Modern physics (e.g., special relativity)					13d5	13d5	13d5	
Pollution, acid rain, global warming			13e1				13e1	
Population, food supply and production			13e2				13e2	
Formulating hypotheses, drawing conclusions, making generalizations	13f1	13f1	13f1	13f1	13f1	13f1	13f1	13f1
Experimental design	13f2	13f2	13f2	13f2	13f2	13f2	13f2	13f2
Describing, graphing, and interpreting data	13f3	13f3	13f3	13f3	13f3	13f3	13f3	13f3
Number of Items in Composite	**8**	**6**	**8**	**7**	**8**	**15**	**22**	**7**
Maximum Score	**32**	**24**	**32**	**28**	**32**	**60**	**88**	**28**
Reliability (Cronbach's Coefficient Alpha)	**.91**	**.74**	**.86**	**.79**	**.77**	**.91**	**.91**	**.84**

* This composite was computed for each teacher based upon the subject of his or her first science class of the day. Because the number of teachers in any specific content area may be low within a project, project results are combined into one content composite. Individual subject reliabilities are presented here for use with the cross-site analysis.

Composite T5	**K-8 S**				**K-8 M**				**6-12 M**			**6-12 S**
Traditional Practices	**99**	**98**	**97**	**96**	**99**	**98**	**97**	**96**	**99**	**98**	**97**	**99**
Assign science/mathematics homework.	21n	12k	10l	10k	20m	10k	10l	10j	19m	11k	11l	19n
Answer textbook/worksheet questions* Practice routine computations/algorithms.*	22g	13g	11g	11h	21g	11g	11g	11h	20g	12g	12g	20g
Review homework/worksheet assignments.	22h	13h	11h	11i	21h	11h	11h	11i	20h	12h	12h	20h
Take short-answer tests (e.g., multiple choice, true/false, fill-in-the-blank).	22x	13x	11x	11y/z**	21z	11z	11z	11aa/11bb**	20z	12z	12z	20y
Number of Items in Composite	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**
Maximum Score	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**
Reliability (Cronbach's Coefficient Alpha)	**.87**	**.81**	**.83**	**.84**	**.72**	**.70**	**.71**	**.64**	**.49**	**.46**	**.50**	**.53**

* The mathematics and science versions of this question are considered equivalent, worded appropriately for that discipline.

** The 1996 questionnaires contained two items regarding short-answer tests (teacher vs. publisher constructed) that were combined into one item in 1997 and thereafter. These two items were averaged together when computing 1996 composites.

Composite T6	**K-8 S**				**K-8 M**				**6-12 M**			**6-12 S**
Investigative Culture	**99**	**98**	**97**	**96**	**99**	**98**	**97**	**96**	**99**	**98**	**97**	**99**
Arrange seating to facilitate student discussion.	21e	12c	10c	10c	20c	10b	10b	10b	19c	11b	11b	19e
Use open-ended questions.	21f	12d	10d	10d	20d	10c	10c	10c	19d	11c	11c	19f
Require students to supply evidence to support their claims* Require students to explain their reasoning when giving an answer*	21g	12e	10e	10e	20e	10d	10d	10d	19e	11d	11d	19g
Encourage students to explain concepts to one another* Encourage students to communicate mathematically*	21h	12f	10f	10f	20f	10e	10e	10e	19f	11e	11e	19h
Encourage students to consider alternative explanations* Encourage students to explore alternative methods for solutions*	21i	12g	10g	10g	20g	10f	10f	10f	19g	11f	11f	19i
Participate in discussions with the teacher to further science/mathematical understanding.	22b	13b	11b	11b	21b	11b	11b	11c	20b	12b	12b	20b
Work in cooperative learning groups.	22c	13c	11c	11d	21c	11c	11c	11d	20c	12c	12c	20c
Share ideas or solve problems with each other in small groups.	22j	13j	11j	11k	21k	11k	11k	11l	20k	12k	12k	20j
Number of Items in Composite	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**8**
Maximum Score	**40**	**40**	**40**	**40**	**40**	**40**	**40**	**40**	**40**	**40**	**40**	**40**
Reliability (Cronbach's Coefficient Alpha)	**.89**	**.88**	**.89**	**.87**	**.86**	**.84**	**.84**	**.84**	**.84**	**.83**	**.84**	**.82**

* The mathematics and science versions of this question are considered equivalent, worded appropriately for that discipline.

Composite T7a	K-8 S				K-8 M				6-12 M			6-12 S
Investigative Practices	**99**	**98**	**97**	**96**	**99**	**98**	**97**	**96**	**99**	**98**	**97**	**99**
Make formal presentations to the class.	22d	13d	11d	11e	21d	11d	11d	11e	20d	12d	12d	20d
Engage in hands-on science/mathematical activities.	22k	13k	11k	11l	21l	11l	11l	11m	20l	12l	12l	20k
Design or implement their own investigation.	22m	13m	11m	11n	21o	11o	11o	11p	20o	12o	12o	20m
Work on models or simulations.	22o	13o	11o	*	21p	11p	11p	11q	20p	12p	12p	20o
Work on extended science/mathematics investigations or projects (a week or more in duration).	22p	13p	11p	11p	21q	11q	11q	11r	20q	12q	12q	20p
Participate in field work.	22q	13q	11q	11q	21r	11r	11r	11s	20r	12r	12r	20q
Write reflections in a notebook or journal.	22s	13s	11s	11s	21u	11u	11u	11v	20u	12u	12u	20s
Work on portfolios.	22w	13w	11w	11x	21y	11y	11y	11z	20y	12y	12y	20x
Number of Items in Composite	**8**	**8**	**8**	**7***	**8**	**8**	**8**	**8**	**8**	**8**	**8**	**8**
Maximum Score	**40**	**40**	**40**	**35**	**40**	**40**	**40**	**40**	**40**	**40**	**40**	**40**
Reliability (Cronbach's Coefficient Alpha)	**.83**	**.83**	**.82**	**.80**	**.85**	**.84**	**.84**	**.82**	**.86**	**.84**	**.85**	**.77**

* The item "Work on models or simulations" was not included in the 1996 science survey.

Composite T7b	K-8 M			6-12 M		
Use of Calculators/Computers	**99**	**98**	**97**	**99**	**98**	**97**
Use calculators or computers for learning or practicing skills.	21v	11v	11v	20v	12v	12v
Use calculators or computers to develop conceptual understanding.	21w	11w	11w	20w	12w	12w
Use calculators or computers as a tool (e.g., spreadsheets, data analysis).	21x	11x	11x	20x	12x	12x
Number of Items in Composite	**3**	**3**	**3**	**3**	**3**	**3**
Maximum Score	**15**	**15**	**15**	**15**	**15**	**15**
Reliability (Cronbach's Coefficient Alpha)	**.84**	**.82**	**.83**	**.80**	**.80**	**.79**

Composite T8*	**K-8 S**			**K-8 M**			**6-12 M**			**6-12 S**
Collegiality	**99**	**98**	**97**	**99**	**98**	**97**	**99**	**98**	**97**	**99**
I feel supported by colleagues to try out new ideas in teaching science/mathematics.	6b	1b	1b	6b	1b	1b	7b	1b	1b	7b
Teachers in this school have a shared vision of effective science/mathematics instruction.	6c	1c	1c	6c	1c	1c	7c	1c	1c	7c
Teachers in this school regularly share ideas and materials related to science/mathematics.	6d	1d	1d	6d	1d	1d	7d	1d	1d	7d
Number of Items in Composite	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**3**
Maximum Score	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	**15**
Reliability (Cronbach's Coefficient Alpha)	**.78**	**.78**	**.77**	**.74**	**.75**	**.75**	**.74**	**.72**	**.73**	**.77**

* This composite was not calculated for the 1996 questionnaires due to the lack of sufficient comparable items.

Composite T9	**K-8 S**				**K-8 M**				**6-12 M**			**6-12 S**
Principal Support	**99**	**98**	**97**	**96**	**99**	**98**	**97**	**96**	**99**	**98**	**97**	**99**
My principal encourages me to select science/mathematics content and instructional strategies that address individual students' learning.	8a	3a	3a	3a	8a	3a	3a	3a	9a	3a	3a	9a
My principal accepts the noise that comes with an active classroom.	8b	3b	3b	3c	8b	3b	3b	3c	9b	3b	3b	9b
My principal encourages the implementation of current national standards in science/mathematics education.	8c	3c	3c	3d	8c	3c	3c	3d	9c	3c	3c	9c
My principal encourages innovative instructional practices.	8d	3d	3d	3e	8d	3d	3d	3e	9d	3d	3d	9d
My principal enhances the science/mathematics program by providing me with needed materials and equipment.	8e	3e	3e	3f	8e	3e	3e	3f	9e	3e	3e	9e
My principal provides time for teachers to meet and share ideas with one another.	8f	3f	3f	3g	8f	3f	3f	3g	9f	3f	3f	9f
My principal encourages me to observe exemplary science/mathematics teachers.	8g	3g	3g	3h	8g	3g	3g	3h	9g	3g	3g	9g
My principal encourages teachers to make connections across disciplines.	8h	3h	3h	3i	8h	3h	3h	3i	9h	3h	3h	9h
My principal acts as a buffer between teachers and external pressures (e.g., parents).	8i	3i	3i	3j	8i	3i	3i	3j	9i	3i	3i	9i
Number of Items in Composite	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**	**9**
Maximum Score	**45**	**45**	**45**	**45**	**45**	**45**	**45**	**45**	**45**	**45**	**45**	**45**
Reliability (Cronbach's Coefficient Alpha)	**.89**	**.89**	**.88**	**.88**	**.89**	**.89**	**.88**	**.89**	**.87**	**.88**	**.87**	**.88**

Composite T10	K-8 S			K-8 M			6-12 M			6-12 S
Effect of Resource Availability	**99**	**98**	**97**	**99**	**98**	**97**	**99**	**98**	**97**	**99**
Time available for teachers to plan and prepare lessons.	12g	7g	7i	13h	7h	7j	15j	8j	8l	14j
Time available for teachers to work with other teachers.*	12h	7h	7j	13i	7i	7k	15k	8k	8m	14k
Time available for teacher professional development.*	12i	7i	7k	13j	7j	7l	15l	8l	8n	14l
Importance that the school places on science/mathematics.	12j	7j	7l	13k	7k	7m	15m	8m	8o	14m
Number of Items in Composite	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**
Maximum Score	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**
Reliability (Cronbach's Coefficient Alpha)	**.89**	**.86**	**.86**	**.87**	**.84**	**.85**	**.88**	**.84**	**.85**	**.90**

* Note: There were a few minor wording changes required by NSF between 1998 and 1999. In 1998 teachers were asked to rate "opportunities for" 1) teachers to work with other teachers and 2) professional development. In 1999 these items were changed to read "time available" for each of these activities.

Composite T11*	K-8 S			K-8 M			6-12 M			6-12 S
Parent Support	**99**	**98**	**97**	**99**	**98**	**97**	**99**	**98**	**97**	**99**
Volunteer to assist with class activities.	13a	8a	8a	14a	8a	8a	16a**	**	**	15a
Donate money or materials for classroom instruction.	13b	8b	8b	14b	8b	8b	16b**	**	**	15b
Attend parent-teacher conferences.	13c	8c	8c	14c	8c	8c	16c	9a	9a	15c
Attend school activities such as PTA meetings and Family Science/Mathematics nights.	13d	8d	8d	14d	8d	8d	16d	9b	9b	15d
Voice support for the use of an investigative approach to science/mathematics instruction.	13e	8e	8e	14e	8e	8e	16e	9c	9c	15e
Number of Items in Composite	**5**	**5**	**5**	**5**	**5**	**5**	**3*** (5)**	**3**	**3**	**5**
Maximum Score	**25**	**25**	**25**	**25**	**25**	**25**	**15 (25)**	**15**	**15**	**25**
Reliability (Cronbach's Coefficient Alpha)	**.72**	**.75**	**.75**	**.72**	**.69**	**.70**	**.64 (.68)**	**.67**	**.68**	**.73**

* Note: There were a few minor wording changes required by NSF between 1998 and 1999. The questions asking about parental involvement combined the response categories "few" and "none" in 1998, but listed them separately in 1999.

** These items did not appear in the 6-12 mathematics surveys prior to 1999.

*** Note: There are two versions of the 6-12 mathematics composite in 1999. The trend version contains the three items that were asked in past years; the revised version contains the same items as other subjects to allow for cross-subject comparisons.

Composite T12	**Sec M**			**Sec S**
Department Chair Support	**99**	**98**	**97**	**99**
My department chair encourages me to select science/mathematics content and instructional strategies that address individual students' learning.	11a	5a	5a	11a
My department chair accepts the noise that comes with an active classroom.	11b	5b	5b	11b
My department chair encourages the implementation of current national standards in science/mathematics education.	11c	5c	5c	11c
My department chair encourages innovative instructional practices.	11d	5d	5d	11d
My department chair enhances the science/mathematics program by providing me with needed materials and equipment.	11e	5e	5e	11e
My department chair provides time for teachers to meet and share ideas with one another.	11f	5f	5f	11f
My department chair encourages me to observe exemplary science/mathematics teachers.	11g	5g	5g	11g
My department chair encourages teachers to make connections across disciplines.	11h	5h	5h	11h
Number of Items in Composite	**8**	**8**	**8**	**8**
Maximum Score	**40**	**40**	**40**	**40**
Reliability (Cronbach's Coefficient Alpha)	**.90**	**.90**	**.91**	**.90**

Definitions of Principal Composites
Years 1996 - 1999

Core Evaluation Question V

Composite P1	**Science**				**Mathematics**			
Attitudes Toward Teaching	**99**	**98**	**97**	**96**	**99**	**98**	**97**	**96**
Make connections to other disciplines.	5sd	3es	3es	3gs	5md	3em	3em	3gm
Have students work in cooperative learning groups.	5se	3fs	3fs	3is	5me	3fm	3fm	3im
Have students participate in appropriate hands-on activities.	5sf	3gs	3gs	3js	5mf	3gm	3gm	3jm
Engage students in inquiry-oriented activities.	5sg	3hs	3hs	3ks	5mg	3hm	3hm	3km
Use calculators.	5sh	3is	3is	3ls	5mh	3im	3im	3lm
Use computers.	5si	3js	3js	3ms	5mi	3jm	3jm	3mm
Engage students in applications of subject matter in a variety of contexts	5sj.	3ks	3ks	3ns	5mj	3km	3km	3nm
Use performance-based assessment.	5sk	3ls	3ls	3os	5mk	3lm	3lm	3om
Use portfolios.	5sl	3ms	3ms	3ps	5ml	3mm	3mm	3pm
Use informal questioning to assess student understanding.	5sm	3ns	3ns	3qs	5mm	3nm	3nm	3qm
Number of Items in Composite	**10**	**10**	**10**	**10**	**10**	**10**	**10**	**10**
Maximum Score	**40**	**40**	**40**	**40**	**40**	**40**	**40**	**40**
Reliability (Cronbach's Coefficient Alpha)	**.79**	**.78**	**.82**	**.86**	**.84**	**.82**	**.77**	**.84**

Composite P2	**Science**				**Mathematics**			
Principal Support	**99**	**98**	**97**	**96**	**99**	**98**	**97**	**96**
I am knowledgeable about the current national standards in this content area.	1sb	2bs	2bs	2fs	1mb	2bm	2bm	2fm
I feel well prepared to support teachers in the implementation of current national standards.	1sc	2cs	2cs	2gs	1mc	2cm	2cm	2gm
I am willing to accept the noise that comes with an active classroom.	1sd	2ds	2ds	2cs	1md	2dm	2dm	2cm
Encouraging student questions is more important than eliciting correct answers.	1se	2es	2es	2bs	1me	2em	2em	2bm
Number of Items in Composite	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**4**
Maximum Score	**20**	**20**	**20**	**20**	**20**	**20**	**20**	**20**
Reliability (Cronbach's Coefficient Alpha)	**.59**	**.69**	**.70**	**.75**	**.61**	**.68**	**.70**	**.80**

Composite P3*	**Science**			**Mathematics**		
Effect of Resource Availability	**99**	**98**	**97**	**99**	**98**	**97**
Quality of available instructional materials.	7g	4g	4g	6g	5g	5e
Access to calculators for science/mathematics instruction	**	**	**	6h	5h	5f
Access to computers for science/mathematics instruction.	7i	4h	4h	6i	5i	5g
Funds for purchasing equipment and supplies for science/mathematics.	7j	4i	4i	6j	5j	5h
System of managing instructional resources at the district or school level.	7k	4j	4j	6k	5k	5i
Time available for teachers to plan and prepare lessons.	7l	4k	4k	6l	5l	5j
Time available for teachers to work with other teachers.*	7m	4l	4l	6m	5m	5k
Time available for teacher professional development.*	7n	4m	4m	6n	5n	5l
Importance that the school places on science/mathematics.	7o	4n	4n	6o	5o	5m
Consistency of science/mathematics reform efforts with other school/district reforms.	7p	4o	4o	6p	5p	5n
Public attitudes toward reform.	7q	4p	4p	6q	5q	5o
Number of Items in Composite	**10**	**10**	**10**	**11**	**11**	**11**
Maximum Score	**50**	**50**	**50**	**55**	**55**	**55**
Reliability (Cronbach's Coefficient Alpha)	**.89**	**.91**	**.91**	**.88**	**.91**	**.90**

* This composite was not calculated for 1996 questionnaires due to the lack of sufficient comparable items. In addition, there were a few minor wording changes required by NSF between 1998 and 1999. In 1998 principals were asked to rate "opportunities for" 1) teachers to work with other teachers and 2) professional development. In 1999 these items were changed to read "time available" for each of these activities.

** Item did not appear on the principal questionnaire in regards to science instruction before 1999. The science version of this composite is based upon 10 items.