

**Council of Ministers of Education,
Canada
School Achievement Indicators
Program**

**Science Assessment
1999
Teacher Questionnaire**

Your school has been selected as one of more than 1000 schools in Canada participating in the School Achievement Indicators Program in science. This program is the only comprehensive assessment of achievement in Canada and its results are important in determining how well students in various provinces and territories are doing and in deciding on curriculum change and other matters affecting science teaching.

This questionnaire is addressed to the teachers of students who have been selected to write the science tests. **Please keep in mind those students when answering the questions.** It asks about professional background, instructional practices, coverage of science topics, the kinds of students you teach, and attitudes towards teaching science. Since your school is part of a national sample, your responses are very important in helping to describe science teaching in Canada. It is therefore important that all questions be answered as carefully and accurately as possible.

This questionnaire is confidential when completed. Your responses will not be used in any way that will permit you, your students, or your school to be identified.

Once you have completed this questionnaire, place it in the envelope provided and return it to your school coordinator.

**Thank you for your time, effort, and thought in
completing this questionnaire.**

1 At which grade levels are you teaching science this year?

(Check all that apply.)

- grade 6 or below
- grade 7 (Sec.1 - QC)
- grade 8 (Sec. 2 - QC)
- grade 9 (Sec. 3 - QC, Senior I - MB)
- grade 10 (Sec. 4 - QC, Level I - NF, Senior II - MB)
- grade 11 (Sec. 5 - QC, Level II - NF, Senior III - MB)
- grade 12 (CEGEP 1 - QC, Level III in NF, Senior IV - MB)
- above grade 12

2 How many hours per week are you scheduled to teach each of the following subjects? Please indicate also whether the courses are taught over the full year or over a semester (half year).

**Number of Semester course
hours/week (check if**

YES)

- biology/life science
- chemistry
- computer studies
- earth science
- physics/physical science
- technological studies
- other science (not social sciences).....
- other subjects (non-science)

3 Is your position full-time or part-time?

- full-time A
- part-time B

If part-time, what percentage of full-time? _____ per cent

4 What is the **AVERAGE** number of students in the science classes you teach this year?....._____ students

LARGEST class size....._____ students

SMALLEST class size....._____ students

5 How many hours of scheduled class time does your school have per week? _____ hours

6 How many hours per week are you scheduled to perform each of the following duties as part of your regular assignment during school hours (times when classes are in session in your school)?

	number of hours/week
student supervision or other out-of-class work with students	
administrative duties	
planning and preparation	
working with students other than regular course teaching (e.g., counseling, remedial work)	
other duties	

7 **ON AVERAGE** about how many hours per week do you spend on each of the following activities outside of formal school hours?

		no time	less than 1 hr.	1-2 hrs.	3-4 hrs.	5-6 hrs.	more than 6 hrs.
planning and preparation	A	B	C	D	E	F	
marking student work	A	B	C	D	E	F	
administrative duties	A	B	C	D	E	F	
meetings	A	B	C	D	E	F	
routine tasks (e.g. record keeping, photocopying)	A	B	C	D	E	F	
professional development (e.g. courses, conferences, professional reading)	A	B	C	D	E	F	
working with students (e.g. coaching, clubs, tutoring)	A	B	C	D	E	F	
other professional activities related							

to your teaching A B C D E F
 planned parent conferences A B C D E F

8 ON AVERAGE, over a full school year, how many hours of your scheduled teaching time would you estimate is lost because of class cancellations, school closures, or other losses of whole class periods or school days? _____hours

9 ON AVERAGE, how many minutes of each class period would you say are lost because of disruptions (e.g., late students, announcements, students looking for materials, or other)? _____minutes

10 Altogether, about how often do you meet with or speak by telephone to parents to discuss individual students?

- never A
- once or twice a year B
- about every other month C
- about once a month D
- about once a week E
- two or three times a week F
- more than five times a week G

11 About what percentage of parents would you say you have contact with, over a full school year, other than during regularly scheduled parent-teacher interviews?

At regularly scheduled parent-teacher interviews _____ per cent

At times other than during regularly scheduled interviews..... _____ per cent

12 About how often do you meet with other teachers to plan lessons, units, tests, or other program matters?

- never A
- once or twice a year B

- about every other month C
- about once a month D
- about once a week E
- two or three times a week F
- almost every day G

13 When planning science lessons, to what extent do you use . . .

	rarely or never	a few times a month	a few times a week	almost every class
your own previously prepared lessons?	A	B	C	D
materials prepared by other teachers or specialists	A	B	C	D
student textbooks?	A	B	C	D
other textbooks or resource books?	A	B	C	D
teacher guides or teacher editions of textbooks?	A	B	C	D
provincial curriculum documents?.....	A	B	C	D
Internet or other computer-based sources?	A	B	C	D
evaluation materials?.....	A	B	C	D
media-generated materials?.....	A	B	C	D
other sources?	A	B	C	D

14 To what extent do you agree or disagree with each of the following statements?

	strongly disagree	disagree	agree	strongly agree
Science is primarily a body of knowledge and concepts.	A	B	C	D
Science is better thought of as a process than as a body of knowledge and concepts.	A	B	C	D
Science is primarily concerned with finding theories to explain observed events.	A	B	C	D
There are limits to what a teacher can accomplish because student ability has a large influence on achievement.	A	B	C	D

Students need natural talent to do well in science courses.	A	B	C	D
Students need to work hard to do well in science courses.	A	B	C	D
A student's home environment has an influence on achievement.	A	B	C	D
High school students should be streamed into different programs based on their abilities.	A	B	C	D

15 How often do the following things happen in your science classes?

	rarely or never	a few times a month	a few times a week	almost every class
I give notes.	A	B	C	D
I show students how to do problems.	A	B	C	D
Students work on long-term science projects.	A	B	C	D
Students work in pairs or small groups.	A	B	C	D
Students do laboratory experiments.	A	B	C	D
I demonstrate an experiment.	A	B	C	D
We discuss a coming quiz or test.	A	B	C	D
I give feedback to the class on assignments, tests, or other evaluations.	A	B	C	D
I attempt to diagnose and correct individual student problems or weaknesses in learning.	A	B	C	D
Students work alone on assigned work.	A	B	C	D
Students study the textbook.	A	B	C	D
I read from or summarize the textbook.	A	B	C	D
I help students develop general learning strategies.	A	B	C	D
We go outdoors or on a field trip.	A	B	C	D
I work with individual students.	A	B	C	D
We discuss or do things other than the topic of the lesson.	A	B	C	D

16 How often are the following resources used in your science classes?

avail- able	rarely or never	a few times a month	a few times a week	almost every class	not
science books and magazines	A	B	C	D	E
computers	A	B	C	D	E
graphing calculators	A	B	C	D	E
overhead projector	A	B	C	D	E
slides, films, or videos	A	B	C	D	E
the Internet or World Wide Web	A	B	C	D	E
a laboratory (<i>separate from the classroom</i>)	A	B	C	D	E
a computer lab (<i>separate from the classroom</i>)	A	B	C	D	E
museums, zoos, conservation areas, and similar out-of-school sites	A	B	C	D	E
laboratory apparatus, specimens, or other resources not mentioned above	A	B	C	D	E
experts within the community	A	B	C	D	E

17 How often are the following questioning techniques used in your science classes?

	rarely or never	once or twice a class	several times a class	many times a class
I ask questions. . .				
of individual students by name.				A
to the class as a whole.	A	B	C	D
specifically to students I feel are not paying attention.	A	B	C	D
of the best students to make it more likely to get a good answer.	A	B	C	D
of reticent students to help improve their participation.	A	B	C	D
requiring brief responses (e.g., a word or phrase).	A	B	C	D
requiring more elaborated responses (e.g., a few sentences).	A	B	C	D
intended to stimulate a general discussion.	A	B	C	D
Students ask questions. . .				
requiring a brief response by the teacher.....	A	B	C	D
requiring an elaborated response by the teacher.....	A	B	C	D

requiring responses by other students.	A	B	C	D
that stimulate general discussion.	A	B	C	D

18 To what extent do the following limit or restrict how you teach your science classes?

	not at all	a little	quite a lot	a great deal
the range of student abilities in the class	A	B	C	D
students who come from a wide variety of backgrounds (e.g., economic, language)	A	B	C	D
students with special needs (e.g., mental or emotional disorders, physical disabilities)	A	B	C	D
uninterested students	A	B	C	D
disruptive students	A	B	C	D
pressure from parents	A	B	C	D
shortage of computer hardware or software	A	B	C	D
shortage of equipment for laboratories or demonstrations	A	B	C	D
shortage of other materials or equipment	A	B	C	D
inadequate physical facilities	A	B	C	D
large class size			
low morale in the school	A	B	C	D
concerns with personal safety or the safety of students	A	B	C	D
inadequate resource material for lesson planning	A	B	C	D
limits in my own background in the subject	A	B	C	D
inadequate curriculum design	A	B	C	D
external examinations or standardized tests	A	B	C	D
lack of in-service with respect to new curriculum	A	B	C	D

19 To what extent do these safety issues influence how you teach your science classes?

	not at all	a little	quite a lot	a great deal
lack of necessary permanent facilities (e.g., fume hoods, adequate ventilation, eye wash stations, showers, gas shut-off valve, toxic waste disposal).....	A	B	C	D
lack of safety equipment (goggles, respirators, fire blankets, fire extinguishers, first aid kit, explosion shield).....	A	B	C	D

lack of safety information.....	A	B	C	D
lack of inservice in safety procedures.....	A	B	C	D

20 Starting on the next page is a list of statements that describe some things students might be expected to know or be able to do from their study of science, as identified in the SAIP science framework. Thinking of your students who are writing the SAIP test, please indicate whether these items have been or will be taught this year or whether you expect students to know these things before coming to your courses this year.

If you have students from several courses writing the SAIP test, please think of those in the LEAST advanced course or courses.

If you teach only one SAIP age group, please respond for that age group only. If you teach both age groups, it would probably be useful to think about the same item for both groups before responding.

Students should be able to. . .	13-year olds			16-year-olds		
	introd=d prev=ly this year	introd=d or expnd=d this year	not yet introd=d	introd=d prev=ly this year	introd=d or expnd=d this year	not yet introd=d
describe the structure of matter in terms of particles.	A	B	C	A C	B	
use particle theory to compare solids, liquids, and gases.	A	B	C	A	B	C

Students should be able to . . .	13-year olds			16-year-olds		
	introd=d prev=y this year	introd=d or expnd=d this year	not yet introd=d	introd=d prev=y this year	introd=d or expnd=d this year	not yet introd=d
compare the mass of different substances that have the same volume.	A	B	C	A	B	C
describe microscopic life forms from original observations.	A	B	C	A	B	C
distinguish between life forms that consist of a single cell and life forms that consist of a collection of similar cells that benefit from cooperating.	A	B	C	A	B	C
explain how the unique properties of water allow cells to carry on essential life activities.	A	B	C	A	B	C
identify the concepts of habitat, biome, and niche.	A	B	C	A	B	C
identify characteristics of static electrical charges.	A	B	C	A	B	C
assess the extent of heat flows.	A	B	C	A	B	C
state that stars differ in size, temperature, age, and composition.	A	B	C	A	B	C
outline how the interpretation of sedimentary rock provides evidence of the history of climate, land forms, and life forms.	A	B	C	A	B	C

Students should be able to. . .	13-year olds			16-year-olds		
	introd=d prev-ly this year	introd=d or expnd=d this year	not yet introd=d	introd=d prev-ly this year	introd=d or expnd=d this year	not yet introd=d
compare planetary sizes, composition, and surface features.				A	B	C
relate the cycling of water to its role in determining climatic patterns.						
identify the need for acquiring the consent of human subjects when they are part of an investigation.	A	B	C	A	B	C
give examples of new ideas in science that result from unexpected findings.	A	B	C	A	B	C
identify the variables of an experiment.	A	B	C	A	B	C
describe a technology essential for obtaining data from outer space and other remote locations.	A	B	C	A	B	C
give examples of the characteristics of plants and animals that people control by selective breeding.	A	B	C	A	B	C
give an example of the use of technology that was not intended in its original design.	A	B	C	A	B	C
compare energy sources in terms of their cost and pollution.	A	B	C	A	B	C
compare the efficiency of modern technology at home, on farms, or in factories with technology used in the past. .	A	B	C	A	B	C
identify manipulated or independent, responding or dependent, and controlled variables.	A	B	C	A	B	C

Students should be able to. . .	13-year olds			16-year-olds		
	introd=d prev=ly this year	introd=d or expnd=d this year	not yet introd=d	introd=d prev=ly this year	introd=d or expnd=d this year	not yet introd=d
identify alternative explanations for consideration.	A	B	C	A	B	C

21 How often do you usually assign homework in your science courses?

- never A
- less than once a week B
- once or twice a week C
- 3 or 4 times a week..... D
- every class E

If you do not assign homework, please go to question 25.

22 If you assign science homework, how many minutes would you expect an average student to spend doing this work?

- less than 15 minutes A
- 15-30 minutes B
- 31-60 minutes C
- more than 60 minutes D

23 If you assign science homework, how often do you assign each of the following tasks?

a few a few

	rarely or never	times a month	times a week	almost every class
worksheet or workbook.....				A
problems/questions in textbook				A
reading in text or supplementary materials	A	B	C	D
writing definitions or other short writing assignment	A	B	C	D
working individually on long-term projects or experiments	A	B	C	D
working in groups on long-term projects or experiments	A	B	C	D
preparing oral reports	A	B	C	D
keeping a journal	A	B	C	D

24 If you assign written homework, how often do you do the following?

	rarely or never	a few times/ month	a few times/ week	almost every class
record whether or not the homework is completed	A	B	C	D
collect, correct, and keep assignments	A	B	C	D
collect, correct and return assignments to students	A	B	C	D
give feedback on homework to whole class	A	B	C	D
have students correct their own homework in class ...	A	B	C	D
have students exchange assignments and correct them in class	A	B	C	D
use homework to contribute towards students= grades or marks	A	B	C	D

25 In assessing the work of students in your science courses, how much weight do you give each of the following?

a quite a great
none little a lot deal

standardized tests produced outside the school.....				
teacher-made short answer or essay tests that require students to explain their reasoning	A	B	C	D
teacher-made multiple-choice, true-false, or matching tests	A	B	C	D
homework assignments	A	B	C	D
projects or laboratory exercises.....				
portfolios of student work	A	B	C	D
observations or interviews of students	A	B	C	D
attendance in class	A	B	C	D
participation of students in class activities	A	B	C	D
effort	A	B	C	D
improvement over the year or term	A	B	C	D
other	A	B	C	D
student self-assessment.....	A	B	C	D
peer evaluation.....	A	B	C	D

26 ON AVERAGE, how many different scores or grades do you use in computing final marks for your science students?

- one to four A
- five to nine B
- ten to fourteen C
- fifteen or more D

27 Are you female or male?

- Female A
- Male B

28 Counting this year, how many years teaching experience do you have in total? _____ years

29 Counting this year, how many years teaching experience have you had?

- in your current school? **_____ years**
- in the province or territory in which you are now located? **_____ years**
- teaching 13-year-old students? **_____ years**
- teaching 16-year-old students? **_____ years**
- teaching science? **_____ years**

30 Which of the following degrees or diplomas do you hold?

(Check all that apply)

- B.A. or equivalent
- B.Sc. or equivalent
- B.Ed. or equivalent (e.g., at least one year teacher training)
- Trade or technical diploma or equivalent.....
- Master's degree in education
- Master's degree in another subject
- Ph.D. or equivalent
- Other degree or diploma
- No degree or diploma

31 If you hold a B.Sc. degree or higher degree in SCIENCE, in which subject(s) did you major or concentrate?

(Check all that apply)

- Biology (e.g., zoology, botany, ecology).....
- Chemistry or biochemistry
- Computer science or equivalent
- Earth Science
- Mathematics
- Physics
- Other science (e.g., environmental science)

Thank you again for taking time from your busy schedule to complete this questionnaire.