(Attitudes towards careers in science: found in versions 1, 2, 3, 4.)

1.   Before you entered High School, were you considering a career requiring an education in science?

    1. Yes   2. No   3. I did not think about it.

If you answered 3. (I did not think about it) for Item 1. above, then skip Items 2. - 6. below and go directly to Item 7.

Items 2. - 6. below each mention a factor which might have influenced your career intention **before** you entered High School. Please rank the impact of each particular factor on the following scale:

1. Very large impact   2. Large impact   3. Moderate impact   4. Some impact   5. No impact

2.   Parental advice
3.   Your own interests
4.   A person in your community/family serving as a role model
5.   Your teacher(s)/guidance counsellor(s)/school administrator(s)
6.   Media (radio, television, movies, newspapers, magazines, etc.)

(Attitudes towards learning mathematics: in versions 1, 2, 3, 4.)

7.   My attitude towards math is best characterized by:

1. I love it   2. I like it   3. I am indifferent to it   4. I dislike it   5. I hate it

8.   Fundamentally this attitude was formed:

1. Before High School 2. In Sec. I & II   3. In Sec. III   4. In Sec. IV   5. In Sec V

Various factors may have influenced you to form your attitude towards math. Items 9. - 12. below list such factors. Please rank the impact of each factor on the following scale:

1. Very large impact   2. Large impact   3. Moderate impact   4. Some impact   5. No impact

9.   family members
10.   friends
11.   grades in math
12.   how math is taught

(Attitudes towards learning science: in versions 1, 2, 3, 4.)

13.   My attitude towards sciences is best characterized by:

1. I love it   2. I like it   3. I am indifferent to it   4. I dislike it   5. I hate it

14.   Fundamentally this attitude was formed:

1. Before High School 2. In Sec. I & II   3. In Sec. III   4. In Sec. IV   5. In Sec. V

Various factors may have influenced you to form your attitude towards science. Items 15. - 18. below list such factors. Please rank the impact of each factor on the following scale:

1. Very large impact   2. Large impact   3. Moderate impact   4. Some impact   5. No impact

15.   family members
16.   friends
17.   grades in the sciences
18.   how the sciences are taught

(Motivation to select science and mathematics courses: in versions 1, 2, 3, 4.)
Various factors may have influenced your choice of math or science courses in high school. Items 19. - 24. below list such factors. Please rank the impact of each factor on the following scale:
1. Very large impact   2. Large impact   3. Moderate impact   4. Some impact   5. No impact
19.   family members
20.   friends
21.   my attitude towards science
22.   my attitude towards math
23.   a desire to keep more options open
24.   teachers, guidance counsellors or school administrators

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(Use of calculators in High School: in versions 1, 2, 3, 4.)
25.   How often did you use a graphing calculator, such as the TI83, in your Sec. IV and/or Sec. V math classes?
1. Throughout every class   2. Once every class   3. During several classes   4. Never   5. I don't remember

If you answered 4. (Never) for Item 25. above, then skip Items 26.- 29. below and go directly to the instructions above Item 30.

When the graphing calculator was used in learning a topic it could have been used in several ways. The next three items below, 26. - 28., list different ways to use a graphing calculator. Please rank how often you feel the calculator was used in each way on the following scale:
1. Very often   2. Often   3. Sometimes   4. Never   5. I don't remember
26.   For simple numerical calculation, i.e., to do arithmetic.
27.   To generate graphs from a formula or to analyse data, e.g., sorting, averaging.
28.   Doing homework for your Sec. IV and/or V math classes.

29.   What was the main way that you learned to use a graphing calculator?
1. Taught by teacher   2. Learned from friends   3. Learned by myself   4. Other

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(Perceptions of science and mathematics instruction in High School: in versions 1, 2, 3, 4.)
When completing Items 30. - 57. below, please think specifically about the math and science classes and teachers from high school. When a statement or a question refers to what you did in class, again think specifically about your science and math classes in high school.
1. Strongly disagree   2. Disagree   3. Neither agree nor disagree   4. Agree   5. Strongly agree
30.   Teachers emphasized the understanding of concepts more than the remembering of formulas.
31.   Teachers expected students to take the information presented in class as "fact".
32.   Teachers related the information they teach to the "real world".
33.   Teachers seemed to lack any motivation to teach well.
34.   Teachers attempted to find out what students already know about a topic before presenting new or more advanced information in their classes.
35.   Teachers tried to ensure that their students felt confident and competent in their study of math and science.
36.   Teachers treated students with respect.
37.   Equal opportunities for success in science and math classes were given to students regardless of gender.
38.   Teachers explained their ideas in a way that made sense.
39.   Teachers lectured most of the time.
40.   I spent most of my time in class copying the teacher's notes.
41.   Group work in my classes mostly involved repetition of problems where one "plugs-in" numbers into a formula.

1. Strongly disagree   2. Disagree   3. Neither agree nor disagree   4. Agree   5. Strongly agree

42.   It was possible to pass science or math exams without really understanding the subject.
43.   Teachers related information presented in their classes to math or other science classes.
44.   Teachers encouraged me to think for myself.
45.   Teachers gave good examples and practical applications of mathematical and scientific concepts.
46.   Teachers have been effective in making me learn.
47.   Teachers assumed that students knew more about math and science than they really do.
48.   Teachers encouraged competition for grades amongst students.
49.   I feel that teachers treated me unfairly because of my gender.
50.   Teachers encouraged students to work together.
51.   Teachers had a hard time understanding questions students raised in class.
52.   Teachers gave a short lecture and then groups of students worked on problems or discussed topics.
53.   Teachers promoted the idea of "discovering things together" with students in their classes.
54.   When teachers asked groups of students to discuss a topic, the discussion usually improved my understanding.
55.   Lectures stimulated me to think along with the teacher, and to understand new ideas.
56.   All we needed to do when solving problems on exams was to match the facts with equations, and then substitute values to get a number.
57.   Teachers encouraged students to participate in classroom discussions.

___

(Demographic information: socio-economic background and ethnicity: in versions 1, 2, 3.)

58.   Parents' education - in responding to this question think of whichever parent has achieved the highest level of education.
1. High School certificate or less   2. Bachelor's degree   3. Master's degree   4. PhD   5. I don't know

59.   Family income
**1. less than $15,000   2. between $15,000 and $30,000   3. between $30,000 and $50,000
4. more than $50,000   5. I don't know**

60.   What percentage of time do you use languages other than English?
**1. less than 10%   2. between 10% and 30%   3. between 30% and 50%
4. between 50% and 70%   5. more than 70%?**

61.   What is the ethnic origin of the parent that you most identify with?
1. North American   2. European   3. Arabic   4. Latin American   5. Other

**If you answered 5. (Other) on the previous item, then continue by answering the next item below, Item 62.
If you answered 1. (North American) on the previous item, then skip to Item 66.
If you answered 2. (European), 3. (Arabic) or 4. (Latin American), then skip Item 62. below and continue by answering Item 63.**

62.   What is the ethnic origin of the parent that you most identify with?
1. Chinese, Vietnamese, Korean or Japanese   2. East Indian   3. African   4. Other

63.   If you were not born in Canada, at what age did you come to Canada?
1. less than 3   2. between 3 and 5   3. between 5 and 10   4. between 10 and 15   5. older than 15

64.   To what extent do you identify with Canadian culture versus the culture of the parent whose ethnic origin you described above?

1. I identify only with Canadian culture.   2. I identify mostly with Canadian culture.
3. I identify strongly with both Canadian culture and the culture of my parent.
4. I identify mostly with the culture of my parent.   5. I identify only with the culture of my parent.

65.   To what extent do you feel that the cultural values of your parent and Canadian cultural values conflict with each other?

1. They conflict in many respects.   2. They conflict in some respects.   3. They conflict in a few respects.
4. They do not conflict.   5. I don't know what to think.

(Epistemological beliefs about knowledge: in versions 1, 4.)
Please rank Items 66. - 70. below on the following scale:

1. Strongly disagree   2. Disagree   3. Neither agree nor disagree   4. Agree   5. Strongly agree

66.   Often, a principle or theory just doesn't make sense. In those cases, you have to accept it and move on, because not everything in science or math is supposed to make sense.

67.   When learning science or math, people can understand the material better if they relate it to their own ideas.

68.   If teachers gave really clear lectures, with plenty of real-life examples and sample problems, then most good students could learn those subjects without doing lots of sample questions and practice problems on their own.

69.   When it comes to math and science, most students either learn things quickly, or not at all.

70.   Understanding science is important for everyone, not just for scientists.

71.   In math and sciences, how do the most important formulas relate to the most important concepts? Please read all choices before picking one.

1.   The major formulas summarize the main concepts; they're not really separate from the concepts. In addition, those formulas are helpful for solving problems.
2.   The major formulas are kind of "separate" from the main concepts, since concepts are ideas, not equations. Formulas are better characterized as problem-solving tools, without much conceptual meaning.
3.   Mostly 1., but a little 2.
4.   About half 1. and half 2.
5.   Mostly 2., but a little 1.

72.   **Justin**: When I'm learning science concepts for a test, I like to put things in my own words, so that they make sense to me.
       Dave: But putting things in your own words doesn't help you learn. The textbook was written by people who know science really well. You should learn things the way the textbook presents them.

1.   I agree almost entirely with Justin.
2.   Although I agree more with Justin, I think Dave makes some good points.
3.   I agree equally with Justin and Dave.
4.   Although I agree more with Dave, I think Justin makes some good points.
5.   I agree almost entirely with Dave.

73.   To be successful at most things in life...
1.   Hard work is much more important than inborn or natural ability.
2.   Hard work is a little more important than inborn or natural ability.
3.   Inborn or natural ability and hard work are equally important.
4.   Inborn or natural ability is a little more important than hard work.
5.   Inborn or natural ability is much more important than hard work.

74.   To be successful at science…
1.   **Hard work is much more important than inborn or natural ability.**
2.   **Hard work is a little more important than inborn or natural ability.**
3.   **Inborn or natural ability and hard work are equally important.**
4.   **Inborn or natural ability is a little more important than hard work.**
5.   **Inborn or natural ability is much more important than hard work.**

75.   Jessica and Mia are working on a homework assignment together...
      Jessica: O.K., we just got problem #1. I think we should go on to problem #2.
      Mia: No, wait. I think we should try to figure out why the thing takes so long to reach the ground.
      Jessica: Mia, we know it's the right answer from the back of the book, so what are you worried about? If we didn't understand it, we wouldn't have gotten the right answer.
      Mia: No, I think it's possible to get the right answer without really understanding what it means.
1.   **I agree almost entirely with Jessica.**
2.   **I agree more with Jessica, but I think Mia makes some good points.**
3.   **I agree equally with Mia and Jessica.**
4.   **I agree more with Mia, but I think Jessica makes some good points.**
5.   **I agree almost entirely with Mia.**

(Independence/interdependence: in versions 1, 3, 4.)
Please rank Items 76. - 81. below on the following scale:
1. Strongly disagree   2. Disagree   3. Neither agree nor disagree   4. Agree   5. Strongly agree
76.   I will sacrifice my self-interest for the benefit of the group I am in.
77.   I enjoy being unique and different from others in many respects.
78.   Having an active imagination is important to me.
79.   It is important to me to respect decisions made by the group.
80.   My personal identity, independent of others, is very important to me.
81.   I will stay in a group if they need me, even when I'm not happy with the group.

(Self-efficacy beliefs: in versions 1, 3, 4.)
Please rank Items 82. - 87. below on the following scale:
82.   I am unsure that my grades in math or science courses will be good.
83.   I am confident that my solutions for math and science problems are usually correct.
84.   I think I have a good knowledge of basic concepts in math and science.
85.   I write math and science exams much less confidently than exams in other subjects.
86.   I can succeed in math or science classes.
87.   I can do even the most difficult problems in the math or science textbook.

(Valuing of success in science and mathematics: in versions 1, 2, 3, 4.)
88.   It is very important to me to have good grades in math and sciences.
89.   It is very important to me to have good knowledge of basic concepts in math and sciences.

(Affect towards science and mathematics: in versions 1, 3, 4.)
Items 90. - 98. consist of a number of words that describe different feelings and emotions that you may have experienced in high school math and/or science classes. For each item indicate how often you felt this way using the following scale:

1. Very rarely or not at all   2. Just a few times   3. Often   4. Quite often   5. Very often

90.   Joyful
91.   Unhappy
92.   Worried/Anxious
93.   Enjoyment
94.   Depressed
95.   Pleased
96.   Happy
97.   Angry/Hostile
98.   Frustrated

(Goal orientation: in versions 2, 3.)
Please rank Items 99. - 110. below on the following scale:

1. Strongly disagree   2. Disagree   3. Neither agree nor disagree   4. Agree   5. Strongly agree

99.   I like school work that I'll learn from, even if I make a lot of mistakes.
100.   I would feel really good if I were the only one who could answer the teachers' questions in class.
101.   It's very important to me that I don't look stupid in my classes.
102.   An important reason why I do my school work is because I like to learn new things.
103.   An important reason I do my school work is so that I don't embarrass myself.
104.   I like school work best when it really makes me think.
105.   I'd like to show my teachers that I'm smarter than the other students in my class.
106.   An important reason why I do my school work is because I want to get better at it.
107.   I would feel successful in school if I did better than most of the other students.
108.   The reason I do my school work is so my teachers don't think I know less than others.
109.   Doing better than other students in school is important to me.
110.   One of my main goals is to avoid looking like I can't do my work.

(Motivation: in versions 2, 4.)
Using the scale below, indicate to what extent each of Items 111. - 120. presently corresponds to one of the reasons why you are going to CÉGEP.

1. Strongly disagree   2. Disagree   3. Neither agree nor disagree   4. Agree   5. Strongly agree

111.   Because I will feel important when I succeed in CÉGEP.
112.   Because I experience pleasure and satisfaction while learning new things.
113.   Because I think that a CÉGEP education will help me prepare better for the career I have chosen.
114.   Honestly, I don't know; I really feel that I am wasting my time in school.
115.   In order to obtain a more prestigious job later on.
116.   For the pleasure that I experience in broadening my knowledge about subjects which appeal to me.
117.   Because eventually it will enable me to enter the job market in a field that I like.
118.   I can't see why I am going to CÉGEP and frankly, I couldn't care less.
119.   Because with only a high-school diploma I would not find a high-paying job later on.
120.   To show myself that I am an intelligent person.

(Self-esteem: in version 2.)

Items 121. - 130. below are statements dealing with your general feelings about yourself. Please rank them on the following scale:

1. Strongly disagree   2. Disagree   3. Neither agree nor disagree   4. Agree   5. Strongly agree

121.   I feel that I am a person as worthy as anyone else.
122.   I feel that I have a number of good qualities.
123.   I am inclined to feel that I am a failure.
124.   I am able to do things as well as other people.
125.   I feel that I do not have much to be proud of.
126.   I have a positive attitude towards myself.
127.   On the whole, I am satisfied with myself.
128.   I wish I could have more respect for myself.
129.   I certainly feel useless at times.
130.   At times I think that I am no good at all.