

Report to:



Natural Resources
Canada

Ressources naturelles
Canada

Canada

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Focus Groups with Primary Students to Test Science
and Technology Week Communications Materials

J u n e 2 3 , 2 0 0 6

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Executive Summary

- ♦ National Science and Technology Week (NSTW) has highlighted the role of science and technology in everyday life in Canada since 1997. Natural Resources Canada (NRCan) has spearheaded activities, with input from other government departments and agencies.
- ♦ NRCan commissioned six focus groups with students in grades 4, 5 and 6 to determine what communications materials (words, slogans, and visual presentations) would attract youth's interest regarding NSTW activities.
- ♦ The focus groups were held during the week of June 12, 2006 and included six focus groups, three in French (one grade 5, one grade six and a combined grades 4 and 6), and three in English (grades 4 – 6). Students were recruited using personal contacts from Natural Resources Canada and Fleishman-Hillard. Fleishman-Hillard, Inc. developed a moderator's guide for the approval of Natural Resources Canada, including the following exercises:
 - Writing an email to their teacher about how to make science more exciting
 - Selecting preferred words to describe science from a provided list
 - Ranking a list of 10 words in order of preference when describing science
 - Drawing a poster to promote a science fair
- Science and technology are subjects that are liked by many students in grades 4-6, and technology is slightly more popular than science. Repeated throughout the sessions and across groups was a recurring interest in hands-on and interactive activities, such as experiments involving explosions and fires, and field trips to visit museums or technology companies (touch and feel things). Other interactive activities included games, computer-based work, and demonstrations
- Students are interested in television shows and videos that explore and explain science and technology in an entertaining yet educational way—"edutainment". They watch these shows both in school as well as at home. The two clear favourites were Bill Nye and Discovery Kids.
- The reasons that some students do not like science and technology fell into two categories:
 - School science – it is boring, complicated to learn and requires a great deal of tedious work (writing methodologies)
 - World of science – the effects of science and technology on the environment and that it takes away jobs
- Almost all students had been to the Museum of Science and Technology and they liked the interactive nature of its offering and listed many displays that they liked.
- Most students had been to a science fair and were generally positive about the experience. On a couple of occasions, it was suggested that a competition would be fun as well as a science club.

- As they discussed promotional posters and worked through the exercises, there were some words that were clearly preferred over others, including:
 - Fun
 - Cool
 - Exciting
 - Amazing
 - Entertaining
 - Computer
 - Latest
 - Thrilling
 - Astonishing
 - Surprising
- ♦ Based on the feedback received about the proposed taglines and in discussion about favourite words, adults need to be careful about using very youthful terminology (i.e. cool) because it is perceived as old people trying too hard. These were words and phrases that would be believable coming from peers but not adults. Promotional material would have to look young to use these types of words.
- ♦ In French, the words that were preferred by the students were very similar:
 - Amusant
 - Cool
 - Excitant
 - Mystérieux
 - Palpitant
 - Merveilleux
 - Étonnant
 - Extraordinaire
- ♦ It is interesting to note that many students did not know what the word mystical meant but still placed it high in their favourite words' list.
- ♦ Students provided consistent feedback about what they would like to see in a poster promoting a science event. The students want to see posters that are bright, colourful and interesting with lots of images of "fun" science, such as explosions, volcanoes, and technology (computers and televisions). The language on the posters should be fun and clearly indicate that the event would be interactive. Specific things students wanted to promote and have at the event were explosions, preferably with fire.

Sommaire

- ♦ Depuis 1997, la Semaine nationale des sciences et de la technologie (SNST) a mis en évidence le rôle des sciences et de la technologie dans la vie de tous les jours au Canada. Bénéficiant de l'appui d'autres ministères ou organismes gouvernementaux, Ressources naturelles Canada (RNCa) a été le fer de lance des activités.
- ♦ À la demande de RNCa, six groupes de discussion avec des élèves des classes de 4^e, 5^e et 6^e années ont été formés dans le but de déterminer les éléments de communication (mots, slogans et présentations visuelles) les plus susceptibles de piquer l'intérêt des jeunes à l'égard des activités de la SNST.
- ♦ Les groupes de discussion se sont réunis au cours de la semaine du 12 juin 2006. Au total, six groupes avaient été constitués et étaient répartis comme suit : trois groupes formés d'élèves francophones (un groupe d'élèves de 5^e année, un groupe d'élèves de 6^e année et un groupe d'élèves de 4^e et 6^e années) et trois groupes d'élèves anglophones (formés d'élèves de 4^e, 5^e et 6^e années). Ressources naturelles Canada et Fleishman-Hillard se sont adressés à des enseignants avec lesquels ils avaient des contacts personnels pour recruter les élèves. Le cabinet Fleishman-Hillard, Inc. a préparé un guide du modérateur, lequel devait être approuvé par Ressources naturelles Canada et comprenait les exercices suivants :
 - rédiger un courrier électronique à leur enseignant sur la façon de rendre les cours de sciences plus excitants;
 - choisir, à partir d'une liste de mots fournie, les meilleurs mots pour décrire les sciences;
 - classer par ordre de préférence une liste de 10 mots décrivant les sciences;
 - dessiner une affiche pour faire la promotion d'une expo-sciences.
- Les sciences et la technologie sont populaires auprès de nombreux élèves de la 4^e à la 6^e année, et la technologie est légèrement plus prisée que les sciences. Tout au long des séances, et ce, pour tous les groupes, les élèves ont manifesté à plusieurs reprises leur intérêt pour les activités touche-à-tout et interactives, notamment les expériences où il y a du feu et des explosions, et les sorties scolaires dans les musées ou dans les entreprises spécialisées dans la technologie (activités sensorielles). Les autres activités interactives comprenaient les jeux, le travail sur ordinateur et les démonstrations.
- Les élèves s'intéressent aux émissions de télévision et aux vidéos qui leur font découvrir les sciences et la technologie et leur en expliquent les principes de façon amusante, mais éducative — « divertissement éducatif ». Ils regardent ces émissions tant à l'école qu'à la maison. Les deux émissions préférées sont Bill Nye et Discovery Kids.
- Les raisons pour lesquelles certains élèves n'aiment ni les sciences ni la technologie se rangent dans deux catégories :

- les sciences à l'école – c'est un sujet ennuyeux et difficile qui exige beaucoup de travail assommant (les méthodes d'enseignement de l'écriture);
- le monde des sciences – les conséquences des sciences et de la technologie sur l'environnement ainsi que les pertes d'emplois qui en résultent.

- Presque tous les élèves avaient déjà visité le Musée des sciences et de la technologie. Ils aiment bien la nature interactive des expositions et en ont même mentionné quelques-unes qui les avaient particulièrement intéressés.

- La plupart des élèves avaient déjà visité une expo-sciences et, règle générale, cette expérience s'était avérée positive. À deux ou trois reprises, on a suggéré qu'un concours serait amusant de même qu'un club de sciences.

- Au cours de leur discussion sur les affiches publicitaires et pendant qu'ils exécutaient les exercices, les élèves ont montré une préférence marquée pour certains mots. Dans le cas des élèves de langue anglaise, nous avons noté les mots suivants :
 - Fun
 - Cool
 - Exciting
 - Amazing
 - Entertaining
 - Computer
 - Latest
 - Thrilling
 - Astonishing
 - Surprising

- ♦ Selon les commentaires reçus au sujet des titres d'appel proposés et selon la discussion à propos des mots préférés, les adultes doivent se garder d'utiliser une terminologie de jeunes (p. ex., cool) parce que les élèves n'ont pas l'impression que ces termes viennent naturellement aux adultes. Les jeunes accordent une crédibilité à ces mots et à ces phrases lorsque ce sont leurs pairs qui les utilisent, mais non pas lorsque ce sont les adultes. Le matériel publicitaire doit donner l'impression de s'adresser aux jeunes pour pouvoir utiliser ce genre de mots.

- ♦ Chez les francophones, les mots que préféraient les élèves étaient très semblables :
 - Amusant
 - Cool
 - Excitant
 - Mystérieux
 - Palpitant
 - Merveilleux
 - Étonnant
 - Extraordinaire

- ♦ Il est intéressant de faire remarquer que plusieurs élèves ne connaissaient pas la signification du mot « mystique », mais l'avait tout de même classé parmi les premiers dans leur liste de mots préférés.
- ♦ Les commentaires émis par les élèves au sujet de ce qu'ils aimeraient voir sur une affiche faisant la promotion d'une activité scientifique étaient assez uniformes. Les élèves préfèrent que les affiches soient de couleurs vives, multicolores et intéressantes, qu'il y ait beaucoup d'images de sujets scientifiques « amusants », notamment des explosions, des volcans ainsi que des images représentant la technologie (ordinateurs et téléviseurs). Le message sur les affiches doit être rédigé dans un langage amusant et doit indiquer clairement qu'il s'agit d'une activité interactive. Les explosions préférablement avec du feu étaient des éléments que les élèves voulaient retrouver dans le cadre de ces activités et dont ils voulaient faire la promotion.

Background

National Science and Technology Week (NSTW) has highlighted the role of science and technology in everyday life in Canada since 1997. Natural Resources Canada (NRCan) has spearheaded activities, with input from other government departments and agencies.

Part of the NSTW has included a Science FunFest® or similar activities that attracted approximately 3,000 youth and parents and featured more than 42 exhibits in 2005 in Ottawa, British Columbia, Saskatchewan and Quebec.

NRCan has commissioned six focus groups with students in grades 4, 5 and 6 to determine what communications materials (words, slogans, and visual presentations) would attract youth's interest regarding NSTW activities.

Approach

The focus groups were held during the week of June 12, 2006 and included six focus groups, three in French (one grade 5, one grade six and a combined grades 4 and 6), and three in English (grades 4 – 6). Students were recruited using personal contacts from Natural Resources Canada and Fleishman-Hillard. Fleishman-Hillard, Inc. developed a moderator's guide for the approval of Natural Resources Canada which is found in Appendix A. In addition to participating in a discussion about science and technology, the students were asked to complete four exercises to demonstrate their preferences in activities and wording. Included in the exercises were:

- Writing an email to their teacher about how to make science more exciting
- Selecting preferred words to describe science from a provided list
- Ranking a list of 10 words in order of preference when describing science
- Drawing a poster to promote a science fair

Teachers enjoyed the experience, as did their students, with most being more than forthcoming with comments on science and technology. Originally, groups were to be

audio-taped but the classroom noise level made this impossible. To that end, FH Canada Research had a note taker present at each class to capture findings.

Findings

Attitudes Towards Science and Technology

Students were asked in two separate questions if they liked both science and technology. Of the three English classes, those who like science ranged from half a class to the whole class. The responses to technology were more positive for these classes, where most or all students indicated they like technology—particularly computers.

Of the three French classes, those who like science ranged from two thirds of the class to the whole class. The responses to technology were extensively the same for these classes: most of the students said that they liked technology. Some did, however, note that technology, specifically computers, was very good “avec moderation”.

Students were then asked what they liked about science and technology and many of them responded that **experiments** or any **hands-on** experience with science and technology were the best part. Some examples of experiments were making a potato battery, volcanoes, and using pulleys to make a toy truck. Other suggestions of what students liked about science and technology include:

- Inventing stuff
- Computers
- Rockets
- TV programs (CSI, science programs)
- Want to be an inventor
- Learning new things
- How things are made
- Teaches you about man-made things and nature
- Science is everywhere

Students were asked if there were any television programs/channels they watch that are about science and technology. The majority of students indicated they enjoy **Bill Nye** and **Discovery Kids**. Bill Nye has been viewed in class (on tapes) as well as at home

and students said they liked the programs, finding them entertaining and educational at the same time. Some other shows/channels that students watched on their own time included the following:

Great Things

- History Channel
- Mythbusters
- Nature of Things
- Cyberchase
- Zoom
- Magic Schoolbus
- Dexter's Laboratory
- How it's made

Although students from English classes and French classes mostly indicated the same shows, some students from the French classes also added “Ça se branche où?” to their list.¹

Students were then asked what was the most interesting science experiment that they had ever seen or participated in. Many students said they liked to see **explosions** with **fire** like volcanoes, hand grenades and bombs, and **experiments** of all sorts, including mixing chemicals, dissections, rockets – hands-on activities. Other interests include:

- Computers and video games
- Guns and water stopping a bullet
- Rides at Wonderland
- Physics (gravity)
- Gangrene
- Static electricity
- Insects
- Dinosaur eggs

Students were asked what they or other students did not like about science and technology. The answers fell into two categories – **school science** and the **world of science**. A few students indicated they did not like learning difficult things, that science was boring and too complicated. They found the task of writing up experiments, including documenting every stage of an experiment's development, to be tedious and mind-numbing. Some said that science was “hard” and therefore not rewarding to them.

¹ French teachers noted that their students watched the English shows because the quality of French science shows was not equal to that of English/American shows.

Other students did not like science because of its place in the greater world. They saw science and technology as contributing to massive development and leaving a large environmental footprint on society.

They noted that as society becomes more dependent on new technology, there is an impact on the number of people certain companies need to employ. Other reasons students said they did not like science included:

- It's taking over the world (environment)
- Pollution
- High cost
- Takes away jobs

Students were asked if they liked taking science quizzes (not the school test variety), and most indicated they did not. They did, however, like the “Mythbusters” (television show) way of presenting information (i.e. debunking common perceptions of things in science.)

How to Make Science More Exciting

Students were then asked to write an email to their teacher, listing up to five things that they could do to make science more exciting. Students were able to complete this exercise individually, hand in their sheets anonymously and then discuss suggestions generally as a group (after the moderator scanned the results).

The most often repeated suggestions were to have more **videos (i.e. Bill Nye)** , participate in more **hands-on activities** such as **experiments**, watch things **blow up/explode** and to go on more **field trips** (i.e. to museums). A number of Francophone students said that having a laboratory in their school would promote science better than anything else. This was a theme in all three classes.

Other suggestions (if mentioned more than once, the number of times is indicated beside the suggestions) coming from the English and French classes include:

- Research projects and computers - 13
- Rockets – 9
- Volcano - 8
- Inventions - 8
- Go outside/study nature - 8
- Build things – things that fly – 6
- Build a school laboratory - 6
- Make robots - 6
- Chemicals – 5
- Bring in animals – 5
- Study chemistry – 5
- Build things - 5
- How to use guns/bombs - 3
- Electricity (lemon/potato) – 3
- Mix school subjects (acting out science or art posters) - 3
- Play science games - 2
- Science camp - 2
- Electricity ball – 2
- Class contests - 2
- Telescope
- Science fair
- Entomology
- Examples of stuff changing (like evolution of phone)
- Fake ancient things
- Stories
- Demonstrations
- Electronics
- Dissection
- Build 3-D objects
- School clubs

Field Trips

Students indicated that they enjoyed going on field trips. Most had been to the Museum of Science and Technology and said they like the interactive, hands-on activities. The displays they remembered and liked include:

- the crazy kitchen
- pointillism
- making ice cream
- electricity ball—hair standing on end
- simulator
- robots
- dinosaurs

- space and shuttles
- gravity
- tower of power
- suspension experiments
- holograms
- video games
- evolution of technology (i.e. phones)

Other fun field trips mentioned are the Experimental Farm (churn butter), the Museum of Art, Museum of Civilization (IMAX), Museum of Nature, the BioDôme in Montréal and a museum of dinosaurs in Alberta. One participant spoke about visiting the Smithsonian Institute in Washington.

Spokespersons

Students were asked if there were any scientists or celebrities they'd like to see representing and speaking about science and technology. **Bill Nye** was suggested by several students as a favourite. Some suggested having scientists from the past dress up and speak to students today about their discoveries and today's technology. They highlighted the theme of old versus new or the evolution of products from a crank telephone to a cell phone, for example.

Other suggestions include:

- Madame Currie
- Albert Einstein (on video or dressed up talking about science)
- Bill Gates
- DaVinci
- Edison
- David Suzuki
- Julie Payette
- Martin L. King
- Musicians – Avril Lavigne, 50 cent
- Sports figures – Bobby Orr
- Archaeological people who made Alberta swords

It was more difficult for the Francophone students to suggest French spokespeople. One participant suggested Celine Dion while others said she would not be a credible spokesperson for NSWT week. Another suggested his local member of parliament and another suggested the parent of one of their classmates.

Science Fairs

When asked about science fairs, almost all students indicated that they have been to one at their school. Some of the displays/presentations students liked at science fairs include:

- Lemon clock
- Match extinguishing in a bottle
- Clean car
- Potato launcher
- Robot
- Solar system
- Germs
- Taste testing
- Bullet proof vests
- Brains
- Tsunami
- Video game/heart rate
- Slime/goo
- Cells
- Potato light
- Electricity
- Fruit juice as dyes
- Seeing an image upside down in a box

One participant said DNA was interesting, which led to a discussion about “CSI (Crime Scene Investigation)”-type shows and how science and technology play a big role in what they do. Students in this difficult grade six class became actively interested in speaking about this television program in the context of the use of science and technology. It was interesting to note that some had not made the link between the activities of the show and science and technology until it was pointed out to them.

When asked how best to encourage people to attend a science fair or similar event, students provided many suggestions, including:

- Interesting experiments
- Celebrities
- Give out food
- Exploding stuff/fire
- Free video games

How to Promote National Science and Technology Week

Students were next asked about promoting a science event and what they thought should be included in a poster to encourage people to come. Students said they were looking for a flashy poster that would attract a great deal of attention. Some suggestions were made about the design and layout of a poster, including:

- Big, bold letters
- Colourful, bright
- Two sizes of letters
- Neon lights
- Catchy slogan
- Images

They also made suggestions about the wording and content of the poster, to make it more interesting and attractive to people their age to attend NS&T Week. Suggested words and images include the following:

- Explosions
- Experiments
- Celebrity (Lebron James, Shaq, Prince William, Mike Jones)
- Diversity of living things
- Robots
- Electricity
- Show people being excited
- Volcano
- Different objects created by science and tech
- Experiment
- Come see our science fair
- It's really exciting
- Wanna see a volcano explode

Words to avoid would be

- Boring/plate
- Sports
- Hard/difficile
- Can't touch
- Irrelevant information
- Worst thing ever

- 12 year olds not allowed
- Do work/beaucoup de travail
- Ugly/ laide

Words Used to Describe National Science and Technology Week

Students were provided with a list of words and were asked to indicate if they liked or disliked each word. Again, this was an exercise that students completed individually and were not influenced by their peers.

Below outlines the results by grade and as a total. The highlighted words received the greatest number of 'likes' from the students as words that should be included on a poster publicizing NS&TW.

In a few instances, there were words that a student did not understand and they were asked to indicate those words separately by placing a question mark (?) beside them. There were more words that were not understood identified by the younger students than the older students. The two words that were identified most often were theory (5) and exact (3). There were many more words not understood by the French classes, with mystique, divertissant, mystérieux, normal, and palpitante being most often identified, although it must be noted that when English classes were asked to explain "mystical", they were hard-pressed to define it. Usually, only one or two students could actually explain this term.

	Grade 4			Grade 5			Grade 6			TOTAL		
	Like	Dislike	?	Like	Dislike	?	Like	Dislike	?	Like	Dislike	?
FUN	9	2		24	3		22	2		55	7	
NEW	6	6		23	4		20	4		49	14	
SCIENTIFIC	10	2		15	12		11	13		36	27	
COMPUTER	7	4		23	4		21	3		51	11	
HANDS-ON	6	5	1	12	13		15	9		33	27	1
MAGICAL	9	3		22	5		16	8		47	16	
MARVELOUS	12			17	10		15	8		44	18	
MYSTICAL	8	4		19	7		11	12		38	23	
COOL	10	2		24	3		21	3		55	8	
EXCITING	10	2		25	1		20	3		55	6	
ENTERTAINING	9	2	2	21	5		19	6		49	13	2
TECHNICAL	7	5		12	15		8	15		27	35	
EXACT	1	9	3	8	18		5	19		14	46	3
LOGICAL	4	7	1	9	18		6	17		19	42	1
BORING		12		2	25		4	19		6	56	
CELEBRATING	5	7		22	4		11	12		38	23	
FRESH	3	8		23	4		13	11		39	23	
LATEST	7	5		17	9		13	11		37	25	
MODERN	3	7	2	17	9		10	14		30	30	2
OLD		12		4	24		4	19		8	55	
ANCIENT	6	5	1	15	12		7	17		28	34	1
THEORY	2	5	4	9	17		9	14	1	20	36	5
MYSTERIOUS	10	2		20	7		14	10		44	19	
NORMAL	1	10		2	24		4	20		7	54	
THRILLING	10	2		19	6		18	5		47	13	
ASTONISHING	7	5		14	13		16	8		37	26	
AMAZING	12			24	3		19	5		55	8	
EXPECTED	4	8		13	12		4	20		21	40	
SURPRISING	11	1		24	3		16	8		51	12	
DULL		12		2	25		4	21		6	58	

In the French classes, the breakdown is as follows:

	Grade 4-6 ²			Grade 5			Grade 6			TOTAL		
	Like	Dislike	?	Like	Dislike	?	Like	Dislike	?	Like	Dislike	?
AMUSANT	31	2		19			14			64	2	
NOUVEAUTÉ	23	10		13	5	1	12	3		48	18	1
SCIENTIFIQUE	26	7		15	4		12	1		53	12	
ORDINATEUR	25	7		16	3		7	7		48	17	
PRATIQUE	13	20		11	9		2	12		26	41	
MAGIQUE	25	7	1	14	6		9	4		48	17	1
MERVEILLEUX	28	5		15	4		11	3		54	12	
MYSTIQUE	25	5	3	7	8	4	12	2	1	44	15	8
COOL	31	3		19			12	2		62	5	
EXCITANT	30	3	1	17	2		14			61	5	1
DIVERTISSANT	16	14	3	7	6	6	5	6	2	28	26	11
TECHNIQUE	25	9	1	11	8		10	4		46	21	1
EXACTE	10	22	1	6	11	2	4	10		20	43	3
LOGIQUE	13	18	2	16	3		4	10		33	31	2
ENNUYANT	9	22	2	3	16		1	13		13	51	2
CÉLÉBRER	26	7		13	6		10	4		49	17	
NOUVEAU	27	6		13	6		12	3		52	15	
PLUS RÉCENT	24	7	2	8	8	3	11	3		43	18	5
MODERNE	22	9	3	10		1	11	3		43	12	4
VIEUX	10	21	2	5	13		6	8		21	42	2
ANCIEN	13	17	2	6	12	1	9	6		28	35	3
THÉORIE	16	15	2	8	6	5	2	11		26	32	7
MYSTÉRIEUX	32		1	15	4	7	14			61	4	8
NORMALE	11	22		12	7	8	1	13		24	42	8
PALPITANTE	18	8	7	8	6	5	7	5	2	33	19	14
STUPÉFIANT	25	5	3	6	12	1	8	5	1	39	22	5
EXTRAORDINAIRE	27	6		16	2	1	14			57	8	1
ATTENDU	13	19	1	4	15		5	9		22	43	1
ÉTONNANT	26	6	1	15	4		12	2		53	12	1
PLATE	3	30		3	16		1	13		7	59	

² One of the classes attended at the La Verendrye school was comprised of students from grade 4 and grade 6. It was not possible for us to distinguish the responses by grades for that class.

Each class was divided into two groups and asked to rank a list of ten different words (i.e. the list from the previous exercise divided into two groupings) in order of preference. Only two of the English classes completed this exercise as there was no time for the third class to complete this task. The words are listed in order of preference based on the students' scoring and combination of the responses from two classes.

Entertaining	20
Computer	17
Latest	15
Amazing	13
Cool	10
Magical	9
Fresh	8
Modern	7
Mysterious	7
Celebrating	3

Thrilling	18
Astonishing	15
Surprising	15
Exciting	14
Fun	13
New	13
Hands-on	8
Mystical	7
Marvellous	5
Scientific	2

In the French classes, the list of words is as follows:

Cool	22
Mystérieux	19
Extraordinaire	18
Moderne	17
Célébrer	17
Plus recent	14
Ordinateur	13
Divertissant	10
Nouveau	9
Magique	5

Amusant	29
Palpitant	24
Merveilleux	20
Etonnant	19
Scientifique	17
Mystique	16
Excitant	15
Pratique	9
Stupéfiant	8
Nouveau	8

Posters – Suggested Taglines

Students were presented with sentence or phrase that might be used as a tagline on a poster aimed at youth to motivate them to attend National Science and Technology Week and asked what they thought about it. In general, the feedback about these prepared taglines was not positive. Students were also asked to provide suggestions of what they would like to see on a poster.

Science...Marvellous, Magical, Mystical/ La science...extraordinaire, magique et mystérieuse.

The majority of students did not like this line (either in English or in French), indicating they did not see the link between the words magical and mystical and science and technology. They said the phrase “sounded old”, referring to events in the past, or that it was promoting a magic show or circus. Some other comments included that it could be “used for a day care.” A number of students did not understand the word “mystical”.

Some suggested alternative taglines such as:

- New generation of science
- Revealing secrets of the world

Celebrate Science / Célébrons les sciences

Most students (either in English or in French) did not like this line, indicating that it was boring, cheesy and with too much emphasis on science. A number said it was not appropriate because it was “not science’s birthday”, so there was “nothing to celebrate”, particularly in the French classes. Some noted it also sounded like a party or a museum birthday. They suggested if it was the 50th anniversary of something related to science, for example, then the tagline might be appropriate—Celebrate NS&T Week’s 50th Anniversary.

Science and Tech Week – It Rocks!

Students either didn't like this line or were indifferent to it. They did not seem to understand/appreciate the play on words of "It Rocks". Students felt it was plain and boring, nerdy and just "doesn't sound good". One student felt it sounded like a week at science camp and another said, "It sounds like nerds playing music in the basement!"

A couple of students made a point of saying that adults should not use words like 'cool' and 'it rocks'. They noted that this type of expression comes across as "adults trying to get kids to like something they obviously would not like on their own." They also said adults who try to sound young and "with it", simply end up looking foolish.

Ça m'envoûte

Participants in the Francophone groups did not understand this phrase. When they heard it verbally, they thought it was "ca m'en foute", which translates to "I don't care". When it was written on the chalk board, some students understood it, however all agreed that it was not effective.

Science is Fun /Les sciences, c'est amusant

Overall, students did not like this line, indicating that science was not fun and that it could be difficult. Some said it would be more appropriate to say that "Science is cool, not fun."

Of all of the tag lines tested with the Francophone students, this one was best received, although students thought it was somewhat unexciting. Some noted that if this tagline were used, it would have to be on collateral material that demonstrated how fun science was or the line would fall flat. Of course, blowing things up and fire were great visuals to demonstrate the "funness" of science.

Suggestions from Students:

After discussing the prepared sentences, students were asked for their suggested wording for a poster. They said:

- Science rules
- Science – come if you dare
- Astonishing
- **Science – It's explosive!**
- Cool experiments
- Science, You get to touch stuff
- Science—Make stuff blow up
- See stuff you've never seen before
- Explosion, experiments – blowing things up
- It rocks. A science fair
- Try me, I'm sure you'll like me
- Come and see from the old days to now
- Venez, ça va être plaisant!
- Apprendre des nouvelles choses
- **De bonnes expériences avec vos expériences**
- Ca va exploser !

After discussing how to promote a science fair or event, the students were asked to design a poster to attract other students to come to a science event.

Words that were used include:

- Where would you rather go? Movies...no thanks. Soda shop...don't feel like it. Science fair...Yah.
- Come here and watch how science changes your life
- It's the best week ever. Science and tech week.
- Science and Tech week – come see our amazing science fair. It will be an astonishing scientific show.
- Science and Technology – you can be part of it. You can try the experiment.
- It rocks! What is it? A science fair! Yes! Finally, something for the little kids!
- Science and tech rules
- Crazy – Explosions, Experiments, Wacky Tacky myths. This camp rules. Come join the science and technology camp.
- Science Rules
- Science is back – New and amusing
- Science week is knowledgeable
- Science week – games, experiments, cool!
- Science and Technology week – thrilling and hands-on experiments
- Science and technology – all star science
- Science – how natureful!
- Science and technology week. Super cool, fun, experiments

- Les sciences sont cool!
- Les sciences, ça roule!
- Quand tu fais des expériences, tu fais de la science, et la science, c'est intense!

There were lots of variations on the theme of explosions, including:

- An explosion of fun
- Fun exploding things. Special event: Exploding things
- Science is exploding/explosive
- Science camp the ultimate Experience. Now with more experiments and computers! Plus more things that explode.
- Science week – it's fun, it's new, and it's explosive
- Science and technology week – Kaboom
- Science and technology – you can make things explode
- Science and technology week – computer. Fun for all ages. Experiments. Fun, amazing, exciting, blow stuff up, get to touch stuff. A great week of science and technology
- Science and technology week. Fun for everyone. Hands on explosions. Amazing experiments. Blow things up. It's free.
- Explosions in science! Come blow stuff up.
- La science en pleine explosion!
- La science fait boom !

Images that students included in their posters were:

- Volcano
- Rocket
- Computer
- Car
- Static ball
- Electricity
- Experiment – beaker, potato clock
- People
- Lightening
- Stars
- Robot
- Television
- Light bulb
- Technology – cell phone, piano
- Superheros
- Explosions
- Fire works
- Animals
- Tree
- Flames

Summary and Recommendations

Science and technology are subjects that are liked by many students in grades 4-6, and technology is slightly more popular than science. Repeated throughout the sessions and across groups was a recurring interest in hands-on and interactive activities, such as experiments involving explosions and fires, and field trips to visit museums or technology companies (touch and feel things). Other interactive activities included games, computer-based work, and demonstrations.

Students are interested in television shows and videos that explore and explain science and technology in an entertaining yet educational way—"edutainment". They watch these shows both in school as well as at home. The two clear favourites were Bill Nye and Discovery Kids.

The reasons that some students do not like science and technology fell into two categories:

- School science – it is boring, complicated to learn and requires a great deal of tedious work (writing methodologies)
- World of science – the effects of science and technology on the environment and that it takes away jobs

Almost all students had been to the Museum of Science and Technology and they liked the interactive nature of its offering and listed many displays that they liked.

Most students had been to a science fair and were generally positive about the experience. On a couple of occasions, it was suggested that a competition would be fun as well as a science club.

As they discussed promotional posters and worked through the exercises, there were some words that were clearly preferred over others, including:

- Fun
- Cool
- Exciting
- Amazing

- Entertaining
- Computer
- Latest
- Thrilling
- Astonishing
- Surprising

Based on the feedback received about the proposed taglines and in discussion about favourite words, adults need to be careful about using very youthful terminology (i.e. cool) because it is perceived as old people trying too hard. These were words and phrases that would be believable coming from peers but not adults. Promotional material would have to look young to use these types of words.

And in French, the words that were preferred by the students were very similar:

- Amusant
- Cool
- Excitant
- Mystérieux
- Palpitant
- Merveilleux
- Étonnant
- Extraordinaire

It is interesting to note that many students did not know what the word mystical meant but still placed it high in their favourite words' list.

Students provided consistent feedback about what they would like to see in a poster promoting a science event. The students want to see posters that are bright, colourful and interesting with lots of images of “fun” science, such as explosions, volcanoes, and technology (computers and televisions). The language on the posters should be fun and clearly indicate that the event would be interactive. Specific things students wanted to promote and have at the event were explosions, preferably with fire.

Appendix A

Moderator's Guide

**RESSOURCES NATURELLES CANADA
VERSION PROVISOIRE DU GUIDE DE L'ANIMATEUR
Élèves du primaire**

DIRECTIVES À L'INTENTION DE L'ANIMATEUR (10 MINUTES)

****Ne pas oublier de mettre en marche le magnétophone après l'introduction.**

1. Présentez-vous, puis souhaitez la bienvenue aux participants au groupe de discussion.
2. « Je travaille pour un organisme de recherche qui s'appelle FH Canada et mon travail consiste à parler à plusieurs personnes. »
3. Présentez les observateurs.
4. « L'échange durera environ une heure (ou le temps d'un cours). »
5. « Comme c'est le cas dans une salle de classe, il y a certaines règles à suivre. »
 - N'interrompez pas les autres.
 - Donnez aux autres la chance de parler.
 - Levez la main si vous avez quelque chose à dire.
 - Écoutez attentivement.

« Votre participation aidera Ressources Naturelles Canada, qui fait partie du gouvernement du Canada, à communiquer des détails sur la Semaine nationale des sciences et de la technologie aux élèves de votre âge. »

6. LE PARAGRAPHE SUIVANT EST UN AVIS DE NON-RESPONSABILITÉ QUI DOIT ÊTRE LU EN ENTIER :

« L'échange est enregistré afin que je puisse écouter plus tard les commentaires des élèves et rédiger un rapport. Pendant l'échange, nous utiliserons vos prénoms. Toutefois, au moment de rédiger le rapport, nous n'utiliserons aucun nom. »
7. Invitez les participants à se présenter en ne donnant que leur prénom.

A. ATTITUDES À L'ÉGARD DES SCIENCES ET DE LA TECHNOLOGIE (20 MINUTES)

1. Combien d'entre vous aiment les sciences? (Levez votre main.) Combien d'entre vous aiment les trucs qui font appel à la technologie, comme les satellites et les ordinateurs? Qu'est-ce qui vous intéresse dans les sciences? Qu'est-ce qui vous intéresse dans la technologie?
2. Qu'est-ce qui vous déplaît au sujet des sciences et de la technologie?
3. Quelle est la chose la plus géniale que vous ayez vue ou fabriquée et qui était fondée sur les sciences? (Suggestions : volcans, tunnels aérodynamiques, ruches, etc.)
4. Regardez-vous des émissions de télévision portant sur les sciences? (Suggestions : Les Années Lumière, Superscience, Doc Sciences, Zabumafu, L'autobus magique, etc.)
5. Qu'est-ce qui rend ces émissions intéressantes?
6. « Nous allons commencer par un jeu de rôles. Imaginez que vous êtes un professeur de sciences qui doit faire face à un véritable problème. Vous devez faire en sorte d'intéresser vos élèves à des sujets associés aux sciences.

Prenez quelques minutes pour penser à la façon dont vous vous y prendriez pour rendre les sciences plus intéressantes, puis écrivez vos cinq meilleures idées. C'est votre chance d'aider ce professeur, alors réfléchissez bien.

Lorsque vous aurez terminé, il vous suffira de mettre vos réponses dans la boîte.

Je vous donne donc quelques minutes pour écrire vos suggestions (sur un bout de papier) et nous en parlerons ensuite. Quelles étaient vos suggestions? Pourquoi dites-vous cela?

- Prenez d'abord les réponses communes et demandez aux élèves : pourquoi dites-vous cela?
- Continuez en posant la même question pour les autres réponses.

APPROFONDIR :

- Exercices virtuels interactifs
- Conférenciers invités – qui?
- Vidéos
- Simulations par ordinateur
- Exercices pratiques
- Jeux-questionnaires
- Jeux

B. EXPÉRIENCE DES EXPOS-SCIENCES ET DES MUSÉES (20 MINUTES)

1. Combien d'entre vous ont déjà visité un musée? (Levez la main.) Quel est votre musée favori? Pourquoi? Qu'aimez-vous à propos de/du (nom du musée)?
2. Réalisez-vous parfois des projets scientifiques que vous présentez aux autres élèves de votre classe ou à l'occasion d'un expo-science organisé dans votre école? Vous arrive-t-il d'aller voir les projets scientifiques d'autres élèves? Qu'est-ce que vous pensez de ce genre d'événement?
3. Si vous tentiez de convaincre vos amis de vous accompagner à un expo-science où sont exposés des projets scientifiques et d'autres trucs du même genre, ou encore au musée, que leur diriez-vous?
4. Si vous aviez à créer une affiche pour inviter les jeunes à aller voir votre projet scientifique ou à aller au musée, quels mots choisiriez-vous de mettre sur votre affiche?
5. Quels seraient les mots que vous ne voudriez pas voir sur votre affiche (c'est-à-dire, quels seraient, selon vous, les mots à privilégier, et quels seraient les mots à bannir)?

EXERCICE 2 : Voici une liste de « mots que vous aimeriez voir sur une affiche » et de « mots que vous ne voudriez pas voir sur une affiche ». Je voudrais que vous mettiez un X dans la case se situant à gauche de chaque mot si vous voulez voir le mot sur votre affiche ou un X dans la case se situant à droite de chaque mot si vous ne voulez pas voir le mot sur votre affiche.

6. **EXERCICE 3 :** Voici des cartes sur lesquelles sont inscrits des mots. Nous allons nous en servir pour travailler en équipe (séparer la classe en deux groupes). J'aimerais que chaque équipe prenne ses cartes et les place en ordre les unes à la suite des autres, en commençant par la carte qui comprend le mot que vous aimez le plus et en terminant avec la carte qui comprend le mot que vous aimez le moins. (Il y a deux piles de cartes distinctes.)

7. Je vais maintenant vous lire une phrase et vous demander ce que vous en pensez. Il peut s'agir d'une phrase apparaissant sur une affiche afin d'encourager les élèves à aller voir des projets scientifiques ou à se rendre au musée. (Suggestion : La science...extraordinaire, magique et mystérieuse.) Que veut dire cette phrase? Est-ce que vous comprenez le message? Est-ce que ces mots attireraient suffisamment votre attention pour que vous preniez le temps de lire l'affiche? Est-ce que ces mots vous inciteraient à aller voir les projets scientifiques ou à aller visiter le musée?

(Posez les mêmes questions pour les expressions « Célébrons les sciences » « Ça m'envoûte » et « Les sciences, c'est amusant ».)

8. Lorsque vous pensez à toutes les phrases et à tous les mots dont nous avons parlé aujourd'hui, laquelle ou lequel vous plaît le plus?

C. CONCEPTION D'UNE AFFICHE (10 MINUTES)

1. **EXERCICE 4** : Je vous propose maintenant de prendre une feuille de papier et des crayons, puis de faire un dessin qui pourrait accompagner ces mots dont nous venons de parler afin de les mettre sur une affiche pour intéresser les élèves de votre âge aux projets scientifiques ou aux musées. Votre dessin n'a pas besoin d'être parfait et vous ne devez pas être un grand artiste pour le faire. J'aimerais simplement qu'il soit suffisamment clair pour que je puisse me faire une idée de ce à quoi il pourrait ressembler.

REMERCIER LES PARTICIPANTS

NATURAL RESOURCES CANADA
FINAL- MODERATOR'S GUIDE FOR
Primary Students

INSTRUCTIONS FOR MODERATOR (10 minutes)

***Remember to turn on tape recorder after introduction.**

1. Introduce yourself and welcome participants to the focus group.
2. "I work for a research company called FH Canada and my job is to talk to people about all sorts of stuff."
3. Introduce observers (if any).
4. "I'll be here with you for about one hour (one/two period(s))."
5. "Like your classroom, there are a few rules you must follow."
 - Don't interrupt others
 - Give everyone a chance to speak
 - Let me know if you have something to say/raise your hand
 - Make sure you listen to others and to me
6. "What you say will help Natural Resources Canada, part of the Canadian government, to tell students your age what they do for Science and Technology Week."
- 7. THE FOLLOWING IS A DISCLAIMER THAT MUST BE READ VERBATIM TO THE TEACHER:**
8. "The session is being audio taped so I can listen to what students said and write a report. It is difficult for me to take notes and listen at the same time. While we're talking we'll use first names; but, when we listen to the tapes we don't say who said what."
9. Invite participants to introduce themselves, using their first names only.

A. GENERAL ATTITUDES TOWARDS SCIENCE AND TECHNOLOGY (20 MINUTES)

1. How many of you like science? (Raise hands). How many like technology stuff like satellites and computers? What do you like about science? Technology?
2. What don't you like about science and technology?
3. What's the coolest thing you have ever seen or done with science? (Probe: volcanoes, wind tunnel, bee hives, etc.)
4. Do you watch any science programs on TV? (Probe: Magic School Bus, Peep and the Big Wide World, Brilliant Creatures, Zabumafu) (Les Années Lumière, Superscience, Doc Sciences)
5. What makes them interesting?
6. **(EXERCISE #1):** "Now, we're going to start with a game. I want you to pretend that you know a science teacher who is has a real problem. This teacher is trying to get his/her students to like science.

I want each of you to take a bit of time to write a secret e-mail to this teacher. Your plan is to help the teacher by giving him/her some things that he/she can do to get his/her students to like science.

In the e-mail, give him/her your top 5 ideas about how he/she can make science cool for his/her students. This is your chance to help this teacher, so think carefully about your ideas.

When you're done put your answers in the box, which is supposed to be like an in-box of an e-mail account. Then we'll talk about your ideas.

- Quickly go through responses. Begin by selecting common responses and ask: why did you say that?
- Continue by asking the same for other responses.

PROBE:

- Interactive virtual exercises
- Guest speakers - who
- Videos
- Computer simulations
- Hands-on exercises
- Quizzes
- Games

D. SCIENCE FAIRS/MUSEUM EXPERIENCES (20 MINUTES)

9. How many of you have ever gone to a museum? (Show of hands). What is your favourite museum? Why? What do you like about the (insert Museum)?
10. Do you ever do science projects to show to your class or to the school for a science fair? Do you ever go and see science project done by other students? What do you think about that?
11. If you were trying to get your friends to come with you to a science fair where there's science projects and stuff, or to a museum, what would you tell them?
12. If you were making a poster to get kids to go see your science project display or to a museum, what words would you put on the poster?
13. What words would you not put on the poster (I.e. What words would you like to see and what words would you not like to see).
14. **EXERCISE 2** Here is a list of "words you might like to see on a poster" and "words you might not like to see on a poster". I want you to put an X in the box on the left hand side beside the words you would like to see and an X in the box on the right hand side beside the words you would not like to see on a poster.
15. **EXERCISE 3** Here are some words on cards, let's work in two groups (Separate class into two groups). OK now I want you to take the cards and put them one after another, with the first card being the word you like the most and the last card being the word you like the least. (Two separate sets of words)
16. Now I'm going to give you a sentence and ask you what you think about it. It might be something on a poster to get students to go to see some science projects or to a museum. (Probe: Science...Marvelous, Magical and Mystical). What does the sentence mean? Do you get it? Would you look at a poster that had those words on it? Would it make you want to go to see the science projects or to the museum?

(Do the same line of questioning for "Celebrating Science" "Demistifying Science and Technology" and "It Rocks")
17. Of all of the sentences/words we talked about today, which one do you like the most?

E. POSTER DESIGN (10 MINUTES)

EXERCISE 4

OK. Now I'd like you to take a piece of paper and some crayons and draw what picture you think should go on a poster with those words to get students your age excited about science projects or museums. You don't have to make it perfect and you don't have to be a great artist. Just draw enough so that I get an idea of what it would look like.

THANK PARTICIPANTS