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ABSTRACT

The study reported in this document was conducted to measure the impact of the New Zealand Fire Service's new fire safety program on elementary school students. Firefighters in each fire station and voluntary fire brigade in New Zealand were responsible for arranging a visit to every elementary school within their area to present a learning module. The goal was to teach and demonstrate the use of three procedures: (1) phone 111 (to tell the Fire Service where the fire is); (2) crawl low in smoke (to escape from a room where there are smoke and fumes); and (3) stop, drop, and roll to extinguish the flames if clothing is on fire. A questionnaire was administered to a random sample of 1,014 children to establish their level of fire safety knowledge prior to the introduction of the lessons, and a survey was completed by the principal of each of 47 schools in the sample to find out if fire safety information had been included in the curriculum. It was found that standard (grade) 2 children possess a high level of knowledge of the three procedures of concern to the Fire Service, at least in terms of the questionnaire. It is noted that the high level of correct responses might be due to the forced choice type of questionnaire and that children must be able to demonstrate the correct response in an actual critical situation. From the principals' survey it was found that there had been an increase in Fire Service visits to schools and that fire safety was most often included in the health education curriculum. Copies of the questionnaires and a demonstration schedule are appended. (LL)

CHILDREN'S KNOWLEDGE OF FIRE SAFETY

What standard two children know about fire safety, and where they got that information from.

A REPORT FOR THE NEW ZEALAND FIRE SERVICE

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for Educational Research
Wellington
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CONTENTS

TABLES

PROJECT ADVISORY COMMITTEE

NZCER

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Cedric Croft
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Kath Lang

NEW ZEALAND FIRE SERVICE

Lynne Nicholas
David Owens

The Advisory Committee was a means of engaging both of the main parties in the decision-making process, and provided an opportunity for shared expertise from both parties, particularly in the design of the research tools. The committee met monthly prior to the field work being carried out, and then as required to discuss the findings.

ACKNOWLEDGMENTS

We would like to thank all those principals, teachers and children in our sample schools in the Hawke's Bay, Wairarapa, Wellington and Marlborough regions for their help in completing this survey.

The contributions of Cedric Croft to the overall planning and design of this research project and Kath Lang for assistance with field work and data analysis are acknowledged with gratitude.

INTRODUCTION

In 1991 the New Zealand Fire Service planned a primary school fire-safety education programme for children from new entrants to form 2. The programme entails producing a module each year for each level of the primary school. The first module, which is for new entrant classes, was produced in 1992. It is intended that, from 1992, children starting school will receive fire-safety education programmes each year until they are in form 2.

In 1992 new entrants kits were distributed to each fire station and voluntary fire brigade in New Zealand. The firefighters are responsible for arranging a visit to every primary school within their area, to take a demonstration lesson with new entrants. The crews teach and demonstrate 3 topics: phone 111 (to tell the Fire Service where the fire is); crawl low in smoke (to escape from a room where there is smoke and fumes); and stop, drop, and roll (to extinguish the flames if your clothes are on fire).

The New Zealand Fire Service wishes to measure the effectiveness of its fire-safety programme. It decided that one way to do this would be to try and establish what knowledge of fire safety children now in standard 2 had, prior to the new fire-safety modules being introduced. At a later date these data could be compared with knowledge held by children who had experienced the new programme.

The New Zealand Council for Educational Research (NZCER) was contracted to survey standard 2 children in 1992 to find out their knowledge about fire safety, and where they got this information from. The findings of this survey will form baseline data to compare the level of knowledge of standard 2 children in 1992 with those in 1995. This latter group will have had 4 annual visits from the firefighters using the progressively introduced modules. Any changes in the level of the knowledge held by standard 2 children in 1995, as compared with 1992, will be presumed to be attributed in large measure to the new programme, although it is recognised that other factors may also play a part.

Under the guidelines of the contract, NZCER provided the New Zealand Fire Service with an interim report of progress, which included the pilot work for the project, on 30 June 1992. This is the final report.

December 1992

LITERATURE SURVEY

Literature and Television Review

In the planning stages of the project we attempted to discover whether or not there was any other information about fire-safety programmes which would be helpful to us. We considered both television programmes and books, but there did not appear to be much of either relevant to our study of children's knowledge of fire safety.

Some years ago on New Zealand television there was a series of advertisements where the well-known actor, Dick van Dijk, demonstrated "stop, drop, and roll" and "crawl low in smoke". Many viewers can still recall these advertisements and procedures, and it is possible that some of the children in our survey would have had information from the series passed on to them although they would have been too young to have viewed the advertisements themselves.

Currently there is an American drama on New Zealand television which uses 911 as the emergency number to call in case of fire. There have been instances of New Zealand children dialling 911 in cases of emergency, presumably influenced by this programme. When the New Zealand Professional Firefighters Union launched the *Firefighters' Handbook* for primary school children in 1992, one of its aims was to make sure New Zealand children knew the correct number for the Fire Service.

Two books have some relevance for the present study. In the first, Laughlin (1979), emphasises that active involvement supports learning. He suggests that the most effective way of impressing on children the correct action in the event of fire, is for the teacher to demonstrate first and then for children to have time to practise the operation. The procedures being advocated by the Fire Service for new entrants are in line with this practice.

Jones and Haney (1983) suggest even more active participation by children. Their research found that children's performance in fire-safety procedures was maintained over a longer period when the children participated fully in their own instruction. The children were required to repeat the questions about a situation involving fire, then verbalise their intended reactions to the questions, prior to acting out the correct procedures. The children then evaluated themselves by pointing to "+" or "-" signs on cards.

Other suggestions for enhancing the effectiveness of fire-education programmes suggested by Laughlin were:

- Place a pretend flame made from red felt on each child's clothing. The red felt flame will stick to clothing until the child has rolled sufficiently for it to fall off.

- There are a variety of different recommended procedures for children to follow when they find a box of matches, but it is important that adults choose one and are consistent.

- Instructors should evaluate their fire-safety programmes by asking children questions to determine what they have learned.

- A positive approach should always be used. Children should be told what to do rather than what they should not do.

- Children need to know both the WHY and the HOW of fire safety.

RESEARCH METHODOLOGY

Data Collection

Data was collected through:

1. A questionnaire administered to a random sample of 1014 standard 2 children.

2. A demonstration by a smaller sample of 62 standard 2 children who showed how accurately they could perform the required fire-safety techniques.

3. A questionnaire to the principal of each of the 47 schools in the sample to find out if fire-safety information had been included in the curriculum during the last 3 years.

   (Copies of the 2 questionnaires and the demonstration schedule are included in Appendices 1, 2, and 3)

The Sample

From the outset it had been agreed that the sample of schools to be surveyed would be drawn from the following central region communities: Napier/Hastings, Wairarapa (Masterton, Carterton, South Wairarapa), Wellington (Wellington City, Upper Hutt, Lower Hutt, Porirua), and Marlborough (Tasman, Nelson, Blenheim). This combination of localities would allow a representative sample of schools from large urban, urban, town, and rural communities to be drawn.

A sample of 1000 standard 2 children, which represents 2% of the national cohort, was considered sufficient to allow the major questions of the survey to be addressed.

The Ministry of Education's directory of schools was used to identify schools which had standard 2 classes in each of the above areas, and to identify the number of pupils attending each school. There were several types of schools in the Ministry's list which were excluded before sampling commenced. These were special schools, IHC schools, correspondence units, learning units, and schools without a roll. Schools with a roll below 60 were excluded on logisitical grounds, as it would be difficult to justify travelling long distances to schools which had fewer than 10 standard 2 children. All other schools (state, state integrated, and private with full registration) were included in the population sampled.

The sample was randomly selected, using a weighted multi-staged stratified process. This method gave each standard 2 child in the central New Zealand region approximately the same chance of being selected. The rolls of composite schools (new entrants to form 7) were adjusted to consider only the primary roll of that school.

The weighting categories used for school rolls were as follows:

1. fewer than 80 children,
2. 80 - 160 children,
3. 161 - 350 children, and
4. more than 350 children.

The combined weighting of every school within each area was used to calculate the number of schools to be drawn from that area. The number of schools required in each area was then used to calculate the stepping interval for the random sampling.

After the minimum of 50 schools was selected, a list of replacement schools was drawn up, using the same process. The replacement schools were to be used if schools from the original sample were unable to participate.

Because some schools had a disproportionate number of standard 2 children to the number predicted from the total school roll, schools were asked to provide a maximum of either 1 standard 2 class or 30 standard 2 children for the survey. The schools were asked to select the class, or group of children, which best represented the characteristics of children in their school.

The number of standard 2 children in the Wairarapa sample schools was fewer than required. An extra Wairarapa school was selected to increase the number of standard 2 children for the region.

The 1 or 2 children from each school who were asked to demonstrate their knowledge of fire safety were randomly selected by the researcher. The researcher asked the teacher, prior to administering the questionnaire, for a random number from the register, e.g., the fourth girl, or the first boy (keeping a balance of both boys and girls). Children who took part in the demonstration did not complete a children's questionnaire.

Tables 1, 2, and 3 list the number of schools eligible to be sampled, those which finally took part in the survey, and the number of children who participated in the survey by region.

Table 1
Schools and Sample by Area

	Number of eligible schools		Number of schools in sample		Schools participating by area	
	N	%	*N*	%	*N*	%
Hawke's Bay						
Hastings	51	15	8	16	7	15
Napier	23	7	3	6	3	6
	74	22	11	22	10	21
Wairarapa						
Masterton	21	6	3	6	3	6
Carterton	9	3	1	2	1	2
South Wairarapa	8	2	1	2	2	4
	38	11	5	10	6	12
Wellington						
Porirua	26	8	4	8	4	9
Upper Hutt	16	4	2	4	2	4
Lower Hutt	51	15	7	14	7	15
Wellington	65	19	10	20	8	17
	158	46	23	46	21	45
Marlborough						
Tasman	32	9	5	10	5	11
Nelson	13	4	2	4	2	4
Blenheim	30	8	4	8	3	6
	75	21	11	22	10	21
Totals	345	100	50	100	47	99

Table 2
Number of Completed Questionnaires and Demonstrations

	Number of children's questionnaires	Number of children's demonstrations	Number of principals' questionnaires
Hawke's Bay			
Hastings	154	7	6
Napier	65	6	2
	219	13	8
Wairarapa			
Masterton	55	4	3
Carterton	10	1	1
South Wairarapa	44	1	2
	109	6	6
Wellington			
Porirua	84	6	4
Upper Hutt	60	4	2
Lower Hutt	148	10	6
Wellington	179	10	8
	471	30	20
Marlborough			
Tasman	87	5	3
Nelson	62	3	2
Blenheim	66	5	2
	215	13	7
Unspecified region			4
Totals	1014	62	45

Table 3

Regional Breakdown of Children Surveyed

Region	No. of Children	% of Children
Hawke's Bay	219	22.0
Wairarapa	109	11.0
Wellington	471	46.0
Marlborough	215	21.0
Totals	1014	100.0

The Children's Questionnaire

The questionnaire was designed to collect data on children's knowledge of:

- phoning 111,
- crawl low in smoke, and
- stop, drop, and roll.

The major part of the questionnaire included structured questions where the children were asked to respond to a series of listed options. The questionnaire concluded with 3 open-ended questions.

The children's questionnaire was administered by NZCER staff. The researchers read each question to the children in an attempt to overcome any reading or language difficulties experienced by children. The questionnaire was in large print to help the children.

The teachers of each class were asked to be present to supervise the management and control of the children while the questionnaire was being administered. They also assisted with any reading or language problems, but did not otherwise help any child to answer any of the questions. They did not participate in the demonstration.

The Children's Demonstration Schedule

The children's demonstration schedule was designed to observe how effective children were in demonstrating and carrying out fire-safety procedures. The children's demonstrations were carried out in the same schools as those selected for administering the questionnaire but to a different group of children.

Principals' Questionnaire

The principals' questionnaire was designed to find out in which years from 1989-1992, fire-safety had been included in the curriculum. The principals' questionnaire was administered in the same schools as those visited for the children's questionnaire and demonstration.

RESULTS

Children's Questionnaire

Age

Of the 1014 children who completed the questionnaire, 657 (65%) were 8-year-olds, and 266 (26%) were 9-year-olds. Ninety children (9%) did not specify their age.

Gender

Of the children who completed the questionnaire, 476 (47%) were girls, and 500 (49%) were boys. Thirty-eight children (4%) did not specify their gender.

Responses to Structured Questions

My Clothes Are on Fire

Children were asked: *"What is the first thing you should do if your clothes catch on fire?"* Their responses are summarised in Table 4.

Table 4

My Clothes Are on Fire

Responses	N	%
Stop, drop on the floor, and roll	916	90.5
Run to the door	43	4.0
I don't know	25	2.5
Stand still and scream	10	1.0
Hide in a cupboard	9	1.0
Other, including no response	11	1.0
Totals	1014	100.0

It will be seen from Table 4 that 90% of children chose the correct answer "stop, drop, and roll". The only other option chosen by a sizable number of children was to "run to the door". The 4 children who

indicated they would do something other than the listed options said they would either get water or a blanket. Twenty-five children did not know what they should do.

I Am in a Smoky Room

Children were asked: *"If the room is full of smoke what should you do first?"* Their responses are summarised in Table 5.

Table 5
I Am in a Smoky Room

Responses	N	%
Crawl on the floor towards a window or door	704	69.5
Stop, drop on the floor, and roll	120	12.0
Run outside	107	10.5
Close your eyes and block your nose	33	3.0
I don't know	14	1.5
Hide in the corner until the smoke goes away	12	1.0
Other, including no response	24	2.5
Totals	1014	100.0

Table 5 shows that more than two-thirds of the children (69%) chose the correct response "crawl low in smoke". The second and third most frequent choices were "stop, drop, and roll" and "run outside", these being chosen by 12% and 10% of children respectively. Fourteen children (1%) did not know what they should do.

I Saw a Fire

Children were asked: *"If you saw a fire, which of these things would you do first?"* Their responses are summarised in Table 6.

Table 6

I Saw a Fire

Responses	N	%
Make a phone call	715	70.5
Call out; stop, drop, and roll	100	10.0
Get some water	86	8.5
Ask if there is anybody inside	48	4.5
I don't know	29	3.0
Find a ladder	14	1.5
Other, including no response	22	2.0
Totals	1014	100.0

It will be seen from Table 6 that nearly three-quarters of the children (70%) chose the correct response "make a phone call". Each of the other options was selected by 10% or fewer children. The 4 children who made suggestions other than those listed, nominated "run", "get help", or "find an adult". Twenty-nine children (3%) did not know what they should do.

I Phone for Help

The children were asked: *"If you have to phone for help about a fire, who would you call first?"* Their responses are summarised in Table 7.

Table 7

I Phone for Help

Responses	N	%
Fire Service	814	80.5
Mum or Dad	87	8.5
Police	48	5.0
Ambulance	42	4.0
I don't know	10	1.0
Other, including no response	13	1.0
Totals	1014	100.0

It will be seen from Table 7 that most children (80%) chose the correct response, "Fire Service". Eighty-seven or 8% of children thought they should phone their parents. A small percentage thought they should phone the police or an ambulance. One child responded with phoning 911. Ten children (1%) did not know what they should do.

The Phone Number I Would Call

The children were asked: *"What phone number would you use to call the Fire Service?"* Their responses are summarised in Table 8.

Table 8

The Phone Number I Would Call

Responses	N	%
111	939	92.5
911	41	4.0
999	12	1.0
I don't know	18	2.0
Other, including no response	4	0.5
Totals	1014	100.0

It will be seen from Table 8 that nearly all children, 939 (92.5%) chose the correct answer "111". Fifty-three children (5%) selected either "911" or "999", and 18 children (2%) said they did not know which number they should call.

Where the Children Say They Learned about Fire Safety

Following each of the 5 preceding questions where children were asked *what* they would do in certain emergency situations, the children were asked *how* they knew what to do in each case. Children had to respond by selecting 1 or more from a list of options.

When the children's responses to the questions about where they had learned the various fire-safety procedures were analysed, it was found that the children tended to give similiar responses in each case.

The children's combined responses to the 5 questions about where they learned the various fire-safety procedures are in Table 9. It should be noted that over all, nearly two-thirds of the children (60%) chose more than 1 option in their response to each question.

Table 9

How Do You Know What To Do First?

Total Responses for 5 Questions

Responses	N	%
At home	2217	22.5
Firefighter	2037	20.5
On television	1761	18.0
My teacher	1476	15.0
Just know	1344	13.5
Someone else	1029	10.5
Totals	9864	100.0

It will be seen from Table 9 that over all children were almost equally likely to say that they had learned about fire-safety procedures at home (22% of responses) or from the Fire Service (20% of responses). However, there were some variations in the children's responses, for example:

- Children were most likely to say that they know what to do because they had learned it at home in each of the questions to do with telephoning (i.e., what to do first if they saw a fire; who to call first; and the number to call).

- Children were most likely to say that they learned from a firefighter what to do first if their clothes caught on fire.

- Children were equally likely to say that they learned from a firefighter or from home what to do first if a room is full of smoke.

Rather fewer children indicated that they had learned about fire-safety procedures from television (18% of responses) or their teacher (15% of responses), along with 13% of children who "just knew". Ten percent of children's responses indicated that they had learned from "someone else". The person most commonly mentioned was Mum, followed by Dad.

Many of the children who said they learned a fire-safety procedure from Mum or Dad, had also indicated that they learned it from home. A few children referred to other relatives, previous teachers, or the police.

The children also had an opportunity to say if they learned what to do from another source. Forty-one children indicated that they also learned from books, videos, plays, puppet shows, and at Brownies.

Responses to Open-ended Questions

At the end of the questionnaire children were asked 3 open-ended questions:

What can start a fire in your house?
What is a smoke alarm for?
What should you do if you find a box of matches?

Children often responded with more than 1 answer. Some of the answers were drawings, and 1 child answered in Maori.

Question 1: *What can start a fire in your house?*
The children's comments can be summarised in order of number of responses as:

- matches (65%)
- the oven (41%)
- fireplaces (41%)
- cigarettes (33%)
- heaters (30%)
- electrical appliances (20%)
- outside fire (4%)

Question 2: *What a smoke alarm is for?*
The children's comments can be summarised in order of number of responses as:

- a smoke alarm warns you that there is a fire (43%)
- a smoke alarm is connected to a fire, smoke, and burning, but without any specific detail about warnings or danger (26%)
- a smoke alarm detects smoke or fire (17%)
- a smoke alarm signals when there is smoke or fire (16%)
- a smoke alarm wakes you up (5%)

Question 3: *What should you do if you find a box of matches?*
The children's comments can be summarised as:

- give them to a relative or parent (43%)
- leave them alone (28%)
- put them somewhere safe (25%)
- give them to an older person (11%)
- throw them away (10%)

Included in a series of miscellaneous comments were: "Don't waste them"; "Put all the matches in the bin and keep the box to play with"; "Give them to an innocent adult".

Gender Differences in Children's Responses to the Questionnaire

A nearly equal number of boys and girls completed questionnaires. All questions were analysed to see whether or not there were significant differences between the responses of girls compared with those of boys. There were only small differences between girls and boys in their responses to what they would do in each of the emergency situations, and none were statistically significant. However, there were significant gender differences in where children learned about fire safety. The total number of responses to the 5 questions about where children got their knowledge of fire safety are summarised by gender in Table 10.

Where Girls and Boys Say They Learned about Fire Safety

Table 10

Where Girls and Boys Learned about Fire Safety

Total Responses for 5 Questions

	Girls		Boys	
Responses	N	%	N	%
At home	1113	24.5	1039	21.0
Firefighter	905	19.5	1038	21.0
On television	704	15.5	983	20.0
My teacher	727	16.5	700	14.5
Just know	610	13.5	710	14.5
Someone else	524	11.5	434	9.0
Totals	4583	101.0	4904	100.0

It will be seen from Table 10 that the differences in the responses of boys and girls to the structured questions about where children learned about fire safety, were small, but some were statistically significant.

- Significantly more girls say they learned more from home 1113 (24.5%) than did the boys 1039 (21.0%).
- Significantly more girls say they learned more from the teacher 727 (16.5%) than did the boys 700 (14.5%).
- Significantly more girls say they learned more from someone else 524 (11.5%) than did boys 434 (9.0%). Girls learned significantly more from Mum 281 (53.5%) than did boys 196 (45%), and girls learned significantly more from Dad 207 (39.5%) than did boys 167 (38.5%).
- Significantly more boys learned more from a firefighter 1038 (21.0%) than did girls 905 (19.5%).
- Significantly more boys learned more from TV 983 (20.0%) than did girls 704 (15.5%).

Regional Variations

What Children Would Do in Case of Fire

All questions were analysed to see if there were any regional variations in the children's responses. As the majority of children chose the correct answer to most questions about what to do in the case of fire, little regional variation was expected. There were no significant differences.

Where the Children Say They Learned about Fire Safety

There were some regional variations in where children said they learned about fire-safety. The following refer to the children's combined responses to the 5 questions.

- In Marlborough the children said they learned significantly more from the teacher than in Wellington or Hawke's Bay. (Marlborough 359 (34%); Wellington 602 (26.5%); Hawke's Bay 271 (24.5%))

- In Marlborough significantly more children said they learned from home than in Wairarapa, Hawke's Bay, and Wellington. (Marlborough 564 (52.5%); Wairarapa 248 (45.5%); Hawke's Bay 443 (42%); Wellington 925 (39.5%))

- Significantly fewer children in Marlborough said they learned from a firefighter than in Hawke's Bay, Wairarapa, or Wellington. (Hawkes Bay 535 (49%); Wairarapa 219 (40%); Wellington 931 (39.5%); Marlborough 352 (32.5%))

- Significantly fewer children in Marlborough said they learned from TV than in Wairarapa or Wellington. (Wairarapa 202 (37%); Wellington 874 (37%); Marlborough 323 (30%)

Children's Demonstration of Fire-Safety Procedures

Introduction

The major part of this research project involved standard 2 children completing a questionnaire as already described. The Fire Service was also interested to establish whether or not children of this age could demonstrate that they could put into practice the various fire-safety procedures.

When the researchers visited the schools to administer the questionnaires, 1 or 2 children (depending on school size) were randomly selected to demonstrate their knowledge of fire-safety procedures. The 62 children selected had not previously completed a questionnaire. They were asked to respond to 3 questions:

- *"What would you do if your skirt or trousers caught on fire?"*
- *"What would you do if you were in a room full of smoke?"*
- *"How would you telephone for help if there was a fire at your house?"* (A telephone was available for this demonstration.)

Some children were hesitant about performing in front of strangers. The researchers endeavoured to put the children at ease, but this factor may have had some effect on the outcomes of the research.

The researchers felt that it was important for ethical reasons to explain the correct techniques to children once the demonstration was completed.

The purpose of the children's demonstration was to validate knowledge that the children said they had in the children's questionnaire. All results were analysed by gender and by region and major findings are reported in the text. However, because the number of children demonstrating in each region is small, the results of the demonstration by region are not likely to be of practical assistance to the Fire Service.

The Results

1. *What Would You Do if Your Clothes Were on Fire?*

Definitions:

Mastery: The children dropped to the floor, rolled, and continued rolling until the flames were out.

Partial mastery: The children dropped to the floor and rolled but did not continue to roll until the flames were out, even after encouragement from the researchers.

Or: Children whose first reaction was to run away but subsequently remembered to "stop, drop, and roll".

Or: Children who rolled with their shoulders above ground level and/or their knees bent.

Ten of the 62 children hesitated before taking any action. The children's degree of mastery of "stop, drop, and roll" is summarised in Table 11.

Table 11

Children's Mastery of Stop, Drop, and Roll

Degree of Mastery	No. of Children	% of Children
Mastery	29	47.0
Partial mastery	9	14.5
Non-mastery	24	38.5
Totals	62	100.0

It will be seen from Table 11 that nearly half the children (47%) were considered to have mastered "stop, drop, and roll".

Mastery/Partial mastery

- Of the 38 children who had fully or partially mastered the technique, only 8 children were considered to have performed well enough to prevent further burning as well as to save life.
- 26 children needed prompting to "keep rolling, the flames aren't out yet".
- Only 8 children covered their face.

Non-mastery

- Of the 24 children who recorded non-mastery:
  - 18 children performed an alternative response. The most common alternative response was to use water to put out the flames (10 children). Other responses were to take off some clothing, get a blanket, or call for help.
  - 5 children did not know what to do and made no attempt to demonstrate.
  - 3 children reacted by running away.

Gender Difference

The percentage of girls and boys who mastered (or partially mastered) "stop, drop, and roll" was almost the same.

Regional Variation

There was only one regional difference in the children's demonstration of "stop, drop, and roll" results. A significantly higher percentage of children mastered "stop, drop, and roll" in Marlborough than in Wellington: Marlborough 10 (77%), Wellington 10 (33%).

2. *What Would You Do if You Were in a Room Full of Smoke?*

Definitions:

Mastery: Children "crawled low in smoke", that is, they got down on their hands and knees (which makes the head low), and crawled quickly on hands and knees, or forearms and knees, to the exit. Children who were prompted to go to the exit were recorded as having achieved mastery if they responded quickly.

Partial mastery: Children attempted to crawl low in smoke but dragged the body without bending at the knees, or started to run away before remembering to crawl low in smoke. Children who did not look for or move towards the exit, even when prompted, were recorded as having achieved partial mastery.

Eight of the 62 children hesitated before taking any action. The children's degree of mastery of "crawl low in smoke" is summarised in Table 12.

Table 12

Children's Mastery of Crawl Low in Smoke

Degree of Mastery	No. of Children	% of Children
Mastery	35	56.5
Partial mastery	8	11.5
Non-mastery	20	32.0
Totals	62	100.0

It will be seen from Table 12 that more than half of the children (56%) were considered to have mastered the technique to "crawl low in smoke".

Mastery/Partial mastery

Nearly three-quarters (71%) of the 42 children who had full or partial mastery looked for an exit before crawling low in smoke.

- The researcher had to ask several children where they were crawling to. This may have been partly because they were in a strange situation.

- Six children crawled on forearms and knees. This is the preferred style recommended by the New Zealand Fire Service because the person is able to keep their head low while still managing to move quickly. Two children dragged their bodies across the room instead of crawling on hands and knees.

Non-mastery

- Sixteen children performed an alternative response. The most common of these responses were to:

  * run to the door or run outside (5 children)
  * cover their face and/or block their nose (5 children)
  * run or walk to the window and open it (4 children)
  * call for help (2 children)

- Four children did not know what to do.

Gender Difference

There were no gender differences for those who demonstrated "crawl low in smoke" correctly.

Regional Variation

A significantly higher percentage of children in Wairarapa mastered "crawl low in smoke" than in Hawke's Bay but the numbers in both cases were very small (Wairarapa 6 (100%), Hawke's Bay 4 (31%)).

3. How Would You Telephone for Help if There Was a Fire at Your House?

Definitions:

Mastery: Children who dialled 111, communicated that they wanted the Fire Service or that there was a fire, and gave their address.

Partial mastery: Children who dialled 111, communicated that there was a fire, but failed to give the street name and number even when prompted.

Non-mastery: Children who did not dial 111 or communicate that there was a fire.

The children's degree of mastery of dialling 111 is summarised in Table 13.

Table 13

Children's Mastery of Telephoning for Help

Degree of Mastery	No. of Children	% of Children
Mastery	52	84.0
Partial mastery	1	2.0
Non-mastery	9	14.0
Totals	62	100.0

It will be seen from Table 13 that most children (84%) knew that 111 was the number to dial if there was a fire in the house, could demonstrate how to do so, and give the correct information to the Fire Service.

Mastery/Partial mastery

Eighty-four percent of children were able to demonstrate that they could contact the Fire Service correctly if their house was on fire. However, rather more, 94%, knew the correct number to dial and 90% were able to dial the number.

- Only 18 children knew to ask for the Fire Service when asked which service they required by the Telecom operator.

- Only half of the children could give a connecting street name.

Non-mastery

- Two children did not know what to do.
- One child dialled 1111 and 2 children dialled first then picked up the phone.
- Two children knew 111 but did not carry out the demonstration.
- Two children asked for an ambulance.

Gender Difference

A greater percentage of girls (94%) knew the correct procedure for dialling 111 than boys (72%). Although the sample was small, this difference seems significant especially as there were no gender differences for the other parts of the demonstration.

Regional Variation

A significantly higher percentage of children in Marlborough mastered dialling 111 than in Hawke's Bay: Marlborough 12 (92%), Hawke's Bay 11 (14%).

Principals' Questionnaire

Introduction

Prior to the researchers visiting the 47 schools included in the study, a questionnaire was sent to the principal. Although the questionnaire was addressed to the principal, some were filled out by other senior members of the staff. Some principals found it difficult to answer questions about events that had occurred prior to their appointment to the school. Forty-five questionnaires were returned.

The main objective of the principals' questionnaire was to find out whether fire-safety education had been included in the school curriculum over the past 4 years, 1989-1992 (1992 included the first 7 months of the year only). The Fire Service was also interested to find out how children learn about fire safety within the primary school. Topics covered in the questionnaire were:

- frequency and duration of fire-safety lessons, both at school and with the Fire Service;
- the main areas of fire safety covered;
- the age of children targeted for fire-safety education.

Principals were also asked which languages were spoken by children at their school.

Visits to the School by the Fire Service

- Of the 47 schools in the survey, 45 completed the questionnaire.
- The Fire Service had visited the majority of schools (40) at least once during the past 4 years.
- Five of the 45 schools had not been visited at all during that time.
- Some schools had been visited in more than 1 year. The total number of Fire Service visits made between 1989 and 1992 to the 45 schools in the survey was 60.

The visits to schools by the Fire Service by year are shown in Table 14:

Table 14
Visits to Schools by the Fire Service
N=45

Year	N	% of 45
1992	26	58
1991	16	36
1990	12	27
1989	6	13
Total	60	

The percentage of schools visited in 1992 was comparatively high considering that this period included the first half of the year only. However, these figures may be affected by the ability of the principal to recall past visits. Only 1 school had received a visit in all 4 years. This may suggest that Fire Service visits are not a regular part of the curriculum for the majority of schools surveyed.

Visits from the Fire Service were concentrated in the junior school area. Ninety-seven percent of schools visited indicated that junior school children were involved in the visit, whereas only 28% of middle school children and 20% of upper school children were involved. (Not all the schools in our sample had upper school or Form 1 and 2 pupils.) Visits by the Fire Service typically lasted for 30-45 minutes.

Principals were asked if the 3 basic fire-safety techniques included in the new Fire Service education kit were covered during Fire Service visits. In each category this was the case for about

three-quarters of the schools visited :

- Stop, drop, and roll (77%),
- Crawl low in smoke (75%),
- Dial 111 (72%).

Five principals said that Fire Service equipment was demonstrated during visits. Other topics covered during visits, to a lesser extent, included safety equipment, home escape plans, and visits to check fire-safety equipment.

Visits to the Fire Service by Schools

School visits to the Fire Service occurred less often than visits from the Fire Service to the school. The total number of visits to the Fire Service made by the schools in the survey during the period 1989-1992 was 45, compared to 60 visits to schools.

Visits to the Fire Service by the school, by year, are shown in Table 15:

Table 15

Visits to the Fire Service by Schools

N=45

Year	N	% of 45
1992	6	13
1991	22	50
1990	10	22
1989	7	16
Total	45	

Nearly a quarter of schools (24%) had not visited the Fire Service at all between 1989-1992. The fact that schools are more likely to be visited by the Fire Service than to make visits themselves may reflect the relative difficulty of organising school trips for large numbers of children.

As with visits from the Fire Service, school visits involved the junior school more frequently than other areas of the school. Thirty-one of the 34 schools (91%) that had visited the Fire Service during the 4-year period specified the junior school, whereas only 20% specified the middle school and 12% the upper school. The visits to the Fire Service were usually between 30 and 60 minutes long.

The topics covered on the visits were more varied than those by the Fire Service to the school. The 3 techniques included in the new entrant kits were far less likely to be covered on a visit to the

Fire Service than when the school was visited by the Fire Service:

- Stop, drop, and roll (44%),
- Crawl low in smoke (35%),
- Dial 111 (35%).

Other topics covered were:

- Fire station equipment and operations (6 schools)
- Fire Service uniforms (4 schools)
- The role of the firefighter (2 schools)

Nine of the 34 principals whose schools had visited the Fire Service did not know what topics were covered.

Fire-safety Lessons at School

All but 2 of the schools in our survey had taught fire safety or fire prevention at the school during the period 1989-1992.

The numbers of schools which had taught fire-safety procedures, by year, are shown in Table 16:

Table 16

Schools Which Had Taught Fire-safety Procedures

N = 45

Year	N	% of 45
1992	29	64
1991	24	53
1990	20	44
1989	1	2
Total	74	

The very low numbers in 1989 may reflect the time lapse, and the probability that some principals would not have been at the school in earlier years.

Fire-safety lessons covered all age groups of the school but were slightly more likely to be taught at junior school level (junior school 87%, middle school 67%, upper school 51%).

Principals were asked if the 3 topics from the new Fire Service safety kit were covered in fire-safety or prevention lessons given by teachers at the school and about three-quarters said they were.

Other topics listed were: school evacuation or emergency procedures (6 schools); treatment or prevention of burns (3 schools); keeping ourselves safe (2 schools).

Principals were asked in what area of the curriculum they would usually place fire safety. In their replies, many principals suggested more than 1 curriculum area. The majority of principals said that in their school, fire safety was usually put under health in the school curriculum (87%), frequently under the topic, "Keeping Ourselves Safe". This was followed by social studies (55%), and language (29%). Sixteen percent of principals said that fire safety would be in a category of its own.

Fire Drill at School

Just over three-quarters of the principals (79%) said that they had carried out fire drill in the current school year. Sixty-five percent of the principals stated that they had fire drills at least 3 times a year. All children from the junior and middle schools had been involved in the fire drill.

Fires at the School

Only 5 schools had experienced a fire at their school in the past 4 years. Two of these fires occurred during school hours but were not serious and no one was hurt. One principal was concerned about the fire siren which was not easily heard because of the particular design of the school.

Languages Spoken at School

The Fire Service was interested to know what percentage of pupils in the schools surveyed spoke English as a second language. This was considered useful knowledge in helping firefighters to work with children in schools.

Principals were asked to estimate the number of children at their school who spoke English as a second language. The majority of schools (80%) had fewer than 10% in this category. However, 4 schools in our survey had more than 50% of children for whom English was a second language. In the 45 schools in the sample a variety of different languages were spoken by children as their first langauge. Apart from English, the most common languages referred to by principals were Chinese (47%), Samoan (41%), followed by Maori (23%). Other languages included Tongan, Vietnamese, Indian, Dutch/German, and Cambodian/Laotan.

Other Comments

Some principals added their own comments at the end of the fire-safety questionnaire but there were no common themes. Comments included the opinions that:

- although both staff and children know fire-safety procedures, they would have problems coping if a real fire occurred;
- children learn best from practical activity;
- fire-safety procedures should be an automatic response for children;
- a homework kit would be very useful and may encourage the whole family to learn fire

safety; and

- the green fire-safety resource kit is still very useful.

DISCUSSION

This research project was carried out at the request of the New Zealand Fire Service as the first stage in an attempt to measure the impact of its recently introduced fire-safety education programmes in junior schools. The research was undertaken in 4 regions: Wellington, Wairarapa, Hawke's Bay, and Marlborough. These regions provided a rural and urban mix of schools, and were readily accessible to the researchers. However, it is not possible to generalise on the basis of the research findings to schools in other parts of New Zealand.

From the outset it was acknowledged that there would be problems in accurately ascertaining children's knowledge of fire safety because of the age of the children concerned. In order to gather data from a large enough population of children, it was decided to use a questionnaire which could be administered to a class of standard 2 children at a time. The questions were read to the children by the researchers in an attempt to ensure data were collected from all children, including those who might have reading difficulties. There was an added problem in that children may not always be able to remember where they learned particular fire-safety procedures. More recent events may blot out earlier experiences. It has to be recognised that data collected from young children through the use of a questionnaire are indicative of children's knowledge but cannot be regarded as conclusive.

On the basis of the questionnaire responses, standard 2 children over all possess quite a high level of knowledge of the 3 fire-safety procedures of concern to the Fire Service. At least 90% of children chose the correct response for what to do if their clothes caught on fire and knew the correct number to dial for the Fire Service. Rather fewer, 69%, knew what they should do first if they were in a smoky room.

One reason why the children's responses to some of the forced choice questions in the questionnaire was high may have been because the correct answer was so much more credible than some of the alternatives. This was particularly so with the question, 'What should you do if your clothes caught on fire? With hindsight it may have been better to have replaced some of the options given with "using water" or "getting a blanket" - alternative suggestions made by children in their answers to both the questionnaire and the demonstration.

Care must be taken in interpreting the results of this survey. While it is true that most standard 2 children appeared to have a high knowledge of fire safety in terms of their ability to give the correct response to questions about what to do in the 3 situations of interest to the Fire Service, it has to be remembered that children were responding to forced choice questions in which they were presented with the correct response as one of a number of possible responses. In this situation most children surveyed made the correct response. However, the demonstrations clearly showed that a lower percentage of children faced with a simulated emergency situation were able to respond automatically in the most appropriate way. In a real emergency, with the likelihood of associated fear and panic, the percentage of children who respond correctly could well be lower.

It is important for firefighters and school staff to be aware of some of the errors made by the children in our demonstration. The most common were:

Dial 111

- not knowing to ask for the Fire Service when the telephone operator asked which service was required
- not being able to give the correct address for the fire, including street name and number
- not knowing the name of the street joining the street where the fire is
- not knowing which suburb the fire is in. (These last two points are important for verifying the locality of a fire where there is more than one street with the same or similar names.)

Crawl low in smoke

- not knowing where the exit to the room is before starting to crawl to the door
- initially running rather than crawling
- dragging the body, rather than crawling in the manner advocated by the Fire Service
- running to find water, especially to wet their face

Stop, drop, and roll

- running to find water
- running to find a blanket to wrap themselves in
- taking off their clothing
- standing and calling for help

While encouraging, the results are not cause for complacency. Particular attention needs to be given to making sure that junior school children, as well as being able to give verbal responses to fire-safety questions, can automatically demonstrate correct behaviour in an emergency situation. The importance of young children learning by doing is a well-established learning principle. The practical approach advocated in the new fire-safety kits should assist children's mastery of the fire-safety techniques.

As one would expect with children of this age, parents in the home are likely to be the most important source of fire-safety information. This appears to be particularly so for girls. It should also be noted that most fatal thermal injuries (i.e., injuries from burning) occur in the home. A recent report on early childhood injury prevention, by Podmore and Lealand (1990), indicates that thermal injuries rank as third among the categories of fatal injury for children up to the age of 5 years. It is obviously important that children in the first years of school are trained to be thoroughly conversant with fire-safety procedures. Parent education is also of vital importance.

As well as attempting to ascertain the level of knowledge of fire-safety procedures of standard 2 children, the Fire Service was interested in knowing what fire-safety education programmes had been provided for children in primary schools over the previous 4 years. The principals' questionnaire included questions on visits from the Fire Service, visits to the Fire Service, fire-safety lessons in the curriculum, and fire drills.

In the regions we surveyed, there has been an increase in the number of Fire Service visits to schools in 1992, particularly those involving children in the junior school. This presumably reflects the Fire Service's commitment to its new education programme. On the other hand, the number of schools which have visited the Fire Service in 1992 appears to have decreased. This may be due to the increase

in visits from the Fire Service.

The 3 fire-safety procedures, stop, drop, and roll, crawl low in smoke, and dial 111, were more than likely to be covered when the Fire Service visited schools, than when schools visited a fire station. Lessons, either at schools or at the fire station, were typically 30 minutes or longer. This fits in well with the 30-minute lesson plan recommended in the new Fire Service kits.

The schools in the survey approached the fire-safety topics from a variety of different curriculum perspectives. It was most often included in health, though also included in social studies, and language. It is common for primary teachers to plan an integrated curriculum in their classroom, in which case fire-safety is sometimes taught in modules on occupations.

The Fire Service has recently conducted an analysis of school fires over the 5 years from 1986 to 1990 (Cropp, 1992). This survey shows that the ratio of fires to schools steadily worsened from 1 in 15 in 1986 to 1 in 8.9 in 1990. This figure is of obvious concern. Five schools in our sample had experienced fires in recent years. According to the principals surveyed, fire prevention and fire-safety procedures are taught regularly at the schools. A potential hazard mentioned by several principals is that they use the fire siren as the school bell for playtimes and lunchtime. If a fire occurred at approximately the same time as the end of a lunch break, children would respond by returning to their classrooms.

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CHILDREN'S QUESTIONNAIRE

We would like to find out what you know about safety and fire. Please answer each question by ticking the box you think is correct. Try these practice questions first.

Each time tick the best answer [ ]

PRACTICE QUESTIONS

A. How often do you think most children watch TV? (tick one box)

(1)	every day	[ ]
(2)	only in the weekend	[ ]
(3)	never	[ ]
(4)	I don't know	[ ]

Write anything else you think is a better answer here

B. What flavours of ice cream do you like? (you can tick more than one box this time)

(1)	banana	[ ]
(2)	hokey pokey	[ ]
(3)	chocolate	[ ]
(4)	orange	[ ]

Write other flavours you like here _____

MY CLOTHES ARE ON FIRE

1. **What is the first thing you should do if your clothes catch on fire? (tick one box)**

(1)	Run to the door	[ ]
(2)	Stop, drop on the floor, and roll	[ ]
(3)	Hide in a cupboard	[ ]
(4)	Stand still and scream	[ ]
(5)	I don't know	[ ]

Write anything else you might do first if your clothes catch on fire

---

2. **How do you know what is the first thing to do if your clothes catch on fire? (you can tick more than one this time)**

(1)	My teacher told me	[ ]
(2)	I learned it at home	[ ]
(3)	I saw it on TV	[ ]
(4)	A firefighter told me	[ ]
(5)	I just know	[ ]
(6)	Someone else told me	[ ]

If someone else told you, who was that person? _____

Write anything else here about how you know what to do first if your clothes catch on fire

3. If the room is full of smoke what should you do first? (tick one box)

(1)	Run outside	[ ]
(2)	Hide in the corner until the smoke goes away	[ ]
(3)	Close your eyes and block your nose	[ ]
(4)	Crawl on the floor towards a window or door	[ ]
(5)	Stop, drop on the floor, and roll	[ ]
(6)	I don't know	[ ]

Write anything else you should do first if the room is full of smoke

---

4. How do you know what to do first if the room is full of smoke? (you can tick more than one this time)

(1)	My teacher told me	[ ]
(2)	I learned it at home	[ ]
(3)	I saw it on TV	[ ]
(4)	A firefighter told me	[ ]
(5)	I just know	[ ]
(6)	Someone else told me	[ ]

If someone else told you, who was that person? _____

Write anything else here about how you know what to do first if the room is full of smoke

5. **If you were by yourself and you saw a fire, which of these things would you do first? (tick one box)**

(1)	Find a ladder	[ ]
(2)	Make a phone call	[ ]
(3)	Get some water	[ ]
(4)	Ask if there is anybody inside	[ ]
(5)	Call out "stop, drop, and roll"	[ ]
(6)	I don't know	[ ]

Write anything else that you would do first if you were on your own and you saw a fire

---

6. **How did you know what you should do first if you were on your own and you saw a fire? (you can tick more than one this time)**

(1)	My teacher told me	[ ]
(2)	I learned it at home	[ ]
(3)	I saw it on TV	[ ]
(4)	A firefighter told me	[ ]
(5)	I just know	[ ]
(6)	Someone else told me	[ ]

If someone else told you, who was that person? _____

Write anything else here about how you know what to do first to help when you see a fire

7. If you have to phone for help about a fire, who would you call first? (tick one box)

(1)	Ambulance	[ ]
(2)	Mum or Dad	[ ]
(3)	Fire Service	[ ]
(4)	Police	[ ]
(5)	I don't know	[ ]

Write here if there is someone else you would call first for help about a fire

---

8. How do you know who to call first for help when there is a fire? (you can tick more than one this time)

(1)	My teacher told me	[ ]
(2)	I learned it at home	[ ]
(3)	I saw it on TV	[ ]
(4)	A firefighter told me	[ ]
(5)	I just know	[ ]
(6)	Someone else told me	[ ]

If someone else told you, who was that person? _____

Write anything else here about how you know who to phone first for help about a fire

9. What phone number would you use to call the Fire Service? (tick one box)

(1) 111 [ ]
(2) 911 [ ]
(3) 999 [ ]
(4) I don't know [ ]
(5) Write the number here if you think there is a better number to call the Fire Service

_____

10. How do you know the number of the Fire Service? (you can tick more than one this time)

(1) My teacher told me [ ]
(2) I learned it at home [ ]
(3) I saw it on TV [ ]
(4) A firefighter told me [ ]
(5) I just know [ ]
(6) Someone else told me [ ]

If someone else told you, who was that person? _____

Write anything else here about how you know what number to use to call the Fire Service

SOME QUESTIONS ABOUT SAFETY AND FIRE

11. What things can start a fire in your house?

12. What is a smoke alarm for?

13. What should you do if you find a box of matches?

CHILDREN'S DEMONSTRATION CHECKLIST

1. CLOTHES ARE ON FIRE

Didn't know	[ ]
Hesitated	[ ]
Ran away	[ ]
Stopped	[ ]
Covered face	[ ]
Dropped to the floor	[ ]
Rolled	[ ]
Interviewer said *"keep rolling - the flames aren't out yet"*	[ ]
Continued rolling backward and forward till the flames are out	[ ]
Child performed alternative response (e.g., wet their clothes to put the flames out)	[ ]

PREVENTS FURTHER BURNING	[ ]
SAVES LIFE	[ ]
MASTERY	[ ]
PARTIAL MASTERY	[ ]
NON-MASTERY	[ ]

2. A SMOKY ROOM

Didn't know [ ]
Hesitated [ ]
Ran away [ ]
Looked around for an exit window or door [ ]
Got down on hands and knees [ ]

Crawled
* quickly [ ]
* on hands and knees, [ ]
* on hands and forearms, [ ]
* to the exit [ ]

Kept head low
* some of the time [ ]
* most/all of the time [ ]

Child performed alternative response (e.g., wet a cloth to put over their mouth, covered face, or called out "help") [ ]

MASTERY [ ]

PARTIAL MASTERY [ ]

NON-MASTERY [ ]

3. **DIAL 111**

Knows 111	[ ]
Dials 111	[ ]
Waits for Telecom to answer	[ ]
Communicates to Telecom that:	
* there is a fire	[ ]
* they want the Fire Service	[ ]
Waits for the Fire Service to answer	[ ]
Communicates to the Fire Service that there is a fire	[ ]
Gives street name	[ ]
Gives street number	[ ]
Gives connecting street	[ ]
Gives suburb	[ ]

MASTERY [ ]

PARTIAL MASTERY [ ]

NON-MASTERY [ ]

PRINCIPALS' QUESTIONNAIRE

VISIT FROM THE FIRE SERVICE

1. **When did your school have a visit from the Fire Service?**

   (a) 1992 [ ]
   (b) 1991 [ ]
   (c) 1990 [ ]
   (d) 1989 [ ]
   (e) None of the above [ ]

2. **If your school has been visited by the Fire Service, what age children were involved?**

   (a) Junior school [ ]
   (b) Middle school [ ]
   (c) Upper school [ ]

3. **How long was each session?**

   (a) Less than 30 minutes [ ]
   (b) 30 - 45 minutes [ ]
   (c) 46 - 60 minutes [ ]
   (d) More than 60 minutes [ ]
   (e) I don't know [ ]

4. **If your school has had a visit from the Fire Service, what topics were covered?**

   (a) Stop, drop, and roll (when clothes are on fire) [ ]
   (b) Crawl low in smoke (escape from a smoky room) [ ]
   (c) Dial 111 (different types of phones) and ask Telecom for the Fire Service, and then tell the Fire Service where the fire is [ ]
   (d) I don't know [ ]
   (e) Other (please specify) _____

   _____

5. **When did children from your school visit the Fire Service?**

(a) 1992 [ ]
(b) 1991 [ ]
(c) 1990 [ ]
(d) 1989 [ ]
(e) None of the above [ ]

6. **If children from your school have visited the Fire Service, what age children were involved?**

(a) Junior school [ ]
(b) Middle school [ ]
(c) Upper school [ ]

7. **How long was each session?**

(a) Less than 30 minutes [ ]
(b) 30 - 45 minutes [ ]
(c) 46 - 60 minutes [ ]
(d) More than 60 minutes [ ]
(e) I don't know [ ]

8. **If children from your school have visited the Fire Service, what topics were covered during the visit?**

(a) Stop, drop, and roll (when clothes are on fire) [ ]
(b) Crawl low in smoke (escape from a smoky room) [ ]
(c) Dial 111 (different types of phones) and ask Telecom for the Fire Service, and then tell the Fire Service where the fire is [ ]
(d) I don't know [ ]
(e) Other (please specify) _____

_____

9. **When did teachers and/or the principal teach fire-safety or prevention to pupils in this school?**

(a) 1992 [ ]
(b) 1991 [ ]
(c) 1990 [ ]
(d) None of the above [ ]

10. **If teachers and/or the principal have taught fire-safety or prevention to pupils in this school, what age children were involved?**

(a) Junior school [ ]
(b) Middle school [ ]
(c) Upper school [ ]

11. **If teachers and/or the principal have taught fire-safety or prevention to pupils in this school, what topics were covered?**

(a) Stop, drop, and roll (when clothes are on fire) [ ]
(b) Crawl low in smoke (escape from a smoky room) [ ]
(c) Dial 111 (different types of phones) and ask Telecom for the Fire Service, and then tell the Fire Service where the fire is [ ]
(d) I don't know [ ]
(e) Other (please specify) _____

_____

12. **In which area of the curriculum would you usually place fire-safety?**

(a) Health [ ]
(b) Social studies [ ]
(c) Language [ ]
(d) Separate category of its own [ ]
(e) Other (e.g., Keeping Ourselves Safe) [ ]

Please specify _____

Comment _____

_____

13. **How often does your school have a fire drill?**

(a) Once a year [ ]
(b) Twice a year [ ]
(c) Three times a year [ ]
(d) More than 3 times a year [ ]

14. **When was the last fire drill at your school?**

(a) This term [ ]
(b) Last term [ ]
(c) Last year [ ]

15. **What age children were involved?**

(a) Junior school [ ]
(b) Middle school [ ]
(c) Upper school [ ]

16. **Has there been a fire at this school during these years?**

(a) In 1992 [ ]
(b) In 1991 [ ]
(c) In 1990 [ ]
(d) None of the above [ ]

17. **If there has been a fire at this school between 1990 and 1992**

	Yes	No
(a) Was it during during school hours?	[ ]	[ ]
(b) Did anyone get hurt?	[ ]	[ ]

Comments _____

_____

_____

18. Approximately what percentage of children in your school speak English as a second language?

(a)	Less than 10%	[ ]
(b)	10 - 25%	[ ]
(c)	26 - 50%	[ ]
(d)	51 - 75%	[ ]
(e)	76 - 100%	[ ]

19. What other languages do these children speak as their first language?

(a)	Maori	[ ]
(b)	Samoan	[ ]
(c)	Tongan	[ ]
(d)	Chinese	[ ]
(e)	Vietnamese	[ ]
(f)	Italian	[ ]
(g)	Greek	[ ]

Other (please specify)_____

_____

If you would like to make any other comments about children and fire-safety please write here

_____

_____

_____

_____

_____