



# MODEL DISASTER PREVENTION LESSONS IN PRIMARY SCHOOL BASED ON DISASTER PREVENTION EDUCATION POLICIES

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This study deals with disaster mitigation education in primary schools and as a final goal aims to improve citizens' capabilities to mitigate disaster situations in society. This report summarizes the current national policy on safety education in Japan and follow it up with a summarization of the Tokyo Metropolitan Government policy, which is based on the national policy. In addition, it compares Japan's education policy with that of New Zealand. Analysis revealed the following three points. First, the content of safety education in Japanese primary schools consists of six fields (traffic safety, daily life safety, disaster safety, etc.). Just before, and after, the Great Tohoku Earthquake in 2011, the main educational content changed from daily life safety to disaster safety. Second, by focusing on lessons, it was found that the content of disaster safety was taught not as part of various subjects but largely during "homeroom activities". Third, it became clear that the subject of earthquakes now accounts for half of the disaster prevention lesson contents in Japanese primary schools and has been included in disaster prevention lesson contents in all school grades.

*Keywords:* Disaster mitigation education, Curriculum, Educational program, Safety education, Japan, Tokyo Metropolitan Government.

## 1 INTRODUCTION

This study deals with educational programs for disaster mitigation in elementary school education, with the aim of improving the disaster mitigation management ability of each citizen and thus ultimately contributing to disaster mitigation. Japanese education policy prescribes six years of compulsory primary school for 7–12-year-old children and three years of middle school for 13–15-year-olds. This report summarizes the Japanese government's established disaster mitigation education policy for primary schools and the safety education program established by the Tokyo Metropolitan Government for primary schools, in line with the nation's policy, as a case study for prefectures. Then, it analyzes what kinds of educational contents are exemplified as model lessons in the national guidelines for disaster education, in the Tokyo Metropolitan Government safety education program guidelines, and the model classes in the research conferences organized over the last 12 years.

## 2 NEW DISASTER MITIGATION EDUCATIONAL PROGRAM IN SCHOOLS AFTER THE 1995 GREAT HANSHIN-AWAJI EARTHQUAKE

In recent years, as a result of the 1995 Great Hanshin-Awaji Earthquake, schools have begun implementing disaster education programs. The Ministry of Education, Culture, Sports, Science, and Technology (MEXT) announced guidelines for disaster mitigation programs in school education in 1998 (MEXT 1998). These guidelines were revised in 2013 (MEXT 2013) after the 2011 Great East Japan Earthquake. Table 1 shows these changes.

Table 1. Revisions in the disaster mitigation program after the Great Hanshin-Awaji Earthquake.

Date	Events
January 15, 1995	The Great Hanshin-Awaji Earthquake
March 1998	"Reference documents of disaster mitigation educational program"
November 2001	"Reference documents of safety programs", first edition
March 2010	"Reference documents of safety programs", second edition
March 11, 2011	The Great East Japan Earthquake
March 2013	"Reference documents of safety programs", revised and extended version

According to the 2013 version, the overall aim of disaster mitigation education is to separately facilitate three main learning areas: “knowledge, thinking, judgment”, “crisis prediction, subjective action”, and “social contribution, support foundations”. Table 2 shows these aims organized by school year. Among them, the colored parts are attached to particularly important items. Targets have been set according to the child’s developmental stage.

Table 2. Disaster education goals of each grade (as established by MEXT).

	Knowledge, Thinking, Judgment	Crisis prediction, Subjective action	Social contribution, Support foundations
1st & 2nd grade	The student will <b>gain an interest</b> in disasters and be able to think about safe behavior in case of disaster.	The student will be equipped to understand the dangers posed by disasters, <b>follow instructions by adults</b> , and take appropriate action.	In the event of a disaster, the student will be able to <b>avoid danger and contact adults</b> .
3rd & 4th grade	The student will be equipped to <b>understand the fundamental aspects of disasters</b> and think ingeniously about disaster prevention.	The student will <b>gain an interest</b> in understanding the dangers posed by disasters and will be able to think of <b>ways to avoid danger</b> .	In the event of a disaster, the student will be able to <b>cooperate with family, friends, and surrounding people</b> so as to avoid danger.
5th & 6th grade	The student will be enabled to understand <b>the characteristics of disasters, as well as organizing disaster mitigation</b> .	The student will be able to <b>predict</b> the risks associated with disasters, and in case of disasters can <b>take the necessary action to avoid danger</b> .	In the event of a disaster, the student will be able to <b>take the safety of surrounding people into consideration</b> and behave in a way that will prove useful to others.

## 3 THE TOKYO METROPOLITAN GOVERNMENT’S SAFETY EDUCATION PROGRAM

The Tokyo Metropolitan Government has established a “Safety Education Program” (Tokyo Metropolitan Board of Education 2016) as a foundation for safety education. This program’s purpose is not limited to disasters. It includes acquiring the ability to predict and avoid other dangers such as crime and accidents and acquiring the skills and qualities necessary for protecting others.

MEXT defines safety education in schools as consisting of three aspects: “daily life safety”, “traffic safety”, and “disaster safety”. Disaster mitigation is classified as “disaster safety”. The

Tokyo Metropolitan Safety Education Program has identified “basic matters that must be taught” with regard to these safety aspects, and the necessary contents that children have to learn are classified based on each type of safety; a one-year teaching plan has been created for these activities. The Tokyo Metropolitan Government has independently created supplementary readers.

#### 4 ANALYSIS OF MODEL LESSONS AT THE TOKYO METROPOLITAN GOVERNMENT SCHOOL SAFETY EDUCATION RESEARCH CONFERENCE

The Tokyo Metropolitan Government School Safety Education Research Conference is an annual seminar where the Tokyo Metropolitan area teachers, as well as teachers from all over the country, gather for study. Every year, the host school is selected from among the public elementary schools in Tokyo. Based on the guidance plan established by the national and Tokyo Metropolitan governments, the teachers at the host school are required to create and demonstrate their model lessons.

To understand the trends in the model lessons, we surveyed the contents of the open model class held at 12 elementary schools over a period of 12 years from 2005 (the 29th convention) to 2016 (the 40th convention) (National-Tokyo Metropolitan School Safety Education Study Research Conference 2016). Table 3 summarizes the class contents by subject and grade. Safety education in these contents includes the above-mentioned daily life safety, traffic safety, and disaster safety. In addition to the contents of information safety, general safety and morals are introduced. Table 3 shows all these contents of safety fields.

Table 3. Classification of the model classes’ contents by each “safety”.

Subject	Grade	the 29th 2005	the 30th 2006	the 31st 2007	the 32nd 2008	the 33rd 2009	the 34th 2010	the 35th 2011	the 36th 2012	the 37th 2013	the 38th 2014	the 39th 2015	the 40th 2016
Living Environment Studies	1				▲								●
	2				■								▲▲
Social Studies	3										▲		
	4									●			
Science	4	■			■								
	5		■										
	6						▲▲		▲				
Physical Education	4		■	■									
	5	■				■							
	6	■		■	■	■							
Moral Education	1	◆◆		▲	◆	◆							
	2	◆◆					▲						
	3	◆◆●											
	4	◆◆											
	5	◆◆●▲			▲								
	6	◆◆	▲										
Art and Handicraft	2	■		■	■	■	■						
4				■									
Japanese	2										▲		▲
Home Economics	6				■								
Period for Integrated Study	3												▲
	4			■	▲		■				▲	■	
	5			■▲	▲■						■		▲▲
	6			▼	■	■					▲		▲★
Homeroom Activities	1	●	■	●	●	●	■	■	■	■	▲	■	■●▲▲
	2		●▲		▲	●		●●	▲▲	▲	▲	●▲	●▲▲▲
	3	■	■	●	■	■	■	▲	▲	●	●	●	■▲▲
	4	■	▲		■	▲	■	▲	▲	▲		▲	■●▲▲
	5		■			▼	▼	▼	▼	●	▲	▲	■▲▲▲
	6	▲	▼					■	▼	▲	▲	▲	■

Legend ●Traffic safety ■Daily life safety ▲Disaster safety  
▼Information safety ★Safety in general ◆Morals

The survey results demonstrate that, as shown in Table 3, until the 35th convention (held before the Great East Japan Earthquake), most of the class contents were based on moral thinking and daily life safety such as personal dangers. These classes were centered on the subjects of the department. However, after the 36th convention—held after the Great East Japan Earthquake—and at those held after it, classes on moral topics disappeared and daily life safety classes decreased, replaced by disaster safety classes. The contents of these disaster safety classes include lesson materials related to preparation for future disaster situations, such as emergency earthquake early warning systems, and cardiopulmonary resuscitation methods.

### 5 ISSUES FROM THE VIEWPOINT OF THE MEXT PROGRAM, THE TOKYO METROPOLITAN GOVERNMENT PROGRAM, AND THE DISASTER SAFETY MODEL CLASSES

Focusing on the contents of the disaster safety classes, we investigated the types of disasters that these classes have discussed or dealt with and then classified each disaster type by subject and grade. The classes targeted for analysis were picked from examples in the nationwide guidelines prescribed in Chapter 2 of this paper, from examples of practical lessons provided in the Tokyo Metropolitan Government’s “Safety Education Program” in Chapter 3 of this paper, and from the 12-year model classes provided in the “Tokyo Metropolitan Government School Safety Education Research Conference Reference Collection” described in Chapter 4 of this paper. The results are shown in Table 4. In addition, the black cell originally had no subject setting, and the orange cell was a subject with setting, but there was no lesson subject in Table 4. Figure 1 shows the graph of class contents in the model schools.

Table 4. Model class contents classified by disaster type.

Grade	Living Environment Studies	Social Studies	Science	Physical Education, Health and Physical Education	Home Economics	Moral Education	Period for Integrated Study	Homeroom Activities	School Event	Other
1	◆ ■ ★					■		● ■ ● ■ ★ ■ ■ ● ■ ■	● ★ ■ ★ ▼ ★	■ ■ ■ ★
2	■ ■					■ ★		● ■ ★ ■ ★ ■ ■ ■ ■ ★ ■ ■ ■ ★ ■		
3		▼					■ ■	■ ▼ ★ ◆ ● ■		
4		★					■ ■	■ ▼ ■ ■ ▼ ◆ ★ ○ ■ ▼ ■		
5			▼	★		■ ■	▼ ▲ ◆ ■ ★ ■ ■ ■	■ ★ ■ ▼ ★ ○ ▼ ★ ■ ● ▲ ■		
6			■ ■ ■			◆ ■	◆ ★ ■	■ ★ ■ ◆ ◆ ◎ ■ ■ ○		

Legend ● Fire ■ Earthquake ▲ Volcano ▼ Meteorological disaster ○ Nuclear disaster  
◆ Shelter ★ Preparing for disaster ◎ General disaster safety

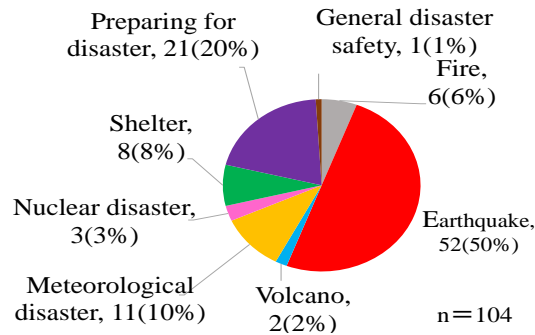


Figure 1. Class contents of the model schools organized by safety education program.

From this study, we found that half of all the classes dealt with contents concerning earthquakes, which were taught in all grades. Regarding safety in case of fire, there were classes in almost all grades from the first grade of elementary school upward. There were few classes that dealt with volcanoes and nuclear disasters because it seems difficult for students to understand these disasters. These contents can thus be set only for the upper grades in primary school. By class subjects, the study found that disaster safety classes were conducted mainly as “homeroom activities” in all the grades. Furthermore, it turned out that these classes were hardly conducted during home economics and physical education. Even though physical education classes are held in all grades, there was only one example of a model class using the subject of physical education.

## 6 A COMPARISON OF DISASTER MITIGATION EDUCATION IN JAPANESE AND NEW ZEALAND SCHOOLS

In New Zealand, the Ministry of Civil Defence & Emergency Management (CDEM) is responsible for disaster prevention. “Get Ready” (CDEM 2018a) on CDEM’s web page consists of published contents for the disaster prevention education of the public, and Table 5 shows its items.

Table 5. The contents of “Get Ready”.

• At Home – Get Ready Get Thru
• At School (Primary School & Intermediate School)
• Early Childhood Education Centres
• At Work
• People with Disabilities
• Get involved
• Civil Defence Emergency Management Alerts & Warnings

Among them, the disaster prevention education contents for children, equivalent to Japanese elementary school disaster mitigation education, is “At School” (CDEM 2018b). The educational contents/materials are published online, and the collection, called “What’s the Plan Stan?” has the following features:

- (i) It deals with six kinds of disasters (floods, storms, earthquakes, tsunamis, eruptions, and landslides).

- (ii) Explanations for each disaster are rich in content.
- (iii) From this webpage one can access links to other useful services, such as the Met service and the EQC, if required; thus, it can be a rich database for teaching material.
- (iv) There are teaching pointers for teachers and explanations for school operators, in addition to commentary for children and their families.

Compared to Japanese teaching materials, these specialize in natural disasters, are content-rich, and distributed through the web. This study's interview survey (conducted at Wellington's C elementary school in November 2017) showed that teachers in New Zealand have greater discretionary powers as compared to Japanese teachers in the field in terms of selecting teaching contents and lesson management with regard to disaster prevention education.

## 7 CONCLUSION

As a result of the analysis, this paper arrives at the following three points:

- (i) The main contents of safety education shifted from daily life safety to disaster safety just before and after the Great East Japan Earthquake.
- (ii) By focusing on lessons, it was found that disaster safety was not included in the classes of various subjects; rather, it was found to be taught mainly during time allocated to homeroom activities.
- (iii) The contents with regard to earthquakes were taught using only half of the total class time. Furthermore, disaster safety classes were held for all grades.

In the future, it is necessary to foster an educational environment where there is no bias regarding grade and the implementation of contents. In addition, it is important to make comparisons with New Zealand regarding teaching materials and disaster mitigation education classes in school.

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