4.2.2. Earthquake disasters and survival

This curriculum stack offers practical knowledge about how to survive an earthquake. for example, the manual for teachers' action during and after the earthquake. Factors which trigger off the secondary disasters around the school are also explained. The followings are main items in this curriculum.

(1) Secondary disasters

(2) Planning of emergency evacuation

(3) Earthquake-proof structures

(4) Mental state during an earthquake

The representative cards are shown in Photos.5 and 6. Photo.5 explains the characteristics and the danger of tsunami. The height of tsunami becomes higher and higher as it runs into an inlet or a narrow bay. The height and velocity of tsunami are beyond one imagines by far. Therefore, the characteristics and the danger of tsunami are explained by animation. Photo.6 shows the picture of "Makimono" i.e. a text book for "Ninja". This "*Ninja* -text" teaches users how to react first if the ground starts to shake in the classroom.
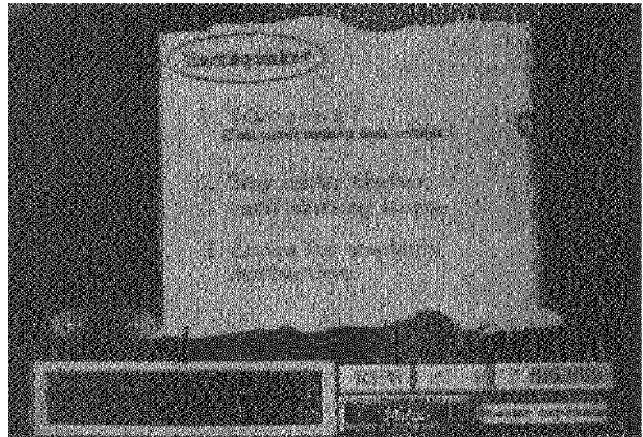

Photo. 5 Danger of tsunami.

Photo 6 How to react first if an earthquake takes place

4.2.3. Preparation for hazards

This stack focuses on ways to counter potential hazards such as fires, breaking of window glasses, overturning of free-standing tall bookcases, cabinets in the school buildings when an earthquake occurs. In addition to them, we emphasize the importance of communication at disasters and life-line facilities such as electricity, gas, water supply, telephone systems. There are three main items in this stack as below :

(1) Potential hazards in school and prevention for them

(2) Life-line systems

(3) Communication and information at disasters

The representative cards are shown in Photos.7 and 8. Photo.7 explains how to prevent a occurrence of a fire due to chemicals in a physics classroom. Photo.8 explains the root of information from a school to a home as an example.
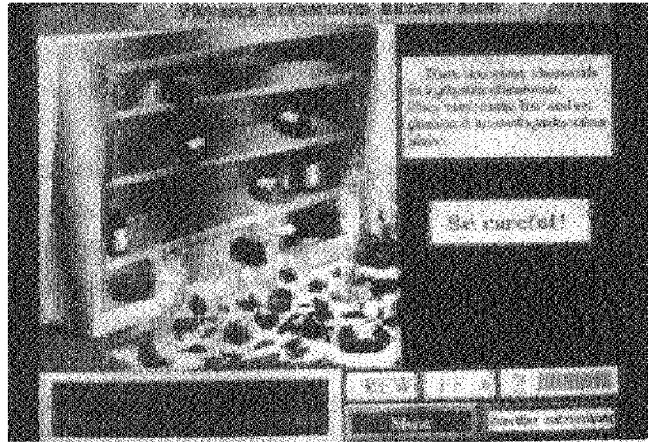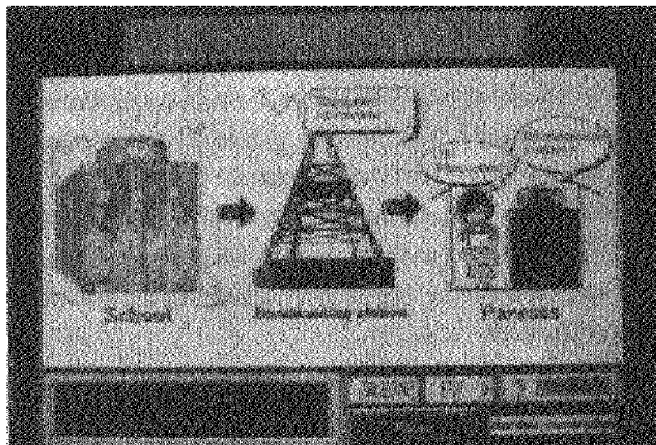

Photo 7 Physics classroom hazard hunts.

Photo 8 Procedure for conveying emergency information to homes.

5. CONCLUSIONS

This paper has described the development of the software for earthquake prevention education using a personal computer. We developed the software, "Quake Busters", using a Macintosh II ci micro computer with its application software, "Hyper Card 2.0","Canvas 3.0" and "Color Magician III". The reason why we used thems is that they are extremely easy to develop the software and to handle it.

We first outlined the results of the study of the questionnaires which we had distributed to elementary and junior high schools in seven prefectures in 1987 and 1990.

"Quake Busters" consists of three curricula, i.e., "Understanding an earthquake", "Earthquake disasters and survival" and "Preparation for hazards". The item included in the first curriculum are "Structure of the earth", "Continental drift", "Plate tectonics", "Mechanism of an earthquake", "Characteristics of earthquake motions" and "Explanation of technical terms". The items in the second curriculum are "Secondary disasters", "Planning of emergency evacuation", "Earthquake-proof structures" and "Mental state during an earthquake". The items included in the last curriculum are "Potential hazards and Prevention for them", "Life-line systems" and "Communication and information at disasters". Users can learn these items above just clicking a mouse.

The cards in the curricula are basically arranged on one route, in other words, ordered just like a book. Users, therefore, must learn items according to the order. This structure of the curricula is not so attractive for users because they can not jump to other items freely. If users can access to an arbitrary item which they want to learn from any item, the effect of learning will be very high. So, we are going to attach a random access function to the structure of the curricula.

This software has been fundamentally developed for school teacher's usage. We will continue to improve it, and at the same time we would like to design new software for schoolchildren's version with which they can learn about earthquake disaster prevention just like playing a game.