

Hazard Literacy Center

Hazard Literacy Education Program

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How Does a Heatwave Affect Our Daily Lives?



1. Program Overview

This program helps students understand heatwaves not simply as periods of high temperatures, but as climate-related hazards whose impacts are shaped by disaster vulnerability. Students explore how the impacts of heatwaves can vary depending on natural and social conditions, such as local climate, living and housing conditions, age, and occupation. Students examine the causes and regional patterns of heatwaves in South Korea and analyze cases of heatwave-related impacts to understand why some people and places are more affected than others. They also create a heatwave safety map of their school to identify areas that may be more vulnerable to extreme heat and develop preventive measures and practical actions to protect people who may be at greater risk. Through these activities, students learn that the impacts of heatwaves result from the interaction between natural hazards, living environments, and social conditions. The program aims to strengthen students' understanding of disaster vulnerability and their capacity to take action to protect themselves and their communities.

Grade Level	Upper Elementary Students	Instructional Methods	Lecture, Inquiry, and Discussion
Learning Environment	Classroom suitable for group activities	Duration	One 40-minute lesson
Required Materials	Heatwave case studies and materials (PPT), heatwave-day data, heat-related illness data, worksheets, sticky notes (for creating a school map by group), colored pencils or markers		

2. Learning Objectives (Hazard Literacy Framework)

① Students will be able to interpret heatwave data to understand the characteristics and regional differences of heatwaves in South Korea.
② Students will be able to identify places and living environments that may be more vulnerable to heatwaves by creating a heatwave safety map of their school.
③ Students will be able to understand disaster vulnerability by considering people and living environments that may be more vulnerable to heatwaves, and propose preventive measures and practical actions.

Learning Objectives	Knowledge & Understanding		Reasoning & Skills					Values & Attitudes			Psychology & Emotion			Behavioral & Practical Engagement		
	A1	A2	B1	B2	B3	B4	B5	C1	C2	C3	D1	D2	D3	E1	E2	E3
Objective ①	O			O	O											
Objective ②		O		O				O						O		
Objective ③		O								O				O		O

3. Key Concepts

- Causes and Characteristics of Heatwaves
- Spatial and Environmental Differences in Heatwave Impacts
- Disaster Vulnerability and Living Environments
- Heatwave-Vulnerable Groups and Social Equity
- Heatwave Response and Community Resilience

4. Program Sequence

	Activity Sequence
Problem Recognition	-Introduce heatwave-related videos and cases to engage students. -Ask the question: “Why might some places be hotter and some people be more affected during the same heatwave?”
Understanding the Hazard	-Analyze the causes of heatwaves and regional heatwave data to understand their characteristics. -Compare regional patterns of heatwaves in South Korea.
Exploring and Understanding Disaster Vulnerability	-Explore places and people that may be more vulnerable to heatwaves by analyzing heatwave impact cases and creating a school heatwave safety map. -Understand why heatwave impacts can vary depending on living environments.
Exploring Responses and Practical Actions	-Explore ways to protect people who may be more affected by heatwaves. -Identify preventive measures and practical actions that individuals and communities can take.

5. Theoretical Background and Activity Design for Disaster Education

Heatwaves are climate-related hazards that are becoming more frequent and intense due to climate change. Their occurrence and duration vary across regions depending on climatic, geographical, and environmental conditions. In this program, students analyze and compare regional data on heatwave days in 2025 from the Korea Meteorological Administration (KMA) to explore the spatial patterns and regional characteristics of heatwaves. Heatwave impacts are also shaped by disaster vulnerability. Vulnerability is influenced by social, economic, and environmental conditions, which can lead to differences in impacts and recovery across people and places exposed to the same hazard (Füssel, 2006; Kee, 2022). Understanding heatwaves therefore requires considering not only how they occur, but also how living environments and social conditions can increase or reduce their impacts. Based on this perspective, the program follows four stages: Problem Recognition, Understanding the Hazard, Exploring and Understanding Disaster Vulnerability, and Exploring Responses and Practical Actions. Students examine heatwave cases and regional data, explore heatwave risks in their school environment, create a school heatwave safety map, and propose preventive measures and practical actions. Through these activities, students develop an understanding of disaster vulnerability and explore ways to reduce heatwave risks for themselves and their communities.

6. Instructional Considerations

Guide students to understand heatwaves not simply as periods of high temperatures, but as hazards whose impacts can vary depending on place, time, and living conditions. Encourage students to analyze heatwave data, compare spatial patterns, and support their ideas with evidence.
When exploring people and places that may be more affected by heatwaves, avoid generalizing certain groups or places as inherently vulnerable. Help students understand that disaster vulnerability can be shaped by various natural and social conditions, such as age, health, housing, occupation, and living environments. During discussions, encourage students to respect different perspectives and avoid viewing differences in heatwave impacts solely as a matter of individual responsibility. Emphasize the importance of considering social and environmental conditions and working together to reduce heatwave risks within the community.

7. References

- Füssel, H.-M. (2007). Vulnerability: A generally applicable conceptual framework for climate change research. Global Environmental Change, 17(2), 155–167.
- Kee, K. D. (2022). Natural hazards as the subject of geography education. The Journal of the Korean Association of Geographic and Environmental Education, 30(1), 105–122. https://doi.org/10.17279/jkagee.2022.30.1.105
- Korea Meteorological Administration. (2025). Open MET Data Portal: Climate statistics analysis–Number of days with weather phenomena–Heatwave days (distribution map). KMA Open MET Data Portal

	How Does a Heatwave Affect Our Daily Lives?
What Will We Learn?	① Students will be able to interpret heatwave data to understand the characteristics and regional differences of heatwaves in South Korea. ② Students will be able to identify places and living environments that may be more vulnerable to heatwaves by creating a heatwave safety map of their school. ③ Students will be able to understand disaster vulnerability by considering people and living environments that may be more vulnerable to heatwaves, and propose preventive measures and practical actions.

1 Where Do Heatwaves Occur Most Often in South Korea?

- Where do you think the hottest areas in South Korea are during the summer?

- A heatwave day is a day when the daily maximum temperature is 33°C or higher. Using the 2025 heatwave-day data from the Korea Meteorological Administration (KMA), examine the regional distribution of heatwaves and identify its characteristics..

1) Use the data to color the map and indicate the number of heatwave days by region.



2) Look at the completed map and identify the regions with the most and fewest heatwave days..

Region with the most heatwave days: _____

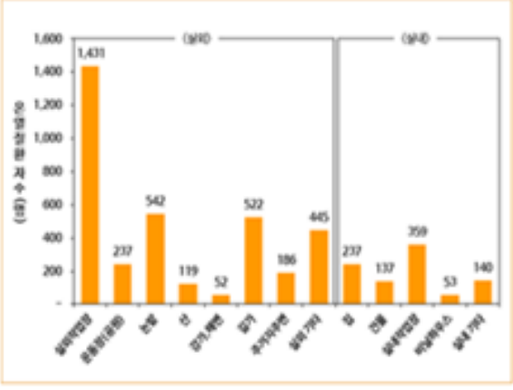
Region with the fewest heatwave days: _____

Why do you think the number of heatwave days varies by region?

2 Why Do Heatwave Impacts Vary?

1) Look at the data below and answer the questions.

〈By Location〉



〈By Age Group〉



Location where the most heat-related illnesses occurred: _____

Age group with the most heat-related illnesses: _____

Why do you think heatwave impacts vary by location and age group?

3 Shall We Create a Heatwave Safety Map of Our School?

Look at the school map and identify places that may be more affected by heatwaves at different times of the day and relatively safe places. Then create a heatwave safety map.

활동 방법

① In your group, draw a simple map of the school using the materials provided. ② Think about places that may be more affected by heatwaves at different times of the day and mark them on the map. ③ Discuss why you marked each place that way. ④ Based on your group's safety map, compare how heatwave risk may vary by place and time and identify relatively safe places.

표시 방법

- Places that may be more affected by heatwaves(places with strong sunlight or where heat may build up)
- Places where caution is needed(places that may become hot depending on the time of day)
- Relatively safe places(places with shade or air conditioning)
- Time of day(e.g., morning / lunchtime / afternoon / after school)



1) Mark the level of heatwave risk for different places and times of the day, and explain your reasons.

Place	Time of Day	Mark	Reason (Why do you think so?)

2) Choose the safest place to rest on the school map and present your choice to your classmates..

3) Discuss what we can do at school during a heatwave.

4 Let's Review

- Even during the same heatwave, the level of impact can vary depending on place, time, and living environment.

  1) Think of two people who may be more affected by heatwaves and explain why they may be more affected.

① _____

Reason:

② _____

Reason:

2) What efforts are needed to help people who may be more affected by heatwaves stay safe?

① What can you do?

② What can people around you (family, friends, teachers, and neighbors) do to help?

③ What can the local community do to help?

④ What can the government do to help?