

The 15th e-ICON World Contest

Preliminary Training - Session 2



Exploring the Phenomenon and Defining Attributes -Session 2-

Learning Guide

Let us explore today's learning objectives.

Today, we will explore the phenomenon of resilience and define related attributes.

- 1) Examine the phenomenon of resilience.
- 2) Identify the factors that influence resilience.
- 3) Define the attributes that make up the resilience phenomenon.

<Session 2: Overview Video>

영상 링크: <https://youtu.be/ntG0lvSeqsw>

Places That Have Recovered from Climate Change

As shown in the video below, climate change threatens human life and devastates ecosystems.

(Watch Video)([Click Here](#))


영상 링크: <https://www.youtube.com/watch?v=SB60Ls2O2ik>

However, despite the significant damage caused by climate change, some places have managed to recover. For instance, regions that faced severe droughts have implemented new agricultural methods to produce food, and villages flooded by typhoons and rising sea levels are adapting to the changes and continuing to thrive.

In this way, we will watch a video that shares the stories of regions and communities that have recovered despite the impacts of climate change, and reflect on our thoughts and feelings.

<Places That Have Recovered from Climate Change>

영상 링크: <https://youtu.be/MMhbl9WFykY>

 **(Activity)** Select the words that reflect your feelings about the **places that have recovered from climate change** from the list, and click the Emotion Box to place them.

Select the words that reflect your feelings about the places that have recovered from climate change from the list, and click the Emotion Box to place them.

Glad

Happy

Satisfied

Pleased

Thrilled

Excited

Angry

Annoyed

Frustrated

Dislike

Bored

Unpleasant

Upset

Painful

Despairing

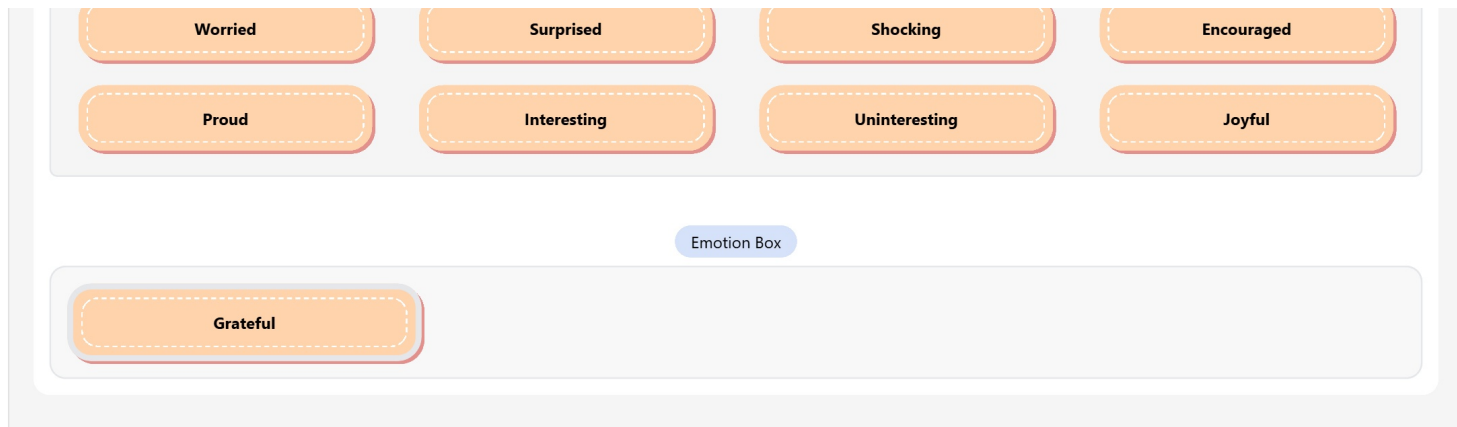
Pity

Depressed

Sad

Anxious

Scared

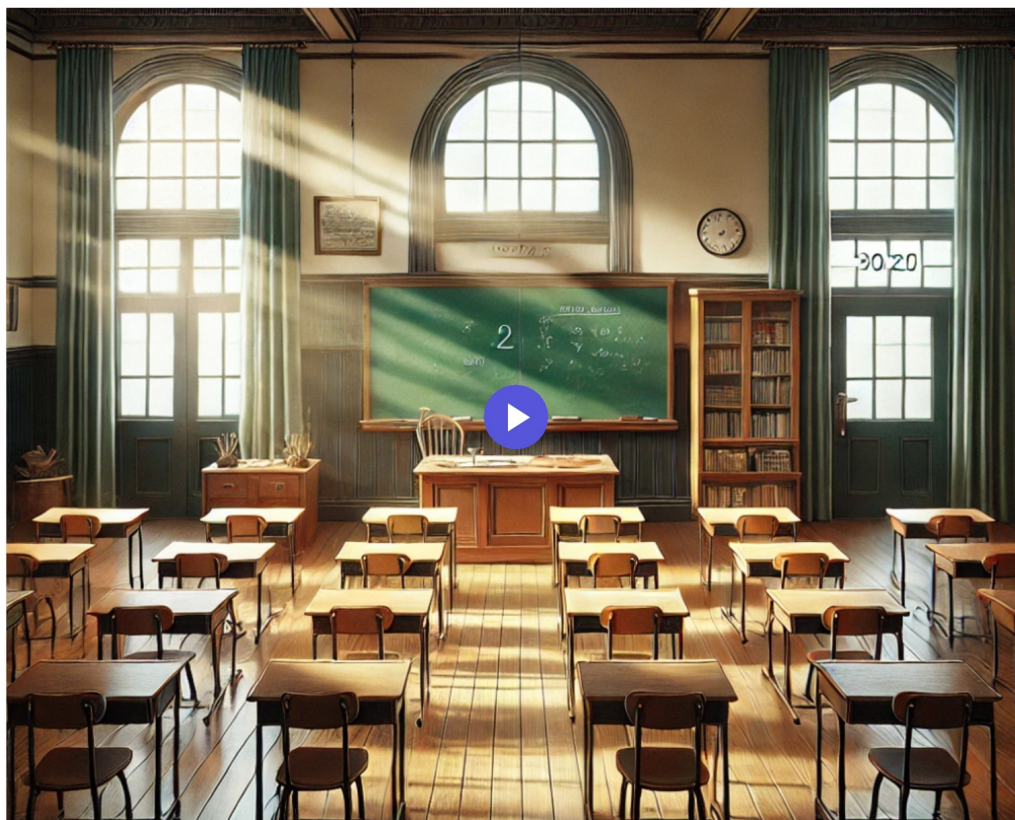


제출

(Activity) Click the play button to enter the metaverse and converse with your AI friend to share your thoughts and feelings about places that have recovered from climate change.

<Interaction Guidelines>

1. Approach your AI friend and start the conversation.
2. Share with your AI friend the information you know about cases where communities have suffered from climate change but have recovered and overcome it.
3. Ask questions about the new information your AI friend shares and engage in a conversation about it.
4. Express your thoughts and feelings about the cases you have discussed with your AI friend. After sharing your feelings with each other, conclude the conversation.
5. Exchange your perspectives and conclude the conversation.



What is Resilience?

We have explored examples related to resilience. Then, what is resilience?

Let us explore the meaning of resilience through the explanation below.

What is Resilience?

Resilience refers to **the ability to maintain or quickly recover and adapt to original functions, even when the environment changes or unexpected shocks occur.**

In other words, it is the strength to recover again without collapsing, even in difficult situations.

Resilience plays an important role **not only in natural ecosystems but also in human societies**, economic systems, and various fields. For example, if a village quickly recovers after a strong typhoon passes, that society is considered to have high resilience.



Resilience consists of "**recovery + adaptation + sustainability.**" It describes the ability of the environment and society to **persist, adapt to changes, and continue functioning**, even in the face of external challenges such as climate change.



(Activity) Interact with the AI tutor and review the following key points. Click the key points for personalized explanations and complete the quiz.

핵심으로 기억해야 할 내용

Resilience is the ability to recover, adapt, and sustain oneself even amidst external changes or shocks.

문항

기록 보기

The Relationship Between Climate Change and Resilience

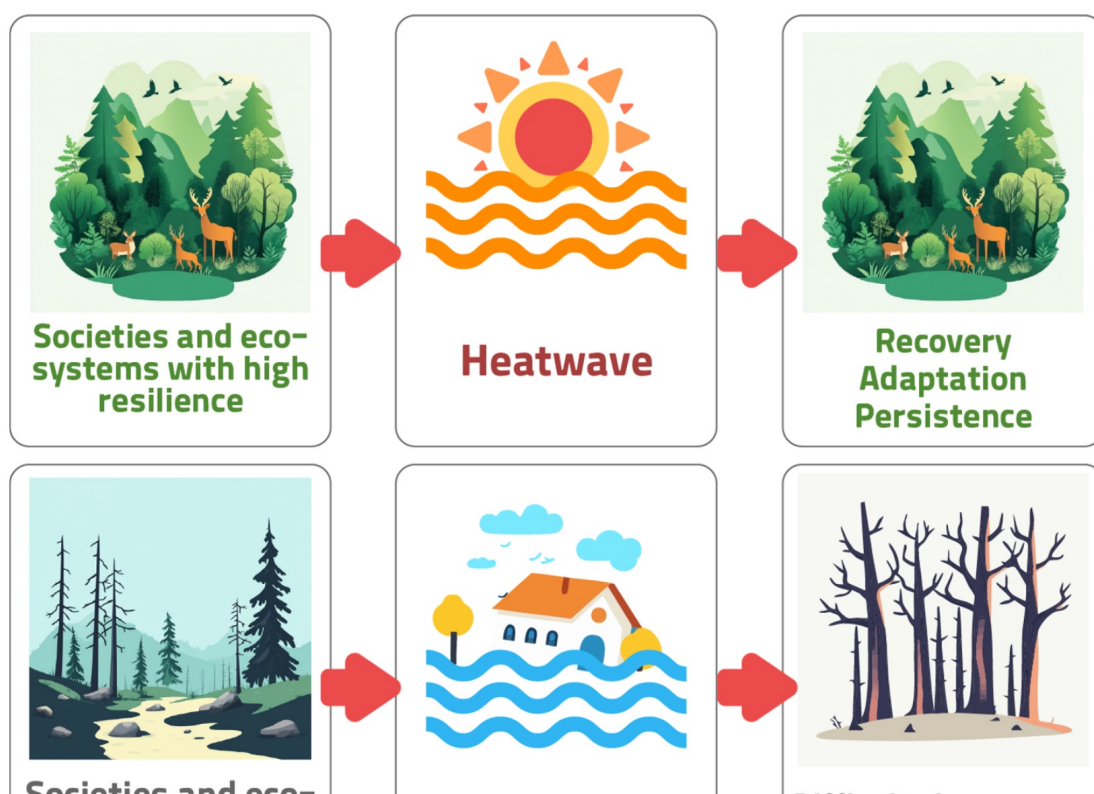
Climate change is causing increasingly extreme weather events, such as intense heatwaves, droughts, and floods. Areas lacking the capacity to respond effectively are suffering significant damage.

So, how important is **resilience** — **the ability to recover and adapt** — in the face of climate change? Let's explore together.

The relationship between climate change and resilience.

Extreme weather events such as heatwaves, droughts, floods, and rising sea levels are occurring due to climate change.

Societies and ecosystems with **high resilience can adapt to changes and continue to thrive**, whereas those with low resilience suffer greater damage and find it difficult to recover.




A society (ecosystem) with high resilience can introduce new technologies or create nature-based solutions to **reduce damage and maintain sustainability, even amidst climate change impacts such as rising sea levels, floods, and droughts.**

For example, it adapts to changes by implementing floating agriculture (farming on water) or designing cities that naturally accommodate floods.

On the other hand, a society (ecosystem) with low resilience **lacks preparedness, resulting in significant damage and difficulty recovering.** Cities may be destroyed by typhoons and floods, or food shortages may worsen due to droughts.

Therefore, resilience is essential for **adapting to climate change and creating a sustainable future.**

 **(Activity)** The <examples> below describe societies (ecosystems) with high and low resilience. Let's categorize the descriptions into the appropriate boxes.

Let's categorize the descriptions into the appropriate boxes.

Societies (ecosystems) with high resilience

Can quickly recover from damage and maintain sustainability

When damaged, the functions of society and ecosystems break down, making sustainability difficult.

Introduces technologies and solutions to adapt to climate change

Societies (ecosystems) with low resilience

Recovery is slow or difficult after a natural disaster

Minimizes damage in preparation for natural disasters like floods and droughts

Lack of preparedness for climate change leads to greater damage

제출

Factors Affecting Resilience (1) Natural Factors

Let us explore the first factor affecting resilience: **natural factors.**

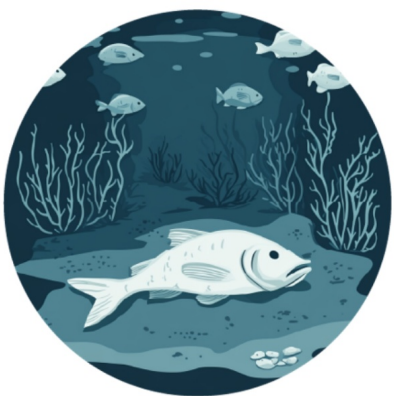
Natural Factors that Enhance Resilience

1. **High biodiversity** – When a variety of species exists, ecosystems recover more quickly.
2. **Maintaining healthy ecosystems** – Preserved forests, rivers, and oceans increase the ability to adapt to climate change.
3. **Protecting wetlands and forests** – Serve as natural buffers, helping to prevent floods and rising sea levels.



Natural Factors that Reduce Resilience

1. **Decreased biodiversity** – Monoculture farming, the cultivation of single crops or habitat destruction, simplifies the food chain and disrupts the balance of ecosystems.
2. **Environmental destruction** (deforestation, pollution, etc.) – When forests are lost or water is polluted, habitats disappear, weakening species' adaptability and hindering natural recovery.
3. **Coral reef destruction** – Coral reefs serve as both habitats and protective barriers for marine ecosystems. When destroyed, marine life loses its home, and recovery is slower.



Let's categorize the descriptions into the appropriate boxes.

Monoculture Farming

Clean Oceans

Increase in Biodiversity

Forest Protection

Deforestation

Natural Factors that Enhance Resilience

Water Pollution

Natural Factors that Reduce Resilience

제출

Factors Affecting Resilience (2) Social Factors

Let's explore the second factor influencing resilience: **social factors**.

Social Factors that Enhance Resilience

1. **Climate change mitigation policies** – Flood protection infrastructure, disaster prevention systems, and carbon emission regulations can reduce damage and facilitate quicker recovery.
2. **Community cooperation** – When local communities collaborate on disaster preparedness and training, resilience increases.
3. **Resilient economic structures** – Having diverse industries, along with stable food and energy supply systems, makes it easier to respond to crises.



Social Factors That Reduce Resilience

1. **Lack of climate change mitigation policies** – Without adequate preparedness, the damage from natural disasters increases, and recovery is delayed.
2. **Deepening social inequality** – When resources are concentrated in certain segments of society, vulnerable groups lack the ability to respond to disasters and suffer greater damage.
3. **Urbanization and indiscriminate development** – Expanding cities without adequate planning increases risks such as floods and urban heat islands.



(Activity) The <examples> below describe various social factors that either enhance or reduce resilience. Let us categorize these factors into the appropriate boxes.

Let's categorize the factors into the appropriate boxes.

Lack of climate change mitigation policies

Disaster preparedness training

Diverse industries & Stable energy and food supply

Climate change mitigation policies

Indiscriminate urban expansion

Social inequality

Social Factors That Enhance Resilience

Social Factors That Reduce Resilience

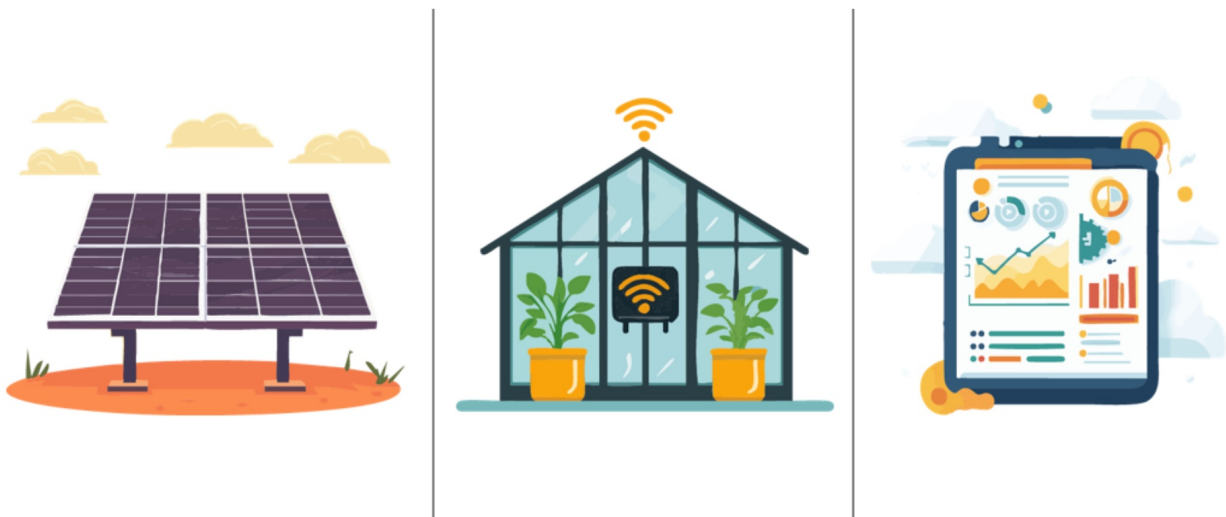
제출

Factors Affecting Resilience (3) Technological Factors

Let us explore the third factor affecting resilience: **technological factors**.

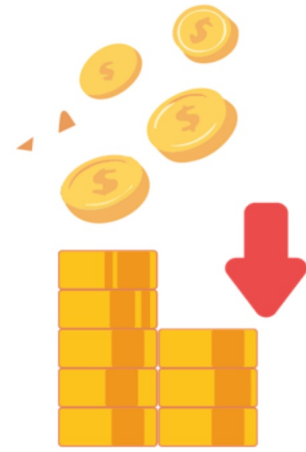
Technological Factors that Enhance Resilience

1. **Development of eco-friendly technologies** – Utilizing renewable energy, carbon capture technologies, and climate prediction systems can reduce greenhouse gases and improve disaster response capabilities.
2. **Utilization of smart agriculture** – Through water-saving farming methods and the development of climate-adaptive crops, food can be produced reliably even in the face of climate changes such as droughts or floods.
3. **Climate prediction and disaster warning systems** – Early predictions of events like typhoons and floods allow for prompt evacuations and minimized damage.



Technological Factors That Reduce Resilience

1. **Industries that cause environmental pollution** – If the use of fossil fuels increases and factory wastewater discharge continues, air and water pollution will intensify, reducing the resilience of ecosystems.
2. **Inefficient energy use** – A high dependency on fossil fuels such as coal and oil, rather than renewable energies like solar and wind, increases carbon emissions, accelerates climate change, and raises the frequency of disasters.
3. **Disparity in access to technology** – While developed countries can develop and utilize climate change mitigation technologies, developing countries face difficulties in effectively responding due to cost burdens and a lack of infrastructure, leading to greater damage.



(Activity) The <examples> below describe a variety of technological factors that either enhance or reduce resilience. Let us review these factors and categorize them into the appropriate boxes.

Let's categorize the factors into the appropriate boxes.

Use of solar energy

Factories using fossil fuels

Factories discharging wastewater

Climate prediction and disaster warning systems

Smart agriculture

Lack of climate change mitigation technologies

Technological Factors That Enhance Resilience

Technological Factors That Reduce Resilience

제출

Analysis and Summary of Resilience

To better understand the resilience, answer the questions and make a flowchart to represent the factors affecting resilience.

(Activity) Answer the questions below by using the provided keywords and the knowledge we have learned so far.

<Keywords>

Biodiversity, Climate Change Policies, Renewable Energy, Smart Agriculture, Climate Prediction Systems, Disaster Warning Systems, Sustainable Consumption, Carbon Tax, Fossil Fuel Use, Urbanization, Indiscriminate Development,

Tree Planting, Public Transport Use, Energy Conservation, Reducing Food Waste, Recycling, Community Cooperation, International Cooperation, Food Supply Chain Stability, Forest Protection, Wetland Conservation, Coral Reef Health, Environmental Pollution

*What actions can be taken to prepare for climate change and natural disasters?

[2050] is-empty

[2049] tiptap

제출

*What factors contribute to enhancing resilience?

[2083] is-empty

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제출

*What factors contribute to weakening resilience?

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제출

✔ 8

(Activity) The following flowchart illustrates the process of a society experiencing environmental changes due to climate change.

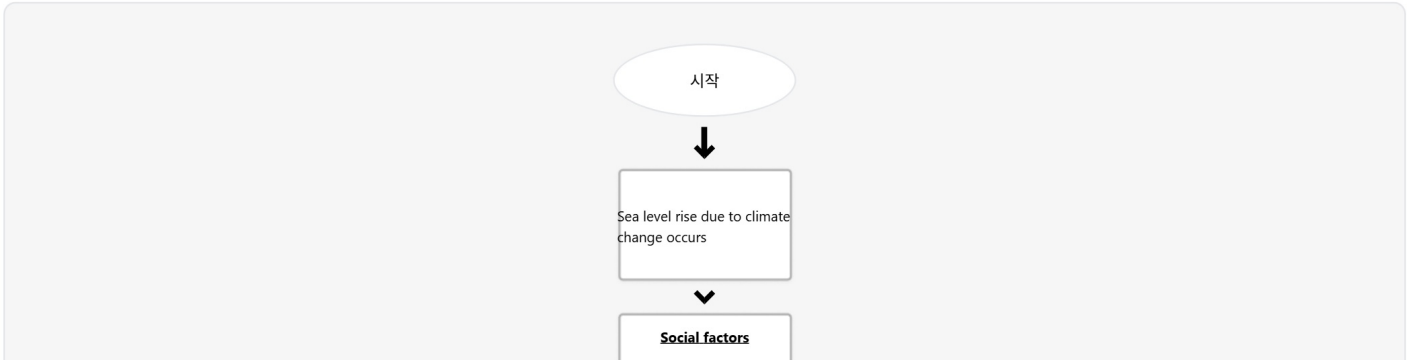
Review each flowchart and select the appropriate factors from the <examples> that positively or negatively influenced the society’s resilience to complete the flowchart.

<Examples>

- 1. Maintaining healthy ecosystems
- 2. Lack of climate change mitigation policies
- 3. Establishing climate change mitigation policies
- 4. Industries causing environmental pollution

Societies (ecosystems) with high resilience

크기: 중

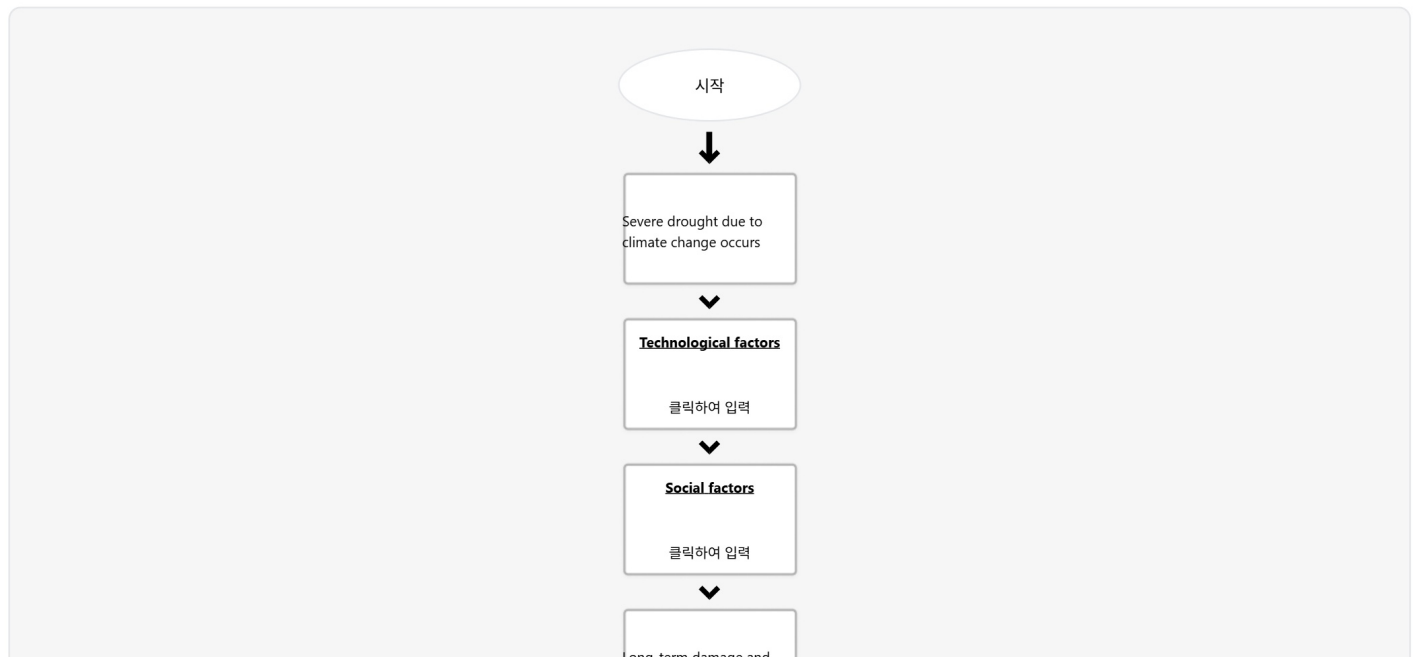




제출

Societies (ecosystems) with low resilience

크기: 중




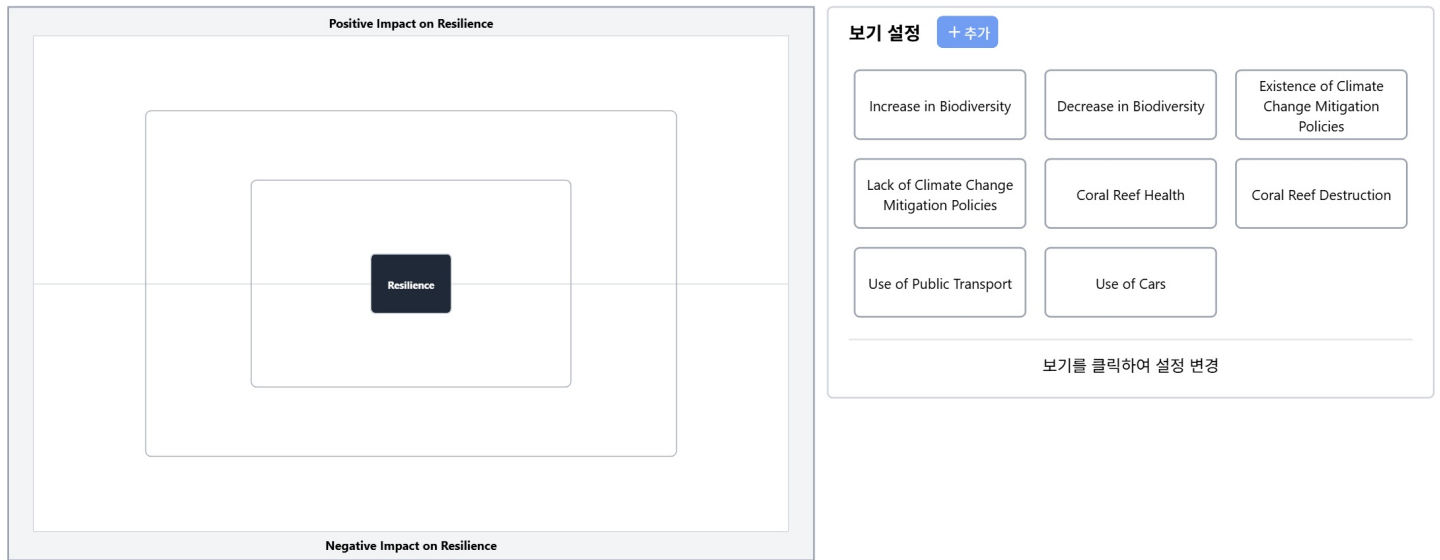
제출

Exploring the Phenomenon and Creating a Relationship Map - Session 2 -

Creating a Relationship Map Related to the 'Resilience' Phenomenon

Place the items related to the phenomenon within the designated area and connect them to create a relationship map. The theme of this relationship map is '**Resilience**.'


 **(Activity)** Refer to the <Guidelines> and create a relationship map representing the **'Resilience.'**



Reflecting on My Emotions Regarding the Phenomenon

In this session, we have explored '**Resilience.**' As we face a changing environment and society due to climate change, 'Resilience' is becoming increasingly important in crisis response and sustainable development.

Let's reflect on the thoughts and feelings when we first encountered this phenomenon.

 **(Activity)** Are the emotions you felt when first encountering the phenomenon the same as your current emotions after gaining a deeper understanding? Compare your current feelings with your initial emotions.

(If your feelings have changed, explain the reasons. If they remain the same, provide an explanation for this consistency.)

[2888] is-empty
[2887] tiptap

제출

(Activity) Access the metaverse and engage in a conversation with your AI friend to reflect on your thoughts and emotions regarding the phenomenon explored in this session.

<Interaction Guidelines>

1. Approach your AI friend and start the conversation.

2. Share with your AI friend the thoughts and emotions you had when you first encountered the phenomenon, as well as the thoughts and emotions you have now after exploring it.
3. Ask questions about the new information your AI friend shares and engage in a conversation about it.
4. After discussing each other's emotions and asking all your questions, end the conversation.

