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**Methodological Guidelines for the workshops based
on simulation Minecraft games related to
appropriate response to natural disasters**





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Erasmus+ School Education Project

**Simulation Training and Gaming to Raise Awareness about Climate Change and to behave
appropriately in case of Natural Disasters for Secondary Schools – ECOSTAND**

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Methodological Guidelines for the workshops based on simulation Minecraft games related to appropriate response to natural disasters

2025



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1. Introduction about gamification and social simulation games in education

➤ What is Gamification and Game-Based Learning?

The Rise of Gamification in Education

Over the past decade, gamification has become increasingly popular in many sectors, including education, business, and digital communication. Its growing use is linked to its ability to engage and motivate target audiences, often with highly successful outcomes. In the field of education, gamification provides teachers with new tools to capture students' attention and support their learning in a more interactive way.

Research shows that learners are more likely to stay motivated when activities are broken into smaller sessions and repeated over time, rather than in one long lesson. Gamification techniques can support this approach by structuring learning into short, focused challenges, combined with rewards and feedback that encourage progression.

Defining Gamification and Game-Based Learning

While the terms "gamification" and "game-based learning" are sometimes used interchangeably, they represent two distinct but complementary concepts.

Gamification refers to the use of game elements — such as points, badges, levels, rewards, challenges, storytelling, or competition — applied to a non-game context. In education, this means integrating these elements into traditional learning environments to increase students' motivation, engagement, and participation.

Game-based learning, in contrast, is the use of actual games designed with educational objectives in mind. These games create a playful environment in which students acquire new knowledge or develop specific skills while playing. The learning process is embedded within the game itself.

Both approaches share a common goal: making learning experiences more engaging and effective by introducing elements of play and challenge.

Benefits of Gamification and Game-Based Learning for Students

Numerous studies confirm the positive impact of gamification and game-based learning on student engagement and learning outcomes. When educational content is presented in the form of a game, students are encouraged to actively participate, experiment, and problem-solve. Games foster collaboration, critical thinking, creativity, and decision-making skills.



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Gamified learning experiences are particularly effective with younger generations who are already familiar with digital environments and video games. For students, learning through games provides a safe space to test ideas, make mistakes, and receive instant feedback without fear of failure.

In addition, digital games can foster social interaction, teamwork, and peer learning when played in groups or in classroom settings.

Why Use Games in Schools?

There is growing evidence to suggest that gamification is increasingly accepted as an effective learning strategy in schools. Digital games are seen as valuable educational tools capable of supporting teachers in their mission to create inclusive, dynamic, and student-centred learning environments.

By integrating game elements or game-based learning into their teaching practices, educators can:

- Increase students' attention and concentration
- Encourage active participation
- Create a positive and motivating learning environment
- Support long-term knowledge retention
- Facilitate the development of transversal skills such as collaboration, communication, and problem-solving

In the context of environmental education and climate change awareness, games offer an innovative way to help students understand complex topics, explore different scenarios, and adopt responsible behaviours.

➤ Why Minecraft Education?

The Potential of Games in Learning

Although gamification and game-based learning are two distinct approaches, they share a common principle: both use elements from games to make learning more engaging, meaningful, and effective. Game-based learning, in particular, allows students to acquire knowledge or develop new skills through direct experience, experimentation, and problem-solving within a game environment.

Games are not only a source of entertainment — they are also powerful tools to foster active participation, creativity, and collaboration in the classroom. When students are immersed in a game, they are encouraged to interact, explore different scenarios, and learn by doing. This form of learning is particularly effective for younger generations who are already familiar with digital environments.



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Why Minecraft Education?

Minecraft Education is a well-known and widely used educational platform that supports game-based learning across various subjects, including science, geography, history, mathematics, and citizenship education. It provides an open and flexible digital environment where students can build, explore, and collaborate within virtual worlds.

Several characteristics make Minecraft Education particularly relevant for educational purposes:

- It promotes creativity, as students can design and modify their environment.
- It enhances problem-solving skills by placing students in situations where they need to find solutions to challenges.
- It fosters collaboration and teamwork through multiplayer activities.
- It develops digital skills and spatial awareness.
- It enables experiential learning, where students learn through action and experimentation.

Moreover, Minecraft Education is already used in schools worldwide, and many teachers are familiar with its interface and functionalities. Its flexible design makes it easy to adapt for different subjects and age groups.

Why Minecraft for This Project?

For this specific project — focused on raising awareness about climate change and learning appropriate behaviours in case of natural disasters — Minecraft Education offers a unique opportunity.

The virtual worlds created within the game allow students to navigate realistic simulations of natural disasters such as earthquakes, floods, storms, heatwaves, droughts, and snowstorms. Within these simulations, students are confronted with different situations where they need to act, make decisions, and apply the correct safety behaviours.

This immersive experience helps transform theoretical knowledge into practical skills. It also enables teachers to create a safe learning environment where students can experiment without real-life risks. By facing virtual challenges and exploring the consequences of their actions, students can better understand the importance of risk prevention and responsible behaviour in the face of climate change and environmental hazards.

Finally, Minecraft Education encourages students to work together, discuss their actions, and reflect on their decisions — making it a valuable tool not only for individual learning but also for promoting communication, teamwork, and critical thinking in the classroom.



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Why is this Minecraft Game Useful for Teachers and Students?

Learning through Simulation and Experience

In the context of this project, the developed Minecraft Education games have been specifically designed to support teachers in raising students' awareness about climate change and natural disasters. The game offers immersive simulations of different natural hazards such as earthquakes, floods, storms, heatwaves, droughts, and snowstorms.

By navigating these scenarios, students are not only introduced to the causes and consequences of natural disasters, but they are also guided to understand and practice the correct behaviours to adopt in such situations. This experiential approach allows students to learn safety rules and appropriate reactions in a safe, virtual environment — before they might face real-life situations.

Supporting Teachers in the Classroom

The Minecraft Education game developed for this project is designed to be a flexible and user-friendly tool for teachers. It can easily be integrated into classroom activities, either as a complement to theoretical lessons or as a starting point for discussion and reflection.

Teachers do not need advanced technical skills to use the game. The guidelines provided in this document will explain step-by-step how to access the game, how to use it with students, and how to adapt the learning scenarios to different age groups or classroom needs.

In addition, this approach supports key educational objectives:

- Developing problem-solving skills
- Encouraging collaboration and teamwork
- Raising awareness about environmental issues
- Promoting responsible behaviour in risk situations

Learning in a Motivating and Engaging Way

Finally, using a game like Minecraft Education responds to a key challenge in modern education: maintaining students' motivation and active participation. Today's learners are familiar with digital environments, and they naturally engage with interactive tools and playful challenges.

This project takes advantage of these dynamics to create an educational experience that is not only informative but also enjoyable and memorable. Learning through play helps students retain knowledge better and promotes positive attitudes towards responsible behaviour in the face of natural disasters.



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About the next parts of this methodological guide

The combination of gamification strategies, game-based learning, and the use of Minecraft Education offers a powerful approach to support environmental education and disaster preparedness in schools.

This project provides teachers with innovative resources to engage students in meaningful learning activities, while helping them to develop key competences for the future — including critical thinking, problem-solving, and responsible citizenship.

The following sections of this document will provide detailed guidelines to help teachers implement the game in their classrooms effectively.

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2.Introduction to Minecraft Education Edition

The following document is a handbook directed to teachers, educators and IT specialists to guide their trainees in achieving the challenges of the game. This document is strictly for teachers and people you will internally pilot the game. Students do not need access to this information.

This guide gives information on the initial steps to download and run the game as well as to navigate through the created worlds. The document also includes detailed scenarios with the scope of each activity so that teachers can organize their lesson plan before introducing this activity. Each activity includes hacks to let teachers check if their students accurately performed the activities.

Game specs, account setup and download

Before you start, you need to download the Minecraft Education Edition Package according to the requirements of your device. You can find the edition at the following Link:
<https://education.minecraft.net/en-us/get-started/download>

If your computer runs in Microsoft Windows S mode, you need to deactivate the S mode to be able to download the Minecraft Education Edition.

How to deactivate Microsoft S mode.

Using the Microsoft S mode, the user can only access apps downloaded from the Microsoft App Store. To deactivate the S mode, you need:

- To create a new Microsoft account that is not licensed as a work or school
- Connect this Microsoft account to the laptop
- Then on your PC running Windows 10 in S mode, open Settings > Update & Security > Activation.
- Find the Switch to Windows 10 Home or Switch to Windows 10 Pro section, then select the Go to the Store link.

Note: Don't select the link under Upgrade your edition of Windows. That is a different process that will keep you in S mode.



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- On the page that appears in the Microsoft Store (Switch out of S mode or a similar page), select the Get button. After you confirm this action, you will be able to install apps from outside the Microsoft Store.

<https://answers.microsoft.com/en-us/windows/forum/all/s-mode-how-to-turn-off-windows-10/53ce25ce-734b-48b8-8d1e-baa5adb5d88b>

To start using the game you need to acquire a Minecraft Education License. There are 2 types of licences to be acquired, academic and commercial. Visit the following link to check the license you are eligible for: [Purchasing Options for Minecraft Education Licenses](#)

Run the worlds

Once you download the Minecraft Education Edition, you need to have the worlds named “McWorld” files. Once you double-click these files, they will automatically open the Minecraft Education system. It will request you log in with the account for which you acquired a license from Microsoft for Minecraft Education. The worlds require the latest Minecraft Education version to work properly.

Another option will be to import the world manually. When loading the game, after adding your credentials, press play and then you will see on the right bottom part the “Import” button.

Do you face any other problems when loading the world? See if any of these solutions might help.

PROBLEM: The world doesn't have any NPC in it.

SOLUTION: That means that the BEHAVIOR PACK didn't load appropriately with the world.

Exit the world (but not the Minecraft app). Find the world you are looking for and select SETTINGS. On the left side of your screen try to find the TAB that says BEHAVIOR PACKS. Then you will see two TABS on the main screen. ACTIVE PACKS and MY PACKS. Your behaviour pack should be in the tab MY PACKS, which you should click and select activate. If you are unsure what pack you need, look at the ACTIVE PACKS; one of those should say that "This pack is missing". Find the Pack with the same name on the MY PACKS tab and activate it.

PROBLEM: The world has boards that have weird text, say something like the board. Act.1. NPCs have weird dialogue. ETC

SOLUTION: That means that the RESOURCE PACK didn't load appropriately with the world. Exit the world (but not the Minecraft app). Find the world you are looking for and select SETTINGS. On the left side of your screen try to find the TAB that says RESOURCE PACKS.



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Then you will see two TABS on the main screen. ACTIVE PACKS and MY PACKS. Your behaviour pack should be in the tab MY PACKS, which you should click and select activate. If you are unsure what pack you need, look at the ACTIVE PACKS; one of those should say that "This pack is missing". Find the Pack with the same name on the MY PACKS tab and activate it.

Check if you are facing both of these problems, go to both of these solutions

PROBLEM: The world is in a different language.

SOLUTION: The STEM4CLIM8 worlds are translated into different languages. Maybe you have a world that is in a different language than yours. Find the appropriate language and start again. If this doesn't work, set the language of the Minecraft app according to your preference through the SETTINGS. In the English version select the English US option, not the UK.

Navigation

Once you open the world, you will need to navigate the game. Navigation is possible using your keyboard and mouse. The buttons of the keyboard to be used are:

- W – Move Forward
- A – Move Left
- S – Move backwards
- D – Move right
- SPACE - Jump (Double SPACE to fly when runs in the creative mode)
- E – Open Inventory
- Q – Throw the selected object
- T – Open the chat
- C - Open Code Builder
- / - Open chat and automatically add the first character as "/"

You can point the direction also by moving your mouse.



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WE DO

NAVIGATING BASICS

Here's all the
items you see on
your screen and
what they mean.



MINECRAFT
EDUCATION EDITION





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3. Methodological guidelines Minecraft game-based about floods and storms

This guide details the design and structure of an educational game in Minecraft Education Edition whose objective is to teach players about the formation of floods and storms, how to react to them, and how to stay safe during these natural events.

I. Learning Objectives:

- Understand how floods and storms form.
- Identify important safety measures before and during a storm or flood.
- Become familiar with the essential elements of an emergency kit.
- Develop decision-making skills in simulated emergency situations.
- Raise awareness about the dangers of contaminated water after a flood.

II. Game Structure and Pedagogical Methodology:

The game follows a linear structure guided by characters and messages, using active player interaction to reinforce learning concepts. The methodology is based on:

- **Scenario-Based Learning:** Players face a realistic situation (the imminent arrival of a storm and flood) and must apply the acquired knowledge to prepare and react.
- **Active Learning:** Constant interaction (right-clicking to talk, searching for objects, using items) keeps the player engaged and facilitates information retention.
- **Guidance and Support:** Characters (Team Leader, mother, father) act as guides, providing information and step-by-step tasks.
- **Immediate Feedback:** On-screen messages and character responses provide feedback on the player's actions.
- **Visualization and Context:** The Minecraft environment and visual simulation help contextualize the information and make it more memorable.
- **Guided Discovery:** Although the narrative is linear, the search for objects and the application of solutions require the player to explore and think actively.



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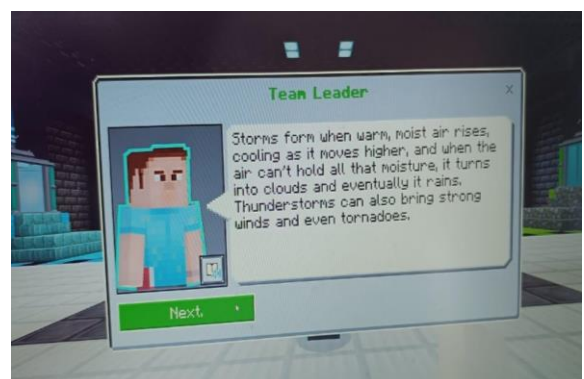
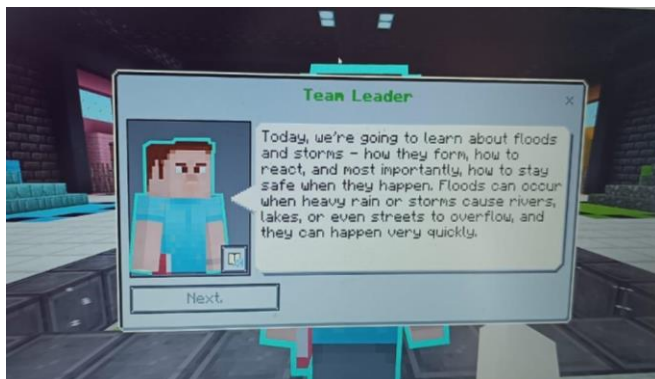
III. Detailed Development of Game Steps and Specific Methodology:

The following details each step of the game, analyzing its pedagogical function and the Minecraft mechanics used:

- **Initial Interaction with the Team Leader:**
 - Introduction of the guiding character and the basic interaction mechanic in Minecraft. Encourages exploration and response to instructions.



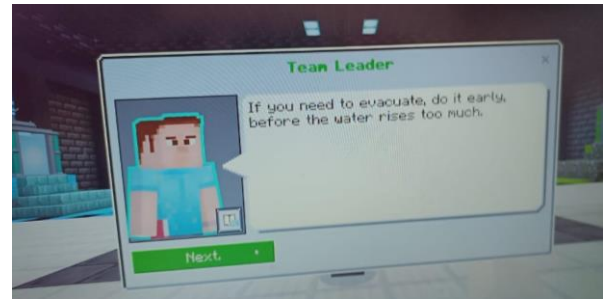
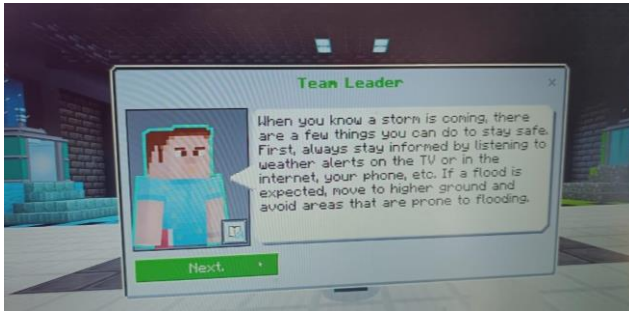
- **Introduction to the Topic by the Team Leader:**
 - Clear presentation of the topics to be covered, establishing the game's context as a learning experience and explanation of the lesson objectives (floods and storms, formation, reaction, and safety).



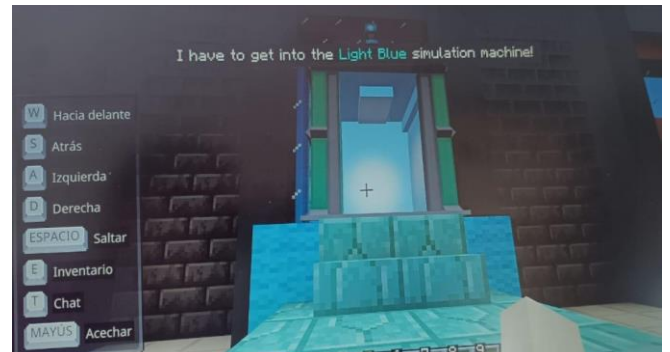


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- **Explanation about Formation and Safety Tips by the Team Leader:**
 - The Team Leader provides key information about the formation of floods and storms, along with practical advice on how to stay safe.



- **Access to the Simulation Machine:**
 - Transition to a practical simulation environment where the player will apply what they have learned. The distinctive color of the machine facilitates its identification.

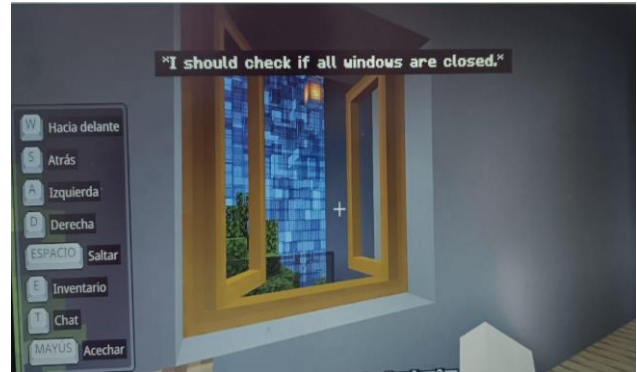
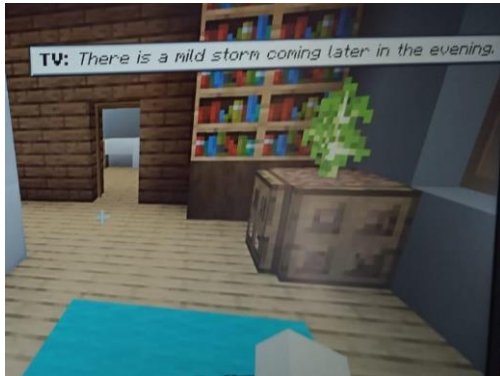




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- **Storm Alert and Closing Windows:**

- A news report on the TV announces the arrival of a storm in the afternoon and the need to check that all windows are closed.



- **Searching for and Filling the Water Bottle:**

- A message indicates the need to find and fill a water bottle. Blue arrows guide the player to each element (Bottle, tap).

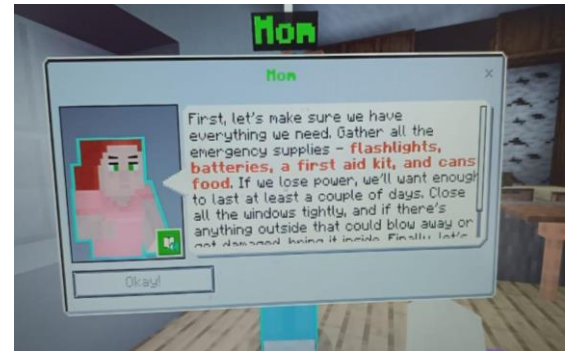
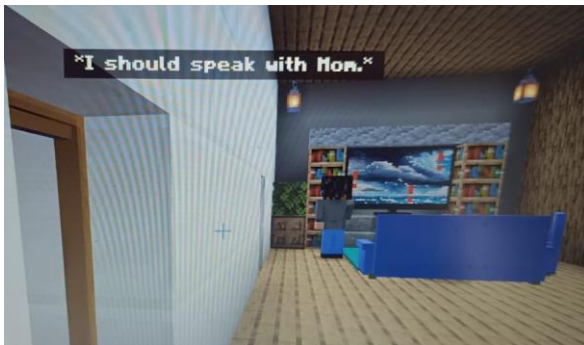




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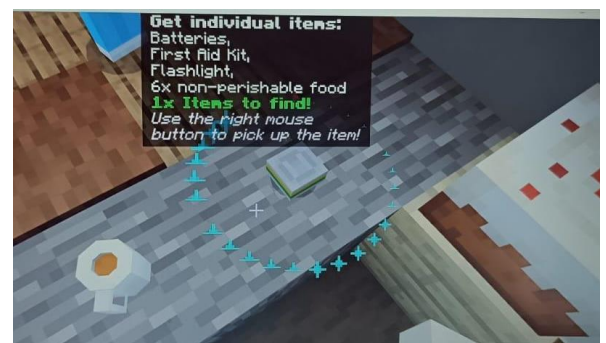
- Talking to the Mother:

- Introduction of another guiding character who provides a new list of tasks related to emergency preparedness. The mother states that the player needs to check if they have everything necessary: flares, batteries, first aid kit, and canned food.



- Searching for the Items:

- Search for the items mentioned by the mother (9 in total) around the house. A blue circle around each object makes it easy to locate. Right-click to pick them up.



- Instruction to Unplug Electronic Devices:

- The mother instructs the player to unplug all electronic devices and give them to her to put on the highest shelf in the house.





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- Searching for Electronic Devices:

- Search for the 5 devices laptop charger, power bank, radio, toaster, and laptop around the house, located with blue circles and picked up with a right-click.



giving th



- The mother says she will store the devices on the shelf and will unplug the TV.



- New Alert about Floods and Faster Storm Progression:

- A new report on the TV says there are floods in some parts of the city and the storm is advancing faster than expected.

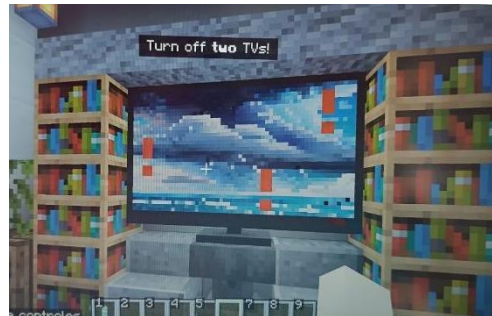




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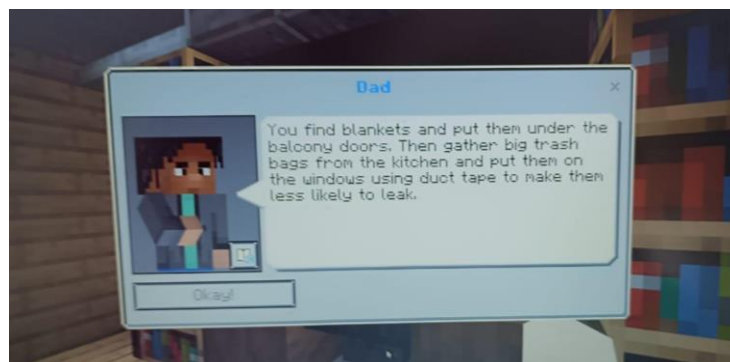
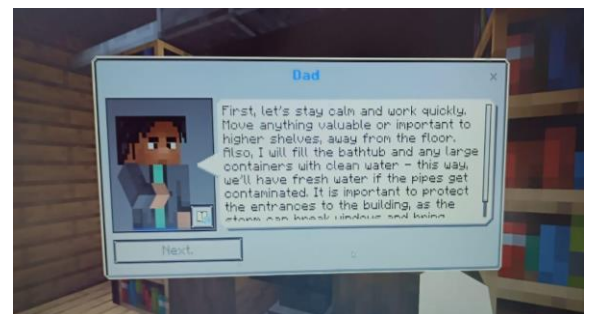
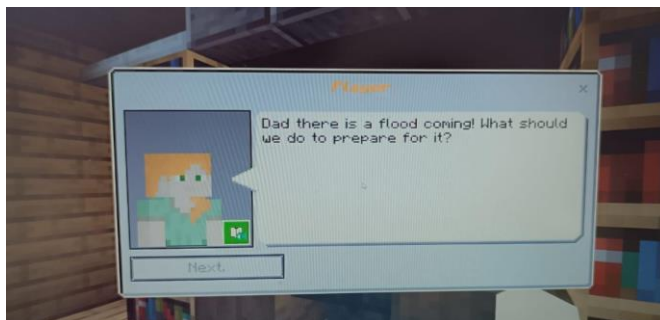
- **Turning Off the Televisions:**

- Find and turn off two televisions.



- **Asking the Father about Preparation:**

- Introduces a new guiding character who will provide information on specific flood preparation measures. The father advises to first stay calm and put all valuable objects on the highest shelves, away from the ground, fill the bathtub and any containers with water, and protect the building entrance.





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- **Searching for Materials for Protection:**

- The player needs to find blankets and place them under the balcony doors, get large garbage bags from the kitchen and place them on the windows using adhesive tape. First, find all the objects the father mentioned: blankets, garbage bags, and adhesive tape. The objects are marked with blue circles and picked up with a right-click.

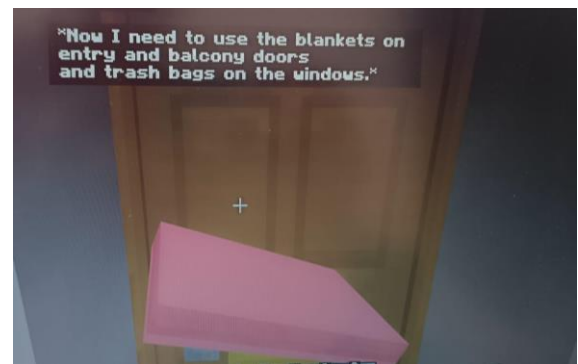
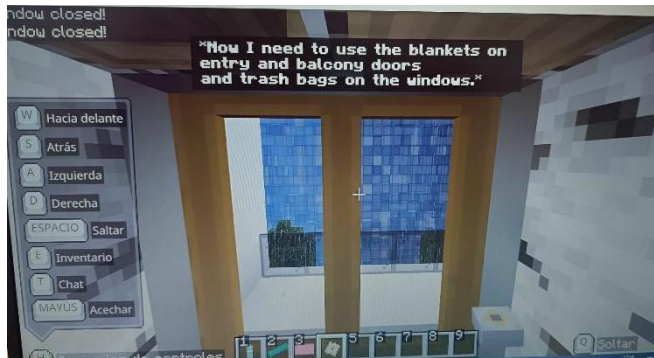


- **Using Materials to Protect the House:**

- A message appears indicating to use the blankets at the entrance and balcony doors, and the garbage bags on the windows.

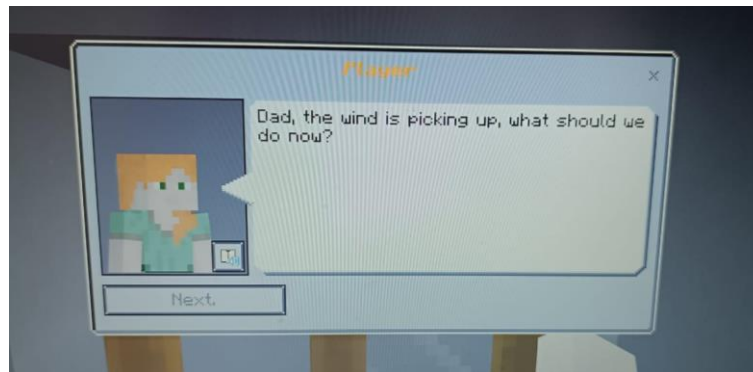


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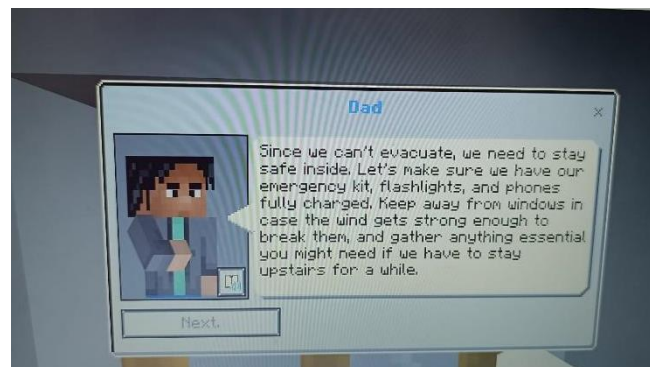
- **Asking the Father about the Approaching Wind:**

- Interact with the father again.



- **Father's Advice on Staying Inside:**

- The father responds that since evacuation is not possible, they must stay inside for safety. Therefore, the player needs to check if they have everything necessary such as the emergency kit, flashlights, and charged phones.

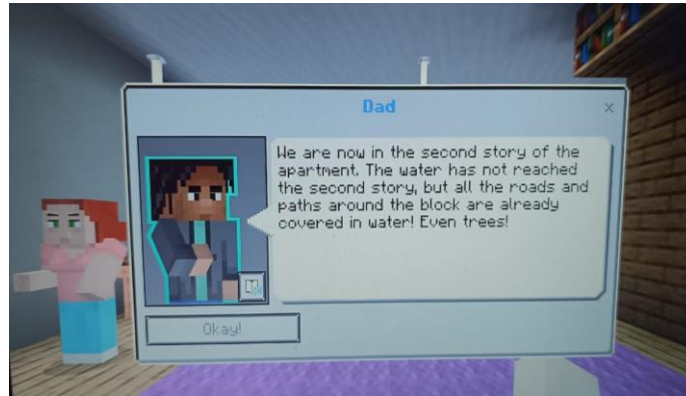




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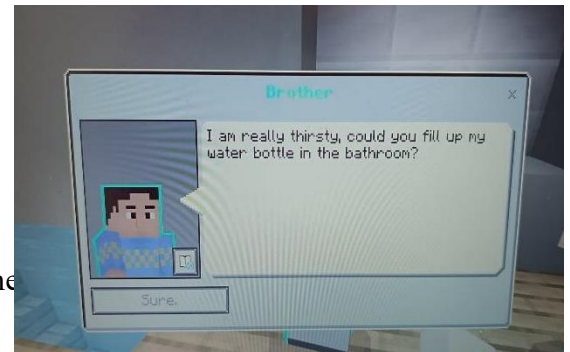
- **Information about the Flood Level:**

- The father indicates that everything has flooded, with water reaching the trees.



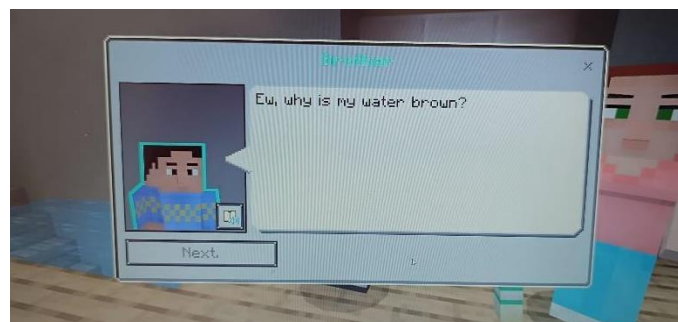
- **Brother's Request for Water:**

- The brother appears saying he is thirsty and asks the player to fill his water bottle.



- **Contaminated Water and Brother's Protest:**

- The water in the bottle is brown, and the brother

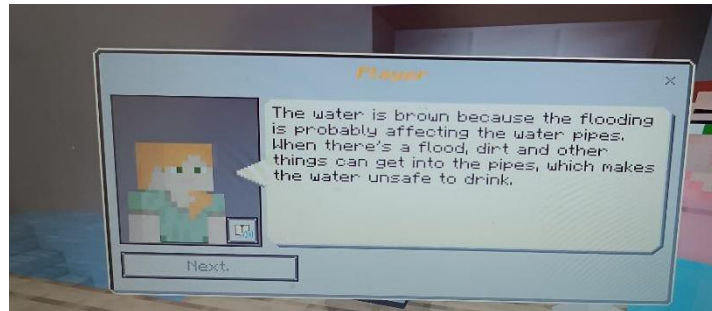


- **Explanation about Contaminated Water:**



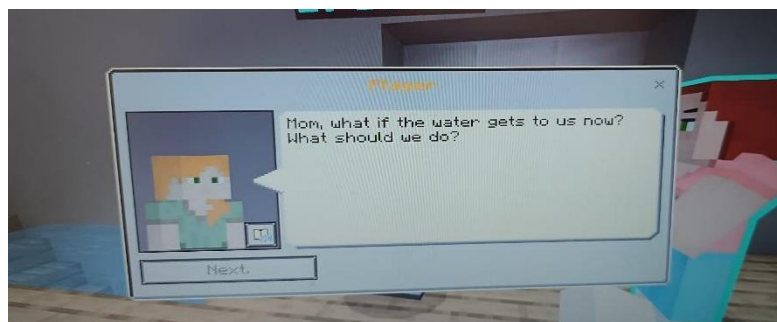
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- It is explained to the brother that the brown color of the water is due to the flood affecting the water pipes, contaminating it and making it unsafe to drink.



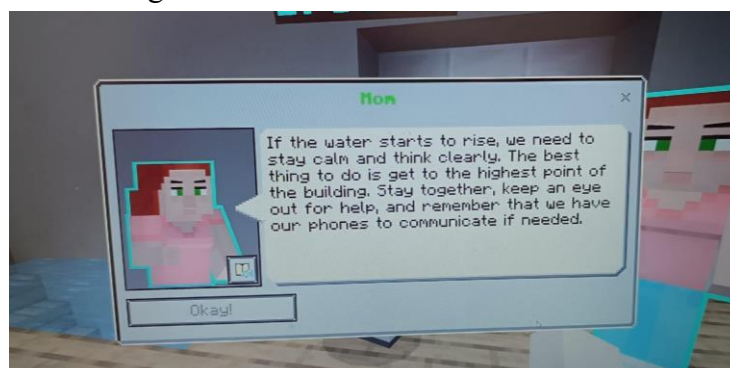
- **Question about What to Do if Water Reaches the Dwelling:**

- Interact with the mother to seek advice on a more critical situation.



- **Mother's Advice on Seeking High Ground:**

- The mother explains the importance of staying calm and going to the highest point of the building if water enters the house.

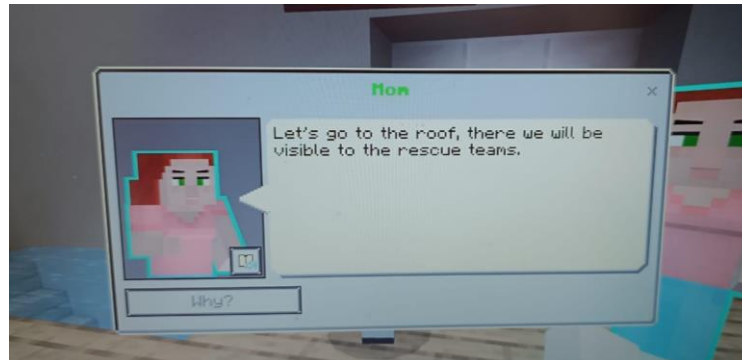




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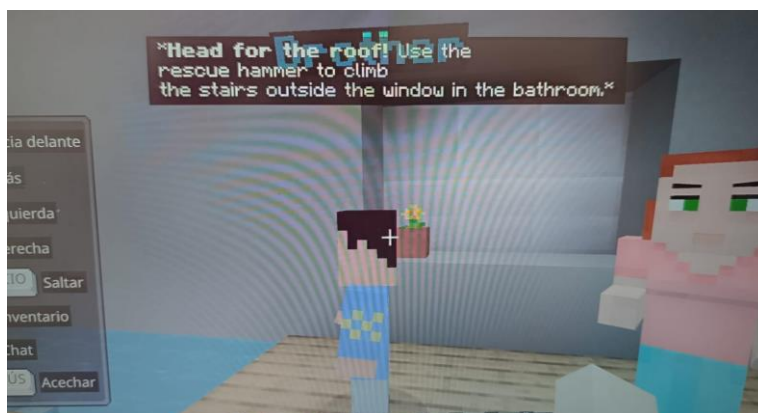
- **Proposal to Go to the Roof for Rescue:**

- The mother suggests going to the roof to increase visibility and facilitate rescue by emergency teams.



- **Instruction to Access the Roof:**

- A message instructs the player to use the rescue hammer and go up the exterior stairs from the bathroom window to reach the roof.





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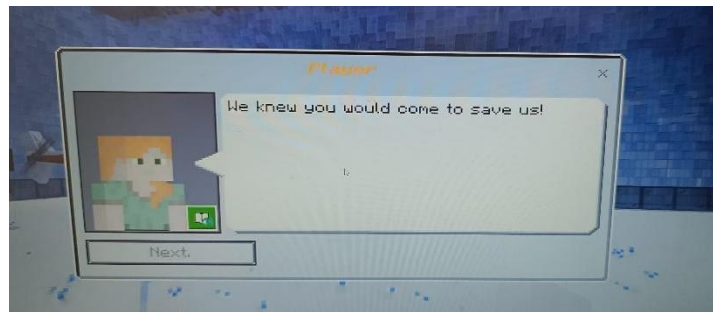
- **Arrival on the Roof and Appearance of the Rescue Team:**

- The player reaches the roof and visualizes the arrival of the rescue team.



- **Player's Reaffirmation:**

- The player expresses relief and confidence in the rescue.

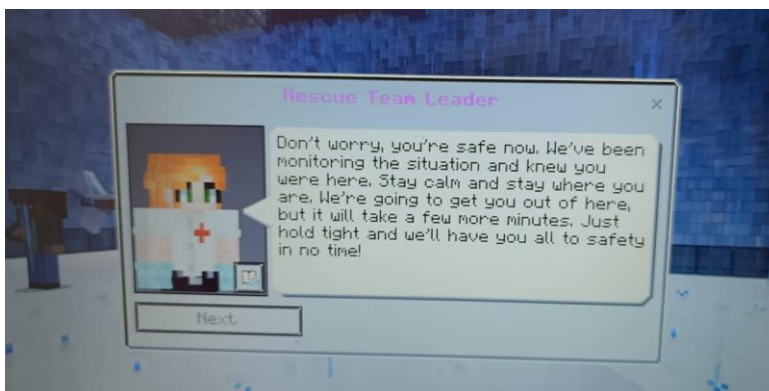


- **Final Message from the Rescue Team Leader:**

- The rescue team leader assures the characters that they are safe, asks them to remain calm, and informs them that they will be evacuated in a few minutes.



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This methodological guide provides a detailed structure for an educational Minecraft game that covers a broader spectrum of the flood experience, from preparation to rescue and subsequent implications. By maintaining active interaction and narrative guidance, the game can offer an immersive and memorable learning experience about safety in case of storms and floods.



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4. Methodological guidelines Minecraft game-based about heat waves, droughts and forest fires

This guide details the design and structure of an educational Minecraft Education Edition game, with the aim of teaching players how to behave in the event of heat waves and forest fires and how to take preventive and safety measures.

I. Learning objectives

- Prevention and safety: learn about protective measures during a heatwave or fire.
- Emergency preparedness: learn how to identify and gather essential items for dealing with extreme heat or evacuations.
- Decision-making skills: develop decision-making skills in critical scenarios (stay, evacuate, seek water, protect yourself from smoke).
- Environmental awareness: understand the risks of improper use of fire in summer and the importance of prevention.

II. Game structure and teaching methodology

The game follows a linear structure guided by characters and messages, using active player interaction to reinforce learning concepts. The methodology is based on:

- **Scenario-Based Learning:** players face realistic situations (extreme heat, fire emergencies) and must apply the knowledge they have learned to prepare and react.
- **Active Learning:** constant interaction with the game world (talking to NPCs, collecting items, using tools).
- **Guidance and Support:** characters provide step-by-step instructions, advice, and explanations.
- **Immediate Feedback:** NPC responses and visual cues (fire, heat, smoke) show the outcome of actions.



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- **Visualization and Context:** the Minecraft environment simulates heat, thirst, fire, and smoke, making the information more concrete.
- **Guided Discovery:** even with a linear narrative path, the player actively explores and experiments with solutions.

III. Detailed game development

Each phase of the game is described in detail below:

1. Introduction with the Team Leader

- The guide character (Nathan) introduces himself and presents the topic: “Heat waves, droughts, and forest fires.” The orange door leads into the scenario; here, the player character (Alex) interacts with the guide character in a short dialogue in which theoretical concepts about heat waves and their impact on people are presented.





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2. Water distribution and heat management

- The guide character gives Alex the first command of the game: distribute water to the characters scattered throughout the park and gives the player five bottles of water (visible in the banner below), one for each of the characters in the park.





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- After distributing the water, the player returns to the guide character, telling them that they are not feeling well due to the intense heat. They are advised to fill their water bottle with water from the fountain and cool off.





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- The water bottle appears in the inventory: the player must approach the fountain, fill their water bottle, and splash their friend.





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3. Heatstroke

- Alex and the guide see a man (Mr. Miller) lying unconscious on the pavement. A dialogue begins, enriched by three multiple-choice questions based on what the guide explained at the beginning of the game (see pic 4). The correct answer to the first test is B, the correct answer to the second test is A, and the correct answer to the third question is Yes.

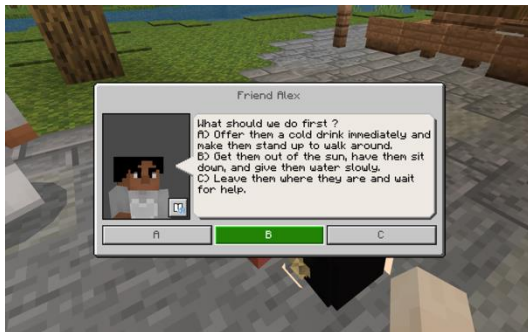


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4. Introduction to forest fires

- The characters see smoke and realize that a fire is developing in the park.



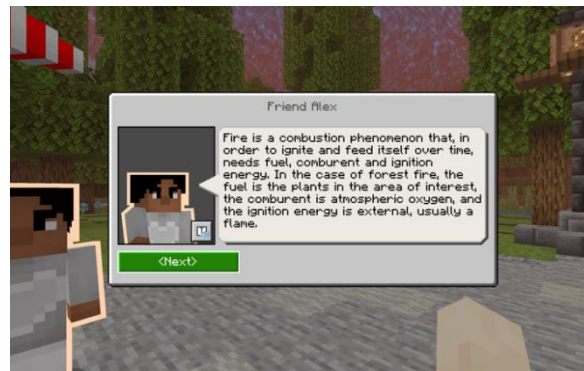


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- A dialogue begins between Alex and the guide character, who explains the origin of the fires (natural and human causes).

5. Reaction to wind and smoke

- The guide character asks Alex two questions, and in both cases the correct answer is B.



- Wind affects fires, and the guide character explains to Alex what wind socks are used for.



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- The player must run in the correct direction to escape the smoke and fire.



- The smoke is intense, and the guide character explains that inhaling it can cause various health problems and make breathing more difficult. The solution is to wet your shirt with water and use it as a filter.
- The player character must “make” their own filter and place it over their face.



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6. Safe crossing and rescue



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- The player must exit the park following a marked route, moving forward in a crouched position to reduce smoke inhalation.



- Once they have completed the course, the characters see the park exit and are safe.





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5. Methodological guidelines Minecraft game-based about earthquake

This guide details the design and structure of an educational game in Minecraft Education Edition whose objective is to teach players about the formation of earthquake, how to react to them, and how to stay safe during these natural events.

I. Learning Objectives:

- Earthquake protection methods in our region
- Methods for protecting ourselves and those around us during an earthquake
- Ways to reach safe areas
- Ways for communicating with family and friends

II. Game Structure and Pedagogical Methodology:

The game follows a linear structure guided by characters and messages, using active player interaction to reinforce learning concepts. The methodology is based on:

- **Scenario-Based Learning:** Players face a realistic situation (the imminent arrival of a earthquake) and must apply the acquired knowledge to prepare and react.



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- **Active Learning:** Constant interaction (right-clicking to talk, searching for objects, using items) keeps the player engaged and facilitates information retention.
- **Guidance and Support:** Characters (Team Leader, siblings, dog) act as guides, providing information and step-by-step tasks.
- **Immediate Feedback:** On-screen messages and character responses provide feedback on the player's actions.
- **Visualization and Context:** The Minecraft environment and visual simulation help contextualize the information and make it more memorable.
- **Guided Discovery:** Although the narrative is linear, the search for objects and the application of solutions require the player to explore and think actively.

III. Detailed Development of Game Steps and Specific Methodology:

The following details each step of the game, analyzing its pedagogical function and the Minecraft mechanics used:

Initial Interaction with the Team Leader:

Introduction of the guiding character and the basic interaction mechanic in Minecraft. Encourages exploration and response to instructions.

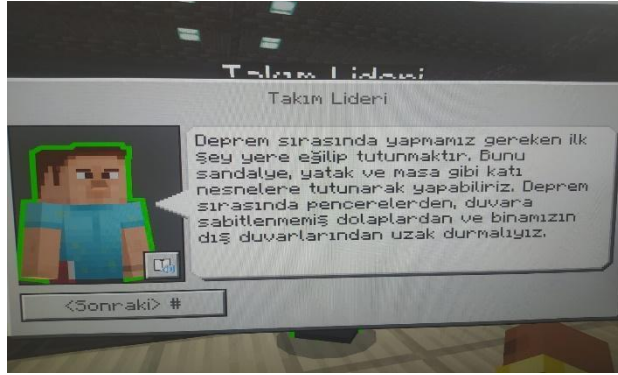
Introduction to the Topic by the Team Leader:



Clear presentation of the topics to be covered, establishing the game's context as a learning experience and explanation of the lesson objectives (earthquakes, drop cover hold on, emergency exit).



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Explanation about Formation and Safety Tips by the Team Leader:
The Team Leader provides key information about the formation of earthquake, along with practical advice on how to stay safe.



Access to the Simulation Machine:

Transition to a practical simulation environment where the player will apply what they have learned. The distinctive color of the machine facilitates its identification.

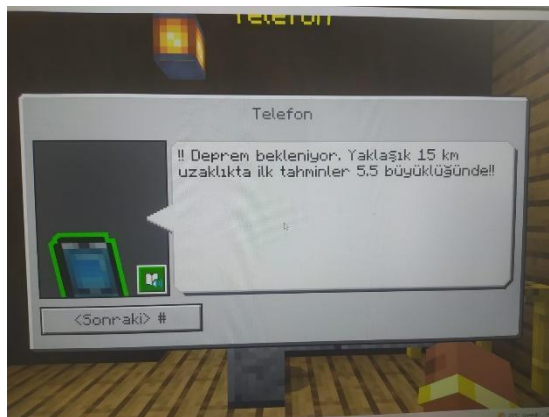


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Earthquake Alert:

A message is sent to your mobile phone that there will be a 5.5 magnitude earthquake 15 km away.



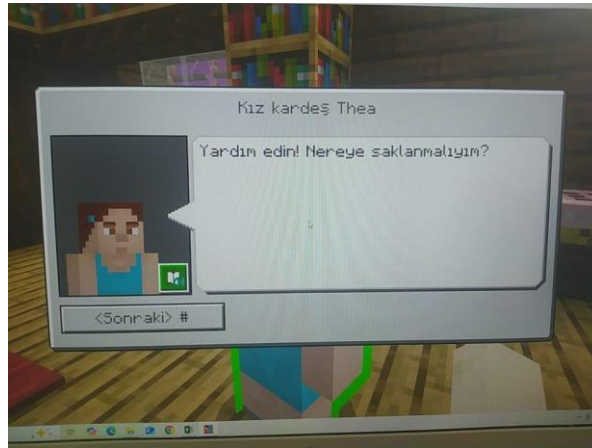


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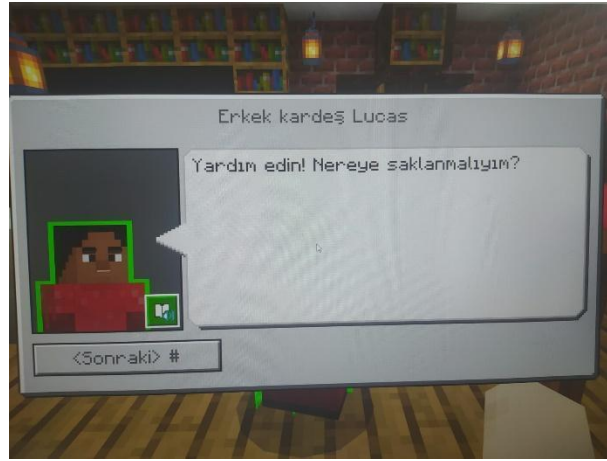
Searching for Siblings and Dog:

Team leader finds his siblings and dog before the earthquake strikes. He places them all in a safe place in the house and finally hides himself in a safe area.



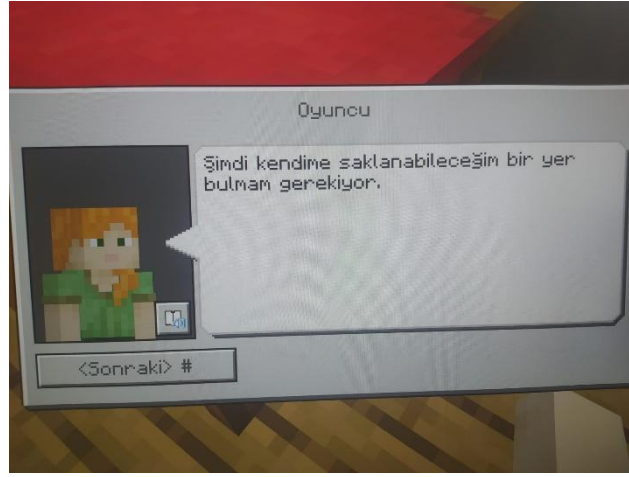


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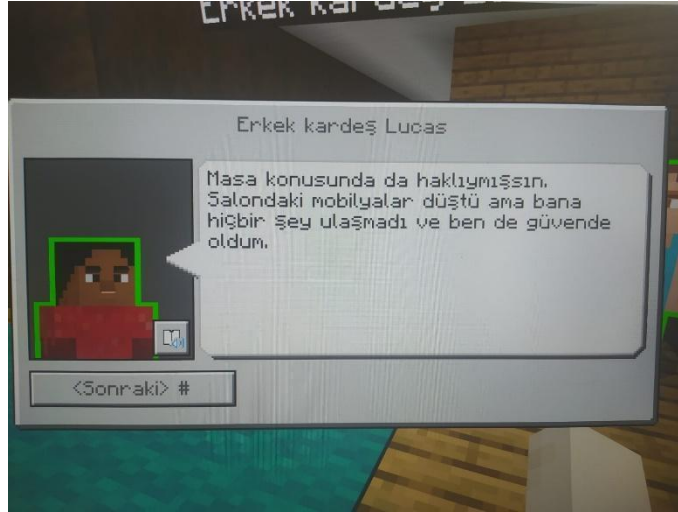


During an Earthquake

After everyone has taken shelter in a safe place, an earthquake strikes. After the earthquake, the characters mention that hiding in the right places during an earthquake saved their lives.



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Emergency Exit:

The characters head for the exit. After discussing it among themselves, they decide it's safe to ascend the stairs. The characters use the stairs to exit the building.



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Finding the Safety Area:



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Once team leader and characters are outside the building, they discover how to reach safety. They encounter warnings as they pass near power lines, gas pipes, trees, and buildings.





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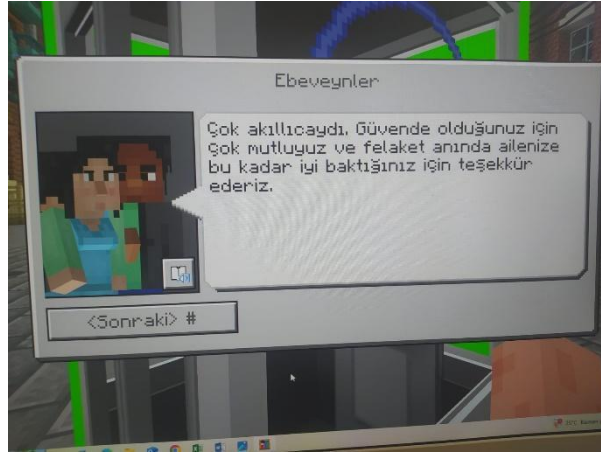
Contacting Family

After reaching the safe area, team leader characters call their families to let them know they're okay.





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This methodological guide provides a detailed framework for an educational Minecraft game that covers a broader spectrum of the earthquake experience, from preparation to recovery and the aftermath. By maintaining active interaction and narrative guidance, the game can provide an immersive and unforgettable learning experience about earthquake safety.



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6. Methodological guidelines Minecraft game-based about snow and snow avalanche

This guideline details the design and structure of an educational game in Minecraft Education Edition whose objective is to teach players about the important preparation steps in case of heavy snow falls and snow avalanche, how to react to them, and how to stay safe, including from the emotional point of view, during these natural events.

I. Learning Objectives:

- Point out the main preparation steps to be done when heavy snows are announced.
- Identify important safety measures before and during heavy snow and snow avalanche.
- Become familiar with the essential elements of an emergency kit.
- Develop decision-making skills in simulated snow avalanche situations.
- Raise awareness about the measures to be taken for the emotional safety.

II. Game Structure and Pedagogical Methodology:

The game follows a linear structure guided by characters and messages, using active player interaction to reinforce learning concepts. The methodology is based on:

- **Scenario-Based Learning:** Players face a realistic situation (the imminent arrival of a storm and flood) and must apply the acquired knowledge to prepare and react.
- **Active Learning:** Constant interaction (right-clicking to talk, searching for objects, using items) keeps the player engaged and facilitates information retention.
- **Guidance and Support:** Characters (team leader, mother, father, brother, team leader of the rescue team) act as guides, providing information and step-by-step tasks.
- **Immediate Feedback:** On-screen messages and character responses provide feedback on the player's actions.
- **Visualization and Context:** The Minecraft environment and visual simulation help contextualize the information and make it more memorable.
- **Guided Discovery:** Although the narrative is linear, the search for objects and the application of solutions require the player to explore and think actively.

III. Detailed Development of Game Steps and Specific Methodology:



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The following details each step of the game, analyzing its pedagogical function and the Minecraft mechanics used:

- **Initial Interaction with the Team Leader:**

- Introduction of the guiding character and the basic instructions for dealing with the Minecraft game. Encourages exploration and response to instructions.



- Invitation to help the character to enter the house, in order to connect the player with the character and make the game more interactive.



- **Introduction to the Topic by the Team Leader:**

- Clear presentation of the topics to be covered, establishing the game's context as a learning experience and explanation of the lesson objectives: snow storms and avalanches, how to recognize the signs, how to react, and stay safe.

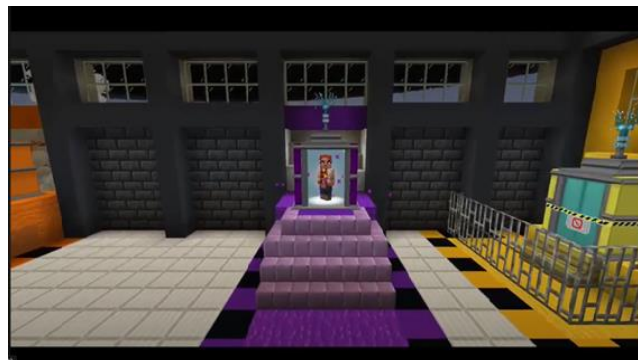


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- Access to the Simulation Machine:

- Transition to a practical simulation environment where the player will apply what he/she has to learn. The machine is purple in order to facilitate its identification.



-The challenge is presented: Snow pilling and snow storm alert



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- A news report on the TV announces the arrival of a storm in the afternoon and the need to check that all windows are closed.



- **Searching for Mum in order to ask for advice about the situation:**

- A message indicates the need to find mum in order to make an action plan and a dialogue box makes clear the location where the game takes place, a forest woden cabin.



- **Mum is providing important advice:**

- The new character clarifies what are the dangers in the situation of snow storm and provides important advice about preparing the home with important supplies.



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- Mum indicates the list of most important supplies needed in case of emergency: flashlight with extra batteries, a portable radio for emergency updates, extra non-perishable food and water, a first aid kit, a fire extinguisher, to check if the fire alarm is functioning.
- The pets in the house are not forgotten. Extra food for them and a warm place for them should be also provided.



- Searching for the Items:

- Search for the items mentioned by the mother (3 blankets,) around the house. A purple circle around each blanket makes it easy to locate. Right-click to pick them up.



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- Dad is searched for more solutions:

- The father instructs the player to set the thermostat to warm, as previously a dialog box announced temperature going down outside.



- Performing the next task:

- The player is searching for the thermostat and changes the temperature to warm up. A submit button shows the task is accomplished.





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- Introduction of the brother into the scenario:

- Check up the warm temperature with another character: the brother.



- Searching for more advice from the mother: sealing doors, ensure a warm and cosy place, reducing energy consumption. New task is given to gather some spare clothes.

- Task is performed.



- Searching for more advice from the mother: sealing doors, ensure a warm and cosy place, reducing energy consumption. New task is given to gather some spare clothes.

- Task is performed. The player gathers all clothers around the houses, then mum ask him to lay them out in front of the entry doors and on each of the windows to prevent draft.



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- Emergency Alert System alert about avalanche warning:

- Mother is communicating an alert of the Emergency Alert System about avalanche warning and need to move out of areas around slopes and mountains immediately and the need to find cover in the part of the building that is furthest away from the uphill side and to ensure an emergency kit, extra food, water and blankets.



- New tasks given by Mum:

- The player needs to check the food supply and gather an emergency kit.



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- Next, the knowledge about the consistence of an emergency kit is introduced (flashlight, batteries, first-aid kit).



- Task about food supplies check is accomplished by the player. He finds fresh and longer lasting food inside the house. Green buttons are used for checking and grey ones for closing the dialogue box. For the emergency first-aid kit, flashlight and batteries a purple circle is used when action is performed.





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- Sharing fears, feelings and emotions:

- On turn, the player and his family are invited to share to the family members about fears, feelings and emotions, while the flashlight is placed on the middle of the table.
- Empathy and encouragements are expressed by the player when his little brother is sharing his fears. The idea that the rescue team is announced is also introduced.
- Thus it is induced the idea that communication and empathy prevent emotional anxiety and post traumatic shock in natural disaster situations.



- Emotional support:

- Mum encourages everyone to be calm, take deep breath, not to feel guilty and stay positive while waiting for the rescue team.
-



- Signal for help:

- Father signals for help uncovering one of the kitchen windows.



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- Rescue team intervention:

- The player goes outside to meet the intervention team who will provide successful evacuation.



This methodological guidelines provides a detailed structure for an educational Minecraft game that covers a broader spectrum of heavy snow and snow avalanche, from preparation to rescue and subsequent implications. By maintaining active interaction and narrative guidance, the game can offer an immersive and memorable learning experience about safety in case natural disasters related to heavy snow falls.