



STEM4CLIM8 MINECRAFT WORLDS

Scenario and Tips for Educators

Deliverable: IO2.A3 Lesson Plans



STEM4CLIM8

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HEARTHANDS SOLUTIONS

Authored by: HEARTHANDS SOLUTIONS

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Introduction

This document is a guide to help teachers pilot the game and later guide the children on how to play the Minecraft Education Worlds prepared for the project STEM4CLIM8. 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 includes also detailed scenarios with the scope of each activity so that teachers can organise the plan of their lesson before introducing this activity. In each activity are also included hacks to let teachers check if their students accurately performed the activities.

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1. Use of Minecraft Education Edition

1.1 To 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 has only access to apps that can be downloaded from the Microsoft App store. To deactivate the S mode, you need:

- To create a new Microsoft account that is not licensed as 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.
- 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>

1.2 Run the worlds

Once you download the Minecraft Education Edition, you need to have the worlds which are "McWorld" files. Once you double click on these files, they will automatically open the Minecraft Education system. It will request you to log in with your account for which you acquired a license from Microsoft for Minecraft Education. The worlds require a Minecraft Education version 1.17 and forward to properly work.

For Educational Organisations, there are free licences to be acquired following these procedures. <https://educommunity.minecraft.net/hc/en-us/articles/360061371532-Purchasing-Options-for-Minecraft-Education-Edition-Licenses>

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.

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 not sure what pack you need, go look at the ACTIVE PACKS and 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 board.act.1. NPC's 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. 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 not sure what pack you need, go look at the ACTIVE PACKS and 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 have been 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, make the language of the Minecraft app is set to your preference. In the English version look for the English US option, not the UK.

1.3 Navigate in the game

Once you opened the world, you will need to navigate the game. The navigation is possible using your keyboard and mouse.

Before you start playing check these introductory videos on the STEM4CLIM8 YouTube channel: <https://www.youtube.com/channel/UCLTCfYdIOYcAxphRnibZazg>

The buttons of the keyboard to be used are:

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

You can point the direction also by moving your mouse.

In the following image, you can see the inventory. In the last row, you will add the materials you want to use, and these will appear in the Hotbar.



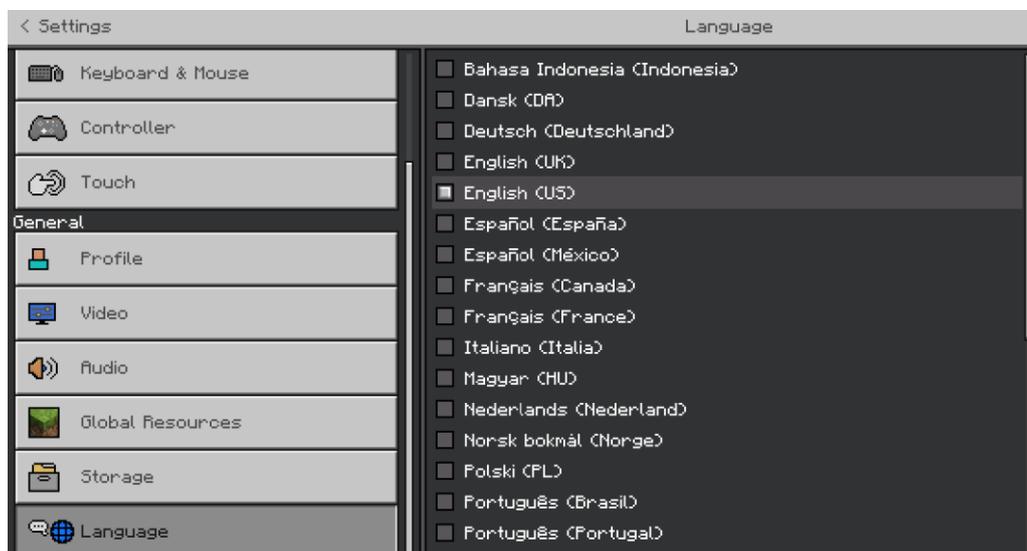
Selecting from {1-9} on your keyboard you can change the elements of your Hotbar. In the following image, the rectangle object you see is the Hotbar.



Using your Mouse:

- Left Click: Mine (destroy a block) by pressing continuously. Furthermore, you can select the buttons in the discussion panel with the NPCs.
- Right Click: Interaction with objects, discussion with NPCs and place an object (where allowed).
- Scroll Button: To select the object you desire to use from the hotbar. Click through Add the block you see in the hotbar (only in creative mode).

To change the language in Minecraft you can do by running Minecraft without loading the world. In the main page press the Settings option, scroll down and select the language button. From the left list you can select your language. The available languages of the STEM4CLIM8 worlds are English Us, English UK, Greek, Portuguese (Portugal) and Turkish.

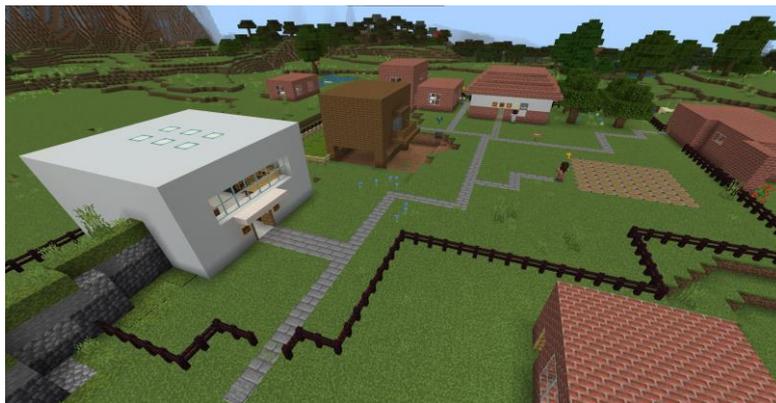


2. "Floodina" Minecraft Education World

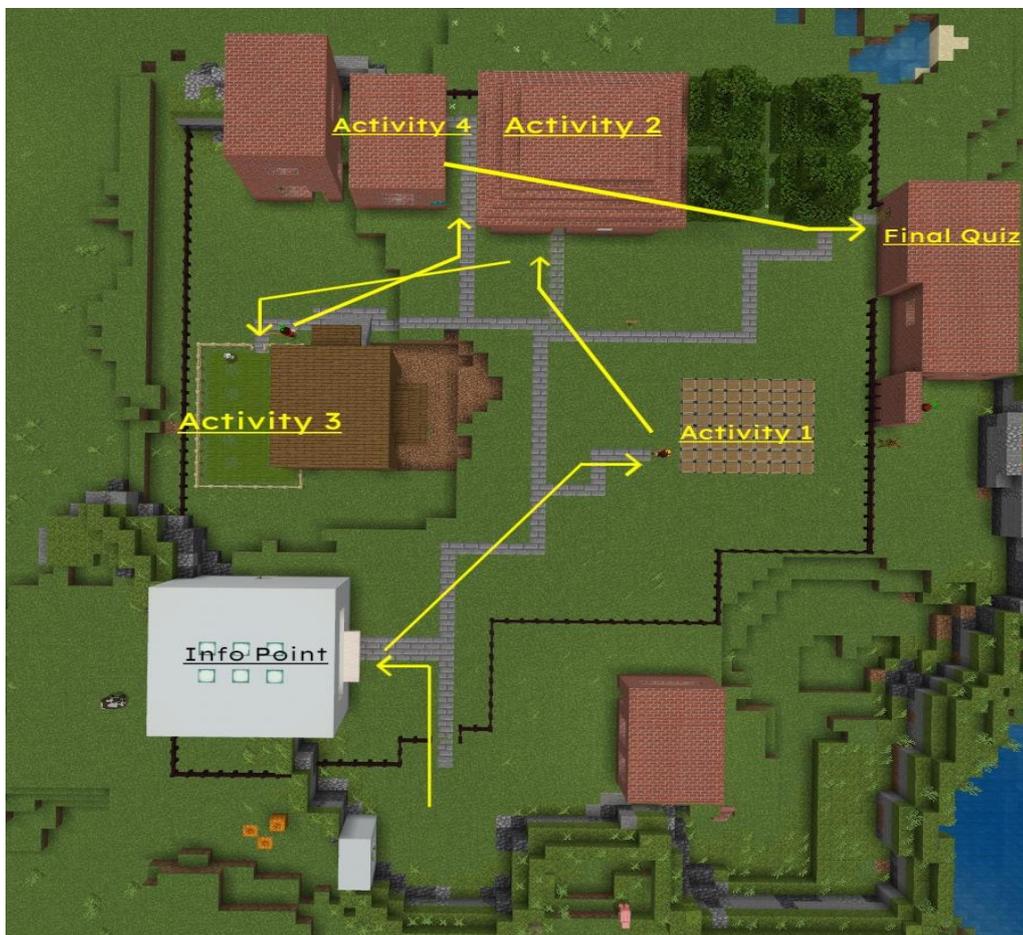
2.1 Goals of the World

This world targets to instruct children about the physical disaster of the Flood. The structure aims to give some tips on how to protect themselves during a flood and present some measures that prevent flooding.

In this world, we have 4 activities to complete and a set of 4 questions to answer after the completion of the activities. The NPCs (people) in the game will give you directions on the activities you need to accomplish.



This is the map of the activities to be accomplished. You can print and share this map with your team.



2.2 "Floodina" Scenario

When loading the city, you will enter the world at the starting point, looking at the STE4CLIM8 logo.

First, around you can see some red "X" (crosses), which means that you are not allowed to go in that direction.



The players start with 38 diamonds in their possession, which will help them later in activities.

Meet the NPC "**Finn**" next to the STE4CLIM8 logo. Move close to him and press the Right Click on your Mouse to talk with him. **Finn** will introduce you to the game.



Turn right with your Mouse and move with the "W" on your keyboard to move forward in the world.

Moving forward to the stone path, you will see a road on the left. Turn left to enter the first building which is the library.



There you can talk to the NPC **"Mike"** to get some information on the phenomenon of Floods through an external video linked to the Learn More button. Move around and read the blackboards to get more information about the phenomenon of Floods.

Students are encouraged to enter the library to receive the necessary information to cope with the final quiz. The remaining information will derive from the activities.

Once you finish, move out of this building, and follow the stone path to the left. There you will find the NPC **"Maria"** for the first activity.

Activity 1: SAFE HOUSE

In the first activity, players need to build a safe house to prevent damage in case of flooding. Talk to the NPC **"Maria"** to get the directions and the materials to build a safe house.



You will get brick blocks, brick stairs, a door, and a diamond pickaxe. The house should be 2 floors. Build the house around and inside the terrain. You can select the blocks you want to add from the hot bar. If they are not already in the hot bar, you can open the

inventory and systemise them. To destroy a block, press the right click to mine it. When you complete the activity, a message with big white letters appears and the activity is marked as completed.

In this activity, Creativity is encouraged.

The building can be like this one.



Key info: In fact, to complete the activity it is enough to place 119 blocks in the frame/terrain. Players are given the "haste 100" option which allows them to break blocks faster. When they break a block, they cannot recover it. That's why they have more at their disposal. If they run out of blocks and materials, they can talk to the NPC to get again the materials needed.

ATTENTION: The activity might be completed before the students have finalised their design. Encourage the students to finalise their design first and then to continue to the next activity. Furthermore, this activity is not reset with the command /function settings. If we want to start the world again, we must break the house first.

Activity 2: SHOP THE ESSENTIALS

For the second activity, move to the building to the left (as you see the house you built). You will find the NPC "**Nick**" standing outside. Talk to him and follow him in the building. Talk again to Nick who is standing now standing behind the counter.



The building is a shop in which you need to buy some useful stuff to be used in an emergency in case of a flood.





Select the diamonds in the hot bar and press right-click when you stand under the things you would like to buy. If you are not standing close, go closer and collect your goods from the ground just by passing over them. Each time you collect the goods, a message will appear from Nick regarding your choice if it was correct or not. When you complete the activity, a message will appear marking it as completed.

Key Info: The right items are 1 bottle of water, 1 flashlight, 1 apple, 1 blanket, 1 whistle and a first aid kit.

Activity 3: FARM

Go outside of the previous building, turn to the right with your mouse and move forward. You will see the farm. The NPC "**Eddie**" will wait for you outside together with his agent/robot. Talk to him to instruct you.

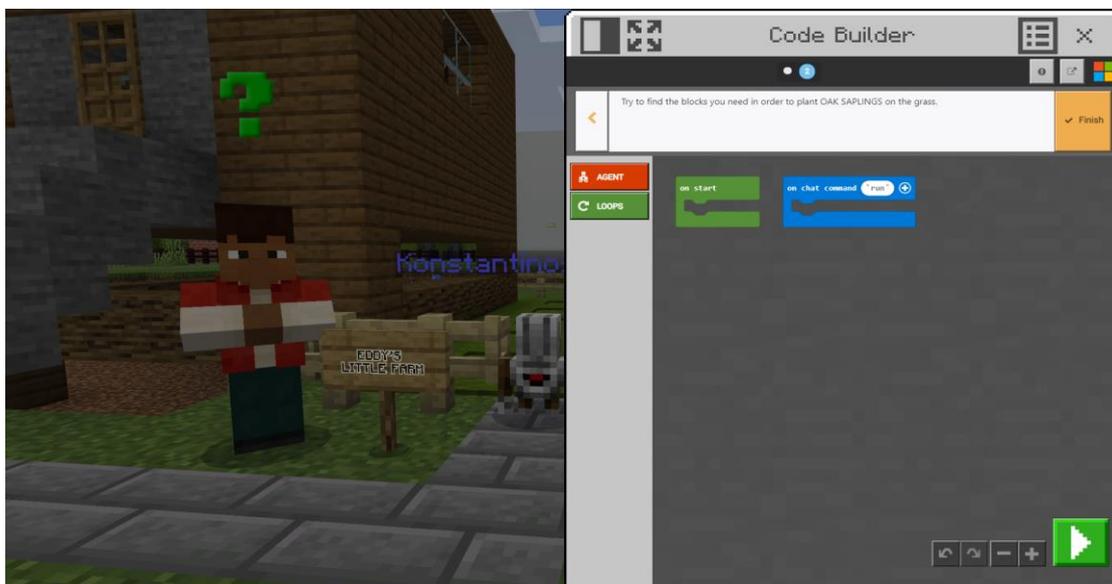


In this activity players are asked to place trees in the vacant positions of grass. The goal is to raise awareness about the prevention of floods when the trees can absorb with their roots the water and reduce its loss but also the danger of ground retreat and the flood.



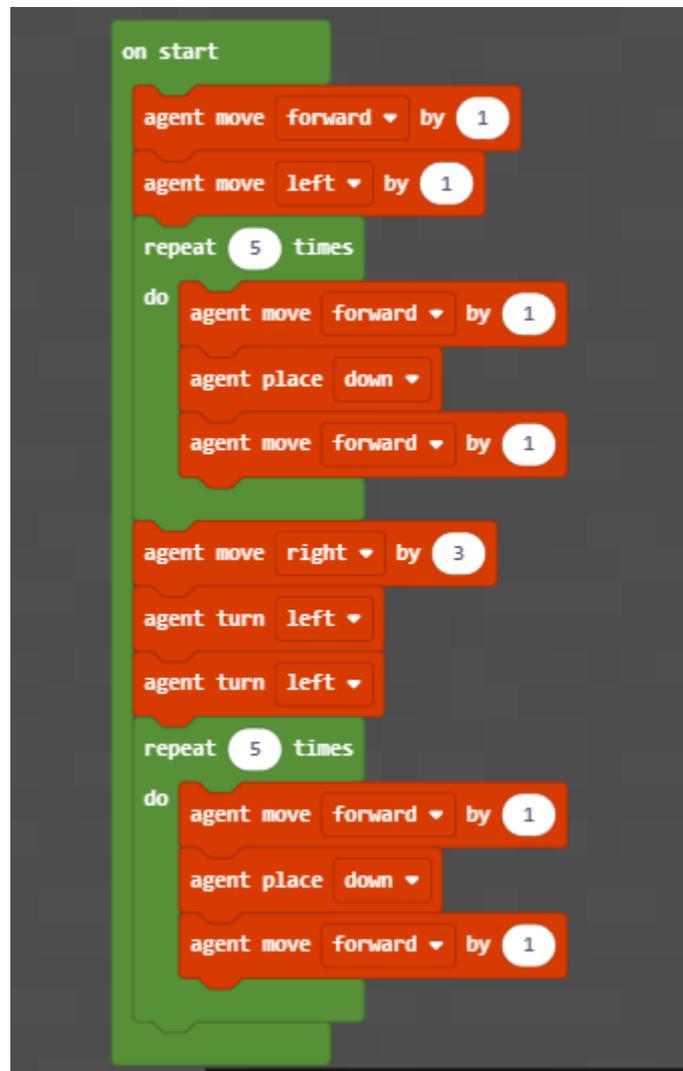
Key Info: There are two options to perform this activity:

1. Manually: Open your inventory and move the trees you need to plant to the hotbar. You will enter the farm and place them one by one in the marked places of the grass. You can do it either one by one or through the code Builder Following this design.
2. Through the agent/ robot: The agent can accept commands through the Code Builder. To open the Code builder, press the C on your keyboard. **BE CAREFUL** to proceed with the agent, the player should give him the saplings (trees) that Eddie gave him. This is done by right-clicking on the agent and dragging the saplings onto his inventory. Be careful not to get out of the box. If we lose them, we can talk to Eddie again to give us more.



Players can select from the tabs the available commands; they can also change the parameters of the commands depending on the commands we have (left, right, up, down, forward, back and in other integer numeric values).

In the following image you can see a proposed solution. We can choose a group of commands, e.g. "repeat 5 times" and the commands it has inside, and with the right click to select to duplicate them so as not to write them twice. This is not the only solution.



When you complete the activity, a message will appear marking it as completed.

Activity 4: BASEMENT

Turn back to the main stone path and turn left to the first path you see. There is also a sign pointing at the place of the activity. In between the shop and the other building, you will find the NPC "**Sam**". Talk to Sam. He will guide you to the basement of the building. The basement is full of water after the last flood. At this point, we need to raise awareness on the fact that basements are not safe at all to be during a flood since they are the first places that the water will gather.



Talk to Sam again to get the materials needed **a bucket, some black blocks, and some grey tiles**. The goal is to gather the water with your bucket. Target the water and use the bucket from your Inventory by selecting it. When the place is clean start building the surface with the black blocks. When you finish, add the grey tiles above the black blocks.

Be careful **NOT TO BREAK ANYTHING** with the previously used AXE.

The last activity is completed. Now the user can go to the final quiz.

Key info: The water can drift you away so be careful. If the blocks are not enough or if the player breaks anything he can talk to the NPC again to get more. If you break anything that prevents you from getting out of the room you need to relaunch the world but you will lose all of your progress.

Final Quiz: You COMPLETED the mission. Ready for the quiz?

Go outside of the previous building, enter the main path, turn left, and move to the last Northeast building for the final quiz.



Talk to the NPC "**Finn**" who is standing outside of the building. Go inside the building and follow the labyrinth to answer the questions. Continue at the end you will find Finn. The

mission is completed you can now select to walk around or start the world from the beginning.

Key Info: You cannot overcome a question if you do not answer it in the correct way. The correct answers are A, A, B, B.

3. "Amareleja" Minecraft Education World

3.1 Goals of the World

This world targets to instruct children about the rise of temperature of the planet and the effect of Heatwaves. The structure aims to give students theoretical information (through the blackboards and the interaction with the world) on the effects of heatwaves in nature, to inform them on some tips to protect themselves during a heatwave and to present some measures that can reduce the risks related to the heatwave.

In this world, we have 3 activities to complete and a set of 5 questions to answer after the completion of the activities. The activities are linked with commands of completion, which means that if you do not finish the one, you cannot proceed to the next activity.

The NPCs (people) in the game will give you directions on the activities you need to accomplish. In this city, at every place, you can talk to every NPC by pressing right-click on them. The NPCs will tell you, which is your activity, which person you need to talk to or will inform you that they are waiting for you to complete the activity. The town hall is the tallest building in this city, and it is distinct because of the red line that has. It is the first and final location that players should visit.



3.2 "Amareleja" Scenario

When loading the city, you will enter the world at the starting point, looking at the STE4CLIM8 logo and the first blackboard on your left.

First, around you and behind you will see some red "X" (crosses), which means that you are not allowed to go in that direction. The NPC "**Chu**" is waiting on the right. Talk to him to start the game.



The users will follow the grey path to enter the city. On the way, there are blackboards with information on the Heatwave phenomenon which are important to read. Move straight, then turn to the left and continue straight until reaching the Town Hall which is situated straight ahead. There is the NPC "**Chu**" waiting outside to introduce you to the first activity. Talk to him and move inside the building. In the building, you will talk with the NPC "**Jorge.**" Also, read the blackboard behind Jorge.

Activity 1: Go to the Town Hall

For the first Activity, you need to talk to the NPC "**Ana.**" You can find her in the same room in the town hall. Since it is a very warm day, Ana will need some water. The user needs to go outside to the fountain and bring a bottle of water to Ana.



Press the wooden button at the top of the fountain and a bottle of water will drop. Go closer to collect it. Then talk to Anna inside the building.

The goal of this activity is to point out the need of hydrating our body during the hot months.

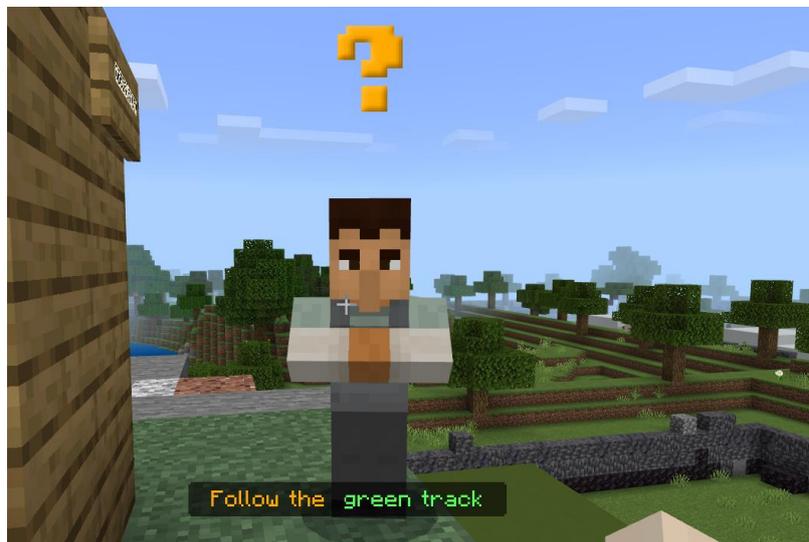
After this activity, a message will appear on your screen to follow the green track for the 2nd activity.

Activity 2: Follow the Paths

Get out of the building from the back door and follow the green path.

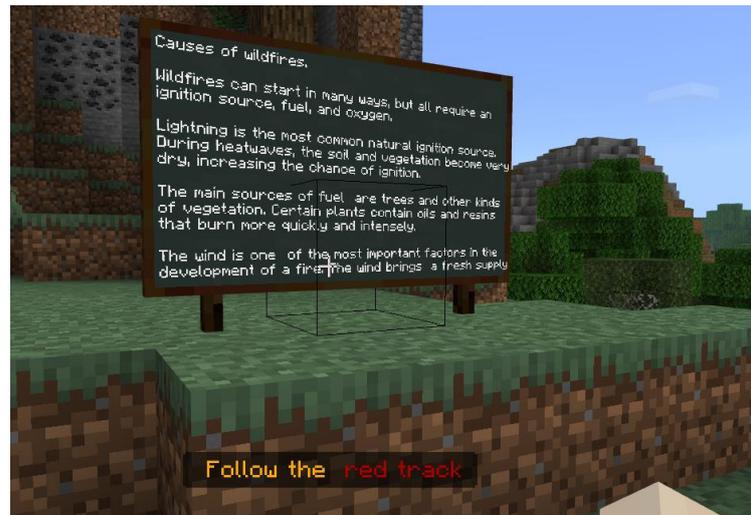


The path will take you to a hill. There you will find the NPC **"Jorge"** to talk to him.

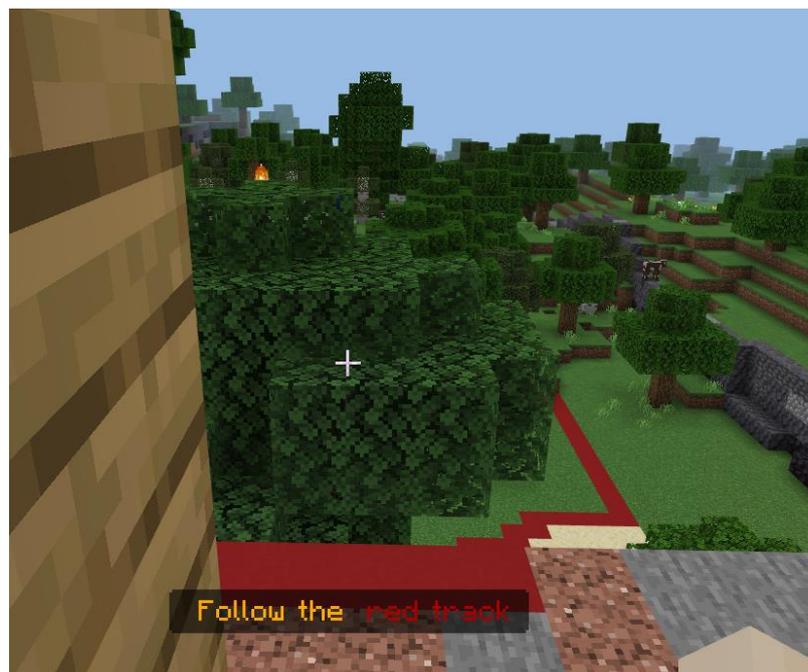


He will give you some information about the city and the use of the observatory.

There you will also find a blackboard. Take some time to read it.



Continue in the green track and go upstairs to the observatory. When you visit the observatory, you will see a fire in the woods as you look on the left.



Get down and follow the red track to reach the fire. Following the red track, you will enter the woods and find again the NPC **"Jorge."** Talk to him to get the directions and an axe. With the axe, you will need to cut some trees to stop the fire from spreading. There will be a fire on a tree.



You need to use the axe and press continuously with the left click of your mouse on the trees to cut them and reduce their volume. You need to target the tree leaves and the trunks, basically the top part. The goal is to teach that a method to prevent the woods from destruction is to clean them, take care of nature by cutting their branches and reduce the risk of the fire spreading.

In the following image, you can see the trees that need to be cut. They are distinct because they have white trunks. When you finish, a message appears automatically that you completed this step.



Key Info: You do not need to cut the trees entirely. To complete the activity, you need to cut the top parts of the trees. Then automatically appears the message.

Activity 2 yet is not done. After you finish with the trees, a message will appear to follow the blue track. You need to go to the lake and find again the NPC "**Jorge.**" Talk to him

and he will instruct you and give you a bucket. There will also be a blackboard. Take some time to read it.



The task is to collect water from the lake and then go back to the woods to extinguish the fire that started again. You will go close to the lake and with the right-click, you will collect water. It is easy to understand because it will appear in the bucket that you hold.

Move back to the woods following the blue track to extinguish the fire. It may need to do it twice. When you finish the activity talk again to the NPC to move to the next activity.

The goal of the activity is to show the possibility of catching fire again even if you reduced the risk and the fact that the place should be wet to avoid catching fire again. Furthermore, at the lake, the boat is placed outside. At this point, we point out the drought phenomenon from the heatwave since in older times where you find the boat there was water from the lake.

Key info: To extinguish the fire easily without going back and forth to the lake, you can go close to the fire and press the left click of your mouse (Mine).

Go back to the farm

After you discussed with the NPC **"Jorge"** for the last time you will get a message on your screen to follow the tracks back to the village. As you go back when you reach the green track, you will find a farm on your right and the NPC **"Chu"** will wait for you outside of the farm to talk. Talk to him.



Chu will invite you to the house on the right side. Go upstairs and inside. There you will find the NPC **"Ana."** Talk to her. She will invite you to Eat the food that is served on the table. Take some time to rest and read the blackboard.



When you finish go outside to talk with the NPC **"Jorge."** Jorge will instruct you to go to sleep during the hot noon pointing out that during hot months is better to rest during the noon instead of being outside in the hot weather. You will go inside and and just stand on the bed for a while. Then you will talk with the NPC **"Ana."**



Key Info: To accomplish this activity, you need to just to stand next to the bed or on top of it. Then you will talk with the NPC **"Ana,"** and she will inform you that the activity is completed.



Activity 3: Build a shade shelter for the animals

After you finalised the previous tasks, the NPC "Ana" will instruct you to go outside to the barn for the final activity. Move outside of the house, go down the stairs and turn right.



In the barn, you will find a chest and a blackboard. Take some time to read the blackboard and open the chest by pressing the right click to get your materials.



Move all the materials from the chest to your inventory by simply clicking on them and adding them to the inventory. Place in the last row the materials that you are going to use first.



Then go outside, turn left, and find the NPC **"Chu."** Talk to him by pressing the right click on your mouse to instruct you.

The NPC **"Chu"** will instruct you to build a shelter on the farm. To enter the farm, find the door and open it by pressing the right click of your mouse (instruction Use).



Get into the farm and start building your farm in the purple terrain. You will have to create a space where the animals are protected from the hot weather so keep in mind to also construct a roof.



Key Info: To complete the activity, the user needs to place 80 blocks on the purple square/ terrain, not inside the space. When the 80 blocks are placed the activity will be marked as completed. The users might not have finished with their design at that point, though encourage them to finish their design even if the activity is marked as completed.

In the following photo you can see an example of the shelter.



If you face difficulty reaching higher levels, you can go up to the blocks by pressing the space to jump and the w to go forward. In this case, you will be at the edge of the block next to the wooden fences.

Another solution is to place the stairs around as in the following image.



To place blocks and materials in higher levels, it is essential to target the top of the previous block/material and press place.



If you placed mistakenly a block/ material, you could always destroy it by pressing the Mine with your left click continuously until the block disappears.



Keep in mind to create a roof. As you place the top block continue with placing blocks horizontally. It will be tricky though always target the previous block you placed and set it next. Sometimes you will have to look up to place the blocks above your head.

After you finish with the shelter talk again to the NPC "**Chu.**" He will guide you back to the townhall for the final quiz. There you will talk with the NPC "**Ana.**" Do it twice to unlock the final quiz.

Key Info: The correct answers are B, A, A, B, A. You cannot overcome a question if you do not answer it in the correct way.

4. "Shakyna" Minecraft Education World

4.1 Goals of the World

This world targets to instruct children about the physical disaster of earthquake. The world gives theoretical information to children and includes activities which will be arranged physically and using the Minecraft Education world of Shakyna.

In this world, we have 4 activities to complete and a set of 10 questions to answer after the completion of the activities.

The NPCs (people) in the game will give you directions on the activities you need to accomplish. In this city, at every place, you can talk to every NPC by pressing right-click on them. The NPCs will tell you which is your activity and give you additional information and external resources related to earthquakes.



4.2 "Shakyna" scenario

When loading the city, you will enter the world at the starting point, looking at the first NPC of the world. You will be on the top of the STE4CLIM8 logo. On the left, you will see 3 blackboards with information related to the earthquake. Take some time to read them.

Around and behind you, you will see some red "X" (crosses), which means that you are not allowed to go in that direction. The NPC **"Guide"** is waiting in front of you. Talk to him to start the game. The guide will give you a portfolio, a camera, and a book to keep notes.



In the beginning, you need to go to the library. The library is a distinct building because a red line appears on top of it. The NPC "Mike" will wait for you outside. Talk to him.



Mike will give you 2 options. Either go to the next page or press the learn more button which redirects you to an external link.



Then the NPC will instruct you to go inside the library and read the blackboards to get more information.

Enter the library and go to the left. You will find the NPC librarian who will give information on what is a seismologist and about the Richter climax. Move around and read the boards to get the required information.



You will also find a robot which includes external links with resources.



When you finish reading all the information, go outside of the building and talk again with the NPC "Mike."

Mike will give you the 3 activities in the buttons.



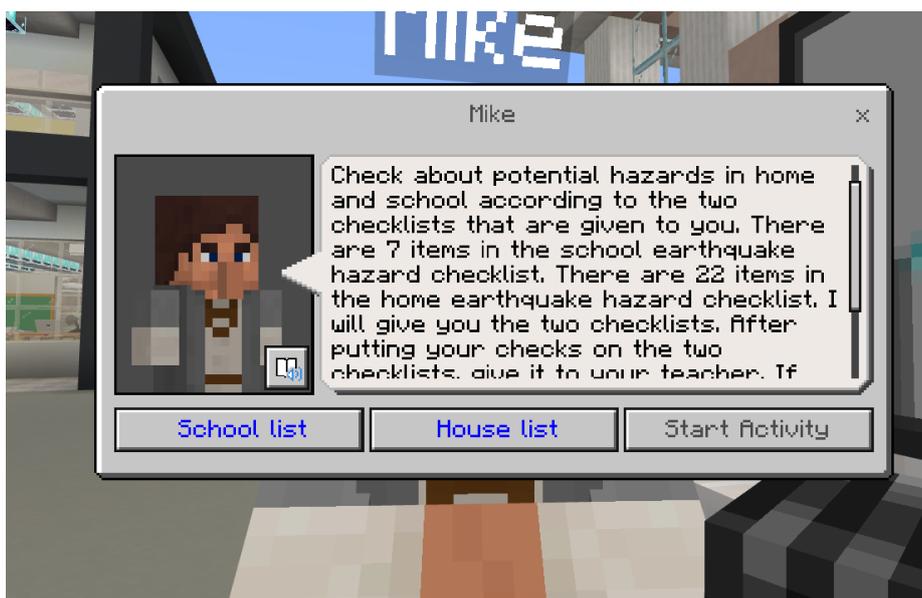
Activity 1:

The first activity will be the creation of an action plan in case of an earthquake. The users will be given a scenario and they must prepare an action plan. This activity will happen with the guidance of the teacher in the classroom.

Activity 2:

Once the players finalised the 1st activity, they will talk again to mike to access activity 2

In the second Activity, there are 2 buttons with external links to the checklists the players should use. The activity should happen in the real world and the players will have to collect the information on the checklists.



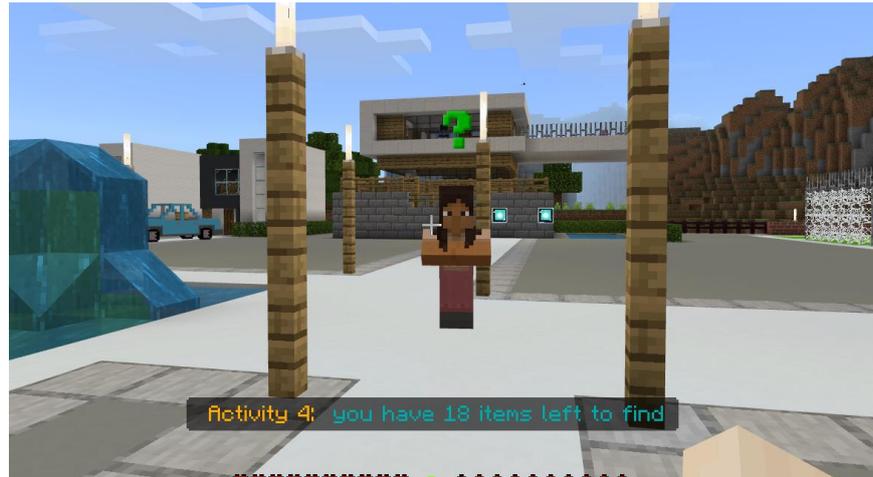
Activity 3:

Once the players finalise the activity in the real world, they will talk again to Mike to continue to the 3rd activity. Activity 3 is linked with activity 2. For this activity, users will have to use the code builder. With the information gathered in the checklists, users will have to measure the potential hazard risk in case of an earthquake. To start the activity press C to open the code builder. When finalizing the activity, the hazard risk will appear on the top left of your screen.



Activity 4:

For the 4th activity, you need to visit the NPC with the name Activity 4. To find it easily as you are watching the NPC Mike from the third activity turn to the left and move forward. Read the instructions that the NPC gives you. You will need to get the checklist from the external link and then wander around the city to find the hidden objects.



You need to talk with the NPCs to find the objects. First, you will need to get your backpack from Classroom B. You can find Classroom B on your right as you are watching the NPC. To get your backpack, follow the instructions on the blackboard.

Key Info: You can easily collect it by standing next to it.

Solution: Where to find the items?

In classroom B there is a chest that includes a pencil.



Moving out of the Classroom B go to the left and you will find the Classroom A. Talk to the teacher, and he will give you some essential information on earthquakes and a pencil.



Moving out of classroom A you continue to the left and you will find the Gym teacher. He will give you a whistle.



After the gym teacher move to the right, pass by Mike (do not talk to him) and move towards the NPC standing next to the yellow car. He is the driver. He will give you a car key.



Visit the second and third building next to the library.



In the second building, opening the second barrel you will find the Nylon covers.



In the third building, you will find in the chest the Blanket.



Go out, move to the right, and continue straight and at the end of the street, you will find a shop at your left. Talk to the NPC Seller and get the items you need according to your checklist.



Go out of the shop and move forward you will find an NPC on your left. Do not talk to her because it is the final quiz.

Continue straight to the building you see. Move inside and you will find a chest with the Duct Tape.



Get out and continue your way to the left. On the third building of that side, you will find the Hygiene kit.



Continue to the left and get into the big House. In this last house, you will go upstairs and find the chest on the First Floor. Open it and get the 3 items. The pocketknife, the battery radio, and the cash.



Move higher to find more. On the second floor to the chest next to the desk, you will find the ID and the Passport. The second chest is next to the bed and includes the protective clothes.



As you move out of the house, you will continue to the left. You will be again in the school building, and you will find the stairs to go to the upper classes. Go to classroom C and open the chest. You will find the last items. These are a flashlight, the scissors, the first aid kit and the batteries.



Your Activity is accomplished.

Final Quiz:

Go straight ahead to the point where you started in this world. There will be an NPC waiting for you. Talk to her and start the quiz.



Key Info: The answers are d, b, a, a, a, a, c, d, d, d