Astronomine worlds

Ancient Observatory lesson plan

2024

https://astronomine.erasmusplus.website/

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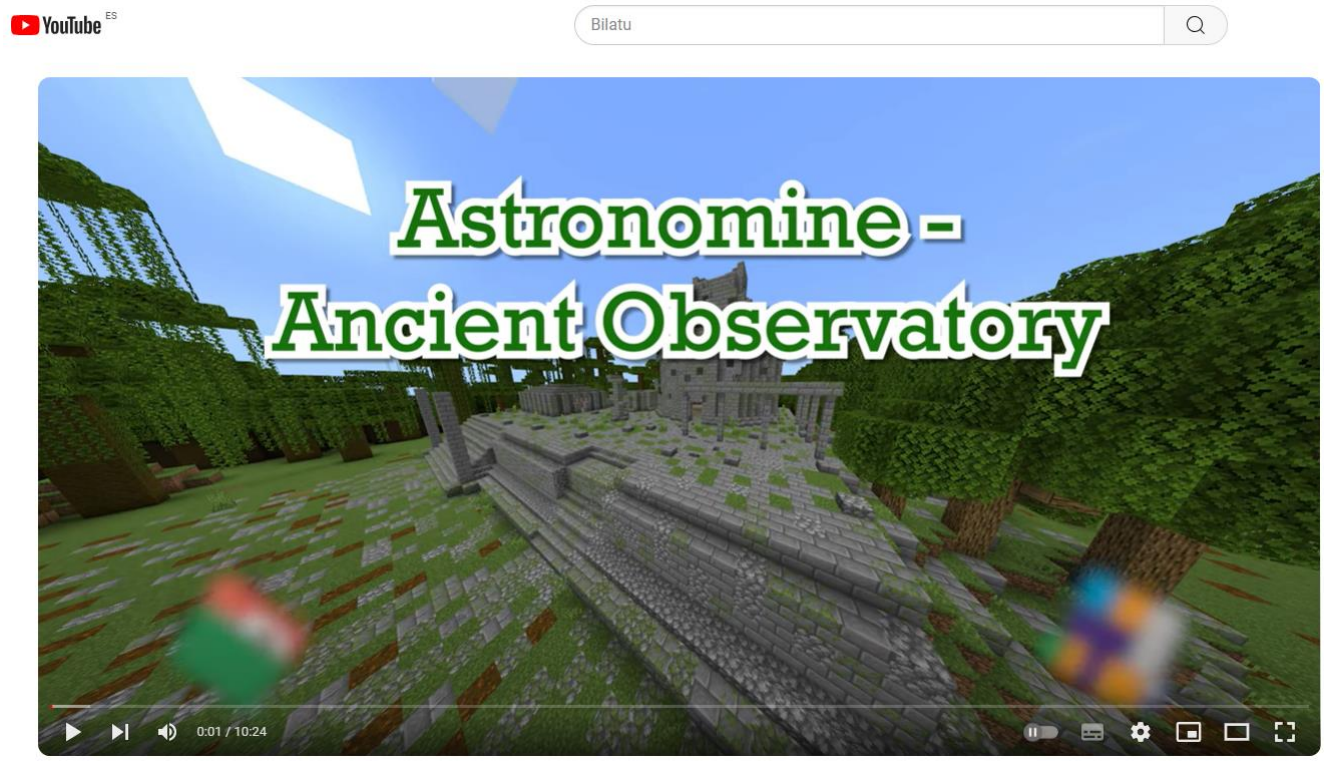
Contents

Disclaimer: This lesson plan is designed to be used alongside the teacher's guide developed in the Astronomine project, which is available here in PDF: https://astronomine.erasmusplus.website/teachers-manual

Promotional video here:

https://youtu.be/2u3o6SgCa2Q?si=1bKAuUff72wVjkBz



Before the lesson

1. Download and install Minecraft: Education Edition on all the students' devices that will be used for the workshop. Ensure these devices are running Windows 7 or later, macOS, iPadOS, or ChromeOS.
2. To import the world we will be using in the workshop, follow these steps after opening Minecraft: Education Edition with your Office 365 account:
    1. Click on "Play."
    2. Select "Import."
    3. Choose the Astronomine file.
    4. Once you see the message "Level import completed," go to "View My Worlds," and the world will appear.
    5. Click on the Astronomine world and wait for the prompts to load.

Connecting the Ancient Observatory World to the Teacher's Guide

The *Ancient Observatory* world is designed for students to explore how ancient civilizations studied the sky and developed astronomical knowledge. In this Minecraft world, students will immerse themselves in historical settings and learn about the tools, theories, and observations of civilizations such as the Egyptians, Greeks, and Mayans.

1. Learning Objectives

This world introduces primary students to the foundations of astronomy through the lens of ancient cultures. Students will:

- Understand how ancient civilizations observed and interpreted the stars.
- Explore the use of early astronomical tools like sundials and astrolabes.
- Learn about important celestial phenomena, such as eclipses and moon phases, and how ancient cultures explained them.
- Develop critical thinking skills by comparing ancient theories (e.g., the geocentric model) with modern understandings.

2. Key Activities

Activity 1: Astronomy in Ancient Civilisations
(Reference: Guide Chapter 7.1 - Astronomy in Ancient Civilisations)

- **Objective:** Students will explore how ancient civilizations, such as the Egyptians, Greeks, and Mayans, observed the sky and developed theories about the cosmos.
- **Minecraft task:** Students will build observatories inspired by ancient structures, such as pyramids or temples, that were used to track the movements of the Sun and stars.
- **In-class:** Introduce students to the astronomical observations of these cultures, including the importance of solar cycles for agriculture. Teachers can guide students in building Minecraft versions of these observatories, explaining how these monuments were aligned with astronomical events.

Activity 2: Moon Phases and Eclipses
(Reference: Guide Chapter 7.4 - Moon Phases and Tides)

- **Objective:** Students will learn about the phases of the moon and how eclipses occur.
- **Minecraft task:** Using Minecraft blocks, students will recreate the positions of the Sun, Earth, and Moon to model the moon phases and solar and lunar eclipses.
- **In-class:** Teachers can start by explaining the basics of why the moon's phases change and how ancient cultures interpreted these events. In Minecraft, students will visualise how the

relative positions of these celestial bodies cause different phases and eclipses, applying what they've learned in their virtual environment.

Activity 3: Ancient Astronomical Tools
(Reference: Guide Chapter 7.8 - Tools of the Trade)

- **Objective:** Students will become familiar with the tools used by ancient civilizations to observe the sky, such as astrolabes and sundials.
- **Minecraft task:** Students will build models of these tools in Minecraft and experiment with how they were used to measure time and track celestial movements.
- **In-class:** Teachers can guide students in building and simulating the use of these instruments in Minecraft. They will explain how these tools were crucial for navigation and agriculture in ancient civilizations. Students can observe how these simple instruments allowed predictions of natural cycles.

3. Teaching Suggestions

- **Historical connection:** Before beginning the Minecraft activities, provide a brief lesson on the different ancient civilizations and their contributions to astronomy. Use star maps or examples of artifacts to engage students and prepare them to build these elements in Minecraft.
- **Group work:** Divide students into small groups and assign different tasks within each activity. For example, one group can build an observatory while another focuses on moon phase models.
- **Minecraft showcase:** At the end of the activities, organise a guided tour in Minecraft where each group presents their constructions and explains their astronomical significance.

4. Evaluation

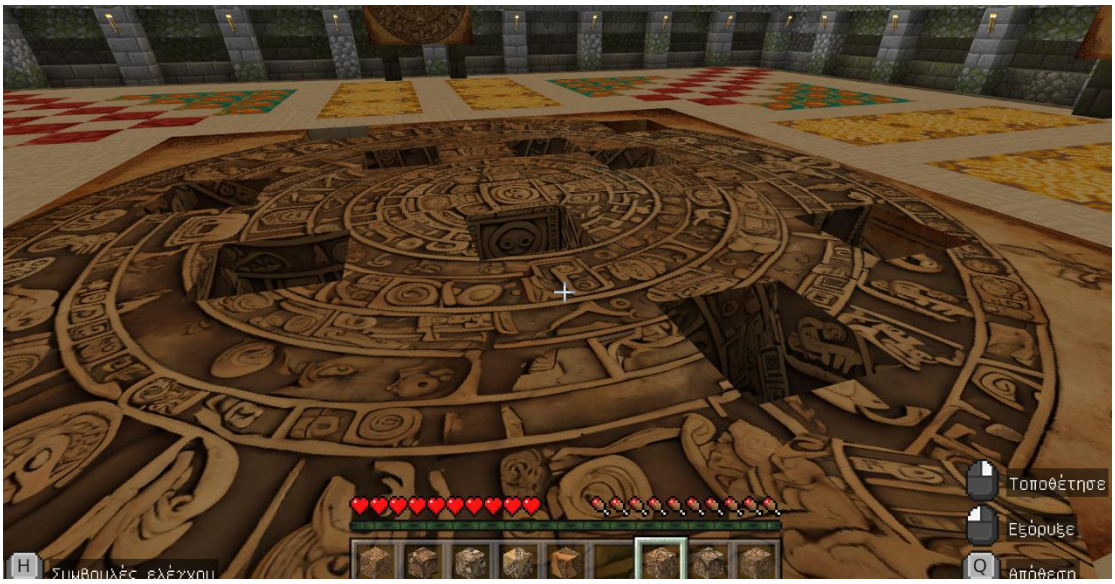
- **Minecraft creations:** Evaluate the students' creations based on their accuracy and creativity. Did they accurately recreate the observatories and tools? Can they explain how these elements worked in ancient astronomy?
- **Class discussion:** Assess students' participation in discussions on how ancient civilizations observed the sky. Can they draw comparisons between ancient and modern explanations of celestial events?

Starting Point: Mayan Temple in the Forest

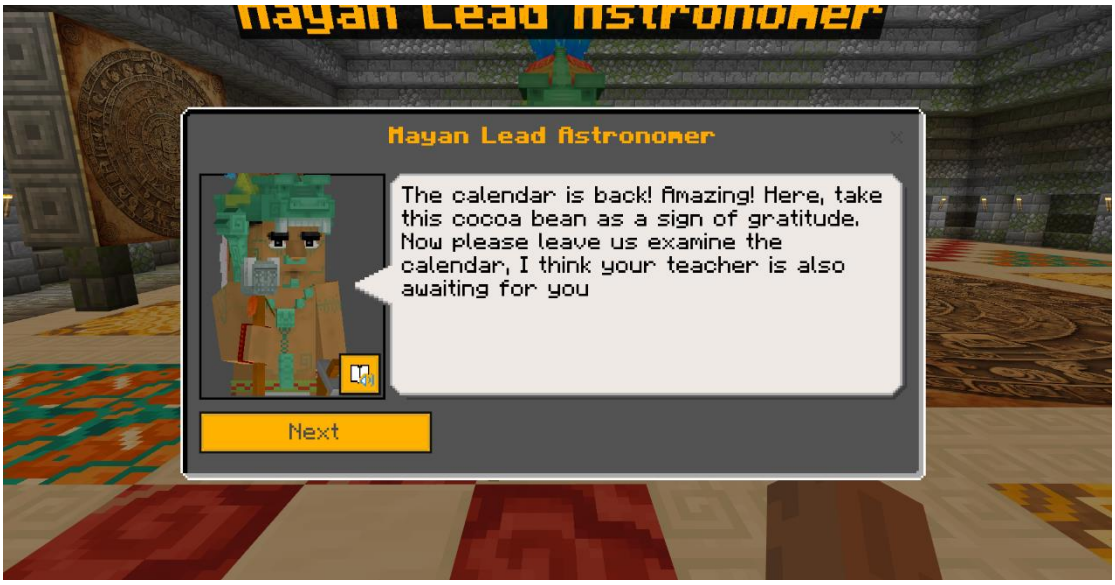
The game begins in the forest at the Temple of the Mayan tribe.

- Objective: Meet the teacher to receive historical information about El Caracol, an architectural and astronomical marvel.
- Task: The Mayan Astronomer will ask for help in correcting their calendar.

1. Action: Collect pieces from the chest.
2. Action: Use the pieces to complete the mosaic and correct the calendar.



Upon completion, the Astronomer will reward you with a cocoa bean as a token of gratitude.



Puzzle Stage: Auroras

Next, proceed to solve a puzzle involving images of auroras.

- Objective: Put the aurora images in the correct chronological order.

- Action: Complete the visual puzzle.
- Action: Answer the 'Aurora Quiz.'

Constellation Stage

In this stage, you will interact with constellations.
- Action: Take a picture of a constellation and answer quizzes related to it.
- Action: Pull the lever to continue (the correct answer is a bed bug).

Puzzle Stage: Pegasus

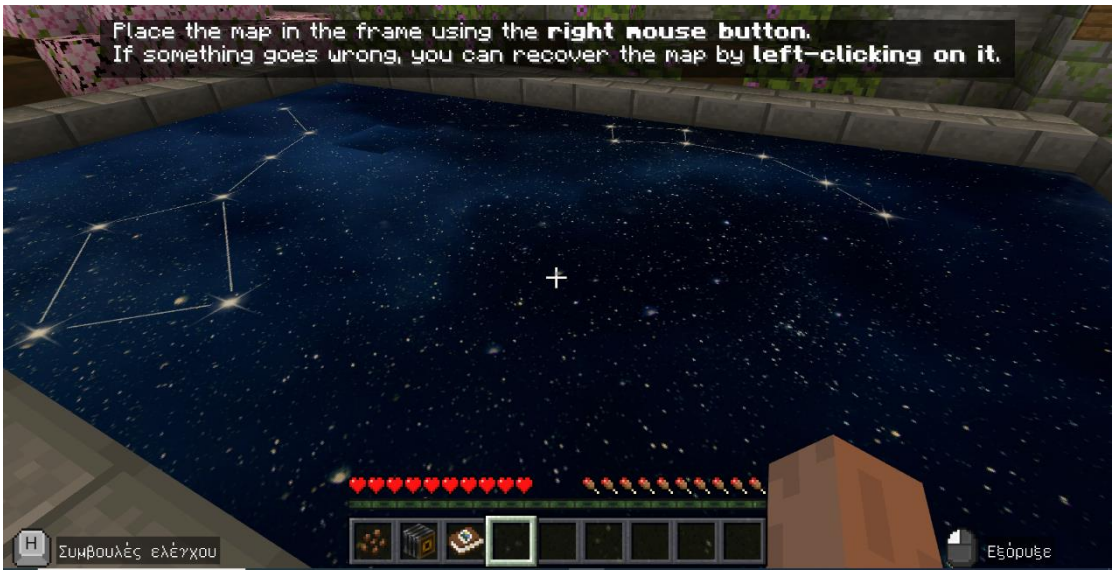
You will encounter the next room after descending the stairs.
- Objective: Complete a puzzle involving the Pegasus constellation.

- Action: Solve the puzzle and answer another quiz to proceed.

Final Challenge

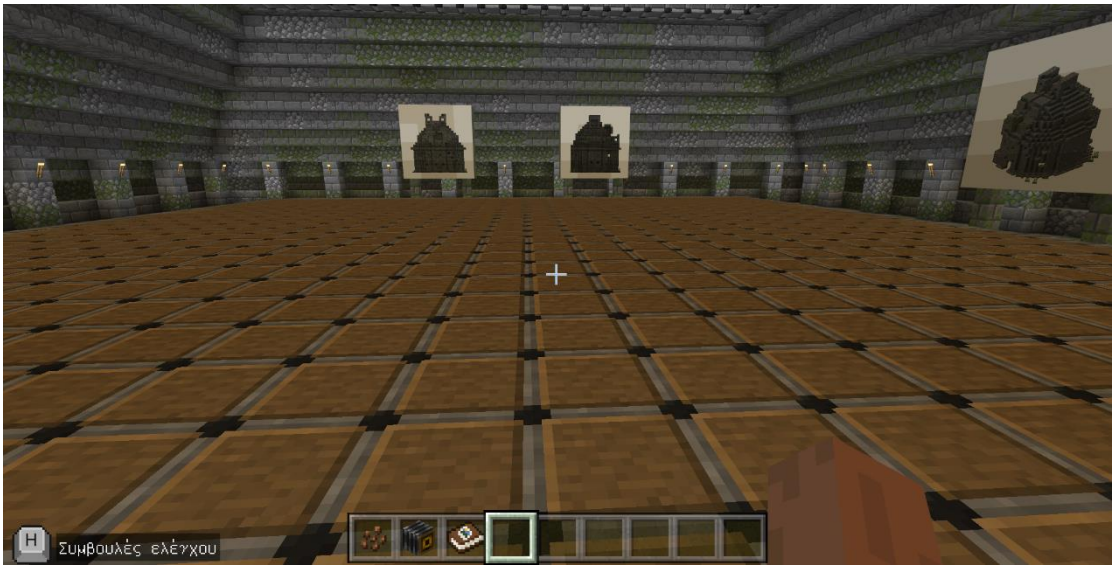
As you progress through the rooms, you will continue solving puzzles and answering quizzes.

Upon entering a new room:
- Action: Interact with the NPC to receive instructions for another puzzle.



- Action: Complete the puzzle and choose the correct door (the right door).

- Action: Press the button to move to the next room and participate in the final challenge.



After completing the final task, the teacher will inform you that you have finished the game.