



Gamified Learning Manual

The Comprehensive Guide to Use Case Implementation with Mext Platform

How to gamify your Solar System learning experience?



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Transforming Learning Journeys

Gamification in 3D Interactive Spaces

1. Introduction

Metaverse in education can unlock a variety of unimaginable learning experiences for learners with great potential to fuse the elements of the virtual and the real educational environment. It enables learners to enter the educational setting without being limited by time and locations and allows them to have real-time interactions to attain a feeling of presence as if they are in a real-world educational setting.

From this standpoint, here is the use case of The Solar System Gamified Learning course for primary school students. This document highlights the preparations, optimization techniques and guidelines for creating such an educational 3D interactive learning space.



2.Steps in Building your 3D Space

Step 1 - Define Objectives

Before starting to build the virtual space it is important to brainstorm specific educational goals and ideas around what exactly you want to achieve from this virtual space. Moreover, you must gain a clear understanding of what this space will offer the students and how will it be different from the traditional teaching practices. This will be the primary objective of the course. By thoroughly defining your goals, you not only realize the potential benefits for your students but also envision the level of immersiveness and interactivity you can create in your 3D space. This strategic approach will lay the foundation for a purposeful and effective educational interactive 3D space in a unique and meaningful way.

In the case of the solar system, let's write the objective in the form of a story on how the learning process has evolved over the years.

Education earlier was mainly relied on books, reading, and observing pictures. When I was in primary school, I learnt about the sun, moon, and stars through pictures. As I advanced to middle school, I had to read to understand the properties of the solar system and different planets. However, our knowledge was limited to the contents of the books we had.

Nowadays, students have access to information beyond their textbooks. They can search on Google and watch videos on platforms like YouTube, which provide visuals that make understanding easier.

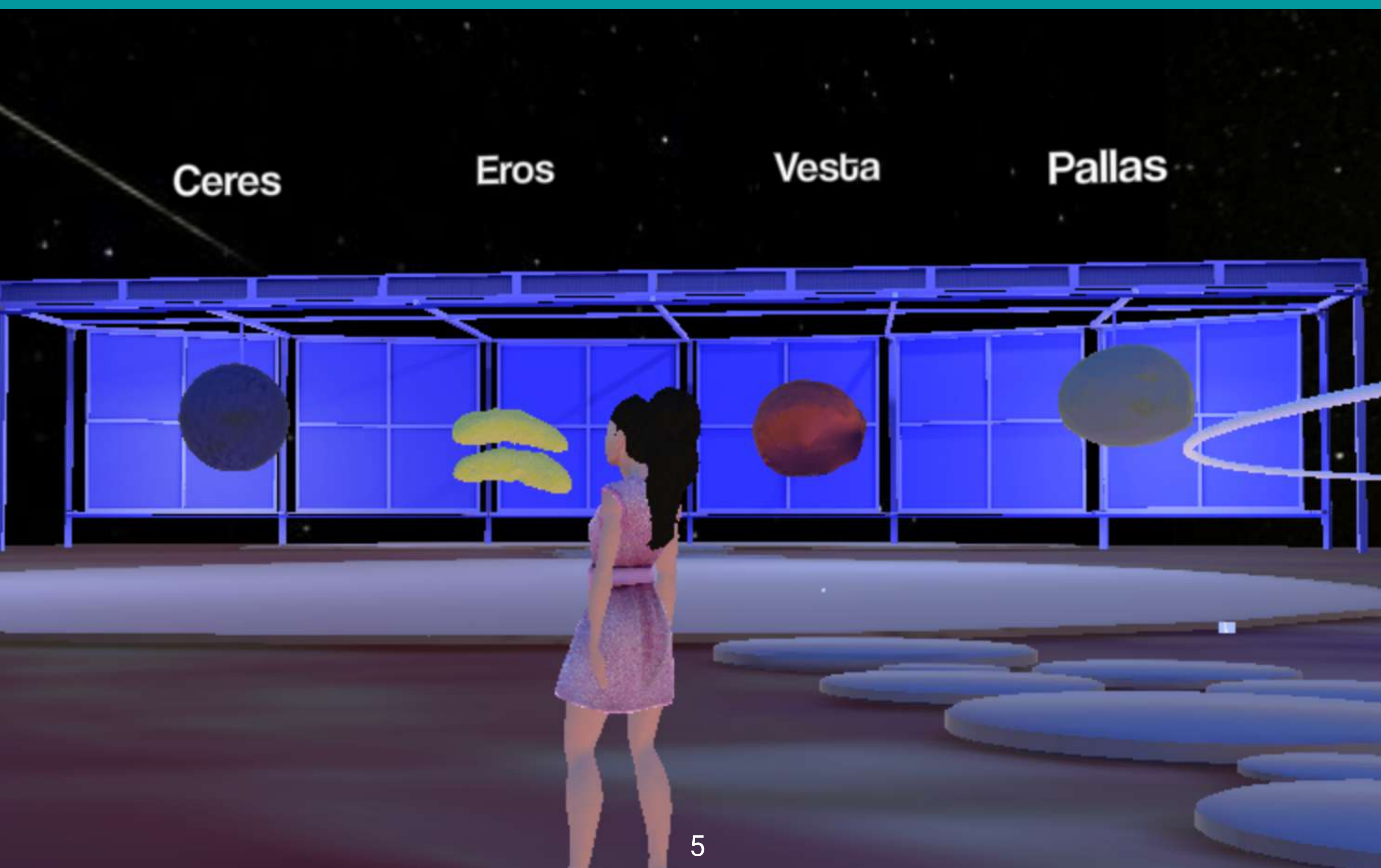
With the emergence of the metaverse, students will have even more opportunities to learn. They will be able to interact with and engage with planets, gaining a hands-on experience. They can explore each planet as if they were actually in space or inside the solar system, walking towards them and observing their unique characteristics. It will be similar to virtual planetariums where celestial bodies can be studied. This immersive learning experience will allow students to develop a deeper connection and understanding of the concept, leaving a lasting impact on them.

Step 2 – The Learning Journey

It is now time to start thinking about how you want to build your virtual space. It is important to consider how you want to structure your space and create a meaningful learning experience for your students.

The concept of a learning journey involves defining the journey that your students will go through from the beginning of the course to the end. It also includes all the steps and interactions that students will engage in while they are in the virtual space. This could involve defining the lessons that will be taught, the activities and interactions that will take place, any assignments or exercises that will be completed, and even games and rules that will guide the learning process. Understanding the wide range of interactivity features that Mext Metaverse has to offer will also be helpful in building the learning journey.

It is crucial to properly document and plan out this learning journey because it acts as a roadmap for building your virtual space. This documentation outlines the entire learning experience and provides guidance for both you as the creator and for the students who will be participating. The learning journey serves as the foundation for the development and success of your virtual space.



The Solar System Learning Journey is defined as below:

STAGE 1 : INTRODUCTION AND COURSE STARTS

The teacher enters the space with the students. Using the audio option, the teacher gives a detailed introduction of the course, including the lessons, scoring rules, games guidelines etc. The course starts by walking with the students to the solar system, observing and interacting with each planet. The teacher explains the properties of the planets and allows students to enter teleportation zones for more information and do some quick challenges. The teacher then guides the students to the Moon, explaining its important properties and features. Students can walk on the moon's surface and experience its terrain and craters. Next, the teacher takes the students to the Asteroid Center, where they learn about the major asteroids in the solar system and interact with them. The teacher then leads the students inside a building, starting with the Information Center, where students learn how to download study materials and contact the teacher directly. They are also provided with a video guide here on how to navigate the space, interact with planets, and use various features. The students and teacher proceed to the Gaming Center, where the teacher explains how to participate in quizzes and treasure hunts. The teacher may also assign tasks or assignments for students to complete in groups.

STAGE 2 : STUDENT WORK TIME

It is now the students' time to socialize and interact with each other. They engage in discussions about the games and tasks assigned, participate in quizzes, explore the 3D space together to find clues for the treasure hunt, and use the Study Center to collaborate with others on completing their work. A Personal Assistant will also be available to provide a personalized experience for students.

STAGE 3 : ANNOUNCING RESULTS AND COURSE ENDS

When the allotted time (could be days or months) for students to complete all activities, games and tasks ends, the teacher asks all students to gather in the Gaming Center. The teacher checks the results of the games, quizzes, and assigned work to announce the winners of the treasure hunt, quiz, and highest score. Prizes are given out, and the teacher concludes the course.

Student Activities

1. SCORING

Students are encouraged to explore and interact with various celestial bodies such as planets and asteroids. Every time a student engages with one of these entities, whether by entering a teleportation zone, participating in a quiz, accessing the information center, or study materials, they earn points. These points are tracked in the scoring system, allowing teachers to see how many times each student has interacted with each planet or engaged in quizzes. As an added incentive, students with the best scores are rewarded with prizes, fostering a sense of competition and motivation in their quest for knowledge.

2. SPACE QUIZ

Teachers can organize quiz inside this space. Each student attending the quiz gets points for attending as well as for correct answers. Not only does attending such quizzes and actively participating benefit students academically, but it also allows them to accumulate points for their efforts as these points can serve as a form of recognition and motivation.

3. CLASSES AND STUDY ROOMS

In this innovative virtual classroom, teachers can guide their students on journeys through the planets, acting as avatars to make learning an interactive and engaging experience. Additionally, the students have access to a collaborative study room, where they can congregate to discuss and work on projects and assignments together.

4. GAMES

Students can also take part in interactive games within the virtual space, such as engaging in thrilling treasure hunts where they work together to discover clues hidden throughout this immersive environment.

Step 3 – Build the virtual space

The process of building the virtual space is the next step in your educational journey towards creating an immersive learning experience. With the Learning Journey as your reference, you can now start building your educational metaverse.

Leveraging the cutting-edge METABUILDER technology within the Mext metaverse admin, you'll have all the tools at your disposal to start crafting your virtual world. Begin by choosing a template scene from the available templates (if needed), adding and arranging 3D objects, rooms and other interactive elements ensuring they align seamlessly with your educational objectives. You can integrate links to your own softwares to teleport students to do exercises (like Kahoot!). You can also define quiz questions and assessments and consider where to place treasure hunt clues and determine the rewards for game winners. If necessary, include stands as contact points or an information centers, create any required videos, upload relevant documents and images as needed. Additionally, you can create meeting rooms to facilitate collaboration and discussions or add music to your 3D space. Also, don't forget to define the scoring system for a dynamic assessment approach. At last, provide a comprehensive description for your metaverse to set the stage for learning.

This step represents the transformation of your educational vision into a tangible, interactive space that will engage and inspire your students.



The Solar System Learning Experience Metaverse is built as defined below:

1. The template 'Learning Space' has been used as a scene for this 3D space.
2. 3D elements of solar system, planets, moon surface, asteroids are downloaded from Sketfchfab and uploaded easily to Mext Metaverse on the metaverse admin interface.



3. Teleportation zones are added to planets and asteroids to gain knowledge and with challenges.
4. A stand was added as an information center where students can download study materials and contact teacher anytime.
5. A video guide was created and added in the same stand on how to play around in the metaverse
6. A study room (meeting room) was created for students to organize group discussions.
7. Quizzes were added to the metaverse
8. An image and description was added to the metaverse



9. Scoring system has been defined and integrated that aligns perfectly with this use case.
10. The treasure hunt game was defined mainly deciding where to keep hidden clues and how to reward students and integrated to the metaverse with support from the technical team.

Link to the Solar System Gamified Learning - [Verdane Sous-titre 36](#)

Step 4 – Optimization and Technical Modifications

After adding all the 3D elements and interactive features, the optimization and technical modifications step in building this interactive space becomes crucial. Here, the focus shifts to enhancing the performance and user experience. This primarily involves fine-tuning the metaverse. Technical modifications may include optimizing 3D models for faster loading, reduced lagging, and improved overall responsiveness. This phase aims to deliver a seamless, high-quality educational environment that engages students without technical hindrances.

Study Center



In the solar system learning journey, optimization and technical modifications was required in the following:

1. 3D models - As the GLB files was found heavy, alternative files of the same object was downloaded from Sketchfab and used in the virtual space.
2. Teleportation zones – These were primarily built to streamline access to meeting rooms or to view and download documents through a single, convenient link. However, this functionality has been expanded with the inclusion of adding descriptions, images, documents, and multiple choice question sections.
3. Scoring – As scoring varies from use case to use case, the methods used to assess and evaluate the performance or achievements of students within the metaverse was well-defined and communicated to the technical team. It involves various criteria, such as completing tasks, quizzes, challenges and other interactions within the metaverse.
4. Avatar landing spot - The avatar landing spot within the metaverse was relocated with the help of the technical team aiming to improve overall performance and user experience.
5. Treasure Hunt - A virtual treasure hunt was built for the students in the virtual space by utilizing the features and options provided by the metaverse admin interface along with the support from the technical team. The entire game has been designed including the placement of clues and hints, the nature of the treasure, and the method for rewarding the winners.

Step 5 – Test, Launch and Embed

In the testing and launching phase of the gamified learning space, the virtual environment is thoroughly assessed, refined, and subsequently made available for students. During testing, it is evaluated for functionality, user-friendliness, and educational effectiveness. This includes everything starting from the 3D elements, interactivity and avatar movements to audio features, chat rooms and teleportation links. This will help to identify and resolve any technical issues or glitches that could disrupt the learning experience. This will also ensure that it runs smoothly and efficiently, even on a variety of devices. Once these issues are resolved, the interactive 3D space is launched, allowing students to access and engage with the educational content and interactive features provided within the virtual space.

During the embedding phase, you can effortlessly integrate your interactive 3D space into your school or college website using the available option in the metaverse admin interface. This feature will facilitate students in accessing the space directly and conveniently through the website.



Explore Additional Resources for Building Your 3D Interactive Space & Metaverse:

Platform Documentation:

- Detailed platform documentation is available at [Platform Documentation](#).
- Access the [FAQ](#) section.
- Learn "How to build your booth?" through a comprehensive document.
- Access a document on "How to join the stage when you are a speaker?".
- Learn ["How to embed your 3D interactive space in your Wordpress website?"](#)

Whitepapers & Use Cases:

- Delve into Mext's whitepapers and use cases.
- Access guides for use case implementation with the Mext platform.

Tutorials Videos:

- [Video tutorials](#) are accessible for your convenience.

Everything about 3D Models:

- Discover [how to obtain ready-to-use 3D models](#).
- Learn the [process of creating 3D models for your products](#).
- Explore [techniques for transforming any text into 3D](#).

Mext Support:

- Reach out to Mext support at contact@mext.app.

Trainings:

- Engage in [bi-weekly training sessions](#) in English every Tuesday at 3 pm.
- Participate in [bi-weekly training sessions](#) in French every Tuesday at 3 pm.



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