lumination

Lesson Plan

IMVR LESSON PLAN

The City of What If?

Learning Area	Geography	**Kit**	Lumination Immersive Virtual Reality (IMVR) Kit OR Lumination Learning Lab
Year Level	Years 7	**Duration**	1x 60 minute Lesson

Introduction/Description

Students develop their understanding of what makes a place more liveable than others through creative thinking, design, and building new cities in virtual reality.

Learning Intentions

Students will engage in critical thinking skills about what makes one place more liveable than another by exploring creative 'what if' scenarios.

Task Summary

Students will create liveable cities based on their understanding of what makes a city more liveable than another, and based on their 'what if?' scenario whilst engaging in an immersive virtual reality (IMVR) experience.

Preparation

Students are expected to:

- Have some background knowledge on Mercer's Quality of Living Factors.
- Have some background in using IMVR and the Tiny Town experience
- Have a basic background in building on CoSpaces. If not, please add at least a 1x60 minute lesson for learning the basics. There are tutorials linked in the resources section

Teachers should make sure that:

- IMVR headsets are calibrated and charged
- They are familiar with the Tiny Town experience on the IMVR
- Students are able to access YouTube videos.
- Slide deck has been checked and the teacher has enabled the deck's accessibility so students can access them.
- A copy of the Student Digital Notebook has been distributed to students and they have downloaded/ made a copy for themselves.
- CoSpaces logins have been organised for students
- Students are divided into pairs or groups depending on how many devices are available. A suggested rotation cycle may be:

Developed by Jolanta Stephens, BEd

Group	Round 1	Round 2	Round 3
Group 1	IMVR	Build	Explore
Group 2	Explore	IMVR	Build
Group 3	Build	Explore	IMVR

This may differ based on student numbers and number of HHVR headsets/ devices.

Resources

- IMVR Apps
  - Tiny Town (IMVR Experience)

Tiny Town VR is a casual world-building game in virtual reality, inspired by the nostalgic storytelling power of LEGO and action figures mixed with the excitement of making something original. Build your world, big or small, then fill it with thousands of different objects. Add characters whose joints can be pushed, pulled and twisted into any pose imaginable, then give them a voice with custom speech bubbles.

- Hardware:
  - Student laptops
  - IMVR Headsets
  - Student Mobile Devices
- Websites:
  - Google Earth
    Explore the whole world from above with satellite imagery and 3D terrain of the entire globe and 3D buildings in hundreds of cities around the world.
- Apps:
  - CoSpaces EDU (VR creation tool)
  - CoSpaces Example: Liveability city
- Teaching Materials:
  - The City of What if - Student Digital Notebook (slide Deck)
  - The City of What If - Teaching Deck (slide deck)

Other Learning Areas

- Mathematics

Learning Sequence

1 Introduction (8-10 mins)

- Ask students to think back to their knowledge on Mercers Quality of Living Factors and what makes a city liveable.
- Direct students to respond to the questions in their Student Digital Notebook;
    - What if we removed or changed an element or livability factor in a city design?
    - Is it possible for the city to still be deemed liveable?

- Direct students to consider the following scenario;
    - What if there were no roads in a city? What would this mean?

- Ask students to brainstorm lists of what this would mean in their digital notebooks. *For example; no cars/buses, less CO2 emissions, but a need for people to get around still - so perhaps airwalkways, cable cars, whatever creative solutions they could come up with!*

- Ask students in their pairs/ groups to come up with their own 'what if' questions about cities to investigate. Some examples could be:
    - What if cities could only use 'green energy'?
    - What if there were no supermarkets?
    - What if cities were contained to one skyscraper (built up rather than spread out)?
    - What if the cities were completely underground?
    - What if waste was banned?

2 Development (30-40 mins)

Introduce the stations students will be engaging in

Station Based Rotations in 10-15 min intervals

Station 1 - IMVR

- Students are to engage with Tiny Town on the IMVR to create a city that they would deem as liveable. Students will work in pairs per station and take turns to build and direct.

Station 2 - Explore

- Students are to use Google Earth to visit the top 10 most liveable cities as stated by Mercers to get ideas and explore the different features that make these cities liveable

Station 3 - Build

- Students use CoSpaces to create a city of 'What if', choosing one of the 'what if' scenarios that was brainstormed. Share the CoSpaces Example: Liveability city example with students of a city made with the "what if" statement of "What if there were no roads?" *(the QR code for this is in their Student Digital Notebook as well).*
  Direct students to access CoSpaces EDU and to use a background of a plain environment (not a pre-made city) to start with
    - *Students may work in pairs if appropriate*

3 Conclusion (5-8 mins)

- Ask students to share their city designs/creations using CoSpaces EDU by sharing the link/ QR code. Students will be able to view each other's creations in VR or AR by scanning each other's QR codes.

Modifications

Adaptations

Students can develop a liveable city without the 'what if' component.

Extension Ideas

This could be integrated with Mathematics, looking at coordinates and mapping in making a map to scale of their city, or even the costs it would have to build certain parts of their designs.

Curriculum Connections

Australian Curriculum	NSW Curriculum	VIC Curriculum
Year 7 - Geography Develop and evaluate strategies using environmental, economic or social criteria; recommend a strategy and explain the predicted impacts (AC9HG10S05)	Stage 4 - Geography K-10 Explains how interactions and connections between people, places and environments result in change (GE4-3)	Levels 7 & 8 - Geography Influence of accessibility to services and facilities; and environmental quality, on the liveability of places (VCGGK112)

Year 7/8 - Digital Technologies	Stage 4 - Information and Software Technology	Levels 7 & 8 - Digital Technologies
Select and use a range of digital tools efficiently, including unfamiliar features, to create, locate and communicate content, consistently applying common conventions (AC9TDI8P11)	Designs, produces and evaluates appropriate solutions to a range of problems (4.2.2)	Define and decompose real-world problems taking into account functional requirements and sustainability (economic, environmental, social), technical and usability constraints (VCDTCD040) Manage, create and communicate interactive ideas, information and projects collaboratively online, taking safety and social contexts into account (VCDTDI039)

Year 7 - Mathematics (for extension activity)	Stage 4 - Mathematics (for extension activity)	
Number and Algebra Use mathematical modelling to solve practical problems, involving rational numbers and percentages, including financial contexts; formulate problems, choosing representations and efficient calculation strategies, using digital tools as appropriate; interpret and communicate solutions in terms of the situation, justifying choices made about the representation (AC9M7N09) **Measurement and Geometry** Solve problems involving the area of triangles and parallelograms using established formulas and appropriate units (AC9M7M01) **Space** represent objects in 2 dimensions; discuss and reason about the advantages and disadvantages of different representations (AC9M7SP01)	**Number and Algebra** Solves financial problems involving purchasing goods (MA4-6NA) **Measurement and Geometry** Calculates the perimeters of plane shapes and the circumferences of circles (MA4-12MG) Uses formulas to calculate the areas of quadrilaterals and circles, and converts between units of area (MA4-13MG)	

Describe transformations of a set of points using coordinates in the Cartesian plane, translations and reflections on an axis, and rotations about a given point (AC9M7SP03)		

Cross-Curriculum Priorities

☒ Aboriginal and Torres Strait Islander Histories and Cultures
☒ Asia and Australia's Engagement with Asia
✅ Sustainability

Capabilities

☒ Literacy
✅ Numeracy
✅ Digital Literacy
✅ Critical and Creative Thinking
☒ Personal & Social Capability
✅ Ethical Understanding
✅ Intercultural Understanding