Final Curricular Project: Recreating Real Life Rooms/ Buildings in Minecraft

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Introduction:

This project will be done in Minecraft, students will pick a place to explore to recreate the place in Minecraft. The students will first explore and research about their place, then after they explore and research the place. They will plan on how they will build their place, and what scale they can use to recreate it. After, all those steps students will discuss how much will it cost to create the building or room.

Grade Level or Context:

Grade Level:

High School math (WA 20)

Context:

20 lv:

In grade 11 Workplace Math, students learn about surface area, volume, scale, financial services, and personal budget. So, students will plan, research, and reconstruct an actual building (or room). Students will record and do the math to the reconstruction of their place.

Learning Objectives:

20 lv:

WA 20.3 – Extend and apply understanding of surface area, volume, and capacity using concrete and pictorial models and symbolic representations (SI or imperial units of measurement).

WA 20.8 – Demonstrate understanding of financial institution services used to access and manage personal finances, including credit options.

WA 20.10 – Extend and apply proportional thinking to solve problems that involve unit analysis and scale.

Rationale:

When developing this multi-unit plan, I came back to a question, that everyone asked in a math class, “Where/when will I use this?”. In *Placed-based education,* by Gregory A. Smith states, “A third approach to place-based education involves engaging students in the identification of school or community issues that they would like to investigate and address.” (Smith 2002, p. 589). What Smith, wrote “issues”, I chose to address mathematics about the structures of the place. When I was choosing what place to choose for this plan, I didn’t choose a single place I decided, to give the choice of what place they can do, in my experience not choosing place that does not interest the student this will not engage in building the structure in Minecraft. Incorporating money

into this project is important because, not only the students will be creating the building in Minecraft, they will be also seeing the cost of their recreation.

Media Description & Rationale:

Using Minecraft, for this project when you have challenged students, it helps them exhibit the mathematical concepts. In the study, “Using Minecraft in education: A qualitative study on benefits and challenges of game-based education”, by Anton Petrov, focuses on how it helps students with Learning Disabilities (LD) (Petrov, 2014, p. 15). In the study, the author states “Minecraft is an open world, exploration and building game, written in Java and released in 2011 for PC by a Swedish company Mojang” (Petrov, 2014, p. 20). Minecraft was not originally made for education, but it was created in a way to use it in a classroom (Petrov, 2014, p. 20). Using this game, students that are using servers are more acceptant to their peers that are academically challenged or with LD (Petrov, 2014, pp. 25 – 26). This is why I chose to use Minecraft; this allows challenged or LD students to grasp at the mathematical concepts of the curriculum.

To prepare teachers, with using Minecraft. In the article, “Participatory culture as professional development: Preparing teachers to use Minecraft in the classroom”, by Kuhn & Stevens the authors states, “This diversification of learning and content is a hallmark of learning within the literacy of games and is what is needed in preparing teachers to use games for learning” (Kuhn & Stevens, 2017, p. 760). Immersing yourself in the literacy of Minecraft, so that you know what you are looking for in a project. You also need this to help students if they are having trouble representing their Minecraft project. This is important to create an inclusive classroom.

In this multi-unit project for *Workplace and Apprenticeship Math 20,* this project will be done in two programs: Minecraft Education Edition and PowerPoint (or Slides). Using Game-based learning (GBL), GBL is teaching that introduces video games, it defines to a type of game that is related to the lesson outcomes (Plass et al., 2015, p. 259). Using Minecraft as a learning medium versus a more conventional way, which would include researching, taking pictures or videos and doing all the calculations about their place and presenting their findings. Doing in this way, it will engage students to pay attention to details that they would not pay attention to, like details in the wall. This will allow the students to get creative in representing a place. Using games to teach, is beneficial to students by allowing students just play the game. In “Digital game-based pedagogies: Developing teaching strategies for game-based learning.” by Kuhn, Jeff and Stevens, Vance the authors states, “…offering the game to students and stepping back in order to let learning through gameplay take place” (Kuhn & Stevens, 2017, p. 2). This will allow the students to use problem solving skills, to develop their mathematical calculations. These things will help students use their skills in real life situations.

Reflection on Making:

In the start the idea came from one of my ideas back in high school, that I wanted to make Archbishop M.C. O'Neil Catholic High School in Minecraft. This what this was based on, in trying to create the high school, I did not start with a plan and a scale, I just went into it. This was a challenge and that is why it takes two stages to complete before their recreation, this will make the students think how to recreate it. The next step was a new step, that I wanted to have budget section, so I made it. Some challenges that I faced with incorporating a budget, was the cost of blocks there is so many costs to figure out, so that is why the students will use the same material as their structure. Why I said groups do buildings and why partners and individuals do just one room is because you can split up the work in a group and as partners and individuals is because doing a room is more manageable.

In creating this project, here is some things I learnt about the process. Doing lesson plans is a long process, there is a lot of details that you need to create one lesson plan, it got easier when I was continuing from a previous lesson. Also, when creating the rubric, it was easier to do it when I made it into sections rather than one section cramming all relevant information, also learnt that detailing what I expect does not help the students think.

This is what I've learnt about this process.

Assessment:

Each individual lesson plan has a formative and summative assessments. The "formative assessment" assesses a student's participation. The "summative assessment" assesses the student's understanding of math concepts.

Individual Lessons:

Lesson 1:

See Lesson 1: Start-up & Planning Stage of your Place.

I. Procedures: Explain the step-by-step process of how you would teach your lesson. Be sure to focus on what the students will be doing.

II. Materials: What materials will you need to teach this lesson?

III. Resources: Provide a list of the resources you will use including instructional material and media.

Lesson 2:

See Lesson 2: Finding Surface Area & Volume of your Place.

I. Procedures: Explain the step-by-step process of how you would teach your lesson. Be sure to focus on what the students will be doing.

II. Materials: What materials will you need to teach this lesson?

III. Resources: Provide a list of the resources you will use including instructional material and media.

Lesson 3:

See Lesson 3: Research the Cost, Materials, & Loans of your Place

I. Procedures: Explain the step-by-step process of how you would teach your lesson. Be sure to focus on what the students will be doing.

II. Materials: What materials will you need to teach this lesson?

III. Resources: Provide a list of the resources you will use including instructional material and media.

Lesson 4:

See Lesson 4: Recreating your Place in Minecraft

I. Procedures: Explain the step-by-step process of how you would teach your lesson. Be sure to focus on what the students will be doing.

II. Materials: What materials will you need to teach this lesson?

III. Resources: Provide a list of the resources you will use including instructional material and media.

Lesson 5:

See Lesson 5: Creating the Presentation about your Place & Reflection

I. Procedures: Explain the step-by-step process of how you would teach your lesson. Be sure to focus on what the students will be doing.

II. Materials: What materials will you need to teach this lesson?

III. Resources: Provide a list of the resources you will use including instructional material and media.

References:

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