

Section One: Project/Lesson Overview

Grade: 10

Subject: Broad Based Technology

Lesson Title: Design Your Own Natural Science Museum

Lesson Description:. Students will use free software (Google Sketchup) and resources from the “Magnificent Rocks” virtual exhibit to design their own virtual museum.

Time Required: 5 x 60 minute classes

Curriculum Outcomes:

- Students will be expected to create alternate representations, such as computer animations and physical models
- Students will be expected to develop (prototype, fabricate, make) technological solutions to problems

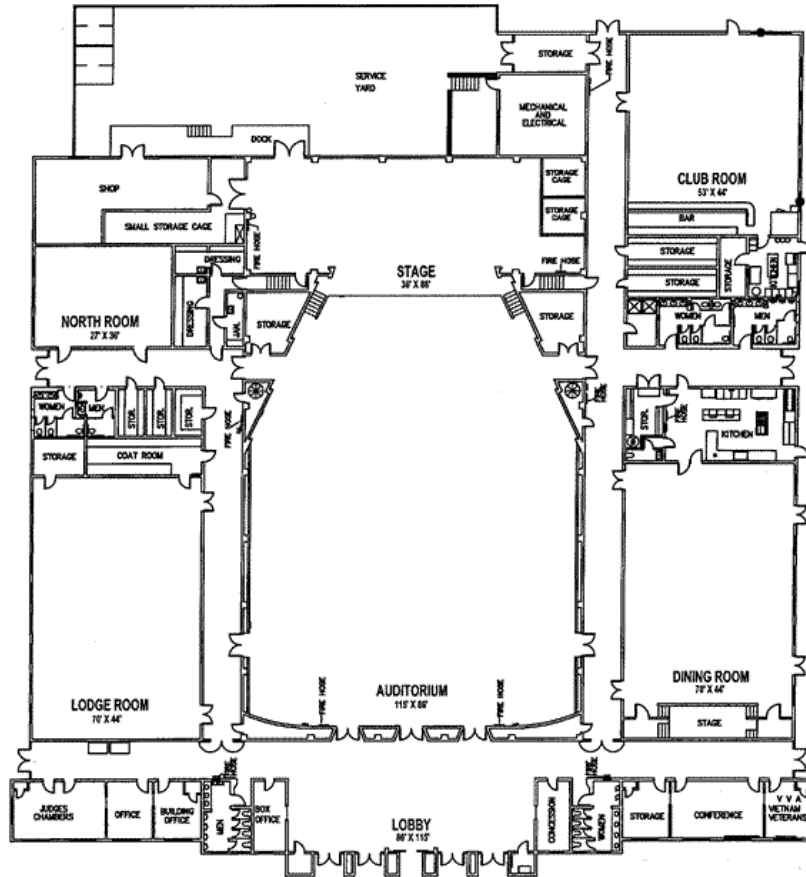
Section Two: Project/Lesson Implementation

Equipment/Materials Required:

- Computer Lab
- Google Sketchup
- Internet Access

Lesson Procedures/Teaching Strategies:

1. Ensure that Google Sketchup is installed on the computers being used for this project. It is available for free at <http://sketchup.google.com/intl/en/download/gsu.html>
2. Have students find a floor plan to use for their museum. They can accomplish this by doing an image search for floor plans.
 - a. The floor plan does not need to be of an actual museum.
 - b. Students should choose a building that is a single level, or choose one floor of a multi-floor building.
 - c. They should choose a floor plan with dimensions written on it.
 - d. Example:



3. Alternative: Students can design their own floor plan using Paint, GIMP, or other software.
4. Once the students have found a floor plan (or designed their own), they will need to import it into Sketchup.
 - a. Click on File->Import and choose your floor plan.
 - b. Attach it to the origin, it should lock into place.
 - c. Do not worry about the scale.
5. Scale the image.
 - a. Change the camera angle to the top view by clicking on Camera -> Standard Views -> Top
 - b. Find a known dimension on the floor plan.
 - c. Click on the tape measure icon
 - d. Use the tape measure to measure one of the walls.
 - e. Type the actual dimensions from the floor plan.
 - f. You will be given the option to resize the image, select yes.
6. Create walls
 - a. Use the "Line Tool" to draw all the way around the walls on the floor plan.
 - b. Draw around the inside and the outside of the walls.
 - c. Select the "Push/Pull" tool.
 - d. Pull the walls upward.
7. Paint the walls and floors
 - a. Use the "Paint Bucket" tool to colour the walls and floors.
8. Add furniture to the exhibits.
 - a. Choose File ->3D Warehouse -> Get models
 - b. Search for furniture that will match your museum.

9. Create your exhibits.
 - a. Go to the Magnificent Rocks section from the New Brunswick Museum website, www.nbm-mnb.ca/magnificentrocks
 - b. Assign different geological time periods to different rooms in your museum.
 - c. Save images from the website and import them into your museum the same way you did with the original floor plan.
 - d. Place photos on the walls and into the 3D display cases that you have downloaded.
 - e. Use Paint or other image editing software to create placards with information about the exhibits. Import them into Sketchup and place them with the corresponding photos.

Suggested Assessment Strategies:

Rubric

Section Three: Project/Lesson Resources

Supplementary Resources:

www.nbm-mnb.ca/magnificentrocks

<http://sketchup.google.com/intl/en/download/gsu.html>

Disclaimer: The recommended web-resources included here have been scrutinized for their grade and age appropriateness; however, contents on links on the Internet change continuously. It is advisable that teachers preview all links before recommending them to students.

Extensions:

Section Four: Additional Information

Credits: Trevor Nason, Harrison Trimble High School, Moncton, New Brunswick