STARBASE Challenge: Mapping Minecraft

If you're a fan of building in Minecraft, this is a challenge just for you! Take this opportunity to design a new world and actually map it out on paper using the (x, y) coordinates. Then explore the dimensions of your buildings. Calculate the perimeter, area, and volume of at least 10 structures.

1. Create a new world in Minecraft in creative mode using the coordinate settings.

2. Go to the middle of your map. The coordinates should be (0, 0, 0) for your (x, y, z) position. Start creating your world from there.

   o Build a sign for each building you create to make them easier to find.

3. Once you are done making at least 10 buildings, you can start working on your map!

   o Tape 4 pages of graph paper together to create your map. You may need to add additional pages depending on the shape of your world

   o The center where all 4 corners meet will be your origin. Draw a circle to mark your origin.

4. Draw each building to scale on your map as seen from above. Make each square on your map equal to one square in your Minecraft world.

   o For example, if I build a barn 2 blocks to the right of the center of my map that is 10 blocks wide and 3 blocks long, it should look like this on my map:
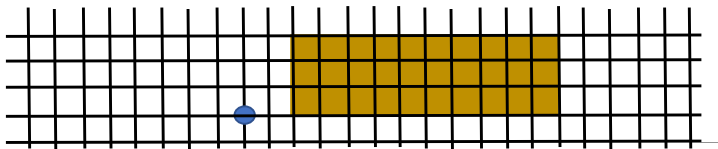
5. Calculate the perimeter of each building and write it in the table on the last page.

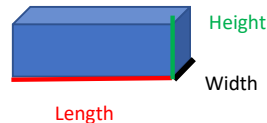   o Perimeter of a Rectangle (including squares) = Length + Width + Length + Width

6. Calculate the area of each building and write it in the table on the last page.

   o Area of a Rectangle (including squares) = Length x Width

7. Calculate the volume of each building and write it in the table on the last page.

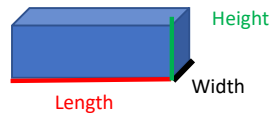   o Area of a Rectangular prism (including cubes!) = Length x Width x Height

o   If a building has a triangular roof, find the volume of the rectangular prism first, then the triangular prism on top of it and add them together.
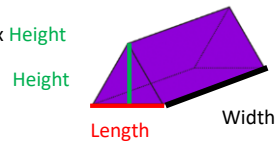
▪ Total Volume = Volume of a Rectangular prism + Volume of a Triangular prism

▪ Volume of a Rectangular prism = Length x Width x Height

Height

Length

Width

▪ Volume of a Triangular prism = ½ x Length x Width x Height

Height

Length

Width

Areas and Volumes for My Minecraft World

Building Name	Location (x, y)	Perimeter in units	Area in square units	Volume in cubic units