**Home Design Script (7th-8th)**

* Introduce yourself and name
* Tell students that you are there to do a fun activity with them that will use some of their math skills to help them design a home.
* Take a minute to tell how important math is to building homes. Specifically tell them how they use perimeter, area and, other measurements and how important they are to construction.
* Explain that homes are built there must be blueprints (plans) made. These plans need to take into account the sizes of our typical furniture and appliances such as beds, bathtubs, and washing machines. It is also important to think about where things are located in a home. You wouldn’t want your front door to lead into a bedroom or have a bathroom in the middle of your kitchen. These are important questions to think about with homes.
* Explain to the students that you are going to break them up into groups of 2-5 (depending upon teacher recommendation) and they are going to design a home that is 1200 sf. Explain that as groups the students will decide what the dimensions are that make 1200 sf.
* Explain that you are going to give them a piece of graph paper. They are going to have to decide what the scale will be for each square. For example if each square is 2ft by 2 ft then a 30 foot length will be 15 squares long.
* Give the handout explaining expectations. On that handout is a list of basic dimensions for hallways, bathrooms etc. Refer them to this list and tell them to remember to use these hints.
* Explain to them about walls. Walls are not just a line, but have mass. How much of a square is each wall going to take up (To simplify the exercise make walls 6in wide). So when you are drawing your walls, you need to draw and shade in the wall mass.
  + Show an example blueprint and show how the walls are drawn.
* Tell the students that they are going to be giving a presentation on their design. To prepare for that presentations, write these questions on the board:
  + Why did you choose these specific dimensions?
  + 2: How many bedrooms and bathrooms did you add?
  + 3: What do you love about your design?
  + 4: What would you change about it if you were to do it again?
  + 5: What was the hardest part of the project?

Explain that they will need to answer these questions in their presentation.

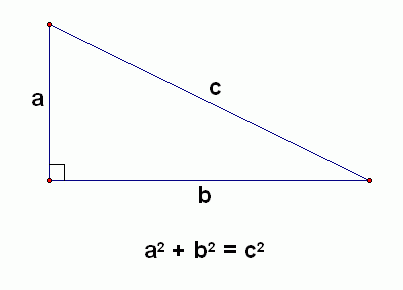
* Tell the students the specific amount of time they have to work. This will depend upon how long your explanation took as well as the length of time you have been allotted by the teacher. Remember to allow enough time for the presentations.
* Ask if there are any questions. If not, break them up into groups, hand out the assignment and graph paper and let them work.
* As the students work, walk around and interact with them. Help them if they are struggling to understand how to draw walls or help them to get started. If you see major problems you might bring it to their attention with a question, such as; right now I see you have a 30x80 house. That is 2400 sq feet. We need 2100.
* Also, while the students are working you may want to keep them on track by giving them a warning every 10 minutes. For example, you have 20 min left and then you have 10 min left etc.
* When the time is up, you will want to bring all of the student’s attention back up to the front. You will remind them that they are going to give a 2-3 minute presentation on their design. Using the following questions written on the board.
* Ask which group wants to go first and proceed in that fashion. If one group goes on a long time you may have to find a kind way to stop them. If one group struggles to say anything, you may need to prompt them with one of the questions.
* After every group has had an opportunity to present, you will take 5-10 minutes to recap, discuss or bring things you feel would be pertinent. For example: if all of the groups struggled with finding the sq feet, you could address and talk about that. If all of the groups had problems with the walls, discuss that. Maybe you will want to ask them what they would add if they were to make the home bigger.
* After this you are done. Wrap up with thanking them and saying good bye.

Note: If you plan to come back and do the second day where they are going to turn their blueprints into full size, then you may want to collect their blueprints or have the teacher collect them, so they are not lost in the interim.

Note: The grading rubric is available if you or the teacher would like to fill those out for each student and give them a grade.

Day 2:

For Day 2 you will need to be flexible because each school and classroom will be different.

* It is important to introduce yourself again when you begin. Remind them of the designs they created the first time you were there. Tell them that today they are going to make those designs life sized.
  + If there is not space for the students to create all of these homes, you may want to pick 3 designs and group the students in larger groups. This will depend up the schools space available.
* Depending upon the method that will be used (chalk on a playground, tape on the floor, yard and stakes in the grass, etc.) Explain to the students that they are going to use rulers, yard sticks and/or measuring tapes to create a life-size blueprint. Then create a few discipline rules. No hitting with yard sticks. No running around. Everyone is working/participating.
* Address the idea of making the house square. The students should have already heard of the Pythagorean Theorem (a2+b2=c2). If they don’t remember, do a quick refresher. Explain that they will use this method to make sure the corners are square.
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* Remind the students that they will need to give a brief presentation at the end. This presentation is to find out a few items. What did they learn from making this life-sized? What was difficult about the project? How would you change your house design if you were to do it again?
* Let the students to work. Wander while they work and help them to calculate, measure etc. Watch your clock and make sure you have enough time to do presentations. This will depend upon the time that you have been allotted by the teacher.
* When time is up, pick a group that will present first. If they go too long, kindly help them end, if they are not giving any information, use questions to prompt them.
* If you want to conclude where they are working you may, or you may want to have them clean up and then return to the classroom before you lead a quick conclusion discussion. It is during this discussion that you can help student understand the process of a builder and the fun and difficult parts of building/designing a home.
* Here are other questions to be addressed during the presentations and conclusion discussion.

1.What was your favorite part about today’s activity?

2: What was the most difficult part of the activity?

3: What did you learn from today’s activity?

4: Did their design work at full scale?

* Thank the students for their time and ask if they have any questions for you about homebuilding.