

# NO FAULT OF MINE

TRADE LINK: BRICK MASONRY

## TEACHER BACKGROUND

Duration: one 45 minute classes

Group Size: 3 – 4

Setting: Classroom



### RATIONALE:

Brick masons examine plans prior to starting construction on any new project, whether it is as simple as a brick wall or as complex as a wood burning fireplace, technical specifications must be taken into consideration. Students will have the opportunity to work on creating their own “indestructible” brick pattern and try their hand at creating a blue print or schematic. This lesson focuses primarily on using problem solving, numeracy and reading.

### METHOD:

Learners will have to work with “co-workers” to refine a schematic diagram to have no fault lines, in order to create the “strongest” wall in the world. If a masonry pattern is found where every gridline (both horizontal and vertical are spaced at the width of a domino and extend perpendicularly between parallel edges) of the rectangle of at least one other domino. A pattern will be found by considering just one brick and building your “wall” from there without fault lines.

Students must work together to obtain their no fault pattern. Then, once they have found this pattern, they must sketch their diagram and outline their process in finding their no fault wall. Diagrams will need to have a scale that is equivalent to a particular sized brick, when drawing (2D).

### MATERIALS:

- Dominoes
- Graph paper
- Pencils
- Diagram of a fault lined brick wall
- Answer diagrams

### GETTING STARTED:

Have you ever just sat and stared at a brick wall? No? Well, neither have I! If you have or will, you’ll notice that many of the patterns used in the construction of a brick wall are done based on patterns that add strength to the wall by eliminating fault lines. Similar to triangles in the construction of a bridge, every brick has a purpose in building a sturdy wall that will stand the test of time. You’ll have a chance to build the “perfect,” no fault wall that will last well into the future. To do this, you’ll need to work in groups to consider a number of different issues that many bricklayers use schematics to ensure the quality and strength of their product. Good luck!

### THE ACTIVITY (SKILLS FOR SUCCESS):

1. In groups of 3 or 4, review the diagram with faults to see where you might be able to make improvements on the wall that you will eventually build. (Reading, Problem Solving)
2. Use your dominoes to discuss and work through finding a potential solution by using one brick and building off of it to create a perfect square for your wall. (Problem Solving, Creativity & Innovation)
3. Once your wall is complete, create a diagram/blueprint using the graph paper. Ensure that your blueprint outlines an appropriate scale for the actual size of each brick and any potential. Also, determine the square footage of your wall (Numeracy)
4. Document the process that you use to determine how to create the no fault wall. (Writing)

### BRANCHING OUT (EXTENSIONS AND VARIATIONS):

1. High school students may have the opportunity to build walls through a technology or shop class.
2. Some students may be interested in creating their wall using 3-D software – if this is an option, arrange for them to have access to creating the wall digitally.
3. Younger students can eliminate the process writing.
4. You could also have students find as many no fault walls as possible.

### INFORMATION BITE:

Masons use an assortment of tools such as trowels to spread mortar, plumb lines and squares to check angles and alignment, and power saws, hammers and chisels to shape materials. These tools are used to build walls, floors, partitions, fireplaces, chimneys and other structures made of brick, pre-cast masonry panels, concrete blocks and other masonry materials. Masons must understand the effects that air, moisture and pressure can have on these structures in order to meet construction safety standards.