

Engineering with Legos: Sturdy Structures & Tall Towers

Name: _____



STRONG SHAPES

Pass out this weeks worksheets

- Pass out worksheet and read through it with the students.

LESSON: Today you will be building just with the technic bricks. You will be finding out what are the strongest shapes are when building.

3 shapes you will be building are:

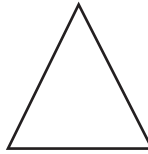
- 1. Square
- 2. Pentagon (5 sided polygon)
- 3. Triangle

Who can identify different shapes in the room?
Does anyone see triangles?

BRACING: When bracing is done correctly, it will form the shape of triangles inside your main structure.

Today, use ONLY the technic pieces.

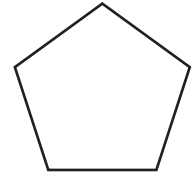
Using only the Lego Technic beams, build each shape and see which ones are the sturdiest.



Triangle



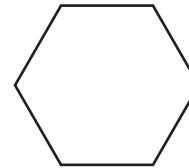
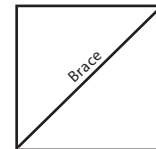
Square



Pentagon

Which shape did you find to be the sturdiest? _____

Now try to make the weak shapes more sturdy by bracing them. You can use another Technic beam to brace the structure. Usually when bracing is done correctly, a triangle will form inside the main structure. Here is one example to help you. Can you do the same for the pentagon?



Try to brace a hexagon. This is what a hexagon looks like; it is a 6 sided polygon. Brace it so it is sturdy when squeezed from all sides. Remember, try to make multiple triangles within the main shape.

Challenge 1 - Individual build

-Build all 3 shapes and find out which one is the strongest.

Challenge 2 - Individual build

- Brace all the weak structures (square and pentagon). Must pass the squeeze challenge and look like the shape they are trying to build.

Challenge 3 Ultimate Challenge - Individual build

-Build a hexagon and brace it!

Challenge 4 Ultimate, Ultimate Challenge - Individual build

-Build a Octagon(8 sides) and brace it!