

3-D Structures

Shapes are all around us.

Is one shape better for building than another?

1. Today's building materials are toothpicks and gumdrops.
Working with your partner how many different geometric shapes can you construct using these materials?

2. What kinds of shapes can't be made with these materials?
Record your shapes in your journal.



3. Did you construct a cube? If not make one now.
How stable is the cube? Can you think of a way to test its durability?

4. Did you make a prism? If not make one now.
How stable is the prism? How can you test its stability?



5. Did you make a pyramid? If not make one now.
How stable is the pyramid? Can you think of a way to test it?

6. Did you make a tetrahedron - a pyramid with a triangle base?
If not make one now. How stable is it? Can you test its stability?

7. Did you make an octahedron - 2 pyramids stick together? If not make one now. How stable is it?
How can you test it?

8. Place your information into a table or chart and study it.
What do the shapes that are most stable have in common?
How can you use this information to make a weaker structure stronger?

9. Using the above information create a dome shaped structure on a pentagon base. Can you build a dome shaped structure on an octagon shaped base?

10. Using everything that you have learned thus far create a written plan for a tower and then build it.

How large a base will you use?
What shapes will you employ?
How high can you construct it?

