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AMAZING ANCIENT STRUCTURES


Engineering with LEGO Bricks
Brain Builders Educational Programs


What is an "Amazing Ancient Structure?" These are the structures that went down in the history books and withstood time. Many of these structures you will be learning about still exist today! They are known as the architectural and engineering marvels of history.

In this class, you will learn about how these marvels were engineered and use these ancient designs to complete our class challenges! Make sure you pay attention, because some of these designs were a bit tricky.




Here are some of the "Amazing Ancient Structures" you will be learning about.






The Colosseum in Rome





The Pyramids of Giza




The Great Wall of China

2

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Before we learn about the complex ancient designs, we need to first learn the basic designs that were known since the first engineers.





Learning to build strong JOINTS!

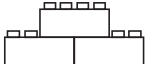
Joints are where two or more blocks meet. In a house, a joint would be where two pieces of wood meet.




You can build strong joints a couple of ways. One way is by overlapping the blocks on top of each other. If you have ever seen a brick wall, this is how the bricks are structured. Here are some examples of weak joints and strong joints. Which joint is the strongest? Build the examples and test them out!










Sandwiching is another way to make a very strong joint. In this type of joint, you use two plates, placing one on top and one on the bottom. Just how a "sandwich" has two pieces of bread, the plates are the bread that holds everything in the middle together!



Pass out this weeks worksheets

- Pass out worksheet 1 and read through it with the students.

-*Interactive questions-*

-Has anyone ever visited any of these ancient structures?

-Have you heard about or seen the structures in class or on TV?

-Pass out worksheet 2 and read through it with the students.

-Using the actual LEGO bricks, show the students what each joint looks like.

-Put together a "LEGO Sandwich" for the students to see.

Challenge 1 - Individual build

-Build a free standing wall that is at least 10 bricks tall and test it with the engineering hammer. If it falls or breaks, students must rebuild their project.

Challenge 2 - Individual build

-Build a free standing wall at least 14 bricks tall that wont fall over.

-For advanced students, see who could build the tallest structure, and they can receive a few engineering bucks at the end of the day.

-Encourage the use of technic pieces from their individual boxes.