STEM Challenges MMXX

BUILD:
Towers Engineering Challenge

CHALLENGE: Can you re-create some of the world's most famous free standing structures only using pipe cleaners?

BIG IDEA: There are many different types of engineers. Structural engineers focus on the framework of a structure. Many structural engineers enjoy creating beautiful bridges, towers, and buildings. Their most important design task is to create structures to withstand the stresses and pressures of the environment while remaining safe, stable, and secure throughout their use.
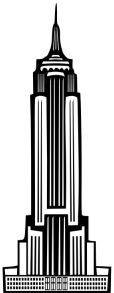
INSTRUCTIONS:

1. Use up to 25 pipe cleaners to recreate your favorite structure. Your structure needs to be free standing. *Free standing* means your structure can not be held, taped or propped up to a wall or furniture, it must stand on its own. *Don't have pipe cleaners? Use an alternate material or find something around your house that would be a good substitute.*
2. **Plan the design of your structure**: How will you use these pipe cleaners? *Hint: Engineers often draw their ideas.*
3. **Build your structure**: You can bend, twist, or cut your pipe cleaners to build your design.
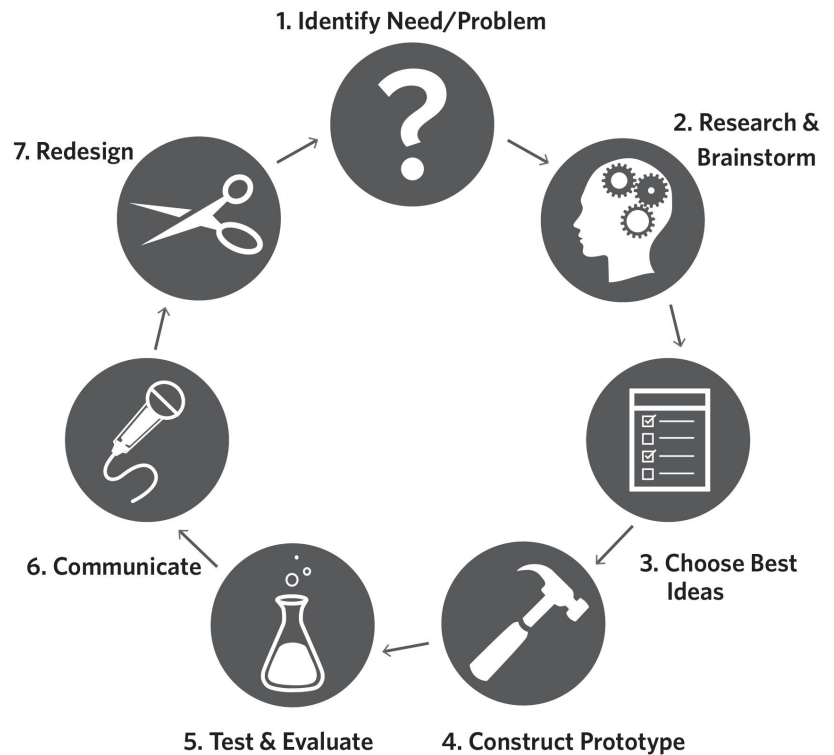
Materials:

25 Pipe Cleaners

Alternate Materials:
25 Straws
Playdough or marshmallows

The Great Pyramid of Giza	The Eiffel Tower	The Empire State Building
Height of Pyramid: 481.4 ft Width of Pyramid Base: 756 ft	Height of Eiffel Tower: 984 ft Ground to Tip: 1063 ft Width of Tower Base: 328 ft	Height of Empire State: 1250 ft Ground to Tip: 1454 ft Width of Tower Base: 328 ft

The Engineering Design Cycle

1. Identify Need/Problem

2. Research & Brainstorm

3. Choose Best Ideas

4. Construct Prototype

5. Test & Evaluate

6. Communicate

7. Redesign

WANT TO KNOW MORE?

tinyurl.com/STLdke - DK Findout! Eiffel Tower
tinyurl.com/STLemp - History Channel's 10 Surprising Facts about the Empire State Building

WE WANT TO SEE & SHARE YOUR CREATIONS!

Send us a picture or video by May 18, 2020 and be entered into a drawing for a gift card! Three ways to share:

1. Tweet us using the hashtag #aBitofSTEM

2. Text us at 314-285-9663

3. Use this google form and we'll show off your creation. Submit Here (tinyurl.com/STLsubmit)