



Tinkering Towers

What You Need

Misc. tower building supplies (solo cups, cans, cards, etc.)

Paper

Pen/pencil/marker

Hair dryer (*optional*)

Tape measure (*optional*)

What You Do

1. Bring your engineering mind!
2. Pick your materials and the sky is the limit. Use anything from paper to solo cups, a deck of cards to crayons, even spaghetti! Feel free to combine the different materials together when creating your tower.
3. Plan the design. You can draw it out or plan it in your head.
4. Don't rush the build.
5. Work together as a team to solve any problems.
6. Test your towers! Carefully place your hand on it. Don't press down hard, just rest your hand on top of it. Did your tower survive the compression force?
7. Test your tower with wind. Blow as hard as you can on the towers. Did your tower survive the torsion force – is it still standing after the twisting or rotational motion caused by you blowing on it? *Depending on how well your tower did, you can apply more torsion with the hair dryer.*
8. Practice your math skills. Check the height of your tower by using a tape measure. Can you make it even taller?

Questions to ask

- Do you think your base should be wider or narrower?
- Think about other objects you see that are really tall. What do they have in common?
- What can you do to improve your tower?

What's The Science?

When building your tower, think about how to create it so it doesn't collapse by forces around it, like wind. When an engineer is building a structure, like a bridge or building, here are some of the forces they think about:

- Gravity - which is always pulling things towards the center of the earth
- Compression - the pressing down of weight on the structure, such as vehicles, people and even furniture
- Torsion- a twisting force that can occur when the wind is blowing.

Try This

Use science vocabulary: Use related science words such as gravity, compression, and torsion as you complete this activity.

Keep In Mind

- Children are natural scientists; let them lead the way in their experimentation!
- Encourage them to ask questions and make suggestions only when they are stuck/discouraged.
- The order suggested is not the only right or perfect way. Make adjustments based on the age, ability, and interest of the children.

Additional Resources

Iggy Peck, Architect by Andrea Beaty

The Fort That Jack Built by Boni Ashburn

How Was That Built?: The Stories Behind Awesome Structures by Roma Agrawal

