

Techbridge Girls@Home

Kite Design Challenge

Techbridge Girls is committed to supporting our community by providing access to high-quality at-home STEM activities for our girls and curating resources for families and educators. The below activity was designed to empower girls to lead fearlessly by learning and teaching others while sheltering in place.

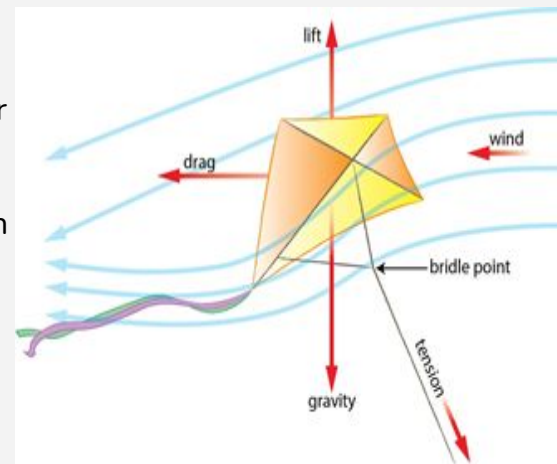
Ever wonder how a kite is able to fly in the air and not fall to the ground? Let's use your engineering skills to build a kite!

1 Get your materials.

Source materials around the house, such as: tissue paper, wax paper, parchment paper, wooden dowels (can substitute with skewers and sticks), string, ribbon or twine, tape, glue, and scissors.

2 Build your design.

There are four forces that act on kites: **gravity**, **lift**, **drag**, and **tension**. **Forces** push and pull objects (such as kites, people, or even planets!) in different directions. The photo on the right shows which direction that each **force** pulls and pushes the kite in. In order for a kite to fly in a stable position, or stay up in the air, the forces of gravity and lift need to be balanced, and the forces of drag and tension need to be balanced.



Let's think about the parts of a kite: The sail (body), structure, tail and string. The body of the kite needs to be made of a light, strong material. Many kites have frames, made of thin wood or other flexible materials, to provide strength and structure. Kites also have tails that help to keep the kites stable when they fly. The string connects the kite to the person flying it and keeps it from floating away.

Now let's brainstorm! Your challenge is to design a kite that can be flown indoors or one that can be flown outside. After you test your kite to see if it will fly, try redesigning and see if you make it fly higher or last longer in the air. **ASK:** What was challenging about this activity? Does your kite work better indoors or outside? What materials and design elements worked best for your kite?

3 Share!

With permission from your parents or guardians, please post a photo of your completed project on Facebook, Twitter, or Instagram, and tag @techbridgegirls so we can see your great work!

CAREER CONNECTION: Aerospace Engineers are responsible for building and repairing aircrafts and spacecrafts, such as rocket ships and planes. Their starting salaries are on average range from \$70,000- \$90,000.

We are proud to support our girls' STEM journeys by providing resources to overcome barriers and to thrive and lead in STEM.