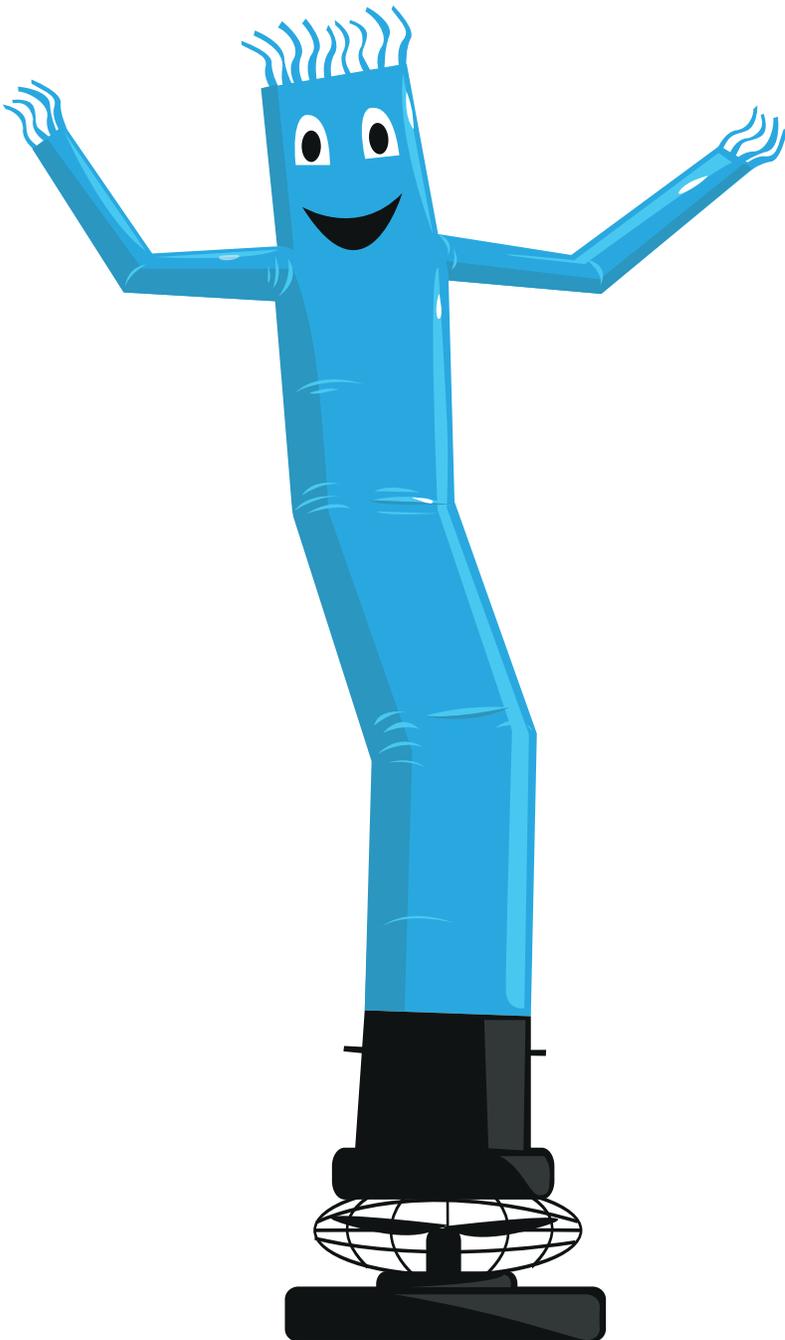**Who says all the fun has to happen at The Tech Interactive? This DIY engineering activity can be done with inexpensive store-bought supplies and things you find around the house!**

What are inflatables?

Ever seen those wacky waving tube dudes outside a car dealership or furniture store? Imagine a DIY version!

In this playful, open-ended activity, thin plastic is cut into shapes and taped together so it inflates when placed over an air source, such as a fan. Motion of the wind brings the character to life, and decorative elements like googly eyes and construction paper tell its story. Inflatables are a wonderful family activity and can be done by anyone who can hold a pair of scissors.

Materials

Inflatables can be created from all kinds of materials. Explore your junk drawer or garage to find fun odds and ends to give your creation personality.
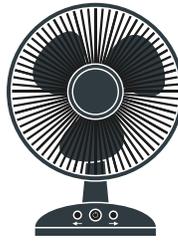
Subject:
Design Thinking

Ages:
6-12

Key terms:
3D design
Structural integrity
Spatial reasoning
Aerodynamics

Things you can use

Don't limit yourself to the items on this list. Use whatever you have on hand —
be creative!

Inflatable parts	Structural materials
• Thin plastic drop cloth • Grocery bags • Bags from shipping or packaging	• Poster board • Thick paper • Rubber bands • Paper clips • Pipe cleaners or twist-ties

Decorations	Tools
• Googly eyes • Rhinestones • Feathers • Construction paper • Yarn • Beads and buttons • Macaroni • Pom-poms • Scrap cloth	• Standing fan (preferably one that can be pointed up) • Hole puncher • Clear tape • Scissors • Stapler (optional) • Permanent markers

Instructions

Once you've assembled your materials, examine your plastic. What potential does it have? Can it be cut or laid out big and flat, so there is plenty of space to draw multiple designs? If your design is intricate, you may want to use a permanent marker to draw out your shapes.

Next, cut out the design and use clear tape to create one piece. Many designers choose to cut two identical shapes and tape around the outside (like making a pillow), but there are many ways to approach an inflatable design. Don't forget to leave an opening at the bottom so the fan can inflate your creation.

Line the opening with a strong but flexible material, such as a strip of poster board. This will help give your inflatable structural integrity, helping it stay upright when placed over the fan. If you would like the inflatable to stay on the fan without your assistance, punch holes in the poster board and add paper clips. Use the clips to hook the inflatable to the fan while it is turned off.

Now it's time to decorate! What kind of creature is your inflatable? What kind of personality do you see in its movements? Does it flap wildly like a bird or float gently like a jellyfish swaying in the sea? Think about how the wind can activate your decorations. Is there a way to make something hover inside? Blow crazily on the outside? The possibilities are endless!

Finally, flip the switch on your fan and watch your creation inflate!

Top Tips

Start decorating with tape rather than glue, as you may change your mind on placement once your inflatable is set in motion.

Long, flowing materials such as streamers or ribbon look wonderful blowing in the wind, but they can get caught in the fan. This can be prevented by covering the fan with a mesh cover. This is also a good way to keep little fingers away from the fan blades.

Look at the seams on your clothes or stuffed animals for hints on how you might construct different shapes.

Extra Credit

How can you manipulate the plastic to make certain parts of the inflatable puff up?

Try inflating it right after you tape it. Then, turn it inside-out and inflate it again. Was there a difference in how it looked or moved?

How does the air flow when you leave openings in different areas of your creation? Does your inflatable move differently with holes on the top or at the ends of any limbs? What about big openings? Small openings?

The Tech Interactive at Home