

KINETIC SCULPTURE



YOUR CHALLENGE

Make a sculpture that is at least six inches tall and has at least two parts that move in the wind. That's what makes it kinetic—it moves. But watch out, wind can also knock it over. So, make sure the tower is sturdy enough to stand up in the wind.

MATERIALS

- Electric fan (you only need one)
- Strips of colored paper or fabric
- Ruler
- Pens or markers
- Cardboard
- Metal washers (various sizes)
- Markers
- Ping-Pong balls
- Poster putty
- Paper cups (various sizes)
- Scissors
- Wooden skewers
- String
- Tape (duct or masking)

BRAINSTORM AND DESIGN

Looking for inspiration? Get your creative juices flowing by checking out the illustrations of kinetic sculptures on the front and back of this sheet. Don't worry, it's not cheating! Being inspired by other people's work and combining the parts you like in new ways is a great way to come up with a unique creation of your own. Now, look at the materials and think about how you can meet the challenge.

BUILD

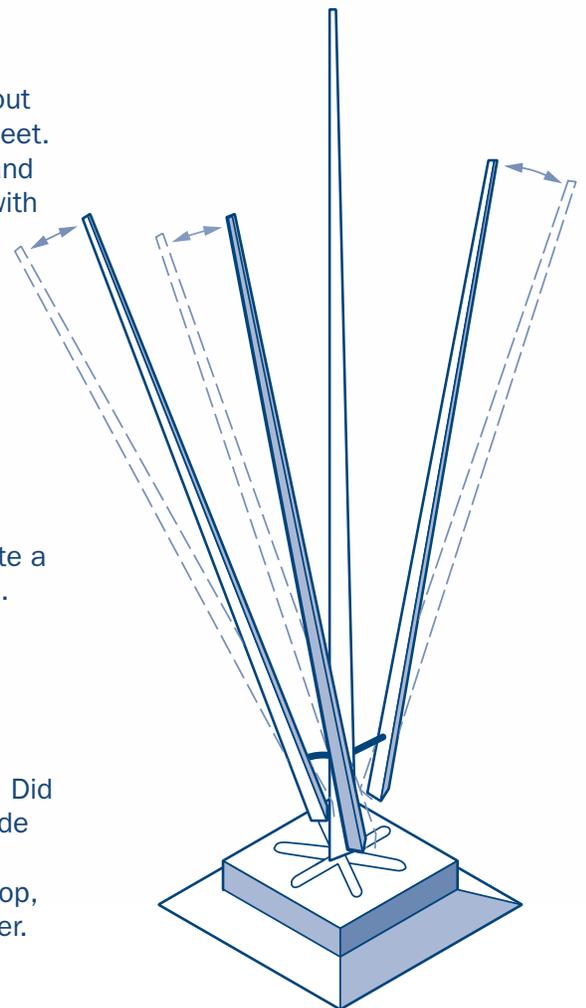
1 Assemble your sculpture.

2 Name your sculpture.

Artists typically name their sculptures because it can add meaning. Look at the picture. Why do you think it is named Tall Grasses? Create a name for your sculpture that is accurate, funny, poetic, or mysterious.

TEST

Set your sculpture in front of the fan. Do the parts move as you expected? We had to tweak ours to get it to work the way we wanted. Did the wind knock your sculpture over? It knocked ours over! So, we made ours more stable by giving it a wide, heavy base. Where the weight is located also effects how it stands. If too much weight is toward the top, it may tip over. If most of the weight is at the bottom, it stays up better.



Tall Grasses

KINETIC SCULPTURE Continued

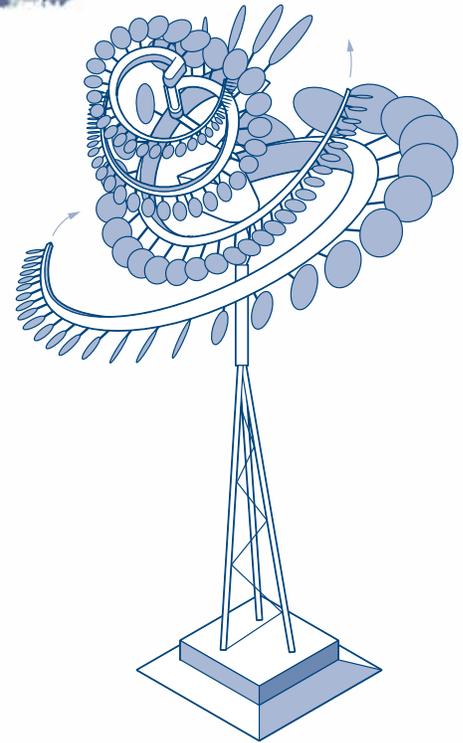
REDESIGN

What adjustments will help your sculpture's parts move in the wind? Does it need additional support to keep it from falling over? How can you make it more stable? Once everything's working the way you want, how about:

- adding another moving part?
- making your sculpture taller?
- changing it to work in either more or less wind?

INSIDE THE ENGINEERING

What would you have to do to make your sculpture stand up in typhoon-strength winds (74 miles per hour or greater)? That's something the engineers who built one of the tallest buildings in the world—the Taipei 101 Tower of Taiwan (1,670 feet tall)—were worried about. Very worried! Typhoons regularly slam into Taiwan. So to keep the tower from being blown over, engineers made the skyscraper much wider at the bottom than at the top. They also used special materials, including strong, flexible steel to make the building sturdy enough to withstand those typhoons. So the next time you're visiting the top of the Taipei 101 Tower during a typhoon, you don't have anything to worry about. Right?



The CycLone



The *Design Squad* cast welded their kinetic sculpture, called the Urban Tornado, out of heavy scrap metal.

Photo: Mika Tomczak



If you liked this challenge, go to pbskidsgo.org/designsquad to download more challenges to try at home.



Education



N C E E S
National Council of Examiners
for Engineering and Surveying

The Harold and Esther
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NOYCE
FOUNDATION

ASCE
American Society of Civil Engineers

IEEE



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