Design and build a structure that protects toy people from the wind.

What You Need

- 2 small toy people, about 5 cm tall (e.g., LEGO® or Playmobil® people)
- A piece of string 50 cm long
- 6 popsicle sticks, craft sticks, or small branches from outside
- Paper
- Piece of cardstock or cardboard the size of a postcard
- 1 piece of sticky tack or blu tack, about the size of your fingernail
- Scissors & a piece of tape 25 cm long (don't use more than this)
- 1 electric fan or hair dryer set on cool

Safety First!

- Be careful using electrical fans- keep your fingers away from the blades. Be careful using a hair dryer- keep it away from water, and put it on a low, cool setting.

What to Do

Two toy people have been shipwrecked on a tropical island. Your challenge is to design and build a shelter for them. It needs to stand up to the wind from an electric fan.

- Your challenge is to only use the amount of tape and sticky tack listed above.
- Put the piece of cardstock or cardboard on a table. It will be your base. You must attach your structure to the cardstock using the stick tack or tape.

- You must set up your completed structure 60 cm or about 2’ away from the electric fan. You must point the fan directly at your structure.

- Turn the fan on the lowest setting for 30 seconds. If your structure withstands that force, turn the fan up to the next setting for 30 seconds. Continue until the fan is at the highest setting.

- You are successful if you have created a structure that meets these 2 requirements:

    - Your toy people must be able to sit safely under it.

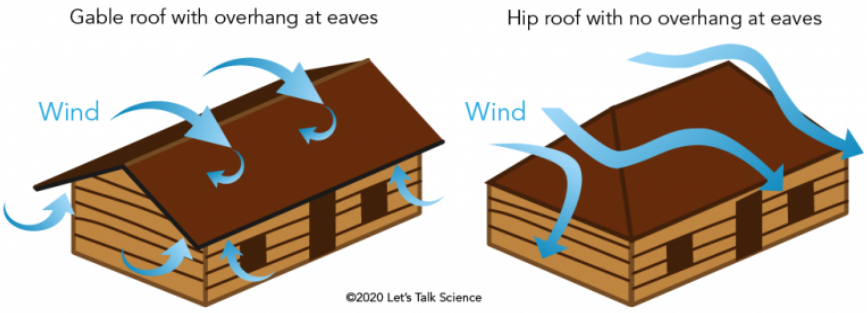
    - It must not fall apart when blown by the electric fan at the highest setting for at least 30 seconds

What’s Happening?

Wind happens when air flows from an area of high pressure to an area of low pressure. Tropical islands can have very strong winds during hurricanes.

Hurricanes form when warm, moist air over the ocean rises quickly. This creates an area of low pressure. Then, air blows into this area of low pressure. This new air gets warmer and rises as well. This cycle can lead to violent winds that can batter islands and coastal areas.

Why does it matter?

Strong winds have a big impact on communities near the ocean. Storms can cause billions of dollars of wind damage to buildings and other structures. Many people get trapped, or seriously injured as a result. Buildings that withstand high winds can help keep people safe.

It’s important to think about both the shape of a building and the materials used to make it. For example, roofs with four sloping sides and no overhang reduces wind resistance. And builders might choose materials like steel beams and cement siding that can withstand strong wind. Building structures that withstand strong wind protects thousands of peoples’ lives and homes.