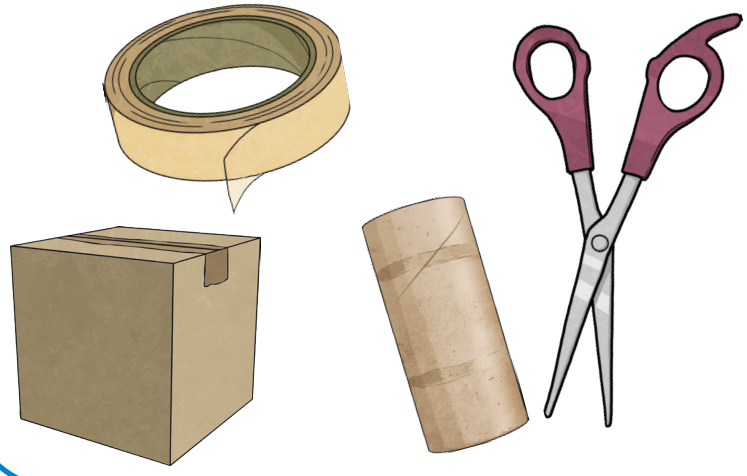
Design Your Own Windmill

Years 3-6
STEM Challenge

Your challenge is to design and create a windmill that turns in wind created either naturally or by an electric fan. Your windmill should stand on its own and not fall over because of the wind.

Materials:

- A4 paper
- 2 pairs of scissors
- 1 roll of tape
- Cardboard box
- Cardboard tubes



Instructions:

1. Draw and label your design on the Student Recording Sheets.
2. Predict how your windmill will perform when placed in a windy environment.
3. Make your windmill based on your design.
4. Write down any observations you make when you are building your windmill and write them on your Student Recording Sheet.
5. Test your windmill either in the wind outside or by using an electric fan.
6. Reflect on your design and tower in the 'Reflection' section.

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Student Recording sheet

Design

Student Recording sheet

Prediction

Write a prediction about how your windmill will perform when tested in a windy environment. Include any information about any extra challenges your teacher has given you.

Results and Observations

Answer the questions below:

1. Did your windmill stay standing? Yes/No
2. Did the blades on your windmill turn? Yes/No
3. Did your windmill stay together during the test? Yes/No
4. What are some observations you made when you were designing or creating your windmill? These observations might include how you changed your design, what problems you faced, how the materials helped you or made more challenges, and anything else you think is important.

Student Recording sheet

Discussion

Answer the following questions:

1. What changes did you make to your design when you were building your windmill?

2. How did those changes make your windmill better? How do you know?

3. What other materials could have made your windmill more stable or work better?

Student Recording sheet

Discussion

4. How do you think these materials would have improved your windmill?

5. What other changes would you make if you got to do this challenge again? Why would you make these changes and how would they improve your windmill?