

DESIGN CHALLENGE: WHIRLING WINDMILLS

WHIRLING WINDMILLS:

Can you design and construct a windmill to harness the power of the wind?



DESIGN!

- 1 ASK:** Explore the materials available. What materials are the lightest or strongest? What orientations and shapes are best? Test some of the sample blades on the windmills. How do they perform? Does the wind speed or number of blades make a difference?
- 2 IMAGINE:** Brainstorm different shapes and structures for your windmill blades. Think of many different possible solutions and discuss them with your team.
- 3 PLAN:** Pick two ideas you would like to design and test. Determine which materials you will use, how many blades you will have, and what shape and orientation they will be. Describe your designs on the back of this worksheet.
- 4 CREATE:** Construct your designs with the materials you have selected. Ask design challenges staff to help you test your designs! Be sure to test multiple wind speeds and record your observations on the worksheet.
- 5 IMPROVE:** Which design worked better? What did you learn from your tests? How could you make an even better windmill? Document your new design on the worksheet and then ask design challenges staff to help you test it. Was your new design more successful? Why?

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