Windmill Rotor Prototype #1

Goal: Experiment with *variables* to design will mill that transfers enough energy to move the shaft.

For prototype #1 we will create a baseline. This will tell us how well or poorly each variable change makes to the windmill.

Design Specifics					
	Blade Material	Blade Length	Blade Shape	Hub Material	Hub Size
Circle the Specifics you want in your baseline	Aluminum foil Construction paper Cardstock Felt	2 inches 4 inches 6 inches	Circle Oval Triangle Square	Clay Styrofoam ball	Small Medium Large

	Evaluate		
	Did the wind energy transfer to the blades and make them move?	Did the energy from the blades transfer to the hub making the shaft spin.	How would you rate this prototype's effectiveness?
rating	Yes! Somewhat. Not at all!	Yes! Somewhat. Not at all!	

What part of your windmill will you change for your next prototype?

Blade material blade length blade shape hub material hub size

Windmill Rotor Prototype #2

Goal: Experiment with *variables* to design a windmill that transfers enough energy to move the shaft.

For prototype #2, choose **ONE** variable to change from your baseline windmill. Circle what you changed in the Design Specifics below.

Design Specifics					
	Blade Material	Blade Length	Blade Shape	Hub Material	Hub Size
Circle the Specifics you want in your prototype	Aluminum foil Construction paper Cardstock Felt	2 inches 4 inches 6 inches	Circle Oval Triangle Square	Clay Styrofoam ball	Small Medium Large

	Evaluate		
	Did the wind energy transfer to the blades and make them move?	**Did the energy from the blades transfer to the hub making the shaft spin?**	**How would you rate this prototype's effectiveness?**
rating	Yes! Somewhat. Not at all!	Yes! Somewhat. Not at all!	

What part of your windmill will you change for your next prototype?

Blade material blade length blade shape hub material hub size

Windmill Rotor Prototype #3

Goal: Experiment with *variables* to design a windmill that transfers enough energy to move the shaft.

For prototype #3, choose **ONE DIFFERENT** variable to change from your baseline windmill. Circle what you changed in the Design Specifics below.

Design Specifics					
	Blade Material	Blade Length	Blade Shape	Hub Material	Hub Size
Circle the Specifics you want in your prototype	Aluminum foil Construction paper Cardstock Felt	2 inches 4 inches 6 inches	Circle Oval Triangle Square	Clay Styrofoam ball	Small Medium Large

	Evaluate		
	Did the wind energy transfer to the blades and make them move?	**Did the energy from the blades transfer to the hub making the shaft spin?**	**How would you rate this prototype's effectiveness?**
rating	Yes! Somewhat. Not at all!	Yes! Somewhat. Not at all!	

What part of your windmill will you change for your next prototype?

Blade material blade length blade shape hub material hub size

Windmill Rotor Prototype #4

Goal: Experiment with *variables* to design a windmill that transfers enough energy to move the shaft.

For prototype #4, choose **ONE DIFFERENT** variable to change from your baseline windmill. Circle what you changed in the Design Specifics below.

Design Specifics					
	Blade Material	Blade Length	Blade Shape	Hub Material	Hub Size
Circle the Specifics you want in your prototype	Aluminum foil Construction paper Cardstock Felt	2 inches 4 inches 6 inches	Circle Oval Triangle Square	Clay Styrofoam ball	Small Medium Large

	Evaluate		
	Did the wind energy transfer to the blades and make them move?	Did the energy from the blades transfer to the hub making the shaft spin?	How would you rate this prototype's effectiveness?
rating	Yes! Somewhat. Not at all!	Yes! Somewhat. Not at all!	

What is your ideal windmill based on all of these prototypes?

Final Windmill Rotor Prototype

Goal: Think about all of the prototypes you have created before selecting what you think will make the best windmill rotor.

Design Specifics					
	Blade Material	Blade Length	Blade Shape	Hub Material	Hub Size
Circle the Specifics you want in your final prototype	Aluminum foil Construction paper Cardstock Felt	2 inches 4 inches 6 inches	Circle Oval Triangle Square	Clay Styrofoam ball	Small Medium Large

	Evaluate		
	Did the wind energy transfer to the blades and make them move?	Did the energy from the blades transfer to the hub making the shaft spin?	How would you rate this prototype's effectiveness?
rating	Yes! Somewhat. Not at all!	Yes! Somewhat. Not at all!