



Name: \_\_\_\_\_

## MacGyver Wind Lift Design Challenge Elementary Student Datasheet

### Engineering Process Steps

#### ASK:

How can we design a MacGyver Wind Lift that will capture the wind from a fan to lift a cup of pennies?

#### IMAGINE:

With your group, brainstorm a list of variables (things that can be changed) for your blade design. Record all your ideas below.

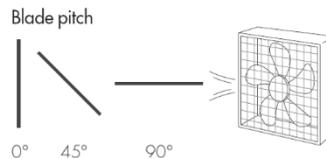
Number of Blades: \_\_\_\_\_

Blade Shape: \_\_\_\_\_

Blade Length: \_\_\_\_\_

Blade Material(s): \_\_\_\_\_

Blade Pitch/Angle: \_\_\_\_\_



<p><i>Draw your blade design</i></p>	<p><i>Blade Design #1 Specs</i></p> <p>Number: _____</p> <p>Shape: _____</p> <p>Length: _____</p> <p>Material: _____</p> <p>Pitch/Angle: _____</p> <p>Number of Pennies Lifted: _____</p>
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**CREATE:**

Follow your plan to build your wind turbine.

**TEST:**

Test wind lift and record your results on the chart.

**REDESIGN:**

As a group, discuss possible changes you could make to your wind lift to increase the number of pennies it lifts. Record your new ideas on the chart.

<i>Draw your blade design</i>	<i>Blade Design #2 Specs</i> Number: _____ Shape: _____ Length: _____ Material: _____ Pitch/Angle: _____ Number of Pennies Lifted: _____
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**FINAL RESULTS:**

Test	Number of Pennies Lifted
Design #1	
Design #2	

## CONCLUSION

Use your results and class results when answering these questions.

1. Explain which design had the best results. Why do you think this design worked the best?

The best design was \_\_\_\_\_.

This worked best because \_\_\_\_\_

\_\_\_\_\_.

2. If you had to do it all over again, describe how you would change your design? Why?

I would change my design by \_\_\_\_\_

\_\_\_\_\_.

3. How many blades worked the best for lifting weight? \_\_\_\_\_ blades

Did more blades mean you could lift more weight? \_\_\_\_\_

\_\_\_\_\_.

4. Pitch is \_\_\_\_\_.

Did flat or angled blades catch more wind? Circle one:      Flat      Angled

5. Describe a challenge you faced in the engineering process. How did you problem solve to reach a solution?

A challenge I faced in the process was \_\_\_\_\_

\_\_\_\_\_.

I solved the problem by \_\_\_\_\_

\_\_\_\_\_.