PRE-ENGINEERING & COMPUTER-AIDED DESIGN

JIM MANDL – INSTRUCTOR
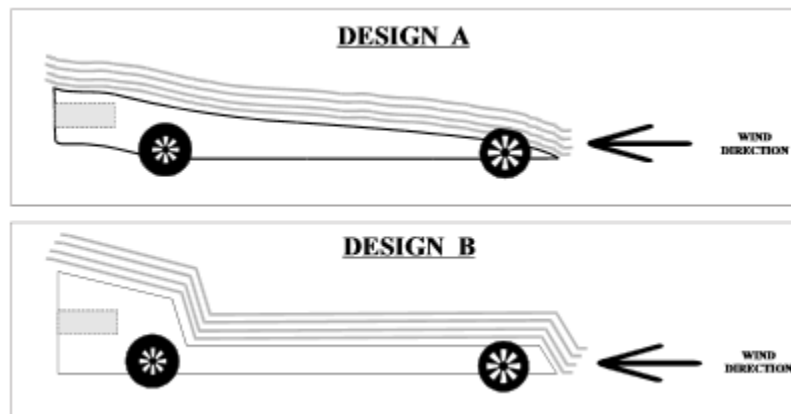**12200 15 MILE ROAD | STERLING HEIGHTS | MI | 48312**
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Pop Bottle Drag Races - Research Worksheets

1. What is the basic principle behind AERODYNAMICS?

2. A wind tunnel measures _____ and _____.

3. Give three reasons why aerodynamics is an important technology.

4. Explain how aerodynamics effects fuel economy for automobiles?

5. _____ is the force applied up or down on an object.

6. _____ is the air resistance force of a moving object.

7. Which of the following designs would be the least aerodynamic? Why?

DESIGN A

DESIGN B

WIND DIRECTION

Research and Define the Following Terms:

8. Law of Motion:

9. Potential Energy:

10. Kinetic Energy:

11. Momentum:

12. Friction:

13. Static Friction:

14. Sliding Friction:

15. Rolling Friction:

16. Energy Efficiency:

17. Rolling Resistance:

18. Aerodynamics:

19. Variable:

20. Independent Variable:

21. Dependant Variable:

22. What are two reasons why the automobile has become an import form of transportation in the US?

23. What are two advantages of a fuel that is 90% gasoline and 10% alcohol?

24. What do MPG requirements mean?

25. If someone drives 15,000 miles each year and gasoline costs $3.15 per gallon, what would the annual gasoline cost be if their car got 30MPG? What would it be if it got 21MPG? Show the formula for each answer.

Prior to turning this assignment in, print it and sketch what your pop bottle drag racer is going to look like from the side view: