Directions: Use the computer and your notes to find answers to the following questions and complete the sketches on the back. Remember this is the information gathering stage. The more information you have the stronger the product will be in the long run.

1). What is Grip in racing? Why are race teams so concerned with it? How do you achieve it?

2). What is mass and why should a designer worry about it?

3). Explain the concepts of mechanical energy, kinetic energy, and potential energy.

 Mechanical-

 Kinetic-

 Potential-

4). What forces act on race cars?

5). Explain aerodynamics (in words or pictures).

6). What are some “secrets to speed” for Pinewood Derby race cars?

**Directions:** In the first column identify on the internet 3 cars that you believe are the most aerodynamic. Then draw the cars. In the second column draw 3 different concepts of your own that only consider aerodynamics. See the examples. Remember this is a raw sketch and should not be perfect.

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| Most Aerodynamic Car Sketches | Your Concept Vehicles: |
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Aerodynamics is important in racecar design, but why might it be a bad idea to only consider aerodynamics as you determine the shape of your car?