

GROUP 4B HOMEWORK

HOW DO PLANES FLY: THRUST, DRAG, WEIGHT, LIFT, GRAVITY

1. List the four basic aerodynamic forces: _____

2. Define the following terms:
 - a. Thrust: _____

 - b. Drag: _____

3. If you stick your hand out of the window of your car when it is moving, what force do you feel at work? _____
4. Weight is a product of both _____ & _____
5. What force opposes weight? _____
6. As air speeds up, what drops? _____
7. Which exerts less pressure on the airplane wing? Slower moving air, or faster moving air? _____
8. What is this the definition of? (As air speeds up, its pressure drops. So, the faster-moving air moving over the wing exerts less pressure on it than the slower moving air under the wing. The result is an upward push called lift.)
_____ Principle.
9. If there were no gravitational force, what would happen to you when you walked outside? _____
10. Isaac Newton described gravity as a force—one that _____

DANIEL BERNOULLI

11. What country was Daniel Bernoulli born in? _____
12. What was Daniel's father's profession? _____

13. Who was called the "Archimedes of his age"? _____

14. Archimedes was a famous mathematician that created a screw for raising water. If you do not know about Archimedes, please watch the Video that can be found here: <https://vimeo.com/29964769>

15. Check out these short youtube videos on Bernoulli's Principle.

<https://www.youtube.com/watch?v=epesl-fWvrY>

<https://www.youtube.com/watch?v=PPweiE9Z568>

16. In the first video, Why do the two balloons come together when the person is blowing air between them? How does this demonstrate Bernoulli's Principle?



17. In the second video, why does the air stream above the leaf blower keep the larger ball in flight? Explain using the Bernoulli Principle.



