7th Science Name_____

Lab: How does Mass Affect Speed?

1. ***Problem/Purpose:*** How does the mass of a ball affect the speed at which we can throw it?

2. ***Background Information:*** Newton's 2nd Law of Motion states that force equals mass times acceleration. So if we throw with a certain amount of force, this formula tells us that the mass of two different balls should affect their acceleration, or speed, at which we can throw them.

3. ***Hypothesis:*** Make a prediction as to how results will turn out if we test the speed at which people can throw a tennis ball as compared to throwing a basketball or soccer ball. Make sure it is in an "If, then, because…" statement.

4. ***Materials:***
   - 2 balls of various sizes and weights
     - Tennis ball
     - Basketball or Soccer Ball
   - Radar gun to detect speed

5. ***Procedures:***
   1. Gather materials.
   2. Have a few students to volunteer to throw the two different balls.
   3. Person with the radar gun will be wanting to stand behind the chain link fence outside if throwing tennis balls; otherwise, with larger balls, we could use the volleyball net in the gym.
   4. Have student throw ball against fence/net; take reading with the radar gun; document the speed at which the ball is thrown.
   5. Do the same with the same student but a different ball.
   6. Repeat with other students.

6. ***Data Collection:***

Speed of Different Balls Thrown

Student	***Tennis Ball Speed (in mph)***	***Basketball/Soccer Ball Speed (in mph)***	***Difference in mph***
Average			

7. ***Conclusion:***

In paragraph form, explain whether you were able to tell if there was a difference in speeds the two different types of balls were thrown at. Use proper writing form (introductory sentence, detail sentences, conclusion sentence), and be sure to refer back to your data.