Experiment 1.2: Newton's First Law

Data

When I pushed the pan, the ball moved with it. When the pan hit the book, the pan stopped, but the ball continued to roll towards the book.

When I pushed the pan the second time, the ball seemed to roll backwards in the pan.

Summary

I put a baking pan on the counter with a book far to its right. I then put a golf ball in the pan so that it rested against the left wall, as shown below:

I then slowly pushed the pan towards the book so that it would stop when it hit the book. I observed what happened to the ball when the pan stopped.

I reset the experiment but removed the book. Also, I put the ball at the other end of the pan, as shown below:

I then pushed the pan in the same direction as before, observing what happened to the ball.

Conclusion

In the first part of the experiment, the ball continued to move after the pan stopped, because there wasn't a strong enough force to change its velocity. Thus, it continued with the velocity it already had. In the second part of the experiment, the ball started at rest, and when the pan moved, there wasn't a strong enough force to change the ball's velocity, so it stayed at rest relative to the pan. This made it look like the ball moved backwards in the pan. Both trials illustrate Newton's First Law.