

Fact: Predictions are educated guesses based on what you expect.

Fact: When we write predictions, we will use a set format: ***if, then.***

If (we do something to the ***independent*** variable), ***then*** (something will happen to the ***dependent*** variable).

Example: Let's say the question is: How Does Angle of Paper Cone Affect Time to Fall?

From the way this question is written, you should see that the ***cone angle*** is what you are changing, so this is the ***independent*** variable. The angle ***may*** cause the cone to fall in greater or lesser amounts of time.

There are three possible predictions to this question.

1. ***If*** the angle of the cone is greater, ***then*** the time it takes to fall will be greater.
2. ***If*** the angle of the cone is greater, ***then*** the time it takes to fall will be lower.
3. ***If*** the angle of the cone is greater, ***then*** the time it takes to fall will not change.
(This prediction is simpler to write as a non If, Then. The angle of the cone does not affect the time it falls.)

Wait! Isn't this a fourth prediction?

If the angle of the cone is lower, ***then*** the time it takes to fall will be lower.

No! Do you see why this is not different from one of the first ones?

To Do: Write a prediction for each of the following questions. Use the If, Then format.

1. How does the number of layers in a paper cone affect the time for it to fall?
2. How does the mass of a sphere affect the time for it to stop rolling?
3. How does a cannon's angle affect the distance the ball travels?
4. How does the number of ring magnets stacked together affect their strength?
5. How does the diameter of a hole affect the time for water to drain from a cup?