Magnetic Induction

As you work through the steps in the lab procedure, use the exact values you see in the Report your results for all parts of the experiment below by matching the correct response to the observed condition of the system you studied.

Observation options:

- Exiting the magnetic field.
- Completely within the magnetic field.
- Entering the magnetic field.
- Completely outside the magnetic field.
- The light flickers on and off randomly.
- The light remains on all the time.
- The light remains off all the time.
- The light flickers on and off in time with flips.
- Coil is parallel to the magnetic field lines.
- Coil is perpendicular to the magnetic field lines.
- The light increases and decreases in intensity.

Part I: Horizontal Movement

	Question	**Observation**
Step 2	Where was the coil with regards to the magnetic field when the light first went on?	
	Where was the coil with regards to the magnetic field when the light first went off?	
	Where was the coil with regards to the magnetic field when the light went on again?	
	Where was the coil with regards to the magnetic field when the light went off again?	

Step 3	Where was the coil with regards to the magnetic field when the light first went on?	
	Where was the coil with regards to the magnetic field when the light first went off?	
	Where was the coil with regards to the magnetic field when the light went on again?	
	Where was the coil with regards to the magnetic field when the light went off again?	
Step 4	What is different about the light as the coil moves through the magnetic field in this orientation?	
	What about this orientation makes it different?	

Part II: Vertical Movement

	Question	**Observation**
Step 2	Describe what happens with the light as the coil moves.	
	Describe what happens with the light as the coil moves.	

Part III: Rotation

Question		Observation
Step 2	Describe what happens to the light during this rotation.	
Step 3	Describe what happens to the light during this rotation.	

Part IV: Magnetic Field

Question		Observation
Step 2	Describe the light during this period.	
Step 3	Describe the light during this period.	
Step 4	Describe the light during this period.	
Step 5	Describe the light during this period.	

Part V: Partial Rotation

Question		Observation
Step 2	Describe the light during this period.	
Step 3	Describe the light during this period.	

Why does the orientation of the coil to the magnetic field matter?

Will magnetic induction occur if the coil is resting perfectly perpendicular to the magnetic field lines?

Why is there no current produced when the magnetic field and the coil is in the same plane (i.e., parallel)?

If a magnetic field were increased in intensity to a greater strength, what would happen within the coils during this time of intensification?

Assuming the magnetic field remained at this elevated strength, what would happen within the coils?