Lights, Optics, Action!

Experiment 1: Lens Characterization

1) Pick up each lens and describe what you see. Feel each lens and compare and contrast each lens. Try to be as detailed as possible.
2) Find the focal lengths of each lens. Are they different or are they the same? Do all lenses have a focal length?
3) Why do you think the focal lengths are different? What characteristic(s) about the lens are responsible for your results? Please be specific as possible.
Experiment 2: Making Telescopes

1) Place one lens close to the eye and move another lens back and forth until you can see a clear image. Focus on an object with a combination of lenses and compare the image you see through the lenses to the image you see with your naked eye. Record your observations for each combination of lenses. Again, be as detailed as possible!

2) Think of a application that possibly uses a combination of lenses.
Experiment 3: Image Formation

Materials:
   1) light source
   2) object
   3) lenses
   4) note card
   5) ruler

Now that you have some experience with lenses, you will have to form an image, in this case, a leaf, on a note card. **You are to determine how the size of the leaf is altered as the distance between the object and the lens is changed.**

1) Please state a hypothesis and name your independent and dependent variables, and your constants.

You are free to conduct your own experiments. Remember, record your data in a way such that it is easy to read and can be easily understood – **this means be detailed and organized.**

When you are done with your experiments, state your conclusion.