Name _____ Hour _____

Videos and Activities for Mirrors and Lenses

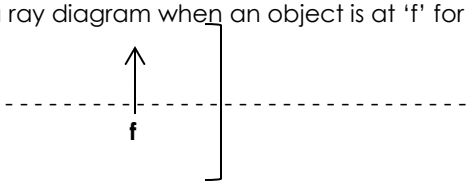
Video #1- The Mummy: Light up the tomb (20 sec)
https://www.youtube.com/watch?v=E4WjF5yhqVg

Video #2- How does LASIK surgery work?
http://www.msn.com/en-us/video/watch/how-does-lasik-work/vi-c6054d26-32f9-4ce5-9dd0-2509e72d7bf5

Activity #1: Grab a **concave mirror** and a **converging lens**

1. Get a **concave mirror** (or the INSIDE of a SPOON) and find the focal length of it.
   a. Explain how you found the focal length.

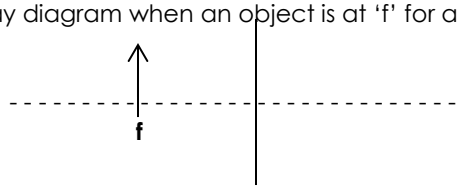
   b. What is the focal length of the mirror or lens you chose? _____
   c. Sketch a ray diagram when an object is at 'f' for a concave mirror. It does not need to be to scale.



2. Get a **converging lens** and find the focal length of it.
   a. Explain how you found the focal length.

   b. What is the focal length of the mirror or lens you chose? _____

   c. Sketch a ray diagram when an object is at 'f' for a converging lens and show why there is no image.



Activity #2: You'll need a **diverging lens.**

2a) Look through the **diverging lens** at the giraffe on the side of the paper. Hold it about 5 cm above the giraffe.

Record your data:

measure h_o which is the actual height of the giraffe **h_o= _____**

measure p which is how far the giraffe is from the **lens** **p**= _____

measure h_i which is how tall the giraffe looks through the lens **h_i =** _____

Make sure you're not looking at the ruler through the lens too! ☺

2b) Calculate the approximate magnification of the **diverging lens.**

2c) Calculate the focal length of the **diverging lens**. (Solve for q first!)

Name _____ Hour _____

Activity #3 You'll need a spoon.

3a) What type of the mirror is the inside of a spoon? ***concave / convex***

3b) What do you look like in the inside of a spoon? ***smaller / larger*** and ***upright / inverted***

3c) What type of mirror is the back side of a spoon? ***concave / convex***

3d) What do you look like on the back side of a spoon? ***smaller / larger*** and ***upright / inverted***

Activity #4: **Convex Mirror:** Find a convex mirror. If you are in school this is easy. If you are at home, you can use the side view mirror on your car- the one that says "*Objects in the mirror are closer than they appear,*" or you can use the OUTSIDE OF A SPOON!

4a) Stand in front of the mirror. You may have to turn it outward if it's the one on your car.

Record your data:

Measure p: how far away you are from the mirror **p=** _____

Measure h_i: how tall your image is in the mirror **h_i =** _____

Measure h_o: your actual height **h_o=** _____

4b) Calculate the approximate magnification of the mirror.

4c) Calculate the focal length of the mirror. (2 steps…Find q first)

Activity #5: The Magic Coin Bank:
Place a coin in the magic bank. Don't worry; you can get it back by opening the drawer in the bottom!
Do not put other things in the bank!

5a) What happens? _____

5b) What type of lens must the box be to make it appear smaller and upright? _____

5c) What else could be happening inside the box? Tilt the box so the coins slide to the front…

Activity #6: Test your eyesight: Stand on the line marked. Cover one eye at a time and read the letters.

6a) What is the number of the last line you can read clearly? _____

6b) What is your eyesight? (ex. 20/100) _____

6c) Explain what those numbers mean.