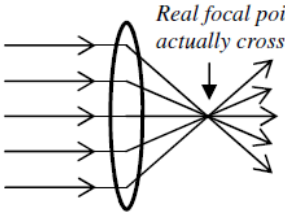
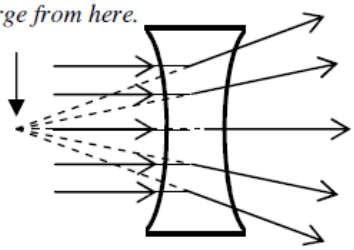
PreAP Physics

Ms. Zimmer

Lesson Title:	**Geometric Optics Simulation**
Standards (TEKS):	7D
Learning Objectives:	• Trace light rays to determine where images will form for converging lenses. • Calculate the image/object distance given information about other variables, such as, the focal length. • Determine where an object should be placed in front of a converging lens to achieve a certain magnification.

AGENDA	KEY POINTS
1. PhET Simulation 2. Exit Ticket	Lenses work by refraction. *Real focal point: rays actually cross here.*  *A convex lens is convergent— the light rays come together.* *Virtual focal point: rays seem to diverge from here.*  *A concave lens is divergent— the light rays spread apart.* Images from - http://www.cstephenmurray.com/

Time	Learning Activity
45	Teacher will introduce lenses by explaining the key formulas and what the variables stand for. Students will complete a PhET activity where they explore converging lenses. They will verify the lens equation by designing their own experiment. Guiding Questions 1. How are lenses similar/different from mirrors? 2. What are the rules for tracing with lenses? 3. When is the focal point negative/positive? 4. When is the image/object distance negative/positive? 5. If the magnification is >1, is the image larger or smaller than the object? 6. If the magnification is negative, what does that tell you about the image?
15	Students will complete an exit check-in.