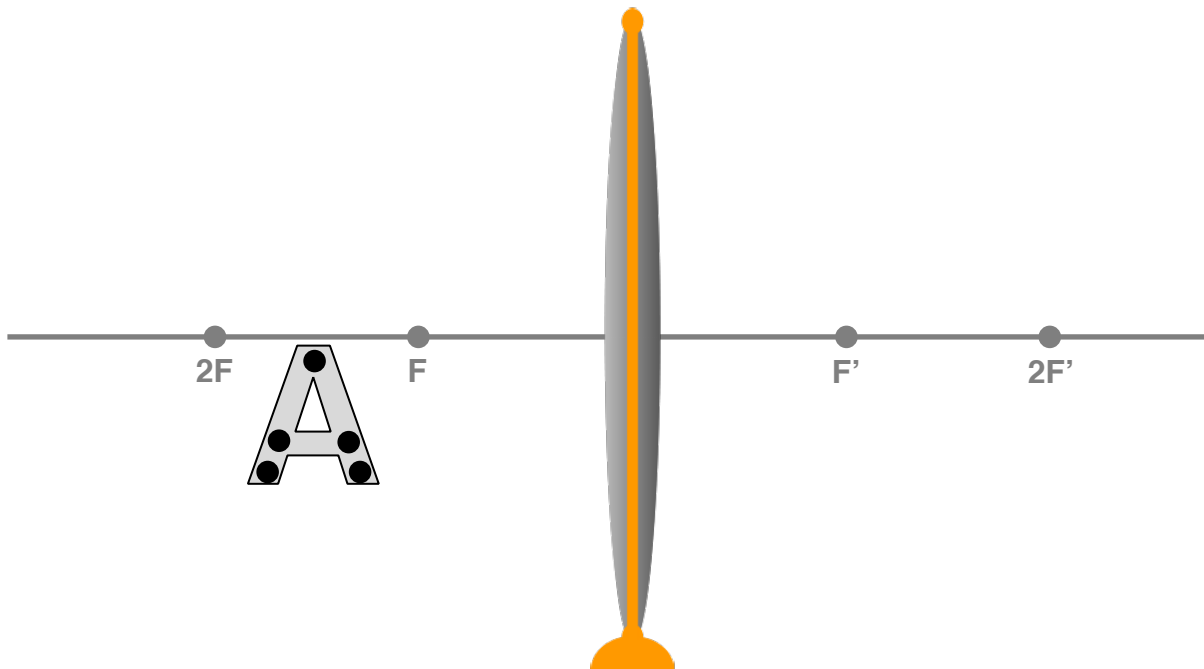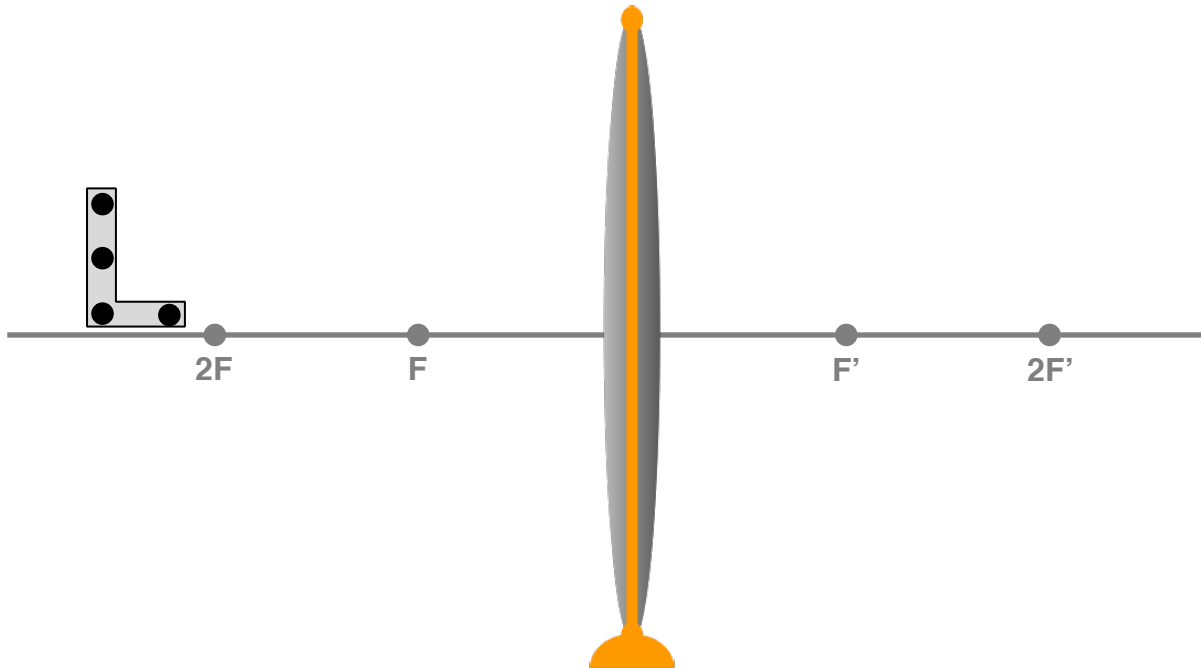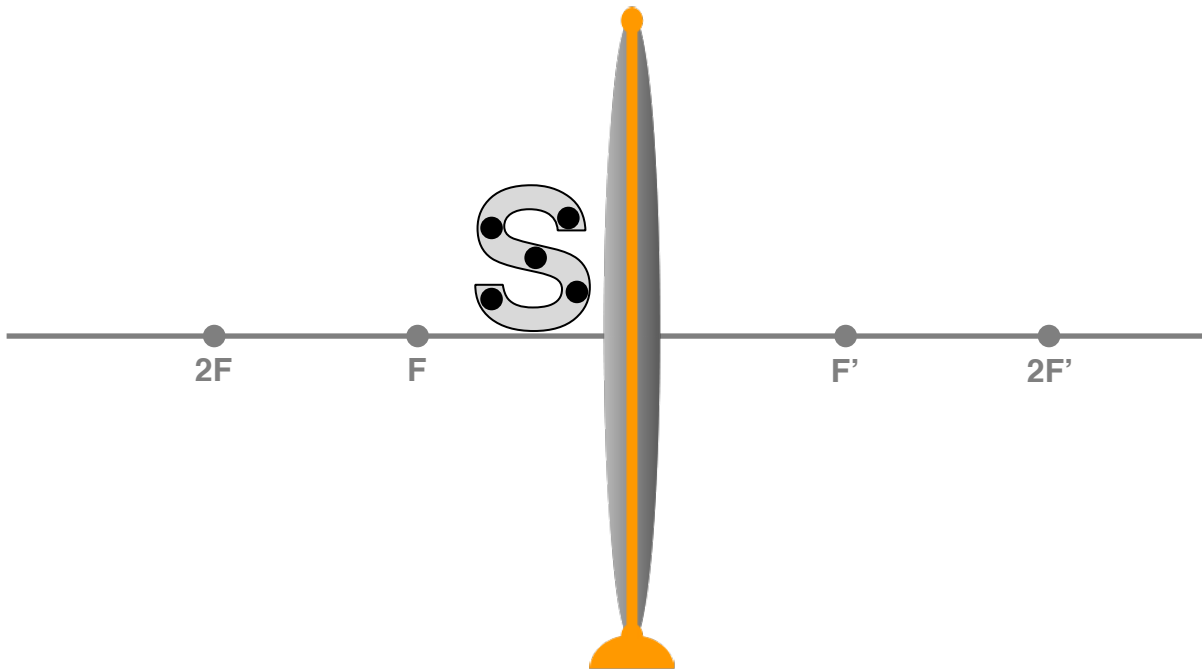## Converging Lens Image Formation

For each lens and letter object below, construct ray diagrams for each marked dot to show the location and appearance of the image. That's 4-5 ray diagrams per letter. Draw your rays *lightly* (but visibly) and mark your image points *boldly*.

Questions:

1. Why do you need to ray diagram so many points on the letter "L" to see the complete image of the letter?

2. Where does the image of the letter L appear?

3. Is the image of the letter L larger, smaller, or the same size as the object?

4. Is the image of the letter L upright or inverted?

5. In what way is the image of the letter L distorted?

6. Where does the image of the letter "A" appear?

7. Is the image of the letter A larger, smaller, or the same size as the object?

8. Is the image of the letter A upright or inverted?

9. In what way is the image of the letter A distorted?

10. Where does the image of the letter "S" appear?

11. Is the image of the letter S larger, smaller, or the same size as the object?

12. Is the image of the letter S upright or inverted?

13. In what way is the image of the letter S distorted?

14. Use a ray diagram model to predict the appearance of the image of the image arrow drawn below.

F

F'

2F'