Ray Diagrams for Converging Lenses

Read from **Lesson 5** of the **Refraction and Lenses chapter** at **The Physics Classroom:**

> **http://www.physicsclassroom.com/Class/refrn/u14l5da.html**
> **http://www.physicsclassroom.com/Class/refrn/u14l5db.html**

MOP Connection: Refraction and Lenses: sublevels 8 and 9

For the following lenses and corresponding object positions, construct ray diagrams. Then describe the **L**ocation of the image, **O**rientation (upright or inverted) of the image, the relative **S**ize of the image (larger or smaller than object), and the **T**ype of image (real or virtual). For **Case 4**, merely construct the ray diagram.
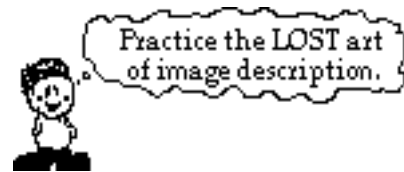
> **NOTE**:   1) All light rays have arrowheads that indicate the direction of travel of the ray.
> 2) Always draw in the image once located (an arrow is a good representation).
> 3) Exactness counts. Use a straight-edge and be accurate.

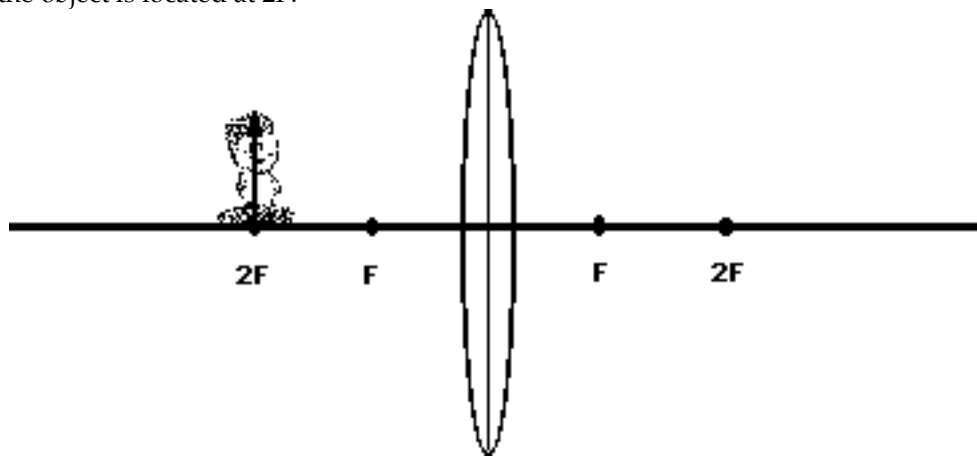**Case 1**: If the object is located beyond 2F:
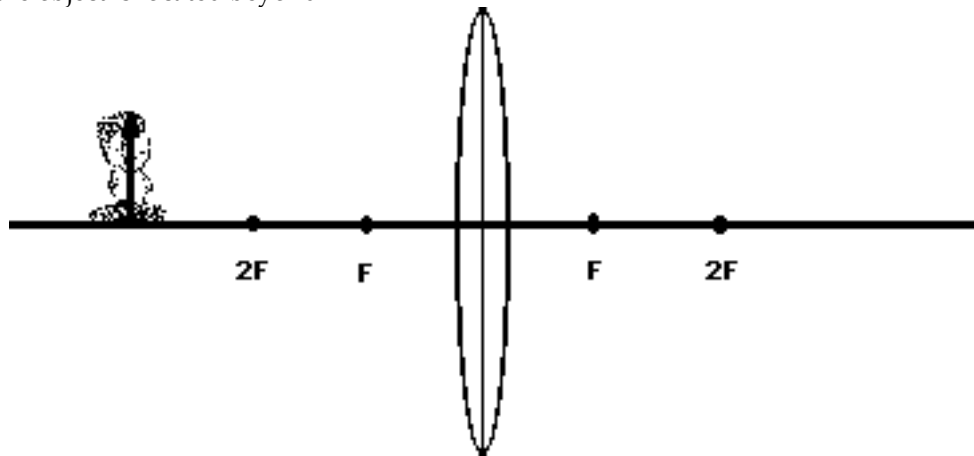
    2F   F   F   2F

   Description of Image:
      Location: _____

      O: Upright or Inverted   **S:** Magnified or Reduced   **T:** Real or Virtual

Case 2: If the object is located at 2F:
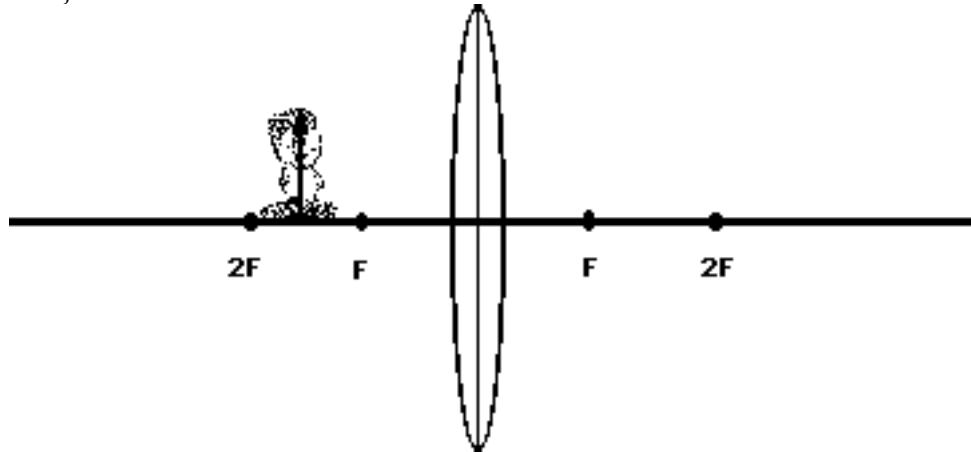

    2F   F   F   2F

   Description of Image:
      Location: _____

      O: Upright or Inverted   **S:** Magnified or Reduced   **T:** Real or Virtual

Case 3: If the object is located between 2F and F:
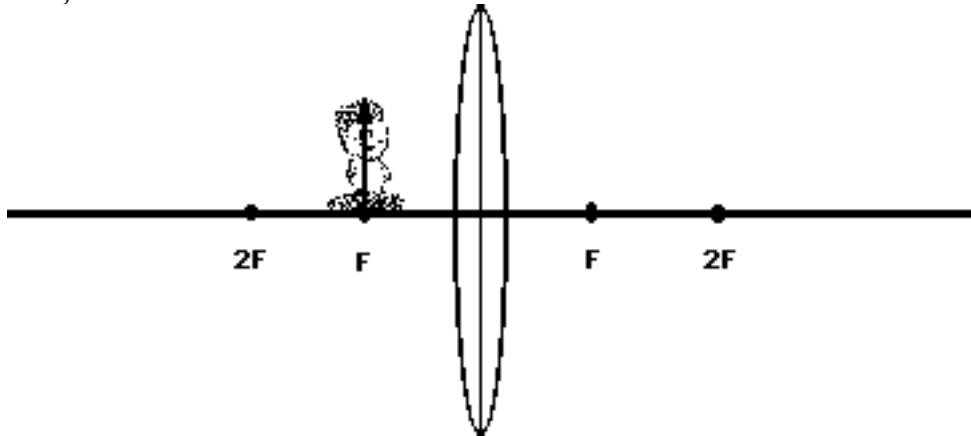

Description of Image:

Location: _____

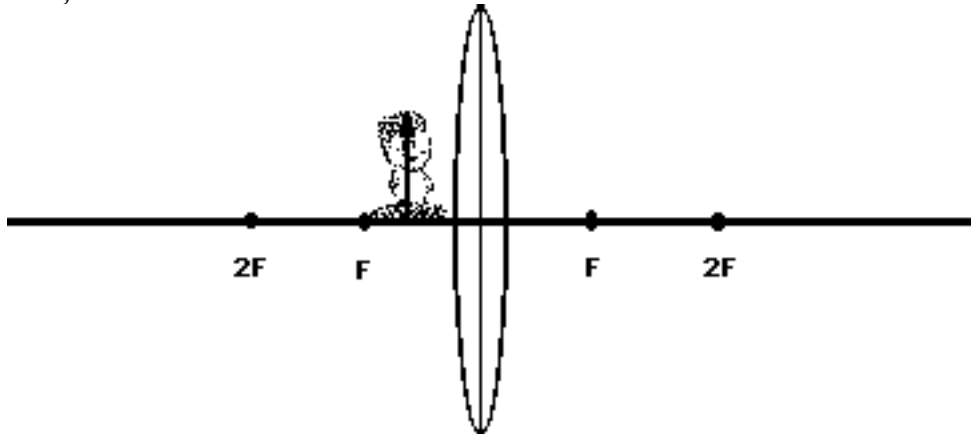**O:** Upright or Inverted   **S:** Magnified or Reduced   **T:** Real or Virtual

Case 4: If the object is located at F:

No Description Required

Case 5: If the object is located between F and the lens:

Description of Image:

Location: _____

O: Upright or Inverted   **S:** Magnified or Reduced   **T:** Real or Virtual