

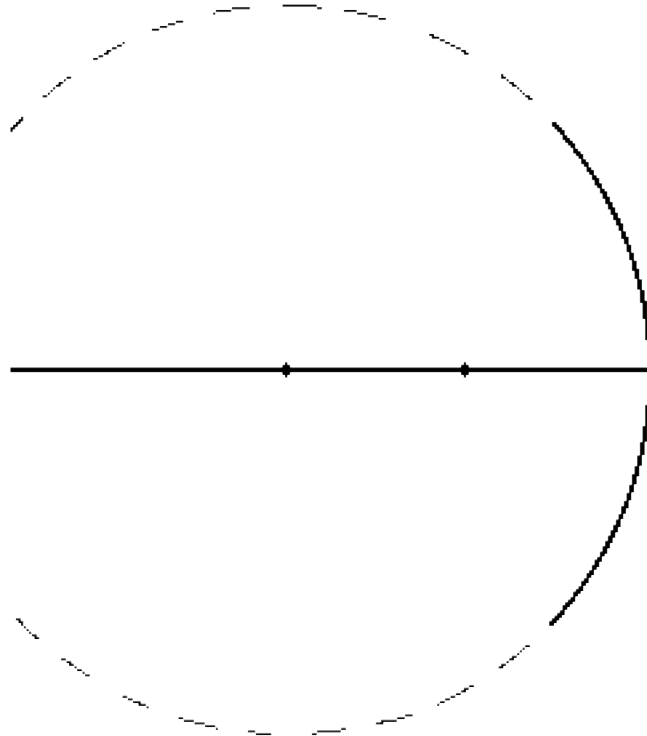
Spherical Mirrors

Read from **Lesson 3** of the **Reflection** chapter at **The Physics Classroom**:

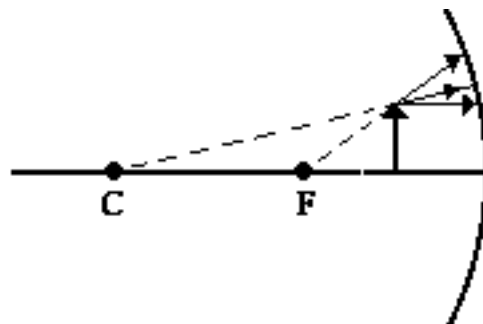
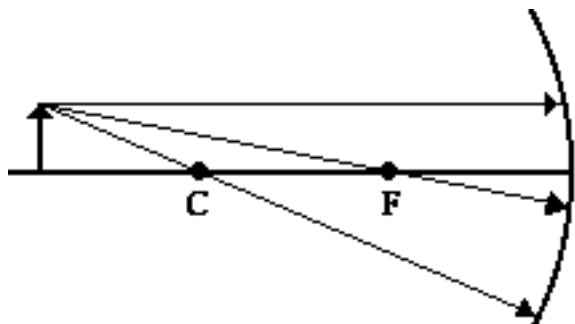
<http://www.physicsclassroom.com/Class/refln/u13l3a.html>
<http://www.physicsclassroom.com/Class/refln/u13l3b.html>
<http://www.physicsclassroom.com/Class/refln/u13l3c.html>

MOP Connection: Reflection and Mirrors: sublevel 5

1. A spherical mirror has a shape that is a section of a sphere. Consider the concave spherical mirror shown at the right. Label the following on the diagram:
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 - the principal axis (a line) as PA
 - the focal point (a point) as F
 - the center of curvature (a point) as C
 - the focal length (a length) as f
 - the radius of curvature (a length) as R
2. Explain why concave mirrors are sometimes called converging mirrors.



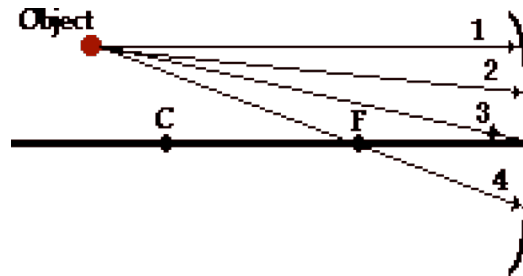
3. Explain why convex mirrors are sometimes called diverging mirrors.
4. The diagrams below show three incident rays. For each diagram, draw the three corresponding reflected rays on the diagrams. Place arrowheads upon all your rays.



Light, Reflection and Mirrors

5. State the three rules which describe the predictable reflection of three rays of incident light for a concave mirror. (See question #4.)
6. Light from a distant star is collected by a concave mirror. How far from the mirror do the light rays converge if the radius of curvature of the mirror is 150 cm?
7. Suppose your teacher gives you a concave mirror and asks you to find the focal point. Describe the procedure you would use to do this.

8. The image location is the location in space from where it would seem to every observer as though reflected light is coming from. The diagram at the right shows an object and a concave mirror. Four rays of light from the object approach the mirror. Note that ray 1 and ray 4 are two of the three *principal rays* whose behavior is described in question #5 above. Reflect each ray (starting with rays 1 and 4) and determine the image location. Put a dot at the image location and label it image.



9. Consider the diagram at the right of an object, an image, and a concave mirror. On the diagram, show the path of light from object to the mirror to the eye as the eye sights at the image.

