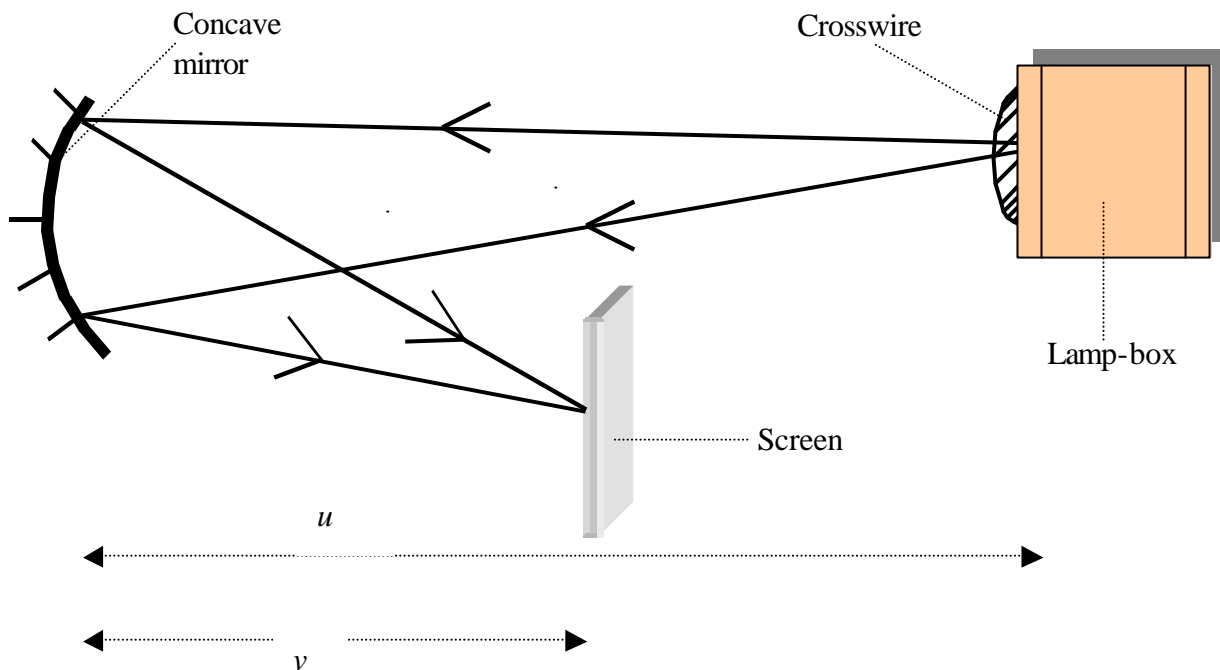


# MEASUREMENT OF THE FOCAL LENGTH OF A CONCAVE MIRROR

## Apparatus

Concave mirror, screen, lamp-box with crosswire.



## Procedure

1. Place the lamp-box well outside the approximate focal length - see notes.
2. Move the screen until a clear inverted image of the crosswire is obtained.
3. Measure the distance  $u$  from the crosswire to the mirror, using the metre stick.
4. Measure the distance  $v$  from the screen to the mirror.
5. Calculate the focal length of the mirror using  $\frac{1}{f} = \frac{1}{u} + \frac{1}{v}$ .
6. Repeat this procedure for different values of  $u$ .
7. Calculate  $f$  each time and then find an average value.

## Results

$u/\text{cm}$	$\frac{1}{u}/\text{cm}^{-1}$	$v/\text{cm}$	$\frac{1}{v}/\text{cm}^{-1}$	$\frac{1}{f}/\text{cm}^{-1}$	$f/\text{cm}$

Average  $f =$

## Notes

The approximate method for finding the focal length is recommended as a starting point for this experiment. The approximate method is described in the Appendix.

A microscope lamp makes a very suitable strong light source. Cover the glass of the lamp with a piece of tracing paper. Use 'peel-and-stick' letters to create an 'object' on the tracing paper.