WJEC England Physics GCSE

SP6.3: Lenses

Practical Flashcards

Outline the basic steps of the practical.

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1. Place the ray box (with a three slit plate) on a sheet of paper, with the convex lens directly in front of it.
2. Turn on the box and mark with crosses the paths of the three rays before and after the lens.
3. Repeat with the concave lens.

How does a convex lens form an image?

How does a convex lens form an image?

Parallel rays of light are refracted and brought together at a point known as the principal focus.

What is meant by the focal length of a lens?

What is meant by the focal length of a lens?

The distance from the lens to the principal focus.

What is the difference between the image produced by a convex and a concave lens?

What is the difference between the image produced by a convex and a concave lens?

1. Convex lenses can produce real or virtual images.
2. Concave lenses can only produce virtual images.

What is a virtual image?

What is a virtual image?

An image produced on the same side of the lens as the object.

What is a real image?

What is a real image?

1. An image produced on the opposite side of the lens from the object.
2. A real image can be formed on a screen as the light rays cross after the lens.

How do you measure the focal length of a convex lens?

How do you measure the focal length of a convex lens?

The focal length is the distance from the centre of the lens to the point after the lens at which all three rays meet.

How do you measure the focal length of a concave lens?

How do you measure the focal length of a concave lens?

1. Trace back the two rays that converge away from the lens after passing through it.
2. The focal length is the distance between the centre of the lens and the point before the lens at which the two traced back rays meet the third ray.

What symbol is used to represent a convex lens in a ray diagram?

What symbol is used to represent a convex lens in a ray diagram?

What symbol is used to represent a concave lens in a ray diagram?

What symbol is used to represent a concave lens in a ray diagram?

What precautions should be taken to use the ray box safely?

What precautions should be taken to use the ray box safely?

1. Do not touch any metal parts since the box gets very hot when in operation
2. Switch it off when not in use to prevent overheating

What conditions are needed for this experiment?

What conditions are needed for this experiment?

Low lighting is needed so that the rays are visible.

What safety precaution should be taken when working in a darkened lab?

What safety precaution should be taken when working in a darkened lab?

All bags and equipment should be moved out of the way to reduce the likelihood of tripping due to poor visibility.