



جامعة المستقبل  
AL-MUSTAQBAL UNIVERSITY

جامعة المستقبل  
قسم تقنيات البصريات

الاجهزة البصرية 1  
Optical Equipment 1

عملي محاضرة 6  
Test Charts And Trial Case And Frame (2)

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The background features a series of concentric circles in light gray, some solid and some dashed, creating a ripple effect. A dark red callout box with a pointed bottom edge is centered on the page. Inside this box, the word "Introduction" is written in a white, bold, serif font.

# Introduction

## Trial case

- ❖ **Trial case** It is a box made of wood or plastic and contains a different set of lenses for the purpose of correcting refractive errors in the patient's eyes to achieve good visual acuity.



## Uses Of Trial Case

- ❖ Objective Refraction
- ❖ Subjective Refraction
- ❖ Diplopia Charting
- ❖ Diagnosis Of Squint
- ❖ Assess Binocular Vision



## Accessories Of Trial Case

- ❖ Trial Frame
- ❖ Trial Lens
- ❖ Prism
- ❖ Other Accessories



# Trial Frame

- ❖ **Trial frame** an eyeglass frame designed to permit insertion of different lenses used in correcting refractive errors of vision.





# Trial Frame

## ❖ Compartments Of Trial Frame

- 3-4 compartments
- 1st - High powered lens
- 2nd - spherical lens
- 3rd - cylindrical lens
- 4th - accessory lens & prisms 2nd 3rd 4<sup>th</sup>



# LEA Symbols Chart

## ❖ Types Of Trial Frames

❖ Full Aperture Frame



❖ Reduced Aperture Frame



❖ Half Eye Trial Frame





# Trial lenses

During refraction the practitioner utilize a set of known lenses called as Trial lenses, Types of lenses:

## 1. Optical lenses

❖ Use to correct the refractive errors.

## 2. Accessory lenses

❖ Use to diagnose the pathology.



# Spherical lenses

## ❖ Present in plus and minus form

- Range: + & -0.12D to + & - 20.00D.

## ❖ Variation:-

- 0.25 to 4.00D in increment of 0.25D
- 4.00 to 6.00D in increment of 0.50 D
- 6.00 to 14.00D in increment of 1.00 D
- 14.00 to 20.00D in increment of 2.00DLaxmi



## Cylindrical lenses

❖ **Present in plus & minus form.**

• Range:- (+&-0.25D) to (+&-6.00D).

❖ **Variations:-**

• 0.25 to 3.50D in increment of 0.25D

• 3.50 to 6.00D in increment of 0.50D

# Prism

## ❖ Uses to:

- correct and measure Strabismus
- For the measurement and correction of the angle of deviation.

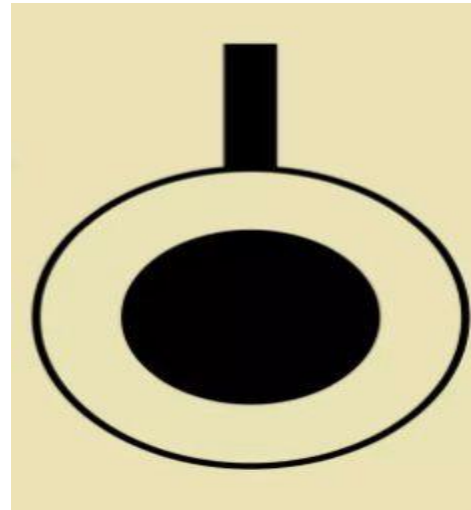


## Other Accessories

- ❖ **Occluder**
- ❖ **Plano Lens**
- ❖ **Pin Hole**
- ❖ **Fogging Lens**
- ❖ **Maddox Rod**
- ❖ **Stenopaic Slit**
- ❖ **Red And Green Filter**
- ❖ **Jackson Cross Cylinder**
- ❖ **Near Vision Chart**

## Occluder

- ❖ **Occluder:** is an opaque disc used to close or cover one eye during refraction examination . It blocks one eye vision while performing the test on the fellow eye, so that we can check each eye separately.





## Plano Lens

- ❖ Zero power.
- ❖ It is used to satisfy & identify the malingering patients.



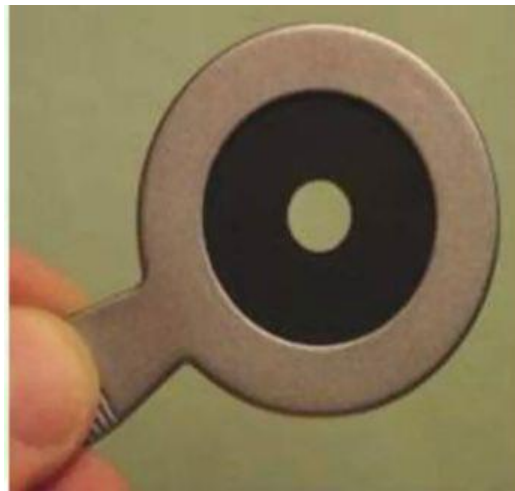
## Fogging Lens

❖ **Used to** relax the muscles. It works like a occluder



## Pin Hole Disc

- ❖ **PH** is an opaque disc used for determining whether the decreased vision is due to refractive error or to pathological diseases of the eye.
- ❖ **PH** are available in the ranges of (1mm and 2mm) in diameter.



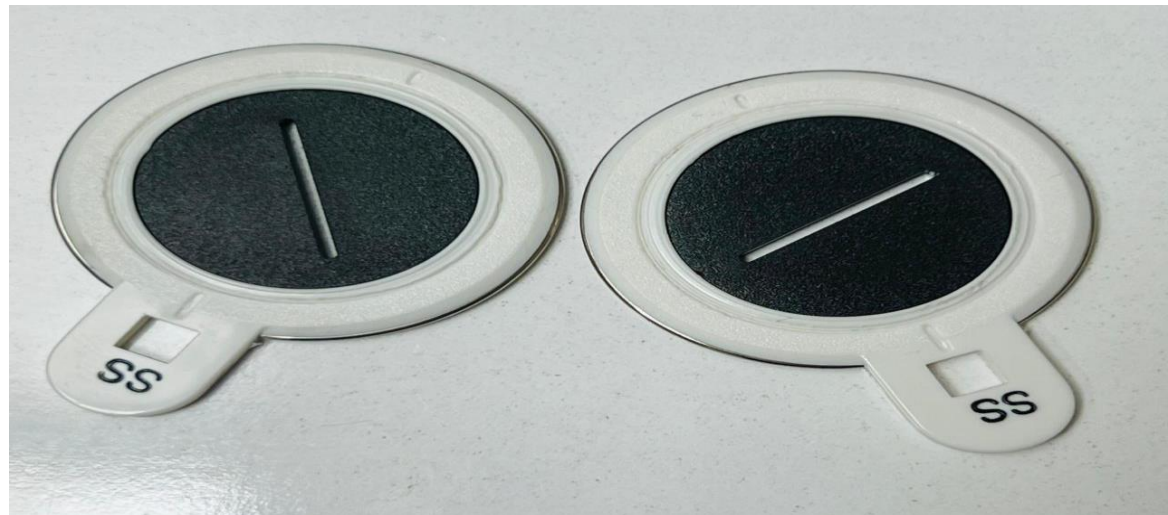
## Maddox rod

❖ **Maddox rod:** is constructed of a series of red cylindrical rods. Each rod acts as a strong ‘+’ cylindrical lens that forms a red streak band before the eye. It is used to detect the presence of heterophoria and to measure the amount of heterotropia.



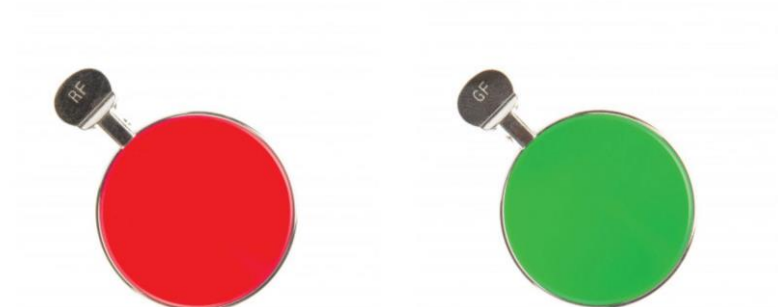
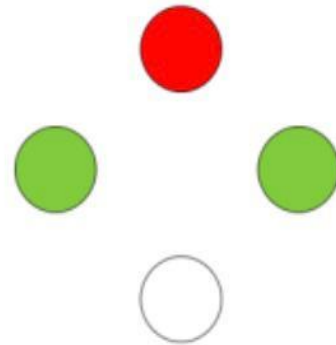
## Stenopic Slit

- ❖ **Stenopic Slit** : It consists of a rectangular aperture with a linear slit (1mm) in width and up to (15 mm) in length. It is useful for refining the axis of high irregular astigmatism.



## Red And Green Filter

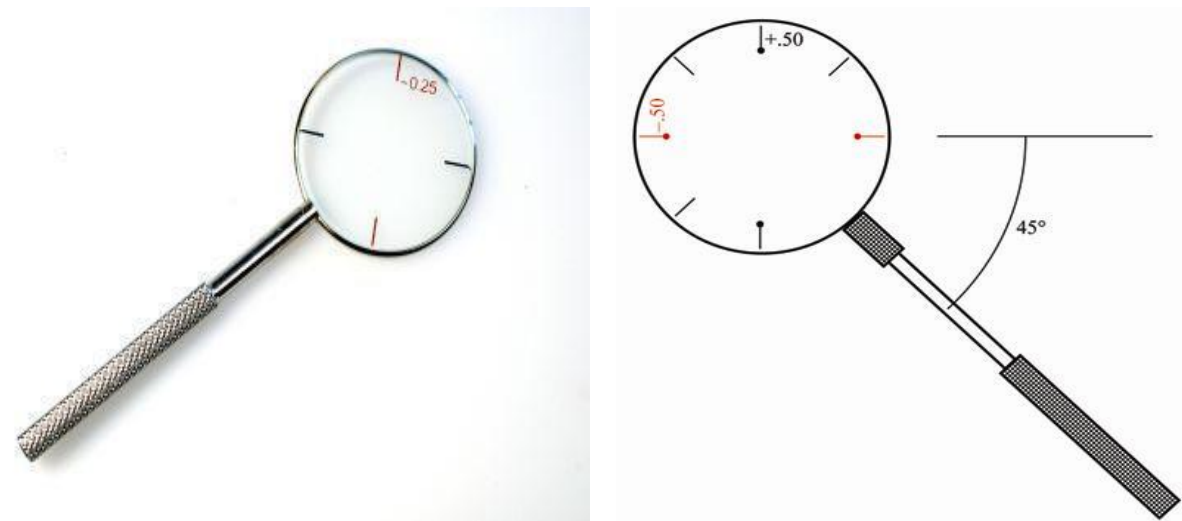
- ❖ Red in RE & Green in LE
- ❖ **TEST** ( worth 4 dot test & FRIEND test) .
- ❖ Used for color dissociation.
- ❖ Used to find out suppression of eyes.
- ❖ To find out diplopia.
- ❖ Used to measure the Fusion, squint.





## Jackson Cross Cylinder

- ❖ It is a combination of plus cylinder & minus cylinder  $90^\circ$  apart.
- ❖ Handle is located at  $45^\circ$  between two axis.
- ❖ **Principle:** spherical equivalent is zero.
- ❖ **Used to:** determine both power & axis of the astigmatic correction  $\pm 0.25$  and  $\pm 0.50$ .







**THANK YOU**