



# HRR Guide

## Examiner's Guide

Keep the test book closed and in the jacket when not in use. Do not touch the plates with your fingers; turn the pages by the tabs. Seat the patient so that their eyes are kept about 30 inches from the book when it is placed on the rack of the Illuminator. Turn on the Illuminator and exclude from the room all extraneous light that would fall directly on the test. Testing should be done monocularly.

**Demonstration:** The demonstration plates (1-4) are not scored. Show these four plates in sequence saying; "I am going to show you some colored symbols. Without touching them, how many do you see? What are they?" Unless the patient is malingering or totally color deficient, two colored symbols should be seen on each of the first two demonstration plates (OX and XΔ), one colored symbol (O) on the third one, and no colored symbol on the fourth one. Tell the patient that these symbols may appear in any of the four corners of the page. After naming the symbol ask the patient to trace it out with a pointer or brush. Then say: "The test itself is made up of just these three symbols with two, one, or none on a page. Some of them will be harder for you to see as they may be less strong in color."

**Screening:** Begin the testing with the screening plates (5-10). Turn to plate 5 and ask, "How many colored symbols do you see here?" Then ask, "What are they?" Then ask, "Where are they?" It is important to obtain an **IMMEDIATE** response as to the number of symbols seen. No revision of the patient's opinion on this point is allowed. Record the patient's response (using X, O) in the box provided for Plate 5 on the Scoring Sheet, recording the exact symbols seen in the location indicated by the patient. If the patient's reply to all three questions is correct, then place a ✓ mark beside the box to indicate a correct response. If, on the other hand, the patient makes an error in answering any one of the three questions, no ✓ mark is made. Proceed in a similar fashion with plates 6-10, turning the pages at about 3- second intervals, asking the patient to answer the same three questions as each page is turned.

This completes the screening test. If all six boxes are checked to show correct responses, the patient has normal color vision and no more testing need be done. If plates 5 or 6 are not checked, the patient has defective blue-yellow vision and the examiner proceeds to show plates 21-24. If any of plates 7-10 are not checked, the patient has defective red-green vision and the examiner proceeds to show plates 11-20. If any plates of both screening groups (5-6 and 7-10) are not checked, all remaining plates (11-24) must be given.

**Diagnosis:** For diagnosis of type and extent of defect, plates 11-24 are used. In presenting each of the plates, again ask the patient to answer the three questions given above and place a ✓ mark in the space provided on the Score Sheet at the right of each small box whenever the patient correctly names and locates a symbol. For example, if on plate 11 the patient correctly names and locates the 'O' and does not identify the 'Δ', place a ✓ mark at the right of the box containing the 'O' and leave the space blank beside the 'Δ'. If both the 'O' and the 'Δ' are correctly named and located, place a ✓ mark beside both boxes. When the testing is completed,

total the number of checks in each column. Spaces are provided for totals under plates 20 and 24.

**Repetition:** In a few cases where the color defect is very mild, a patient may fail to see correctly some of the symbols in the screening plates (5-10), but see correctly all symbols in the diagnostic plates (11-24). The screening plates must then be given a second time with the test book rotated 90° or 180° to give the figures a different location on the page. Responses are recorded in the boxes headed "Repetition".

## INTERPRETATION OF RESPONSES

**A Correct Response** to a plate includes the number, name and location of all colored symbols on the plate.

**An Error** is failure to see all symbols, or an incorrect name of any symbols, or an incorrect location.

## NORMAL COLOR VISION

- a. A patient who gives correct responses to all six screening plates has normal color vision. (Testing may be stopped at this point.)
- b. A patient who makes one or more errors in the screening plates but none in the subsequent diagnostic plates, and upon re-testing gives correct responses to all of the screening plates (5-10), has normal color vision.

## DEFECTIVE COLOR VISION

a. Type of Defect:

**Red-Green Deficiency:** A patient is a **PROTAN** if the total number of checks in the protan column is greater than in the deutan column; a **DEUTAN** if the total number of checks in the deutan column is greater than in the protan column; **UNCLASSIFIED** as to type of red-green deficiency if the number of checks is the same in the protan and deutan columns, or if errors have been made in only the screening plates.

**Blue Yellow Deficiency:** A patient is **TRITAN** if the number of checks in the tritan column is greater than in the tetartan column; a **TETARTAN** if the total number of checks in the tetartan column is greater than in the tritan column; **UNCLASSIFIED** as to type of blue-yellow deficiency if the number of checks is the same in the tritan and tetartan columns, or if errors have been made only in the Screening Series.

Extensive scattered errors throughout the various groups of plates may indicate malingering, monochromatism (total color blindness) or low color discrimination approaching monochromatism. Since the monochromat usually differs from the trichromat in the brightness of chromatic stimuli, the patient may be able to recognize some of the test figures by their apparent brightness difference from the background. Other means than pseudoisochromatic plates must be employed to identify this rare form of color deficiency.



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## b. Extent of Defect:

At present the test recognizes three degrees of extent of defect: mild, medium, and strong. The **LAST GROUP** of plates in which error occurs gives the extent of the patient's color deficiency. For example, in a case of red-green deficiency if the last error occurs in either group of plates 7-10 or 11-15 and there are no errors in plates 16-20, the defect is mild in extent; if the last error occurs in plates 16-18 and there are no errors in plates 19-20, the defect is medium in extent; and if errors occur in plates 19-20, the defect is strong. Similarly, in a case of blue-yellow deficiency, if the last error occurs in plates 5-6 and there are no errors in plates 21-24, the defect is mild; if the last error occurs in plates 21-22 and there are no errors in plates 23-24, the defect is medium; and if errors occur in plates 23-24, the defect is strong.

## ILLUMINATION

Any color test using reflected light is dependent upon the spectral composition of the illuminant used. The critical hues employed in the HRR Plates were determined under a close approximation to C.I.E. source C. It is therefore mandatory that the test be administered under this illuminant or a close approximation of it. The intensity of illumination should be between 10 and 60 foot-candles. We recommend the Good-Lite Daylight Illuminator (612600) which was designed to provide proper lighting. Direct light from tungsten or other fluorescent lamps in the room or outside windows should be prevented from reaching the test plates. Unless these precautions as to illumination are observed, use of the HRR plates either for screening or for qualitative and quantitative diagnosis will not yield accurate results.

For more color testing information to [www.good-lite.com](http://www.good-lite.com).