VERA screening tests are not intended to replace any aspects of a professional eye examination.

The VERA visual acuity screening has test lines which correspond to 20/20, 20/25, 20/30, 20/40, 20/70, 20/200 and 20/400. Visual acuity less than 20/400 will be indicated as 20/400. Other test lines have been omitted to render the program more efficient without changing the pass/fail accuracy. Visual acuity fail points can be set to 20/25, 20/30 or 20/40.

The binocular vision tests determine whether subjects can use both eyes together, at least momentarily. Test results may be influenced by subject attention, room lighting, monitor settings, etc., and attention should be paid to these conditions.

System requirements are WINDOWS OS, 200 mb free disc space, 15”-22” monitor.
PROGRAM OVERVIEW

The vision screening is comprised of the following tests:

**DISTANCE VISUAL ACUITY** tested at 10 feet. Right eye, left eye and both eyes are tested individually. The screening utilizes logic-controlled Snellen-equivalent, randomly oriented “E”s presented line-by-line so as to minimize memorization or shape recognition of letters.

**FARSIGHTEDNESS** (Hyperopia or “Plus Lens” test) tested at 10 feet the subject's best monocular visual acuity level through +2.00D lenses and expressed as pass/fail.

**FUSION** (Suppression) at 16"-20" for simultaneous use of both eyes, expressed as pass/fail.

**STEREOPSIS** (Binocular Integration) at 16"-20" using four random dot stereograms of alternating convergence (prism base out) and divergence (prism base in) demand, expressed as pass/fail.

**PHORIA** (Fixation Disparity) at 16"-20", expressed as pass/fail.

Vision screening results are automatically placed into selectable reports for eye doctors, letters for parents (initial and follow-up), a generic screening results report or a custom report with text editor.

Calibrating the Test Character Size

After installation, VERA needs to be calibrated so that the test characters are sized appropriately for your system. To do this, you make simple adjustments on a calibration screen which VERA automatically presents the first time you run the program. The screen consists of a large “E” and two sliders. Hold a ruler marked with millimeters to the horizontal side of the “E” on the screen. Use your mouse to move the slider until that side of the “E” is 100mm(10cm). Then move your ruler to the vertical side of the “E” and adjust the slider similarly until that side of the “E” is also 100mm(10cm). Click OK and then SAVE changes. Calibration should be run from the VERA menu on the home screen if you change your screen resolution.

THE MAIN MENU

START SCREENING:
Goes to the subject information screen and then to the screening tests. Click on START SCREENING from the main menu, and fill in:

1. **FIRST NAME**: required
2. **LAST NAME**: required
3. **DATE OF BIRTH**: required
4. **GRADE**: This field enables schools to create grade-specific lists and letters. For other populations, skip this field. For practice or demonstration, use the 0(zero) field at the top of the drop-down grade list.
5. **ID (Identification)**: Use this field only if you will export vision screening data to another health or other records program. The “ID” input is the unique alpha-numeric subject identifier assigned by the other records program.
6. (SUBJECT) WEARING GLASSES OR CONTACTS TO TAKE SCREENING: Check if true.

7. CURRENT IDENTIFICATION: The proctor and test site name which you will enter in the PREFERENCES section of the program is displayed here.

Enter the new screening information carefully as it cannot be edited once you leave this screen. Click OK to proceed to the first test screen.

Note: If you screen the same subject more than once, a separate record will be created for each screening. You can differentiate the screenings by putting a number (2, 3, etc.) after the last name or later differentiate the screenings by the test date.

REPORTS:
Use to view or print report(s) for individual or multiple subject(s). Multiple reports enables bulk printing of any report after screening and creation of lists of subjects chosen by any demographic or any screening result.

Creating a report for an individual

To get there: Main Menu / Reports / INDIVIDUAL tab:

Any VERA report or letter for an individual can be created. The screen is laid out step-wise:

(1) Begin typing the last name of the subject wish to select. The name most similar to what you have typed in at any point will be highlighted. (If your subject is not highlighted, scroll through the names and click on your selection.)

(2) Select your desired report type.

(3) Choose SCREEN to view without printing or PRINTER as the destination for the report.

(4) Click RUN REPORT.

Creating reports and lists of groups of subjects

To get there: Main Menu / Reports / GROUP tab:

Any VERA report or letter can be re-created for any group. The screen is laid out step-wise:

(1) Choose criteria: Subjects can be selected from your database by virtue of test date, DOB, grade, and performance on the visual acuity, hyperopia and binocular vision sections of the screening. Each selected criteria further limits the numbers of subjects selected. Think of each subsequent selection criteria beyond the first as: "who also...".

(2) Select a report type.

(3) Choose SCREEN to view without printing or PRINTER as the destination for the reports.

(4) Click RUN REPORT.
In example 1, subjects will be displayed who were screened between 12/24/2002 and 6/24/2003 who are ALSO in grade 9 and who have ALSO failed visual acuity OR hyperopia. The doctor's letter is ready to be printed for these 36 students in the "record count".

In example 2, subjects will be displayed who were screened between 12/24/2002 and 6/24/2003 who are ALSO is grade 9 who ALSO failed visual acuity and who ALSO did not return their examination referral form. The second notice to parents is ready to be printed for these 6 students in the "record count".

To Create Follow-up (second) notices for unfulfilled referrals:

(1) Choose your desired grade, age and/or test date range.

(2) Choose your selection criteria carefully: To follow-up on visual acuity failures, select “Visual Acuity fail only” and select “Letters not returned” so that records for subjects who failed visual acuity but whose examination reports were NOT checked in will be selected.

To follow-up on either visual acuity OR hyperopia failures, select "Visual Acuity OR hyperopia fail" and also select "Letters not returned". A list of subjects who failed visual acuity OR hyperopia but whose examination reports were NOT checked in will be created. Note: If you had selected “Visual Acuity fail only” and “Hyperopia fail only” at the same time, only students who failed BOTH will be selected. Think of each subsequent selection criteria beyond the first as: “who also...”.

(3) Then select SECOND NOTICE from the list of reports and second notices will automatically be created for these records to print or view. To create lists of these subjects, select LIST.

CREATING A CUSTOM REPORT:

Select the “Custom Report” tab in PREFERENCES. A screen similar to figure 1 will display without text in the editor. You may import sample text similar to VERA's parent letter by selecting GET DEFAULT TEXT or begin typing your own text. To open the text editor features, right-click anywhere within the text screen (figure 1).
Maximizing the editor screen (figure 2) provides a better view of your text and formatting.

To preview your custom letter, save the letter and exit the editor (figure 2).

Open the “Individual” tab of the REPORTS section of the home screen, select “Custom Report” for any individual and run your report to view it (figure 3). To make changes, close the report and repeat the above steps until you are satisfied with the content and formatting.

LETTER RETURN:
Use to log returned eye examination reports. This enables selection of subjects whose completed eye examination reports are outstanding, follow-up notices to these subjects and lists of these individual by age, grade or test date range.

The LETTER CHECK-IN screen is used to confirm fulfillment of vision referrals by logging the completed doctor’s reports. This allows you to (1) send VERA’s second notice to parents of students who did not return them, (2) to send VERA’s custom report as follow-up to unfulfilled referrals outside school settings, or (3) to create age, grade or test date-specific lists of subjects with unfulfilled referrals.

Log the returned doctor’s report by using the confirmation number found in the lower right under the school or test site’s address, click SEARCH, and when the subject name appears, click CHECK IT.
OTHER OPTIONS / MENUS:

From the FILE drop-down menu, you can select:
- NEW for alternate access to the new subject information screen
- BACKUP/RESTORE to back up the data file
- EXPORT to export screening data to other health records programs

From the VERA drop-down menu, you can select:
- CALIBRATE to re-size the test screens (if monitor size or screen resolution changes).
- PREFERENCES: to access the Identification, Screening, System Settings and Reports tabs
- LETTER RETURN for alternate access to the returned eye doctor’s report log-in screen

From the DATABASE drop-down menu, you can select:
- DELETE RECORDS to remove records from the reporting and listing functions of the program.
- PURGE DATABASE to permanently remove records from the program
- RECOVER DELETED RECORDS to recover deleted records to the database and reporting and listing functions of the program

PREFERENCES:

IDENTIFICATION Tab: Use to insert proctor and test site information into the reports. Information entered into this screen will appear on reports and letters until the information is changed.

SCREENING Tab: Use to alter the test selections. The Plus Lens (hyperopia) test cannot be selected without the visual acuity tests since poor visual acuity can also cause failure of the plus lens test. Running all three binocular vision tests is recommended unless the program alerts you as to when poor visual acuity or hyperopia may invalidate the binocular vision screening.

SmartScreen® automatically runs the shortest screening for each subject by exiting the screening at the first point of referral and preparing your selected report(s). Testing alerts are therefore not displayed.

SYSTEMS SETTINGS Tab: Use to select a visual acuity fail point to accommodate your local screening regulations. Note: Subjects are graded by whatever the selected fail point is. If you re-select a new fail point, subjects previously screened as well as new subjects will then be (re)graded with the new fail point.

REPORTS Tab: Use to choose which report type(s) will be displayed or printed after each screening.

Drop-Down Calendars: When making date selections, click on the day, month and year and type in your selection or use the drop-down calendars as indicated here:
MANAGING THE DATA

Backing Up / Restoring the Screening Data File

Screening data are automatically saved to VERA’s default location on your computer, but you should routinely back up your “veraback” screening data file to a removable storage media. To do this, click on “Backup”, then navigate to your storage media and click “Save”. Always back up your screening data before upgrading, transferring or deleting a VERA program.

To restore a data file to VERA, go to FILE / BACKUP/RESTORE and click on “Restore”. Locate your “veraback” data file and click “Open”. Override any messages which display and then close the VERA program and re-open it to set the data. **Warning:** Any data currently in your program will be overwritten whenever you restore data to the program.

Deleting / Restoring / Purging records

Although screening data takes up very little room on your computer, you can use these functions from time to time to remove subjects from the database who are no longer in the testing population.

Deleting records removes them from the listing and reporting functions of the program but they remain hidden in the database. This is similar to deleting computer files to the trash or recycle bin. Recovering these records restores them to the listing and reporting functions of the program. This is similar to restoring computer files from the trash recycle bin.

Purging records permanently removes them from the database. This is similar to emptying computer files from the trash or recycle bin. Choose carefully!

The DELETE RECORDS screen is laid out step-wise:

1. Enter the test date range of records to be deleted and click “select records”.
2. Click on “delete selected records”.
3. To make another selection, click “clear selection”.

If the RECOVER DELETED RECORDS option is selected, you will be asked to confirm recovery by typing the word “RECOVER” into the screen presented. Then click OK to recover. If the PURGE DATABASE option is selected to permanently remove deleted records, you will be asked to confirm PURGING by typing the word “DELETE” into the screen presented. Then click OK to purge.

**Note:** After deleting, restoring or purging records, close and re-open VERA to re-set the database.

Exporting vision screening data to other records software:

Exporting is accomplished via “Export” option of the FILE menu of the main screen. The default file name is “vera.csv”. The file is written using standard comma separated values, with fields surrounded by double quotes and separated by a comma. The fields written to the file are:

1. Institution-assigned student ID
2. Last Name
3. First Name
4. DOB
5. Test Date
6. Visual Acuity Right Eye
7. Visual Acuity Left Eye
8. Hyperopia (P, F)
9. Binocular Vision (P, F)
In order to merge exported data with other records software, a subject ID assigned by the other records software must be entered into the ID field of “New Screening” (see “start screening with new student” below). After the file is exported, it can be opened with Microsoft Excel or any text editor. Integration of the fields into an external database or school health records software program will be the responsibility of the administrator of that program.

RUNNING THE SCREENING

Before Running The Screening:

Remind subjects to bring any prescribed eyeglasses they have to the screening.

Be sure the keyboard “NUM LOCK” is on when entering test responses from the numerical keypad. When using a laptop, an inexpensive USB keyboard can be used to control the screening away from the subject's line of sight.

Mark or place a tape line on the floor a distance of exactly ten feet from the screen. Subjects will stand or sit at this line for visual acuity and hyperopia testing. When taking the binocular vision tests, subjects sit 16 - 18 inches from the screen with relaxed but erect posture.

The test lenses and monitor screen are to be clean and free of reflections so as to provide an unobstructed view of the tests. Brightness, contrast and viewing angle of the monitor as well as room illumination should be set to allow the test screens to be easily seen through the colored test lenses, particularly if a laptop is used.

The subject's line of sight should be perpendicular to the plane of the screen at the start of each test.

VERA automatically proceeds from one test to the next. Carefully follow the instructions for administering each test and those regarding when any prescribed eyeglasses should and should not be used. Be sure subjects understand what is expected of them. When test lenses are indicated, be sure that the subject is looking through them and that any red test lens is held in front of the right eye (over the subject's own glasses if necessary).

**Testing Glasses:** A double-sided lens holders (flippers) hold the two sets of test lenses necessary for routine screening with VERA. The flipper contains a pair of clear convex lenses (hereafter referred to as “glasses #1”) which are used in the “Plus Lens” test for the hyperopia test.

The other side of this flipper contains the plain red and green lenses (hereafter referred to as "glasses #2") which are used in the binocular vision tests.
**Test Screen Layout and test conditions:**

Each test is preceded by an introduction screen displaying test procedures and test conditions.

**Testing Distances:** 10 feet for the Visual Acuity and Hyperopia screening or 16 inches for the binocular vision and vision skills tests.

**Subject’s glasses:** Glasses prescribed for general purpose (distance and near) are worn for the entire screening. Glasses prescribed for near vision or close reading only are worn only for the binocular vision tests.

**Keyboard entry:** All proctor entry is numerical, by the ENTER key, or by the space bar.

**Special Shortcut Keys:**

**F8 key:** Skipping the current screening test and proceeding to the next: The F8 key stops the current test and advances to the next. The results of the stopped test will be zero. This key may be used for demonstration purposes or if a subject cannot see certain test screens.

**F10 key:** Stopping the current screening test and returning to the Main Menu: The F10 key will stop the current screening test and return to the Main Menu. Use if an interruption prevents the screening from being completed. To re-start a routine screening, start over again with the subject information screen, this time assigning a numeral after the student’s name, i.e.; “John Smith2”, for the second screening. If time permits, you could delete the first incomplete record from the database.
THE VISION SCREENING TESTS

Distance Visual Acuity

**Description**: This is a test of clarity of sight, scaled to standard Snellen test characters. A line should be marked on the floor exactly 10 feet from the screen. Subjects will stand or sit immediately behind this line with the screen surface perpendicular to their line of sight. If the subject has glasses prescribed for general use (near and far vision) or for far vision only, they must be worn during this test. Glasses prescribed only for reading up close should not be worn.

The test has three segments. In the first, the left eye is covered and the right eye is tested beginning at the 20/20 line. In the second, the right eye is covered and the left eye is tested beginning at the 20/20 line. In the third, both eyes are uncovered and tested beginning at the smallest line which the better of the two eyes was able to see. Each character response is recorded by the program to control subsequent line sizes for highly accurate and repeatable measurement.

**Running the test**: Press ENTER or click START TEST to proceed from the title screen to the test screen. A row of "E"s will be displayed which point either up, down, right or left. A moving arrow under the row of "E"s points to the character being tested and the subject calls out the direction in which that "E" is pointing. If subjects or young students may be unsure of right and left or are non-verbal, have them indicate the direction of the "E" by pointing instead of responding verbally.

If the subject **correctly** identifies the direction of the "E," press ENTER. If the subject **incorrectly** identifies the direction of an "E," press the 0 (ZERO) key. If the proctor makes an incorrect entry, the BACKSPACE key moves the arrow backwards to correct it.

**Note**: For efficiency without affecting pass-fail accuracy, VERA does not measure every level of visual acuity below 20/40. VERA has visual acuity test lines of 20/20, 20/25, 20/30, 20/40, 20/70, 20/200 and 20/400, since visual acuity less than 20/40 requires an eye examination by virtually all school, motor vehicle, vocational or occupational protocols.
Description: This is a test for uncorrected hyperopia (farsightedness). As in the previous test, the subject is positioned 10 feet from the monitor and wears prescribed glasses, unless they are for near vision only. Neither eye is covered and the subject looks through test lens set # 1 (with the clear test lenses) which is held directly in front of their eyes, over their own glasses if necessary.

Running the test: Press ENTER or click START TEST to proceed from the title screen to the test screen. A single row of "E"s equal in size to the smallest line seen by either eye in the visual acuity tests is presented. The subject calls out the direction in which each "E" is pointing. A moving arrow under the row of "E"s points to the character being tested.

If the subject correctly identifies the direction of the "E," press ENTER.
If the subject incorrectly identifies the direction of an "E," press the 0 (ZERO) key.
If the subject cannot see any of the "E"s, press the 0 (ZERO) key once for each "E" on the screen.

If a response is entered incorrectly, the BACKSPACE key moves the arrow backwards to correct the entry.

How the test works: The clear test lenses are of the type used to correct for farsightedness (a "plus," or convex lens). The only way a subject can see the direction of the "E"s is if they are farsighted, therefore expect that most will not be able to see the "E"s through the test lenses well enough to identify the directions. This test concludes after one line of "E"s has been presented.

IMPORTANT: If a subject's visual acuity or uncorrected farsightedness might effect the validity of the following binocular vision tests, a prompt will alert you to this before the binocular vision tests begin. In this cases, you should make your referral on the basis of the visual acuity and farsightedness screening. If you are running the SmartScreen® mode, the screening will automatically stop at or before this point.

The following binocular vision tests: The three binocular vision tests determine whether the subject can at least momentarily use both eyes together. Each test emphasizes a different aspect of binocular vision: combining the image from each eye with the other, depth appreciation and eye alignment. If any two of the tests are passed, the program scores a PASS.
**Fusion (Suppression)**

*Description*: The subject sits with their face **16 - 20 inches** from the monitor screen and wears any glasses prescribed for near vision and/or far vision. The subject looks through test lens set # 2 which is held directly in front of their eyes, over their own glasses if necessary. The flipper is held so that the **RED** lens is over the **RIGHT** eye.

**Running the test**: Press ENTER or click START TEST to proceed from the title screen to the test screen. Through the test glasses, figure A is seen by one eye and figure B by the other. Allow the subject to view the screen for 5-10 seconds, then question the subject exactly as follows:

1. **Ask**: “**What shapes do you see on the screen?**” The correct answer includes “**a square, an X and a circle**”  
2. Then ask: **How many of each shape do you see?** The correct answer is **one**. The proctor presses ENTER if both answers are correct or 0 ZERO if either answer is incorrect.

**How the test works**: Binocular vision is demonstrated when the subject superimposes the image from each eye and sees the whole picture; i.e., all three shapes. Ideally, the composite image seen will be stable and single.

- **Subjects who are not using both eyes simultaneously will likely report seeing figure A or figure B**; i.e., "a circle and X", or "a square and X”.

- **Subjects who are not combining the images from each eye will likely report seeing figure A and figure B**; i.e., “two rectangles with a square and X in one, and a circle and X in the other”.

- **Subjects who are tuning out, or suppressing part of their vision will likely report seeing figure A then figure B then figure A, etc.**; i.e., “the square or circle flashing on and off”.

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**Fig. A**  
```
X
O
```

**Fig. B**  
```
□
X
```
**Stereopsis**

**Description**: The subject sits with their face **16 - 20 inches** from the monitor screen and wears any glasses prescribed for near vision and/or far vision. The subject looks through **test lens set #2**, (with the plain colored test lenses opposite the clear hyperopia test lenses) held over their own glasses if necessary. The flipper is held so that the **RED** lens is over the **RIGHT** eye.

Explain to the subject that they will see a screen of tiny colored dots (and random shapes). While looking through the test lenses, the outline of a number **1, 2, 3, or 4** should appear to float slightly in front of or behind the plane of the screen. The subject is to call out the number seen.

**Running the test**: Press **ENTER** or click **START TEST** to proceed from the title screen to the test screen. The proctor enters the number the subject sees. **Note**: **Do not press ENTER after the number entry**.

The test has 4 trials. If the subject is unable to identify the number in the first trial within 1 minute, the test will automatically conclude. The proctor may press **F8** to end the test sooner if it is certain the subject will not see the number. In the remaining three trials, no proctor action is necessary; if the subject does not report a number, the test will automatically advance in 10 seconds.

**How the test works**: **Test lens set #2** allows the subject to see a slightly offset image from each eye which creates a depth effect and makes the floating number visible. The numbers cannot be seen unless the vision from one eye is integrated with the vision from the other.
Phoria (Fixation Disparity)

Description: This is a test of eye alignment when binocular vision is interrupted. The subject sits with their face 16 - 20 inches from the monitor screen and wears any glasses prescribed for near vision and/or far vision. The subject looks through test lens set #2, (with the plain colored test lenses opposite the clear hyperopia test lenses) held over their own glasses if necessary. The flipper is held so that the RED lens is over the RIGHT eye.

Running the Test: Press ENTER or click START TEST to proceed from the title screen to the test screen. Remind the subject to keep both eyes open and confirm that the subject can see both the vertical line and the target through the test lenses. Note that this is a similar vision demand to the suppression test; if they passed that test but can’t see the vertical line and target, adjust the screen and/or room brightness and try again. If both the line and the target are not visible through the test lenses after approximately 20 seconds, press the 0 ZERO key and accept the prompt to end the test.

With the line and target visible, Instruct the subject to call out "NOW", or "STOP" as they see the line cross over the center of the target, as illustrated in the instruction screen. When the subject is ready, tap the SPACE BAR once to start the line moving toward the target. When the subject calls out, the proctor immediately taps the SPACE BAR once to stop the line movement. Note: Avoid continual pressure on the space bar as this will advance the test too quickly.

The test runs two trials. If the difference between the two trials is too large to be a reliable result, you will be prompted to repeat the test. The screening concludes after this test.

How the test works: Test lens set #2 allows the subject to see the target with one eye and the line with the other. If a subject indicates alignment when the line is not actually near the center of the target, they may need to exert greater effort to keep an image clear and single.

Referral: Subjects failing the visual acuity and/or hyperopia (farsightedness) screening should be referred to an Optometrist or Ophthalmologist for an eye examination. Subjects who pass the visual acuity and hyperopia screening but fail two of the binocular vision tests may be still be considered for referral, especially if the subject experiences academic or reading difficulty.