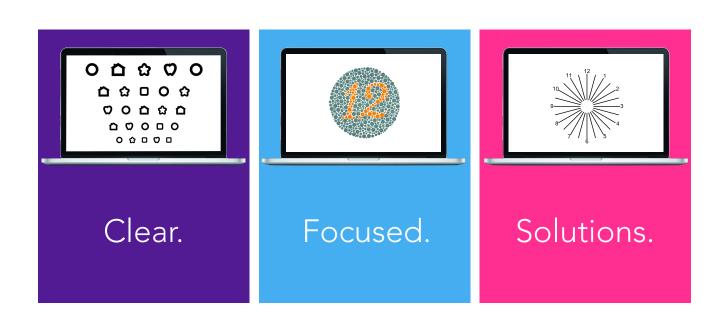
20/20 Vision Software

TRAINING GUIDE FOR NURSES



canelasoftware.com (866) 410-2377 support@canelasoftware.com





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Internet: An internet connection is required to install and register

20/20 Vision. If a wired (Ethernet) connection is available, plug the computer in and disable the WiFi. (A wired connection is almost always faster than WiFi.) If no wired connection is available, choose the name of the WiFi connection at your location.

STEP 1:

INSTALLATION OF SOFTWARE

- Go to: www.try2020.com
- Click on the link for NURSES.
- Choose either Mac or Win.

STEP 2:

COMPLETING THE INSTALLATION

- Double-click on the downloaded installer to begin the installation process.
- You must double-click on the eye chart icon on your desktop to continue installation on Windows.
- Wait until the software automatically updates to completely install.

STEP 3:

SETTING UP A NEW USER

 If this is the first time you have ever used 20/20 Vision Software, you will need to click on "Register New User". If you already have an account, click on "Sign In".



It is very important that you have administration rights to your computer in order to install this software.





SET UP



STEP 3: REGISTRATION

- Click 'Register New User'.
- Enter your email.
- Choose a password.
- Enter the password again.
- Click 'Continue'.



If you already have an account, simply click "Sign in" and enter your password. Forgot your password? No problem! We'll email it to you.

STEP 4:

CONTACT INFORMATION

- Complete the registration form.
- Fields that do not say 'Optional' must be completed.

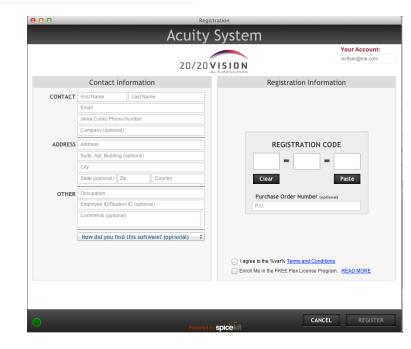
STEP 5:

REGISTRATION CODE

Use the promo code "LETS-TEST-KIDS"

A NOTE ABOUT TRIALS

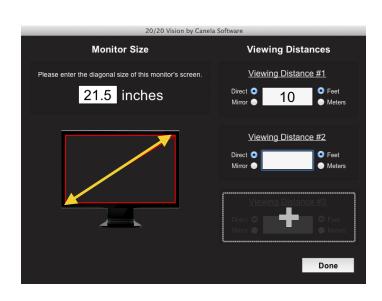
- Registration of a 30 day trial with incomplete information will disqualify the trial. A trial requires periodic internet connectivity to maintain a valid trial license.
- Click the box for 'Agree to EULA' after reading the End User License Agreement.
- Click 'Register'.





Once your installation is complete, plug in the receiver to one of your USB ports.





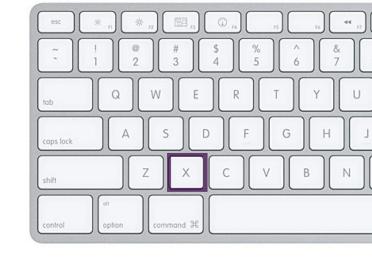
- After installing 20/20 Vision, a window will automatically appear asking you to calibrate.
- Enter the size of your monitor.
- Enter your desired testing distances. (No closer than 6 feet, no further away than 36 feet).
- You may save up to 3 viewing distances. Toggling between the distances is easy - see below.



Measure your screen diagonally. Do not include the frame in your measurement.

TOGGLING TESTING DISTANCES

- KEYBOARD: Use the X key to cycle between testing distances.
- A dialogue will appear each time you press the X key to show the current testing distance.
- REMOTE CONTROL: Purple P2 button will switch you from one distance to another.





Best practices state:

- 10' distance for General education
- 6' distance for Special Ed or Pre-K
- 1.5' for Near Vision

How Do I...

Start the Software

Double-click on the 20/20 icon located on your computer's desktop.



Quit the Software

Exit the program by pressing 'Q' on the keyboard, or you can use the 'Esc' key.

Use the Control Panel

To <u>show</u> or <u>hide</u> the Control Panel, <u>press</u> 'H' on the keyboard. The purple P1 button on the remote control will also show and hide the Control Panel.

The control panel should be hidden before conducting any testing.

Minimizing the Software:

Shift-M will minimize the software so that you can check email, or go online, without having to quit the software. Clicking on the icon at the bottom of your screen will bring the program back.

Pointers

To cycle thru pointers, press 'P' on the keyboard or the middle light blue button on the remote control.

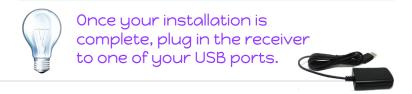
Changing Distances

To change testing distance, press 'X' on the keyboard or the purple P2 button on the remote control.

Setup the Remote Control

Place new batteries (AAA) in the remote control.

Plug the receiver into any USB port BEFORE YOU START SOFTWARE.



Start testing.....

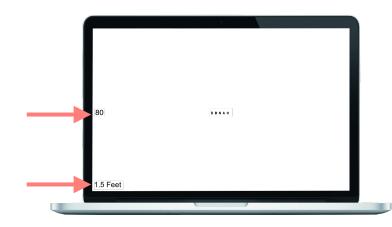
DISTANCE TESTING

- Best practices state distance testing should be completed 10 feet away from the screen. (located at the bottom left side of the screen)
- Test Special Ed and Pre-K at 6 feet.
- The VA (visual acuity) is displayed in the middle left hand side of your screen. (This is the number you chart)
- Students must read 3 out of 5 optotypes correctly to pass.



NEAR VISION TESTING

- Best practices state the test should be administered 14-30 inches away from the screen.
- According to the AAO (American Academy of Ophthalmology), 1.5 (18 inches) away from the screen is best.
- Ages 5 and younger pass at 20/40.
- Ages 6 and older pass at 20/30.
- Students must read 3 out of 5.
 optotypes correctly to pass.





Remember, these are the most common best practices for distances. Should you find yourself in a small space, you can set the distance to fit your needs. Best practices states to not go below 5' for distance testing.

OPULAR.

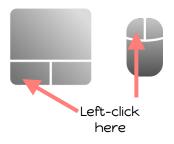
POINTERS

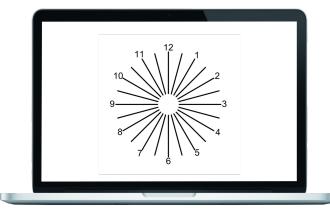
- Pointers are a fun way to keep student's attention.
- Switching from one pointer to another is easy. Simply press 'P' on the keyboard.
 There are 3 pointers to choose from.
- You can also use the light blue
 "Pointers" button on your remote control to switch from one pointer to another.





To make the pointers disappear, left-click the mouse button <u>once</u>.





ASTIGMATISM TEST

- Astigmatism results from an irregular curvature of the cornea or lens.
- If you notice a student is having a hard time reading a test, test them for an astigmatism.
- Press 'A' on the keyboard or the 2nd orange button second from the left on the remote control.
- Have the student cover one eye, trying not to put pressure on the covered eye.
- Ask the student to look into the middle of the circle, and ask, "Do the lines look the same or different?"
- If they say different, it is possible they have an astigmatism.
- Repeat the test on the opposite eye.



For more information on Astigmatic testing, see page 14.



For more on Muscle Balance testing go to page 15.

MUSCLE BALANCE TEST

- This test was designed to provide a colorful dot to fixate on while the nurse checks for a weak or lazy eye.
- Press 'D' on the keyboard or the white button on the right side of the remote control to bring up the fixation dot.
- Move an occluder back and forth, in a tick-tock motion, in front of the student's eyes while looking for muscle imbalances.

COLOR TESTING

- Press 'i' on the keyboard to bring up the Ishihara chart, or the orange Color Test button on the remote control.
- This test is always conducted 30 inches away from the screen.
- The child has 3 seconds to verbally tell you the number or 10 seconds to draw the number.
- We have 32 charts. Use 8 to10 charts to test.
- If the student fails 1 chart, they fail the test. (See page 16-18 for more information)





For additional information on Color Testing see pages 16-17.

(EYBOARD SHORTCUTS

Optotypes:

- S Snellen Letters
- **Z** HOTV
- C Landolt C's
- E Tumbling E's
- N Numbers
- Pictures

 Advanced Memberships have Allen,
 Hands, and Patti Pics, Pressing K

Hands, and Patti Pics. Pressing K over and over will switch from one to another.

Charts:

- A Astigmatic Fan
- Ishihara Color Chart
- **Enter** Show Answer for Color Chart
 - **D** Fixation Dot



Display Options:

- o Single Character
- One Horizontal Line
- Y Single Column Descending
- Multi-Line Descending

Actions:

- Increase Optotype Size
- Decrease Optotype Size
- ← Move Pointer Left
- Move Pointer Right
- P Pointers
- Q Quit the Software
- Shift M Minimize the Software
 - Hide/Show the Control Panel
 - X Switch b/w Viewing Distances
 - Blank Screen
- Shift ? Go To Calibration Screen
 - Go to Media Center
- Shift Z Invert Screen Background Color
- Shift C Crowding Bars



To make the pointers disappear, left click your mouse button once.

Or, press P over and over until the pointer is no longer visible.

RED: DISPLAY MODES

- 1. Single Optotype
- 2. Single Column
- 3. Single Line
- 4. Multiline
- 5. Multiline, same size

DARK BLUE: OPTOTYPES

- 1. Letters
- 2. Numbers
- 3. Landolt Cs
- 4. Pediatric Optotype
- 5. HOTV
- 6. Tumbling Es
- 7. Lowercase letters
- 8. External/Custom Optotype
- 9. Concentric Circles (Fixation)

LIGHT BLUE:

- 1. Invert Chart Colors
- 2. Pointer
- 3. Crowding Bars
- 4. Red/Green Filter
- 5. Cycle Contrast

GREEN: GENERAL & MULTIMEDIA

- 1. Browse All Media Content
- 2. Last Viewed Patient Education Content
- 3. Last Viewed Video
- 4. Last Viewed Slideshow
- 5. Up/Increase Size
- 6. Right
- 7. Down/Decrease Size
- 8. Left
- 9. Select/Randomize

ORANGE: CHARTS & TESTS

- 1. Worth 4-Dot
- 2. Astigmatic Clock Dial
- 3. Astigmatic Shower Drain
- 4. Amsler Grid
- 5. Color Test
- 6. Maddox Rod
- 7. Vernier Test
- 8. Phoria Test
- 9. Schober Test
- 10. Disparity Chart
- 11. Stereo Test
- 12. Random Dot Stereo

YELLOW: OPTOTYPE SIZES

Press any size to jump directly to that size.

PURPLE: MISCELLANEOUS

- 1. Toggle Luminance Filter
- 2. Automatic Testing System
- 3. Toggle Blank Screen
- 4. Toggle from Random to Saved Set Mode
- 5. Toggle Control Panel
- 6. Toggle Viewing Distances

WHITE: FIXATION DOT

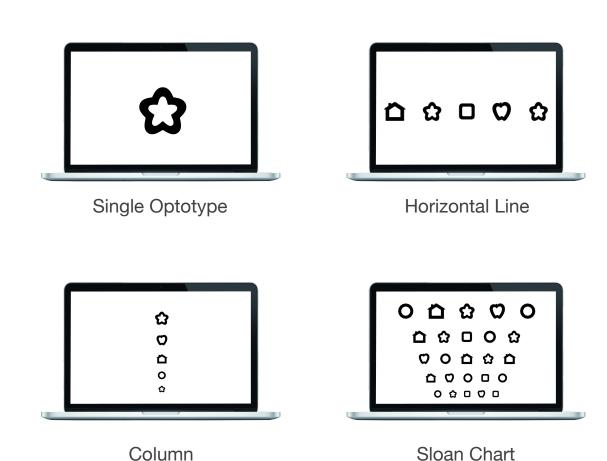




To switch from Allen Pics to the Hands and Patti Pics, press the Children's button again.

(Available for Advanced Membership Plan)

DISPLAY OPTIONS



You are the expert... so feel free to choose the display option that works best for your patients.

Keyboard Short Cut Keys:

- o Single Character
- One Horizontal Line
- Y Single Column Descending
- Multi-line Different Size







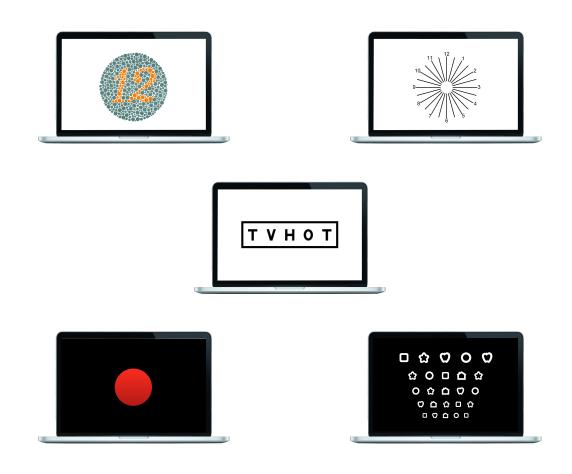
Enjoy switching from one optotype to another...effortlessly.

Optotypes Short Cut Keys:

- Children's Pictures
- Numbers
- c Landolt C's
- s Letters
- **Z** HOTV
- Tumbling E's



CHARTS AND TESTS



With 20/20 Vision Software, you have the power to test for more than just acuity.

Test/Chart Short Cut Keys:

- i Color Test
- Enter Color Test Answer Key
 - A Astigmatic Fan
- Shift C Crowding Bars
 - **D** Fixation Dot
- Shift z Inverted Background



Yes, you can do near vision!

According to the American Academy of Ophthalmology:

Ages 5 and younger pass at 20/40
Ages 6 and older pass at 20/30
(Students must read 3 out of 5 optotypes correctly to pass)

Most computer screens will be able to draw a 20/30 and a 20/40 line easily and clearly. **Smaller Visual Acuity sizes will require a very sharp resolution** (high definition screens). We are currently developing an iPad near point test, and we'll let you know when that is ready.

In the meantime, here's what to do for a near point test...

HERE'S HOW TO TEST NEAR VISION:

- Press 'X' on the keyboard or P2 on the remote control until you arrive at 1.5 feet.
- Have the student sit 18 inches from the screen.
- Start testing.
- Have the student cover one eye and read the letters on the screen.
- Once the student can read 3 out of 5 optotypes correctly, that eye is complete.
- Test the opposite eye.
- Then, test both eyes.
- Done!

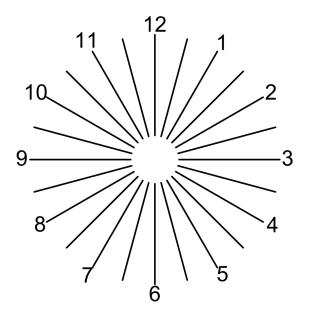
WHAT IS ASTIGMATISM?

Astigmatism is a very common vision condition that causes blurred vision due either to the irregular shape of the cornea (the clear front cover of the eye), or the curvature of the lens inside the eye. An irregularly shaped cornea or lens prevents light from focusing properly on the retina, the light sensitive surface at the back of the eye. As a result, vision becomes blurred (or smeared) at any distance.

Astigmatism can be found either by itself, or in conjunction with myopia or hyperopia. Most people have a small amount of astigmatism, but do not suffer severe consequences. Some people, however, will complain of headaches and eyestrain, which is relieved by the optical correction of the astigmatism.

TEST PROCEDURES:

You can test whether you have any astigmatism by looking at the center of the fan diagram. If all lines look equally black, viewed by each eye separately, then you are unlikely to have any astigmatism. However, if any lines look blacker than the rest - and the blackest lines change as you rotate your head around an anterior-posterior axis then you probably do have some astigmatism.



WHAT IS MUSCLE BALANCE?

Muscle Balance: The two eyes are meant to operate in alignment (moving together and in the same positions). If they are not in alignment (not "straight"), or are unable to move at the same speed and direction at the same time the brain receives images from the two eyes that are too dissimilar to fuse into a single image, and double vision (diplopia) occurs.

TEST PROCEDURES:

Cover Test: As the patient looks at an object (or light), held about 12" from the patient's face, quickly cover - then uncover - one eye. If there is a latent muscle imbalance, the covered eye will "wander" while covered, and move back into alignment when uncovered. Repeat with the other eye. If in doubt, repeat the test. Not many patients fail this test, but it is worth performing even if only one person has muscle balance issues.

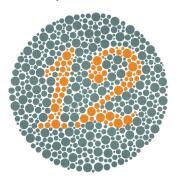
Corneal Light Reflex: When a penlight is held about 12" from a patient's face and pointed at their forehead, the reflection of the light should be at exactly the same location in each eye. If it is not, the eyes are not "straight" and referral is indicated. (This test should not be used for children under 6 months of age.)

Tracking: Although this procedure is usually listed by itself, it is actually a measure of how well the eyes work together. Since eye muscles move the eyes, it is indirectly a measure of ocular muscle balance. The patient looks at an object (or a light, or a face) and follows it with their eyes as the object is moved to the left, to the right (crossing midline), up, and down. The examiner should watch the patient's eyes and note whether they seem to be moving in a coordinated manner. Children younger than 6 months of age may not be able to perform this test satisfactorily, as eye coordination has not yet fully developed. Between 6 and 12 months, smoother tracking may be elicited, however many children cannot separate eye and head movements at this age.

TESTING PROCEDURE:

- Begin the test with the patient 30 inches from the screen in range of seeing the dots within the large colored circle. Standard size of each color chart is 9 cm.
- Ask the patient if they can see the image or number within the circle. If they can, ask them to identify it. They have 3 seconds to verbally respond, or 10 seconds to complete a tracing.
- Cycle through the various colored circles by pressing the left and right arrow keys on the remote or keyboard.
- For mass screenings, the test may be simplified to an examination of six plates: one from plates 2-5, one from plates 6-9, one from plates 10-13, one from plates 14-17 and one from plates 18-21.
- Refer any patient who fails even one of these plates (excluding the sample plate).

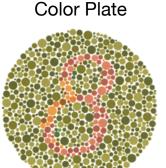
Sample Plate Everyone Can See

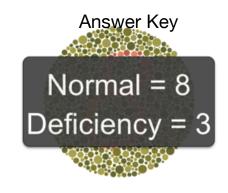




Do not let your patients touch your screen. Use a soft cotton swab and encourage them to trace instead.

Here are some sample plates and answers. Answers can be seen by pressing the **Enter/Return** key on the keyboard or by pressing the **Select** button on the remote control.





# of Plate	Normal Vision	Red/Green Deficiencies	Total Color Blindness	
1	12	12	12	
2	8	3	Х	
3	6	5	X	
4	29	70	Х	
5	57	35	X	
6	5	2	X	
7	3	5	X	
8	15	17	X	
9	74	21	X	
10	2	X	X	
11	6	X	X	
12	97	X	X	
13	45	X	X	
14	5	X	X	
15	7	X	X	
16	16	Х	Х	
17	73	X	Х	
18	X	5	X	
19	X	2	X	
20	X	45	X	
21	X	73	X	

The mark X shows that the plate cannot be read.

PROTAN/DEUTAN

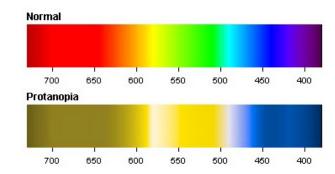
Red/green color blindness is split into two different types: protanopes cannot see red light, while deuteranopes cannot see green light. The other most prevalent form of non-red/green color blindness is **tritanopia**, which is an inability to see blue light.

Protans and **Deutans** have difficulties distinguishing between red and green colors, while **Tritans** have difficulty with blue and green colors. When comparing the two spectrums, you can see that there are different colors and shades of colors which are hard to distinguish for these patients. So they are not only blind on red and green colors but a lot more. This means the well known term red-green color blindness is actually misleading and gives a wrong impression of protan color blindness (and also deutan color blindness).

Color Vision Deficiency Terms

- Protanopia Red-blindness
- Protanomaly Red-weakness
- Deuteranopia Green-blindness
- Deuteranomaly Green-weakness
- Tritanopia Blue-blindness
- Tritanomaly Blue-weakness

Normal and Protan/Deutan Color Spectrum



Color Plate Answer Key

Plate #	Normal Vision	Protanopia		Deuteranopia	
		Strong	Mild	Strong	Mild
22	26	6	(2) 6	2	2 (6)
23	42	2	(4) 2	4	4 (2)
24	35	5	(3) 5	3	3 (5)
25	96	6	(9) 6	9	9 (6)

The numerals in the parenthesis show that they can be read but they are comparatively unclear.

MODIFICATIONS

Testing Pre-K's And Students With Special Needs Can Be Tricky...We Found A Way To Make It Easy.

INVERTED BACKGROUND: Shift z

Some students benefit from seeing white optotypes on a black background. It will keep their attention longer.

POINTERS: Shift p

20/20 Vision offers three fun pointers to be used with a single horizontal line of 5 optotypes. Choose the pointer that works best for your students, and notice how fun it is to do a vision test.



SINGLE OPTOTYPE: Press O on keyboard

A student must be able to identify 3 out of 5 optotypes correctly in order to pass. By pressing either the Enter key on the keyboard or the Select button on your remote control, you can change the optotype but keep the Visual Acuity (VA) size. Once the student has said three correct responses, you can shrink the size of the optotype until the student no longer can easily see the optotypes.

RESPONSE CARD: Available for purchase

Rather than have the student speak their response, reduce their stress level by having them match and point to the optotype they see.

PICTURE OPTOTYPES: Allen Pics, Hands, Patti Pics, Tumbling E's, Landolt C's Advanced Memberships have Allen, Hands, and Patti Pics. Pressing K over and over will switch from one to another.

TESTING DISTANCE: (See page 3 for more information)

Students with special needs and children less than 5 years old benefit from being closer to the screen. Have one of your saved testing distances be 6 feet for this group of students.

AUTOMATIC SET UP

The software will automatically set up your media center once the software is installed. You will need QuickTime to play the videos. This is a free app that you can get from apple.com. Works on both Apple and Win computers.

ENTER WITH THE REMOTE CONTROL:

- Press the green 'Media Center' button to bring up the Media window.
- Use the green up and down arrows to move from patient education to videos or images.
- Press the Select button to display your choice.
- Save your favorite video to the remote control by pressing the green 'Video' button
 while the video is playing.

ENTER WITH THE KEYBOARD:

- Press V on the keyboard to bring up the Media window.
- Use the up and down arrows to move from patient education to videos or images.
- Press the Return/Enter button to play your choice.
- To play a video, press the Return/Enter key
- To pause a video, press the Space Bar.
- To "unpause", press the Space Bar again.
- To fast forward a video, press the right arrow key.
- To rewind a video, press the left arrow key.
- To exit the Media Center, press V a couple of times until you "back out" of the Media.

ADDING EXTRA VIDEOS:

- Adding additional videos to your media library is easy.
- Once you have selected a movie or video that you'd like to add our library, go to the
 acuity software icon on your desktop and RIGHT click on it with your mouse.
- Click "Show Package Contents"
- Click "Contents" Folder
- Click "MacOS" for Apple computers and "WinOS" for Windows computers
- Click "Data"
- Click "Media"
- Drag and Drop your new videos into the Videos folder
- That new content will automatically be available to you when you return to the vision screening software.

SETTING UP SAVED SETS:

Saved sets are useful for the user who would like to memorize the charts that they use most often.

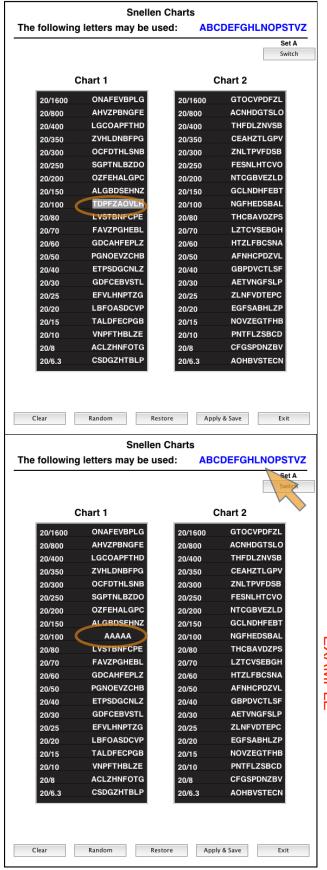
- Press 'H' on keyboard
- Click on 'Preferences'
- Click on 'Saved Sets'
- Click on 'Set Up'

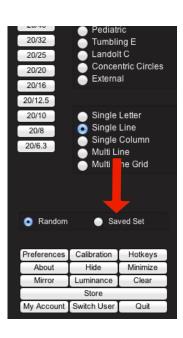
You are able to setup a total of 6 saved set charts.



You are limited to the letters in BLUE. To add more letters see page 22.

- Which VA you would like to customize?
- Highlight the letters to the right of that VA by double-clicking on the letters.
- Press Delete on your keyboard.
- Type in the letters you want for that size.
- Repeat these steps for each new line of optotypes you'd like to replace.
- When finished, click 'Apply and Save'.
- Click 'Exit'.
- Click 'Done'.





ACCESSING SAVED SETS:

There are two ways to engage your saved sets: the remote control or the keyboard.

- Press 'R' on the keyboard
 OR
- Press the purple button at the bottom of your remote control labeled 'Random/Saved Sets'.

This valuable feature allows you to quickly switch from saved sets to random optotypes with the press of a button.

SWITCHING CHARTS:

• Use the right and left arrow keys to switch from one chart to another (remote and keyboard).



Now you have choices...use your saved set, or use randomized optotypes.

A total 6 sets can be saved.

ADDITIONAL LETTER OPTIONS:

If you need more letters than what is displayed:

- Press 'H' on keyboard.
- Click on 'Preferences'.
- Click on 'Optotype Characters'.
- In the drop down box on the screen, select 'Snellen'.
- Click on the letters you want to add.
- Click Done.

SCORING INFO

The American Academy of Ophthalmology recommends: (Distance and Near Vision)

Children ages 3, 4, and 5 should be able to identify 3 of 5 optotypes on the 20/40 line

Children ages 6 and older should be able to identify 3 of 5 optotypes on the 20/30 line.

