

Teacher Resources for Teaching Blind and Visually Impaired Students

As educators know, there are three ways all students learn—visually, auditorially, and kinesthetically. Most blind and visually impaired students learn by both auditory and kinesthetic means. These students also rely on all of their past experiences to make a connection with new materials and often we, as educators, are responsible for building that experience base to assist these blind/visually impaired students develop a broader repertoire from which to draw from when learning. Never assume a blind/visually-impaired student has experience with anything related to space. It can't be touched. We must provide *intricate verbal details* and *hands-on activities* to make this all possible. Below are a few web sites that contain help in understanding this process more fully. It has been shown that when an educator masters the ability to effectively teach a blind/visually-impaired student they are better able to reach all students in the general classroom.

<http://www.tsbvi.edu/Education/strategies.htm>

Classroom strategies for teaching blind/visually impaired in regular classrooms.

<http://www.stanford.edu/%7Esipma/grbl3.html>

Techniques for editing graphics for the blind/visually impaired.

<http://www.tsbvi.edu/Education/Manual2.doc>

This manual takes you through the special considerations necessary when you have blind/visually impaired students in the classroom.

USING TACTUAL GRAPHICS with the Blind

When you look at the tactual graphics used with the blind you will notice they contain only the main information you want the student to learn. You must remember that “less is more” when using a representation of a picture or drawing. Blind people get lost and confused when presented with too much information and are unable to determine just exactly what it is you want them to “see”.

As you help them observe the graphics start at a beginning location and travel in one direction while giving verbal description of the graphic as you progress. Make sure to plan your exploration so the progression is clockwise or counter clockwise, or from the outside to the inside so you are not jumping from one area to the next. This will help provide a more complete picture for the blind student. In the beginning the blind student may need a little physical assistance but in using this process, blind students can become independent, investigating tactual graphics while the remainder of the class does it visually.

SCREEN READERS for the Blind

The Internet is a wonderful learning tool when you have the right equipment. When it comes to using technology, especially computers, blind/visually impaired students require screen reader technology such as JAWS™, Window Eyes™, or any others that may be on the market. If your blind student has access to a screen reader you're all set for searching the net, right? Not exactly! These screen readers have difficulty navigating a number of sites on the Internet. The cleaner or neater the site, the easier it is for the

screen reader to read off the information. It is easy for a blind student to become lost in a web site.

Screen readers rely on keyboard commands to navigate through the Internet. A blind user is unable to access the information if a site requires the user to use the pointer and mouse. You will need to consider the user's knowledge and expertise with the use of their screen reader. All NASA websites have "text only" versions available at the hotlink in the upper right corner of the screen.

You may wish to have students do additional research. You can evaluate a web site for compatibility for screen readers by reading a study report at

<http://redish.net/content/papers/interactions.html>

called Guidelines for Accessible and Usable Web Sites: Observing Users Who Work With Screen Readers. Skip the beginning and scroll down to 'Using a Screen Reader'. This information will be valid as you continue to work with blind students on the Internet. Each has a trial copy you can download.

<http://www.freedomscientific.com/>

Producers of JAWS

<http://www.gwmicro.com/>

Home of Window Eyes

<http://www.tiresias.org/equipment/eb9.htm>

A list of various screen readers and who to contact for more information.

Directing Blind Students Creating Tables in Microsoft Word

In the *Feel the Impact* Ejecta and Plume activity in the What We Learned About Temple 1, there is an opportunity for students to enter their measurement data in a table. Use these easy directions for helping students create their own data tables.

1. Have the student open a new document
2. Type name and date at the top then press 'Enter' twice before adding table
3. Press Alt + 'a' to open "Table"
4. Press "i" for "Insert"
5. Press "t" for "Table"
6. Enter number of columns (do not use number pad)
7. Press "Tab" then enter number of rows
8. Press "Tab" six times when screen reader says "Okay" press "Enter"
9. Use "Tab" and left, right, up, down arrows to navigate and enter data in the table
10. To make print bold press Ctrl + B press again to unbold; save is Ctrl + S