

# Teaching Students with Disabilities: Visual Impairment and Blindness<sup>1</sup>

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## Introduction

Students who are visually impaired or blind have unique challenges within agricultural education. A fundamental component of agricultural instruction is hands-on learning that encourages the development of students' motor skills. Students who are visually impaired or blind may have decreased hand-eye coordination. However, the role of agricultural education can be very valuable to students with extreme visual disabilities because it allows students to develop career readiness and life skills. Students who have a slight visual impairment will likely have access to equal educational opportunities with minor accommodations of educational instruction; whereas, students who are blind may require additional accommodations. The terms "visual impairment" and "legal blindness" are not definitions that describe what an individual can do, but rather act as a classification system that describes how well an individual can see. Each student's visual impairment is unique and each student's Individual Education Plan (IEP) should be followed to ensure that each student receives the most appropriate accommodations that allow the student to be successful in the agricultural education program.

## Visual Impairment

### Description of the Disability

The term "visual impairment" includes a wide range of visual ailments—everything from low vision through total

blindness. Visual impairments result from the malfunction of components within an individual's vision system that typically make it difficult for individuals to perform ordinary tasks even with standard corrective lenses (e.g., glasses). In general, an individual classified as visually impaired has a visual acuity of 20/70 or worse in the better eye after corrective services (Center for Disease Control and Prevention, 2015). This section focuses on moderate visual impairments that include individuals who have a visual acuity of 20/70 to 20/160.

### Application in the Learning Environment

Accommodations should be made within the classroom environment, laboratory environment, and in the non-formal learning environment for students who have visual impairments. Instructors should modify materials in the least restrictive way possible. Providing unnecessary modifications can create a student dependency on modifications, when the student could otherwise successfully complete the task without them (Willings, 2015). The most basic accommodations that encompass a wide range of learning environments for students with visual impairments include providing preferential seating and an environment that is free from physical clutter. Preferential seating includes placing the student in an area towards the front so that the student is better able to see the speaker or event. Many individuals who have visual impairments are sensitive to direct light and glares. Seating away from windows and

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unnecessary bright lighting is usually suggested for such students. However, providing adequate lighting is also important for individuals with visual impairments. Lighting that is pointed toward the object being viewed is usually best.

Safety is the top priority for all students in the learning environment. Students who are visually impaired have additional safety concerns as they may not be able to adequately see physical dangers. Make sure that clear traffic paths are present throughout the area and that there are no trip hazards (e.g., extension cord) that the student is unaware of. Using contrasting colored tape to outline traffic paths, elevation changes, and hazards may be helpful depending on the severity of the impairment and the needs of the student.

## **CLASSROOM ENVIRONMENT**

Students with moderate visual impairments need to be able to see and hear educational content. In addition to preferential seating, the student should be provided with copies of notes for information presented in the front of the class (e.g., whiteboard, PowerPoint). The teacher should further verbalize all written information. Enlarged notes or handouts may be a necessary accommodation for students who are unable to see standard print size with or without corrective and technological devices. Although the degree of enlargement is dependent upon the individual student's needs, font of at least 18 point is typical. A clean and standard typeface, such as Times New Roman, with extra spacing between lines (i.e., 1.5) is encouraged. Devices such as book stands, magnifying instruments, and colored filters placed over printed pages may be used by the student. In order to distinguish important text, such as heading and vocabulary words, different colored white board markers and highlighters can be used.

## **LABORATORY ENVIRONMENT**

The laboratory environment may pose additional safety concerns for students with visual impairments. Caution should be used when students are working with power tools or other equipment in which a vision impairment could lead to danger. Each student's ability to work with equipment should be examined at an individual level. The student's IEP team, parents, and school administration can help to determine what laboratory equipment can be used by the student. It is likely the student will be able to utilize Agriscience equipment such as a microscope but may not be able to use power equipment such as a power saw. If it is determined safe to do so, try to incorporate the student in as much of the activity as possible. For example, the student

who is visually impaired may be paired with another student on a construction project. The paired student may be able to use equipment that makes cuts, whereas the student who is visually impaired may be able to use fastening equipment to help assemble the project.

In computer labs, modification of the visual aspect of the monitor can allow the student to operate the computer easier. Text, icons, and the cursor can easily be enlarged to allow the student to see them. The blink rate of the cursor in word processing programs can also be slowed. Larger computer screens and magnifying devices that fit over the computer screen are additional modifications that can help visually impaired students.

## **NON-FORMAL ENVIRONMENT**

Like the traditional learning environment, students with visual impairments may need accommodations for equal access to information in the non-formal learning environment. If class trips are planned, contact the event manager ahead of time to let him or her know that a student with a visual impairment is attending the trip. Additional print material or enlarged print material may be beneficial. If demonstrations or speaking engagements are a part of the trip, remember that the student with a visual impairment should be given preferential seating towards the front of the event. If mobility is a safety concern, especially in areas that the student is not familiar with, request an aide for the student, stay with the student yourself, or pair the student with a helpful peer.

## **Blindness**

### **Description of the Disability**

An individual who is legally blind has a corrected or uncorrected visual acuity of 20/200 or worse and a visionary field of less than 20 degrees (Centers for Disease Control and Prevention, 2015). Among individuals classified as legally blind, approximately 15% are totally blind, or have a complete lack of light perception (American Foundation for the Blind, 2015). Individuals who are legally blind will need to use alternative methods to perform ordinary tasks and rely on senses such as touch and hearing to complete them. Alternative methods include the use of Braille to read and the use of audio recordings for books. Legally blind individuals may use a guide dog or a white cane to assist in safe and efficient mobility.

### **Application in the Learning Environment**

Students who are legally blind will likely use a paraprofessional to assist them in the learning environment.

Paraprofessionals will help facilitate instruction and can help read and transcribe information. However, the use of a paraprofessional in the learning environment does not substitute all roles of the classroom teacher. The teacher must work with the paraprofessional, the student, and members of the student's IEP team to identify appropriate modifications for the learning environment. Teachers should be sure to verbalize all instructional material and directions. Teachers should also be aware of the mobility needs of the student and keep the learning environment free from clutter and keep items in consistent locations.

## CLASSROOM ENVIRONMENT

If available, assistive technology such as access Video® magnifiers, which produce Braille, and audio books can be used as alternative formats to standard print material. These devices will allow the student to complete assignments and tasks more independently. Seating is important in the classroom environment and it is imperative that the student is seated in areas that allow him or her to adequately hear at all times.

## LABORATORY ENVIRONMENT

For students who are legally blind, a reliance on tactile senses is important in the learning process. There are some laboratory activities that may be impractical for students who are legally blind to complete, such as welding. However, many laboratory activities can be modified to allow students to simulate the experience. A repetition in hands-on learning is extremely beneficial for students who are legally blind and is an important component to ensure complex understanding of a topic. For example, in a welding unit, the student may be able to simulate the hand movements in welding to gain a better understanding of how welding works. Activities such as gardening may also be extremely joyful for students, as they get to experience the sounds and touch of natural processes. As with providing any educational experience to students who are legally blind, remember to provide a safe physical environment for the student.

## NON-FORMAL ENVIRONMENT

The non-formal learning environment provides a tremendous amount of value for students who are legally blind. According to the Virginia Department of Education's Office of Special Education and Student Services, advanced orientation to bus travel and community experiences are needed as students get older (2010). Although it may be stressful for some students to move from familiar to unfamiliar territory, students are able to learn life skills in effective mobility and how to learn in varying environments. The agricultural

education teacher may also work with the student's IEP team to help establish job shadowing opportunities for vocational career choices that are common for individuals who are blind. Additionally, agricultural education teachers can apply to request special needs accommodations be made for students with disabilities competing in a National FFA Career Development Event.

## Conclusion

Agricultural education programs provide great learning opportunities for students that are visually impaired. The severity of visual impairment varies in individual students and can range from a slight visual impairment to legal and total blindness. In some instances, students may only require slight modifications in how information is presented to them. In other instances, students may need alternative assignments altogether. Regardless of the severity of the impairment, agricultural education allows students to gain knowledge and skills through tactile learning. Hands-on activities, although difficult for some visually impaired learners, are vital in the development of life skills that the IEP's of some students with visual impairments seek. The following resources provide examples of additional differentiation strategies for working with students with visual impairments, including lists of apps that can be used to augment instruction.

<http://www.afb.org/info/educational-interventions-for-students-with-low-vision-2646/5>

<http://www.afb.org/blog/afb-blog/for-teachers-basic-tips-for-when-you-have-a-visually-impaired-student-in-your-class/12>

<http://www.teachingvisuallyimpaired.com>

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<http://www.visionaware.org/info/your-eye-condition/eye-health/low-vision/low-vision-terms-and-descriptions/1235>

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