Adaptions in Science for students who are blind or have low vision

These ideas are drawn from a range of sources. Consideration must be given to the level of vision of the particular student in your classroom as well as their prior knowledge and experience with Science.

Laboratory Access

Independent Science: How to Prepare a Student with Visual Impairments for Safe Access to the Science Laboratory (Video)

1. Familiarise student with equipment and lab bench set up
2. Review Audible and Tactile indicators with student
3. Use hand from a distance to sense heat
4. Prepare detailed lab orientation before the start of classes
5. Communication between student, teacher and lab partner
6. Student provided with practical procedure before the class

University of Washington - **Equal Access: Science and Students with Sensory Impairments**

For student who has Low Vision

- Textbook, handouts and assignments are available in electronic format.
- Lab signs, and equipment labels are available in large print.
- Seating is available near the front of the class.
- TV monitor is connected to a microscope to enlarge images.

For student who uses braille

- Adaptive lab equipment is available (e.g., talking thermometers and calculators)
- Lab signs and equipment labels are posted in both large print and braille.
- Textbooks, handouts and assignments are available in electronic format.
- Raised-line drawings and tactile representations are available as an alternative to graphic images.
- Verbal descriptions of visual aids are provided.
- Warning signals are auditory as well as visual.

University of Washington – examples of science lab accommodations for students who are blind

- Make a syringe tactile by cutting notches in the plunger at 5-mL increments.
- Make graphs tactile by using glue guns or fabric paint.
- Add braille labels to lab equipment.
- Identify increments of temperature on a hot plate with fabric paint.
- Use different textures like sandpaper or yarn to identify drawers, cabinets, and equipment areas.
- Make models out of clay, plaster of paris, or papier-mâché.
- For geometric shapes, use 3D triangles or spheres.
- Use Styrofoam and toothpicks or molecular kits to show atoms and molecules.
- For a measurement tool, use staples on a meter stick to label centimeters.

Science Technique: Lab Preparation (video)

Science Techniques: Lab Equipment (video)

SVRC: Using an iPad with a Microscope (video)

Teaching strategies and resources

Perkins School for the Blind - Accessible Science: Making Life Sciences Accessible to Students with Visual Impairments (Video)

- Multi sensory learning is good for the whole class, and even more important for the student with a vision impairment. This includes using models and movement in lessons.
- Creating their own models can be a great way for students to learn.

Perkins School for the Blind – Tactile Science Lesson: Using Play-Doh (video)

Paul Delaney – Star Man (video interview) Paul has albinism and has gone on to become a professor of Astronomy.

SVRC 3D Materials Catalogue – filter by 'Science' to find all the models relating to the Science Curriculum.

Tactile Universe has lesson plans and models ready for use.

The Universe of Sound from NASAs Chandra X-Ray Observatory has many sonifications (data turned into sound) that match images and data from NASA.

SVRC, August 2023