Additional collaborations between science teachers and O&M instructors.

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| Subject Area/Standards | Role of the Orientation and Mobility Instructor | Safety/Special Concerns |
| K-LS1.1: Use observations to describe patterns of what plants and animals (including humans) need to survive | 1. Help plan the observational activity to be conducted by creating a tactile map.
2. Help the student with visual impairment safely navigate through the environment.
3. Visually scan and remove potential tactile safety hazards (i.e. poison ivy, broken glass, thorns, etc.) if tactile exploration is going to be utilized for the lesson.
 | Students with visual impairments learn using non-visual senses. Touching things in the environment is a natural way to learn. Caution should be exercised in order to ensure the students are not touching poisonous plants or animals. |
| K-ESS2-1: Use and share observations of local weather conditions to describe patterns over time | 1. Discuss use of adaptive technology used to explore weather forecasts.
2. Help the student determine appropriate clothing to be worn in a variety of weather situations.
3. Focus on alternative use of senses when traveling in different adverse weather conditions (i.e. louder in rain, quiet in snow, etc.).
4. Relate weather patterns to seasons and discuss how to prepare for travel based on conditions.
 | Students with visual impairments learn to travel in all types of weather conditions, including sun, rain, and snow. Experiencing the sounds, smells, and temperature changes in a hands-on manner is important so students can understand patterns and adjust travel skills to meet the environments in which they travel. Caution should be exercised to ensure proper dress – including hats and sunscreen for summer travel, umbrellas and water-proof clothing for rain, and warm clothing for winter. |
|  K-ESS2-2: Construct an argument supported by evidence for how plans and animals (including humans) can change their environment to meet their needs | 1. Orient a student with vision loss to a local neighborhood, allowing for hands-on exploration of environmental elements, such as location of houses, trees, flower beds, sidewalks, and driveways. These elements will vary based on location.
2. Discuss uneven surfaces, including cracks in the sidewalk, which are located with the use of the long cane.
3. Explore the question, “Why are outdoor surfaces uneven when indoor settings tend to be smooth and even?”
 | Students with visual impairments learn using not-visual senses. Locating uneven settings in the environment can pair with scientific concepts of environments changing to meet their needs (i.e. roots grow to support tree growth and crack sidewalks). Tactile and vestibular exploration of environments can also attribute to an understanding of topography and earths systems. Caution should be exercised to ensure students are not touching poisonous plants or animals, and to ensure student stability on uneven terrain. |
| K-ESS3-1: Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live | 1. Help orient the student to the model being used in the classroom.
2. Assist the classroom teacher in selecting models and real-world items that correspond with concepts being taught through the use of models.
3. Incorporate the use of directionality and concept development into explorations.
 | The use of actual items is important for students with visual impairments, as pictures can be difficult to see and models can often be misinterpreted. When there are not real-world items available, verbal descriptions of models can be helpful.  |
| K-2-ETS1-1: Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool. | 1. Help the student with accommodations that involve observations, including provision of experiences if hands-on explorations are needed within settings outside of the classroom environment.
2. Assist the classroom teacher in planning and selecting materials that are accessible.
3. Provide the student with instruction and experience on the use of systematic search patterns.
 | In order to make observations and gather information, students with visual impairments must receive orientation to the locations and materials that are being explored. In addition to providing students with visual impairments with this training, O&M instructors can conduct in-services with teachers and classroom peers to provide strategies that make paired activities more natural for all participants. |