



Older Individuals who are Blind
Technical Assistance Center

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Lesson 3: Tools in Your Toolbox, Using Your 10 Senses to Perform Everyday Tasks

Introduction

Is it difficult to insert the key into your front door? Do you worry about identifying your medications correctly? Do you lack confidence in matching your clothes? If so, it's time to take charge of every area of your life as an individual who is blind or visually impaired. You will be pleased to know that you don't need to learn how to do hundreds of tasks all over again. Every task you performed as a sighted person, and any new task can be accomplished with little or no vision.

Virtually no task is completed using only vision. Ninety-nine percent of all daily activities depend on multiple senses and movement from fingers, hands, arms, shoulders, legs, and feet. Though you may have little or no vision, your body still remembers how to perform every task you have ever done regularly. This is called muscle memory. It can be used to insert a key to unlock a door, identify medications, and enjoy favorite leisure activities such as crocheting and pottery.

Lesson Goals

- Identify and describe the ten senses
- Collect at least 25 examples of ways you can use your ten senses to perform daily tasks.

So what is the visual impairment toolbox? It works something like the toolbox, which is kept in the garage or utility room. When a door handle is loose, a person will look in the toolbox and get out one or two tools to do the job. It doesn't take every tool in the utility room to tighten the screw in the door handle, just the right ones for the job. Similarly, it will take different visual impairment toolbox tools to wash dishes, match clothes, or shave. This lesson discusses the toolbox containing ten senses and describes how to use them to do almost every task as a visually impaired person.

The Senses

Most of us are familiar with the five primary senses: vision (ocular), touch (tactile), hearing (auditory), smell (olfactory), and taste (gustatory). However, there are ten senses that people use every day. Several may be less familiar. For example, muscle memory incorporates the action of three senses (kinesthetic, haptic, and proprioceptive). Stereognosis enables people to identify three-dimensional objects with their hands. The vestibular sense controls balance.

This lesson will demonstrate the importance of every sense and how they impact a visually impaired person's ability to function. Each sense is described in this lesson, and examples are provided for how to use them. Every task people do requires the use of several senses. Learning how to interpret information from all senses will enable individuals to live more productively and independently. For this lesson, the common names for the senses will be used.

The 10 Senses

- Visual (Vision) - processes light that enters the eyes into electrical impulses carried by the optic nerve to the brain's vision center, where the electrical impulses are converted into images.
- Auditory (Hearing) - processes sound that enters the ears' canals into electrical impulses carried to the brain by the auditory nerve.
- Tactile (Two-Dimensional Touch) - provides the ability to discriminate among heat, cold, wet, and dry and identify two-dimensional objects through the skin's nerves.
- Stereognosis (Three-dimensional Touch) - provides the ability to identify a three-dimensional object with the hands using the object's weight, form, texture, and density.
- Olfactory (Smell) - provides the ability to discriminate among smells and flavors. The sense of smell, not taste, provides flavor.
- Gustatory (Taste) - provides the ability to recognize texture, size, and contour through the nerves in the tip of the tongue and sides of the mouth.

- Kinesthetic - makes the whole body aware of how its parts relate to space.
- Proprioceptive - turns information from muscles, joints, and tendons into specific action.
- Haptic - the ability to differentiate and match objects of similar size, length, texture, and weight through touch and movement. The kinesthetic, proprioceptive, and haptic senses are the three senses known collectively to make up muscle memory. They never function independently of each other.
- Vestibular (Balance) - provides information about the body's movement and relation to gravity through receptors in the inner ears.

Sense of Hearing

For the person with vision loss, almost every sound has a purpose or represents something specific. For example, the hum of a refrigerator and the hum of a dishwasher sound different. Distinguishing these two appliances can help people remain oriented in the kitchen.

Begin paying attention to sounds in the environment. What causes the sound? Where does the sound come from? What are the qualities of the sound? In other words, is it the dishwasher or toilet making the sound? Is the sound behind you, above your head, or in another room? Is it the hum of an appliance, the clink of something dropped on the floor, or the rush of running water? Notice the sound of the toaster when the bread pops up. When making coffee, notice the sound of the brewed coffee dripping into the pot. The sense of hearing can become a primary tool for performing many tasks.

Practice listening to and identifying the sounds in the environment. In time people can learn to discriminate between sounds. They can even learn to recognize when a familiar sound doesn't sound right. For example, if a burner on the gas stove makes the clicking sound but doesn't make the swish sound, that means the gas did not ignite. If the coffeemaker gets turned on and doesn't sound right when the coffee begins to drip, perhaps the pot didn't get placed under the spout.

Echolocation

Echolocation is not another sense but is another way people can use their sense of hearing. As individuals move about, speak, or make any noise, the sound is reflected off walls, furniture, trees, buildings, and other surfaces back to the ears. In places like bathrooms, closets, and narrow hallways, the sound will bounce back to the ears quickly and give the perception of being closed-in or in a small room.

When entering a living room or another large room, the opposite sensation is experienced. In a large room or open space, sound travels farther before it comes back to the ears. In time, people can tell when they are approaching a closed door or passing a car parked along the street, or having left an open area and passing along the building wall. Some people like to hum a song or make some noise to help detect objects in their pathway. Everyone is unique and will need to experiment with what works best for them. Begin by using echolocation when getting around at home.

Adding Sounds to the Environment

Adding a sound to the environment can help with orientation. This can be done in many ways. Think about what areas in the home or outside are challenging to navigate. Some basic suggestions include turning on a radio in a large room or placing a loud ticking clock at the end of a long hallway. Wind chimes or a radio on the patio can help guide a person back to their house after working in the yard.

Sense of Touch

When a person has little or no vision, their sense of touch is vital to performing many tasks. The entire body, including hands, feet, legs, arms, face, etc., have nerve endings that react to cold/heat, wet/dry, soft/rough, heavy/light, and so on. This sense can be used in many ways to locate and identify things in the environment. For example, people can locate a sticky spot of toothpaste on the bathroom counter by running their fingers over the surface. They can set the security system in their home by running their fingers across the keypad to feel the buttons.

Clothing can be recognized by touch. For example, the brown suit's texture

may differ from that of the gray or navy suit. The navy and gray suits may be similar, but the buttons or pants pockets may be different. An excellent way to get started in strengthening this sense is to use the sense of touch to select clothing for a specific outfit.

The sense of touch is not exclusively located in the hands, even though people use it most. Think of what information you can get through the sense of touch with your feet. People can tell the difference if they are walking on carpet, hardwood, or tile without effort. That sense can provide helpful information and assist with staying oriented. With practice, some visually impaired individuals can identify different surfaces they are walking on through their feet, even while wearing shoes. It is not uncommon for a blind or visually impaired person to feel the difference between driveways, sidewalks, and streets after receiving orientation and mobility training.

3-Dimensional Touch

The sense used most frequently to identify and differentiate objects with the hands is three-dimensional touch. Using just the fingers, a person can learn to distinguish a quarter from a nickel and a penny from a dime. Quarters and dimes have rough edges, while nickels and pennies have smooth edges. Nickels are a bit larger and thicker than pennies. Another example is differentiating small objects like keys. People can distinguish the door key from a luggage key if one is square and the other has scalloped edges.

Medication is another area in which a sense of touch can be helpful. The medications might be shaped differently from one another. One may be a capsule; another might be shaped like a football, another small and oval, and another round and flat on top and bottom. When people have two medications that are difficult to distinguish from one another, one way to tell them apart is to wrap a rubber band around one bottle.

Sense of Smell

People don't often consider all of how they use their sense of smell. Smell is used to identify items, give information about an item, and other practical uses in addition to enabling us to enjoy foods and fragrances. The sense of smell alerts people to fire, spoiled milk, and trash that needs to go in the garbage can.

Smell is essential to daily life and the safety of people with little or no vision. A person who is visually impaired depends on their sense of smell often, especially when preparing food. When cooking a soup that calls for several spices, a visually impaired person can use their sense of smell to find the ones they need.

If the burner on a gas stove did not ignite, the rotten egg odor is warning that gas is escaping. A burning smell coming from the vacuum may indicate that something is caught in the beater bar. These examples demonstrate the wide variety of tasks that the sense of smell can help facilitate. This tool will help provide information and give safety cues. Start paying attention to ways that sense of smell is already assisting in daily life.

Sense of Taste

The sense of smell is required for a strong sense of taste. That's why food doesn't taste as good as usual when we have a cold. The sense of taste for sighted and visually impaired individuals is essential when eating. The sense of taste provides the information needed to identify if something is spicy, bitter, or contains food you do not like. Only through the sense of taste can a person tell if they have added too much salt or pepper to a dish they are preparing. The tongue's tip is very sensitive to cold and hot, which prevents people from burning their mouth. Try being more aware of how the sense of taste assists in eating and food preparation to utilize this tool more effectively.

Muscle Memory

We call muscle memory an action produced by three senses: kinesthetic, proprioceptive, and haptic. They cannot function independently. These three senses and the sense of touch provide the visually impaired individual with the most complete and reliable information.

Every task requiring some action depends on movements from your muscles, joints, and tendons from various parts of your body. For example, to hang a picture, it takes repetitive blows of the hammer against the nail created by muscles, joints, and tendons in your hand, arm, and shoulder. For people who have done that task many times in their life, the movements are natural and take little effort or thought. Muscle memory

allows people to do tasks easily if they do it in the same way they repeatedly have. Think about examples in daily life when muscle memory played a role.

How often in a person's lifetime will they do the dishes, sign their name, walk to the mailbox, tie a shoelace, button a shirt, and reach for the snooze button on their alarm in the dark? How much thought goes into those tasks? Almost none. People do them automatically. This is muscle memory.

Most people have had the experience of washing the dishes and a dish slips. Most of the time, we reflexively can reach down and catch it before it hits the floor. This works for people who are blind in the same way it works for people with good vision because of muscle memory. Visually impaired people can still use muscle memory to sign their name, slice a tomato, ride a bike, or play golf.

Start paying attention to all of the tasks that are done using muscle memory. This is one of our most valuable tools, and it should be used to its full potential. It's not uncommon for people to second guess their muscle memory when experiencing vision loss. Still, it helps to take a moment to think of how they could do necessary activities without relying on vision in the past. An excellent example of this is when we wake up in the middle of the night and walk to the bathroom in the dark with our eyes still closed and have no difficulties because our body has walked that path so many times it's ingrained.

Sense of Balance

Our sense of balance is often overlooked, but it's crucial for everything we do. Whether sitting, standing, or walking, virtually no task can be performed without balance. Balance is vital to safety as well as daily activities. It isn't easy to function or feel confident getting around and being active if the sense of balance is compromised. However, it is a sense which is often taken for granted until an issue with balance arises.

Numerous components contribute to our sense of balance, and vision is one of those primary components. This is why it is common for balance issues to develop for people with visual impairments. However, the human

body is a master of compensation. The loss of vision can be compensated for, and balance can be restored or improved. It just takes work and practice. Physical therapy and balance training exercises can help a person develop a good sense of balance despite vision loss. Whether or not a person is experiencing balance problems, it is vital to keep this tool sharp. Numerous daily habits such as yoga or tai chi can increase balance and allow this sense to reach its potential.

Sense of Sight

Because this lesson's primary goal is to introduce people to ways to use their non-visual senses to perform most tasks, vision is not discussed in this lesson. However, people who have some usable vision are encouraged to develop the vision efficiently and with other senses. To explain lighting, size, contrast, and other essential low vision techniques to include in the toolbox, read the methods for maximizing low vision discussed in later lessons.

Summary

To better understand each sense and how they function, this lesson has described them individually and given examples that demonstrate each. Most tasks, however, utilize two or more of the ten senses.

Choose a couple of activities and think about the different senses you can use to perform those tasks. We have provided an example below. This initially takes thought and awareness, but you won't have to think about it in time. Using your non-visual senses will become as natural as riding a bike without looking at the pedals

Activity Example

You wake up hungry but a little later than you intended. You decide to have a quick breakfast of an English muffin with peanut butter and a glass of orange juice. You quickly find the English muffins because your sense of touch lets you identify them by their round shape. You place one half on each side of the toaster and press the lever. While the muffin is toasting, you locate the round plastic jar of peanut butter. You decide to add a few raisins, so you grab the rectangular box of raisins sitting next to the jar of

peanut butter. Next, to spread the peanut butter, you identify a knife by its shape. These are three items you've retrieved using your three-dimensional sense. As you take a plate from the cabinet, you hear the toaster pop up, and you know your muffin is ready. As you open the jar of peanut butter, its familiar smell rises to your nose. You spread some peanut butter on your muffin and sprinkle a few raisins on top. Before getting your orange juice, you put the peanut butter and raisins back in the places where you found them so that they will be easy to find the next time. You grab a tall glass and set it next to your muffin. In the refrigerator, you have milk and orange juice. Your milk is in a plastic bottle with a handle, and the orange juice is in a square carton, so you have no trouble telling them apart. As you pour the orange juice, the citrus smell confirms you got the right carton.

Along with your senses of touch, smell, hearing, three-dimensional touch, and taste, you used balance and muscle memory to grab the items you needed, spread the peanut butter, and pour the orange juice, creating a delicious breakfast!

In the next lesson, you will learn more techniques and examples of how to use them. These techniques also belong in the toolbox, along with your ten senses. With these tools, you can do almost any task you want.

Suggested Activities

- As you go through your daily routine, identify which of your senses you are using for each task.
- Try completing a task, particularly one that you find difficult, and see if you can use any tips from this lesson to make it easier.
- Close your eyes, and attempt to do a task with no vision at all. You might be surprised how adaptable you are.