

Science Strand 8: The Impact of Science, Technology, and Human Activity

CLE: 8.1 The nature of technology can advance, and is advanced by, science as it seeks to apply scientific knowledge in ways that meet human needs

Health Profession: Occupational Therapist

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References:

**Living With Spinal Cord Injury. Retrieved on January 28, 2008 from www.aota.org
Home Modifications and Occupational Therapy. Retrieved on January 28, 2008 from www.aota.org**

Objectives:

At the completion of this presentation the high school student will be able to:

- 1. State two ways that assistive equipment aid people with disabilities to remain independent.**
- 2. Demonstrate the correct usage of an assistive device.**
- 3. Identify the importance of assistive equipment in maintaining independence.**

Background Summary of Information as Related to Occupational Therapists and CLE:

Occupational Therapists work with people who have suffered from a life-altering event such as stroke or spinal cord injury to help them perform their normal activities of daily living. Through the use of assistive equipment such as long-handled shoehorns and reachers, electric wheelchairs, and walkers, the Occupational Therapist helps these people regain their independence. The therapist also goes into the client's home and assesses how well he/she maneuvers in the home environment while assessing for obstacles that would impede his/her ability to function independently. During home assessment, the therapist makes recommendations that may include changing the placement of furniture, proper placement of handicap bars in the bathroom, as well as addition of adaptive equipment to make tasks easier for the client.

To become an Occupational Therapist, a bachelor's degree must first be obtained, for example biology, psychology, anatomy, or sociology. Following completion of the bachelor's degree, a master's degree or doctoral degree must be completed in Occupational Therapy from an accredited school. The master's and doctoral degree programs include coursework and fieldwork. Fieldwork consists of working under the direct supervision of an Occupational Therapist in the clinical environment. The next step in becoming an Occupational Therapist is to pass the national certification examination administered by the National Board for Certification in Occupational Therapy.

Scenario:

Joe has been hospitalized for three (3) months following a car accident which injured his spinal column and left him paraplegic (paralyzed from the waist down). Due to the paralysis of his legs, Joe must rely on a wheelchair for mobility. He has seen an Occupational Therapist daily to regain fine motor movement and dexterity in his hands. The Occupational Therapist has also been teaching Joe how to adapt to his new living situation through the use of assistive equipment that enables him to open upper cabinet doors with ease, helps him put his shoes on without assistance, and maneuver small spaces with his wheelchair. Joe is going home today. In his discharge papers from the hospital, an appointment for an Occupational Therapist home visit has been scheduled for 1:00 the next afternoon.

- **What adjustments will need to be made to allow Joe to enter his home without assistance?**
If there is not a sidewalk leading to the main entry, one will need to be put in so that Joe may maneuver more readily in his wheelchair. If there is a porch, the size of the porch may be an obstacle due to maneuverability of the wheelchair and may need to be enlarged. Steps leading to a porch or entry will need to either be replaced with a ramp or one will need to be added allowing Joe easier access to his home. (Dimensions/regulations of handicap accessible ramps may be obtained from the city's building and zoning commission.)
- **What adjustments will need to be made to Joe's kitchen to allow him to prepare his own meals?**
Kitchen counters, oven (if a wall oven), and sink will need to be lowered to accommodate Joe's height difference now that he is reliant on a wheelchair. Pocket doors that slide into the cabinet under the sink will also allow Joe access in his wheelchair.
- **Is there a possibility that Joe could drive following his injury? If so, what changes will need to be made to his vehicle?**
Joe can drive with the addition of assistive devices to his vehicle such as hand braking and acceleration systems. Vehicles can now be ordered directly from the factory with lift systems for entering and exiting the vehicle. There are also lift kits that can be purchased and added to an existing vehicle. There are also vehicles in which the driver side seat can be removed to accommodate the use of an electric wheelchair as the driver's seat.
- **What type of equipment would allow Joe to get in and out of bed independently?**
A hospital bed can be bought or rented for use in the home environment. A hospital bed will allow Joe to lower the bed to the level of his wheelchair making transfer into and out of bed easier. A trapeze (a triangular bar) suspended over the bed on a metal frame will also aid Joe in his transfer into and out of bed. Computerized systems can be installed to control lights, heat, and other controls in the home. These systems can be manually controlled with remote or can be voice activated.

Role Play Activity:

Select two (2) students. One student will portray Joe in his wheelchair (this student will need to have his/her legs immobilized representing the paralysis in Joe's legs) and the second student will portray the Occupational Therapist. For this activity, the student portraying Joe should try to perform normal activities while held stationary in his/her chair, for example opening a window or reaching a supply box on an upper shelf without assistance to gain an understanding of how assistive equipment can aid someone with a life-altering injury. The student portraying the Occupational Therapist should observe Joe in his endeavor while critically thinking of items or other methods that may enable Joe to complete his task(s).

The remainder of the students will be divided into 4 groups; each group to answer one question. After watching the scenario, each group will work as a team to apply knowledge they have learned to discuss possible answers to the question.