

## **Math Strand 1: Numbers & Operations**

**CLE: 1.2 Understand meanings of operations and how they relate to one another.**

**Health Profession: Surgical Technologist**

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### **References:**

**Surgical Technologist. Retrieved on January 25, 2008, from  
<http://flahec.org/hlthcareers/SURGTECH.HTM>**

**Surgical Technology Career Overview. Retrieved on January 25, 2008, from  
<http://www.mayo.edu/mshs/surg-career.html>**

### **Objectives:**

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

- 1. Explain how materials/instruments left inside the body can end up causing problems.**
- 2. Demonstrate the ability to add materials used with ones not used to get a total count.**
- 3. State the importance of counting all instruments and materials before and after surgery.**

### **Background Summary of Information as Related to Surgical Technologists and CLE**

**During surgeries and procedures, there are many instruments and materials used, such as sponges, needles and clamps. It is the job of the surgical technologist, along with the nurse, to keep a count of these materials. They are responsible for counting before, during and after the surgery to make sure all can be accounted for. If one of these items is not accounted for, and is lost or worse, left in the body, serious complications can occur. Infections can and have occurred from materials left inside of a person during a surgery or procedure, and if serious enough can lead to death. This is why it is important for the surgical technologist to make sure to count, correctly, the materials before surgery, and after surgery.**

### **Scenario:**

**Chloe, a 15-year-old girl, is playing tennis after school in a match that determines whether or not she goes to districts. Her opponent hits a short ball and she runs up to get it and stretches out to try to get to it before it bounces again. All the sudden she feels a pop and her knee gives way. She is rushed to the hospital where an MRI shows that she tore her ACL and the doctor tells her she will need surgery to correct it. The day of the surgery, Chloe is very nervous, but the doctor tells her he will take good care of her. After the surgery, Chloe wakes up and is very out of it, but not in any pain. The doctor tells her she will start Physical Therapy the following day to get her knee back in shape.**

**The surgical technologist is cleaning up the operating room after the surgery and, after doing a final count again on the gauze pads by adding up the number of gauze pads not used with the ones the doctor used, discovers that the numbers do not add up. The technologist is not sure what to do because he does not want to get in**

trouble for not keeping better track during the surgery and especially before they sutured up Chloe's knee.

- What should the surgical technologist do after discovering his mistake?  
The surgical technologist should contact the doctor immediately to let him know that it is possible that some gauze might have been left in the patient.
- Why is it important for the surgical technologist to report the missing gauze pad?

It is important for the surgical technologist to report the missing gauze pad because if left inside the patient it can cause serious problems. One such problem would be infection as a foreign object (the gauze pad) is currently inside the body, causing the patient's immune system to attack it trying to get rid of the recognized foreign material.

- What could be done to determine if the gauze pad is still inside Chloe, besides opening her knee back up?

There are some tests that could be performed to determine if the gauze pad is still inside Chloe, besides putting her through the trauma of a surgery again, especially if it turns out that the gauze pad was not actually left inside of her. One such test would be an x-ray which would allow the doctor to visualize whether or not the gauze pad was left inside Chloe without actually cutting her open again. Another test that could be performed would be a Complete Blood Count, which would test for certain abnormalities in Chloe's blood count, like an increase in her White Blood Cells, which would indicate that she has an infection and that her body is working to fight against a foreign object in her body.

#### Activities: Role Play

Choose 2 students to come up to the front of the room. One of them will be the doctor performing the surgery on "Chloe", and one will be the surgical technologist in charge of counting the materials before and after the surgery. The knee they will be performing surgery on will actually be a shoe box. There will be different items that can be used in the surgery. These items will be: 24 gauze pads, 6 pencils, 4 highlighters, 10 paperclips, 4 tongue depressors, 4 Band-Aids, 2 pairs of scissors and 6 marbles. These items will be laid out on a tray. Have the surgical technologist count how many of each item there are and document their numbers. Then have the doctor and the surgical technologist turn around and close their eyes. Have 3-4 students come up and put random numbers of each item in the box. Then have another student cover the items up, filling the shoe box, with pillow stuffing. Then have the doctor remove the items, using tongs, hand them to the surgical technologist who will then place them on another tray for soiled tools, and "close up the patient", by putting the lid on the box. Then the surgical technologist can recount all the items, comparing the numbers to what he/she previously counted.

This activity relates back to the CLE because the student who is the surgical technologist will have to perform basic addition in his/her head, by adding up the number of objects used in the "surgery", to the items not used, to see if the number matches the count of each item before surgery.

**Ask students what they think the correct answers are to the questions listed above.**

**Supplies Needed: Shoe box, 24 gauze pads, 6 pencils, 4 highlighters, 10 paperclips, 4 tongue depressors, 4 Band-Aids, 2 pairs of scissors, 6 marbles, 2 trays, paper (or something to record numbers of materials on), pillow stuffing, and tongs**

**Educational Opportunities:**

**Hillyard Technical Center program of Surgical Technology is accredited by the Missouri Department of Elementary and Secondary Education and through CAAHEP. (Commission on Accreditation of Allied Health Education Programs)**

**Surgical Technologists are integral members of the surgical team that includes the Surgeon, Anesthesiologists, RN's and LPN's. This profession is one of the fastest growing careers in the next millennium. Functions of the Surgical Technologist include, but are not limited to, creating and maintaining the sterile field, passing instruments and /or assisting the Surgeon, and participating in team care of surgical patients.**

**Hillyard Surgical Technology Program is an eleven month full time educational program. Classroom hours are 7:30 a.m. to 4:00 p.m. Monday through Thursday. Clinical experiences are held at Hospitals, surgery centers, OB units, Cardiac Catheter Labs, Dr. Offices, Dental offices, Eye Clinics and Plastic and Reconstructive Surgery Centers**

**The formal curriculum follows the Association of Surgical Technologist Core Curriculum and includes specialty courses in the sciences, Surgical Technology and clinical components. The program includes instruction in the following areas:**

- **Anatomy and Physiology**
- **Micro**
- **Fundamentals of Surgical Technology with laboratory**
- **Medical Terminology**
- **Pharmacology**
- **Procedures I,II**
- **Clinical I,II**

**Career Opportunities after Graduation:**

- **Hospital Surgical Departments**
- **Outpatient Surgery Centers**
- **OB Departments**
- **Cardiac Cath Labs**
- **Eye Surgery Centers**
- **Plastic and Reconstructive Surgery Centers**
- **Doctors offices**

**Prerequisites:**

**Human Anatomy & Physiology (available at HTC). For 2007 class, Human Anatomy may be approved as a co-requisite. Determination will be on an individual basis. For more information, please call Hillyard Technical Center or e-mail the Staff. Stop in and check out our wonderful Facility. We would love to give you a tour.**

**Surgical Technology applications are available at the Hillyard Technical Center office or may be printed from our web site under Adult Enrollment.**

**Information from <http://www.hillyardtech.com/department.php?area=surgicaltech>**