



# Surgical Suite

## Details & Academic Standard Connections

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### Description

Surgical Suite connects your students to a LIVE Total Knee Replacement surgery. Students will have many opportunities to ask questions of the operating room staff throughout the surgery. Teachers will be sent a kit of materials prior to the program. In the kit, teachers will find materials to conduct both pre- and post-visit activities, along with booklets for the students to use during the program.

Please reserve up to 90 minutes for Total Knee Replacement. Please keep in mind that this program is a LIVE surgery. Starting time and duration time can vary. These programs fill up quickly. It is recommended that you sign up when reservations open on the first Monday of July at 8:00 am ET or by early August.

### Relevant Grade Levels

Grades 6-12

### Pricing

Audience participating by remote videoconference connection:

- Total Knee Replacement - \$245 per connection; extra kits \$95 each.

Audiences participating from COSI's Galaxy Theater:

- Groups (15 or more) - \$10 per person for Surgical Suite only, \$12 per person for Surgical Suite plus COSI exhibitions
- Individuals - \$12 per person for Surgical Suite only, \$24.50 per person for Surgical Suite plus COSI exhibitions

### Companion Kit: Total Knee Replacement

A companion kit with supplies for 30 students is included in the price of your program. The kit includes pre- and post-visit activities along with materials needed for the program.

Pre-visit activities include the Virtual Knee Surgery web site, building a knee out of common materials to demonstrate the importance of alignment and to highlight anatomy, examining x-rays to identify common knee problems and solutions, and exploring alternative treatment options, such as herbal remedies. Students receive a booklet that outlines the surgery, covers key surgical

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instruments, explores medical careers and lists commonly-used vocabulary.

Post-visit activities include suturing using hemostats, an activity that demonstrates the importance of measuring and alignment for the replacement knee, and an activity that demonstrates the importance of washing hands and maintaining the sterile field. With the exception of paper and pencil, all the supplies needed for the above activities are provided in the kit.

Additional kits of materials (supplying 30 students) may be purchased for \$90 each. Kits for groups coming to COSI will be sent according to the number of students in your group.

### Reservation Information

Reservations for Surgical Suite programs can be made online at: <https://education.cosi.org/eers/>

The Surgical Suite schedule can be viewed at: <http://www.cosi.org/educators/videoconferencing/surgical-suite/>

To reserve a program, log in to the reservation system, select the month you would like the program, click on the date you are interested in, and look for green dots under your time. If you see green dots, click on the “register for show” button. Red dots indicate sold-out shows; please look for an alternate date, or continue the reservation process to be placed on a waiting list. Seats at COSI may still be available for this program after remote connections are sold out. Minimum payment will be required for groups coming to COSI.

### Technical Information

COSI can accept ISDN or IP connections. Within Ohio, we can connect to schools on the ATM network. For good video quality, we strongly recommend a connection speed of 384 kbps or higher. Surgical Suite is a multi-point program that connects up to five or six schools at once. Student questions are asked in a round robin fashion and are facilitated by COSI.

### Alignment with Ohio Academic Content Standards for Science

#### Life Sciences

- 6.2 (Grade 6): Explain that multicellular organisms have a variety of specialized cells, tissues, organs, and organ systems that perform specialized functions.
- 10.27 (Grade 10): Describe advances in life sciences that have important long-lasting effects on science and society (e.g., biological evolution, germ theory, biotechnology, and discovering

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germs).

### Science and Technology

- 6.2 (Grade 6): Explain how decisions about the use of products and systems can result in desirable or undesirable consequences (e.g., social and environmental).
- 10.2 (Grade 10): Describe examples of scientific advances and emerging technologies and how they may impact society.
- 12.1 (Grade 12): Explain how science often advances with the introduction of new technologies and how solving technological problems often results in new scientific knowledge.
- 12.2 (Grade 12): Describe how new technologies often extend the current levels of scientific understanding and introduce new areas of research.

### Scientific Inquiry

- 9.3 (Grade 9): Construct, interpret and apply physical and conceptual models that represent or explain systems, objects, events or concepts.

### Scientific Ways of Knowing

- 9.1 (Grade 9): Comprehend that many scientific investigations require the contributions of women and men from different disciplines in and out of science. These people study different topics, use different techniques and have different standards of evidence but share a common purpose - to better understand a portion of our universe.
- 9.4 (Grade 9): Explain how support of ethical practices in science (e.g., individual observations and confirmations, accurate reporting, peer review and publication) are required to reduce bias.
- 9.7 (Grade 9): Recognize that scientific knowledge and explanations have changed over time, almost always building on earlier knowledge.
- 10.4 (Grade 10): Recognize that ethical considerations limit what scientists can do.
- 10.5 (Grade 10): Recognize that research involving voluntary human subjects should be conducted only with the informed consent of the subjects and follow rigid guidelines and/or laws.
- 10.7 (Grade 10): Investigate how the knowledge, skills and interests learned in science classes apply to the careers students plan to pursue.
- 11.11 (Grade 11): Research the role of science and technology in careers that students plan to pursue.

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### **National Science Education Standards for Grades 9 - 12\***

\* From *National Science Education Standards* by the National Committee on Science Education Standards and Assessment, National Research Council, National Academies Press, 1996.

#### **Grades 5-8 Content Standards:**

- A: Understandings about scientific Inquiry
- C: Understanding of structure and function in living systems, reproduction and heredity
- E: Abilities of technological design and understandings about science and technology
- F: Personal health risks and benefits, science and technology in society
- G: Science as a human endeavor, nature of science

#### **Grades 9-12 Content Standards:**

- A: Understandings about scientific inquiry
- C: Matter, energy and organization in living systems and behavior of organisms
- E: Abilities of technological design, understandings about science and technology
- F: Personal and community health, natural and human-induced hazards, science and technology in local, national, and global challenges
- G: Understanding of the nature of scientific knowledge and science as a human endeavor