The Hormel Institute

University of Minnesota

EQUIPMENT LENDING LIBRARY

The Hormel Institute is dedicated to keeping educators and students connected with cutting-edge technology that inspires exploration and supports future careers in science and research.

We invite you to explore our lending library catalog to view available equipment and sample lessons designed to enhance classroom learning through hands-on experience.

To ensure effective use of these resources, teachers must attend a training session, which will grant them access to the library. With proper training and wide variety of materials to choose from, educators will broaden student opportunities and foster an interacting lab learning environment.

TABLE OF CONTENTS

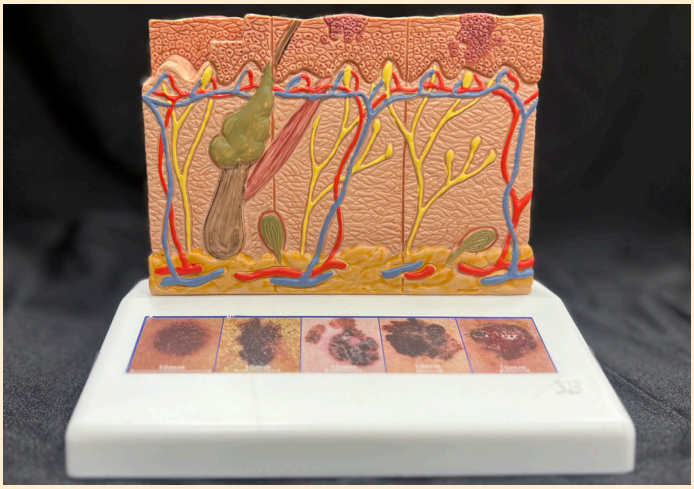
MODELS & ACTIVITIES

Brain Model

The Brain Model consists of eight components, such as a sagittal section of the brain, cerebral hemisphere, cerebellum, and brain stem. The model also shows cerebral hemisphere, diencephalon, cerebellum and brain stem midbrain, pons, medulla oblongata, and cerebral nerve.

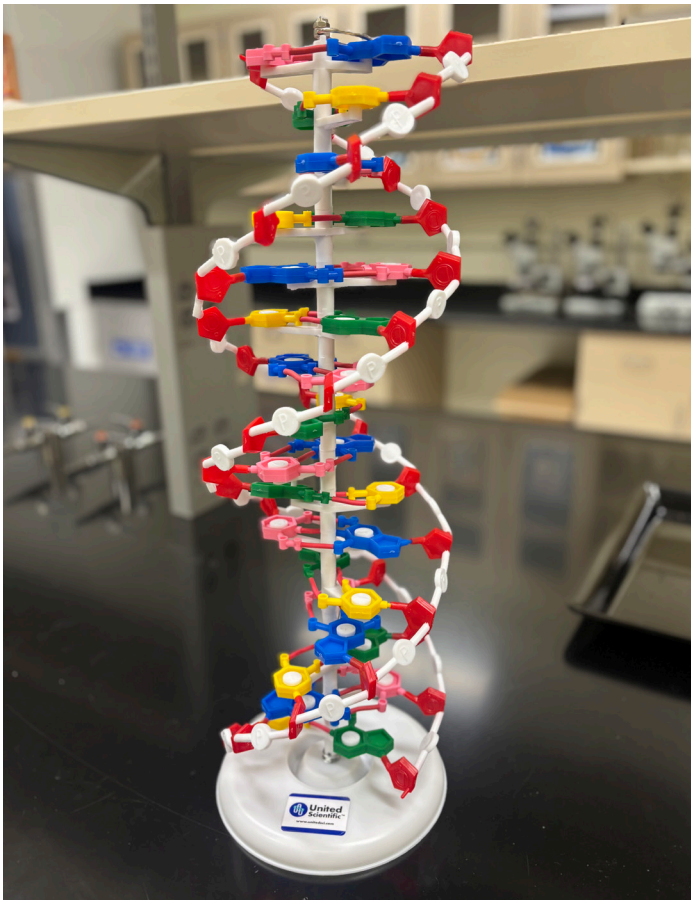
Precancerous & Cancerous Skin Lesions Model

This model presents full size and enlarged views of dysplastic nevus, actinic keratosis, malignant melanoma, squamous cell carcinoma, and basal cell carcinoma skin lesions. Each disk has a 3D surface to help demonstrate the skin condition. The back side of the disk presents additional lesion information.



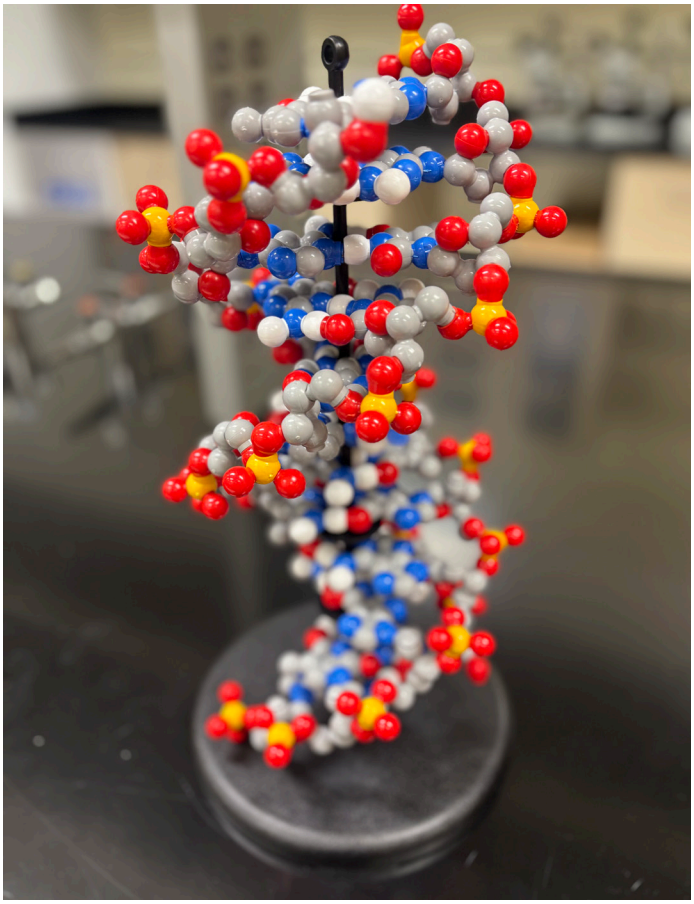
Skin Model

The Skin Model shows a section of human skin in 3D form. Individual skin layers are differentiated, and important structures of the skin, such as hair, sebaceous and sweat glands, receptors, nerves and vessels, are shown in detail.



Large DNA Model

The pre-assembled double helix DNA model (63.5 x 20.32 cm) is an impressive display and learning tool. Made of durable, colorful plastic, it depicts a 16-base pair section at a 10 cm to 1 cm scale. The model sits on a rotating stand for full viewing, with removable phosphate, deoxyribose, and individual base pairs for detailed examination.

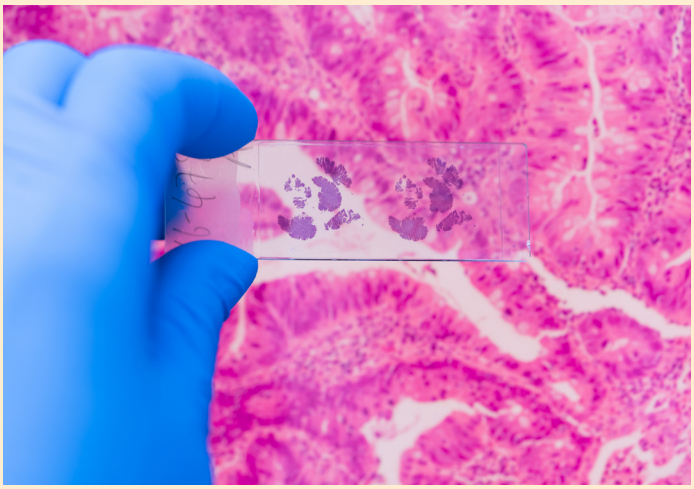


Medium DNA Model

This model (40.64 x 20.32 cm) lets students twist, untwist, replicate, and transcribe DNA, enhancing their understanding of genetic information. This flexible model allows students to assemble nucleotides, explore A-T and G-C base pair bonding, and discover the double helix structure. They can also model DNA replication.

Cancer Slides

Thin slices of biopsied tissue are placed on a glass slide, examined under a microscope by a pathologist to confirm a diagnosis, and determine the cancer's nature.



Kidney Model

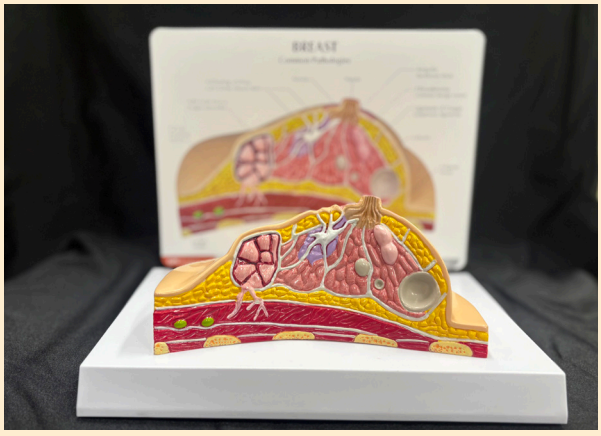
The Kidney Model displays all major parts of the kidney making examination of structures easier.

Lung Model

This model is a realistic depiction of a lung with an open dissection to show internal routing of pulmonary arteries, veins, and airways. Pleura and lymph nodes are well represented. Measures 23 x 13.5 x 13.5 cm; on stand with base. Includes full-color, illustrated key.

Breast Lump Display

This display features realistic, tangible lump models to illustrate the average size at which lumps are detected by women who are untrained in breast self-examination (BSE), those who practice BSE occasionally, those who perform BSE regularly, those undergoing their first mammogram, and those who have regular mammograms.



Breast Model

A full-size cross-sectional anatomy model that illustrates some common ailments that afflict the breast.

EQUIPMENT

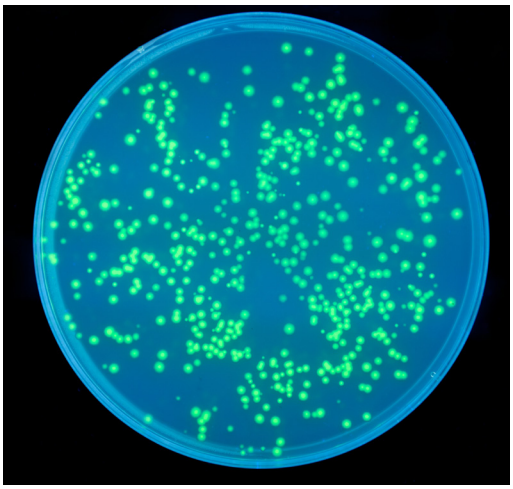
Scientific Pipettes

- Set of three pipettes sizes 0.5-10·l; 10-100·l; 100-1000·l
- Easy to calibrate and maintain with tool supplied
- The bottom part can be autoclaved
- Adjustable Single-Channel/Multi-Volume

MODULE 1

Genetically Engineering Bacteria (GFP) Bacterial Transformation

This lesson plan introduces students to genetic engineering by performing Green Fluorescent Protein (GFP) bacterial transformation. Students will transform E. coli bacteria with a plasmid containing the GFP gene and observe the results under UV light. The process involves using plasmids, heat shock, and antibiotic selection to introduce and express new traits in bacteria.



Grade Level: 7th Grade or High School Biology

Duration: Two Days

Day 1: 45-50 Minutes

Day 2: 15-20 Minutes

Kit for 28-30 Students Contains:

- P1000 Micropipette
- P200 Micropipette
- Omega Pipettor - Syrological
- Shaker/Incubator
- Alcohol lamps with caps
- Lighter
- Various sized racks
- Culture Tubes (13ml)
- Micropipette Tips 1,000
- Micropipette Tips 1-200
- 2ml Serological Pipets
- 10ml Serological Pipets
- 5ml Syringes
- Syringe Filters
- Conical Tube (50ml)
- Inoculating Loop
- Microtubes (1.5 or 1.7 or 2.0)
- Workstation containment pads
- Petri Dishes
- Solutions
- Sample boxes for storage in refrigerator or freezer

RESERVE

Educators borrowing equipment are responsible for returning all items in the same condition they were received and by the agreed-upon return date, ensuring continued access for other classrooms. Failure to do so may result in the loss of future borrowing privileges.

All equipment must be reserved using the official request form. Resources are distributed on an as-needed, as-requested basis, with requests fulfilled in the order received. Priority is given to educators who have completed The Hormel Institute Teacher Externship.

Fill out the request form at z.umn.edu/LendingLibrary or by scanning the QR code.

If you have any questions
please email our Community Outreach & Education team at
HI_COE@umn.edu

GLOSSARY

Autoclave – A machine that uses pressurized steam to sanitize and sterilize scientific equipment.

Multi-Volume – A pipette's ability to be adjusted to and dispense various liquid volumes within its operating range.

Single-Channel – A pipette that uses a single tip to draw up and dispense liquid, one sample at a time.

On behalf of The Hormel Institute, University of Minnesota, we would like to express our heartfelt gratitude to those who have made the lending library possible. Thanks to Paul and Joann Worlein for their incredibly generous donation. Their support is making a significant impact and helps us continue our important work. We also extend our sincere thanks to the Southeast Service Cooperative and Future Forward grant for their generous funding. Your partnership is truly invaluable, and together, we are able to create lasting change in our community. Thank you for your kindness and commitment to our cause.

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UNIVERSITY OF MINNESOTA