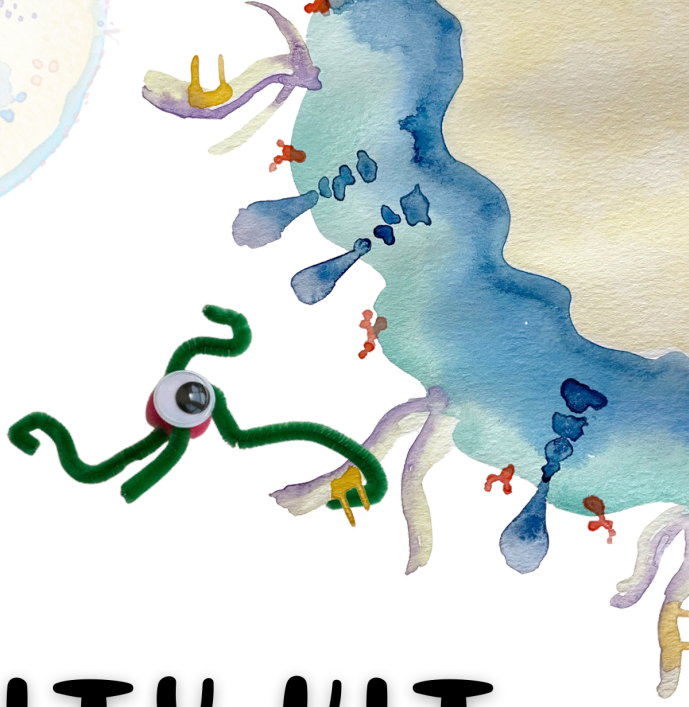
HEAL

Health. Equity.
Art. Learning.



HEAL ACTIVITY KIT

A SCULPTURE ART EXPLORATION OF CELLS AND VIRUSES

Become a Sculpture Artist and Virologist while exploring the microscopic world of cell membrane jungles and their sticky viral invaders!

Designed for 3rd-5th Grade Youth

WASHINGTON STATE UNIVERSITY

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Health. Equity.
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HEAL's Mission

- **Create together** new and inspiring ways of using the arts to learn about health sciences.
- **Build on the strengths** of young people, their families, and communities to see themselves and their futures in biomedicine.
- **Foster equity and justice** in rural health education.

The **HEAL Collaborative** is a team of interdisciplinary researchers, including Washington State University faculty and students with diverse expertise in STEAM education, health sciences, human development, youth programming, educational psychology, visual arts, and biomedical education. HEAL works in partnership with communities in rural Washington to increase STEAM education opportunities that blend visual arts with health sciences.

Discover More

http://heal.coe.wsu.edu

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Acknowledgments

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SEPA SCIENCE EDUCATION PARTNERSHIP AWARD
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Dear Parents & Helpers

This kit is designed for 3rd-5th grade youth but is easily adaptable to other grade levels. Some **sculpting activities may require adult supervision or support** depending on the youth's age and the found-object materials collected or extra craft items used. Otherwise, this kit supports youth learning by doing as they get curious, create, and play!

You can support your youth by using a **Do, Reflect, Apply** approach as they learn through active experience, reflective questions, and applying their new knowledge to other parts of their life and the larger world.

Step 1: Do

Youth can learn-by-doing through trying new things and playing. Less instructions, more experimentation!

Step 2: Reflect

Reflection questions are included within the activity instructions, but here are a few more to try!

Ask youth open-ended questions to help them reflect on their experience learning and trying new things, and creating art.

What did you know about _____ before this? What do you know now?

How did you create this art piece?

If you made another, what would you try next?

Step 3: Apply

Encourage youth to apply new knowledge by adapting their original art or creating more. Help them connect new knowledge to other life experiences.

When it comes to viruses, we all have real-world experience to connect learning to.

Where can youth find sculpture art and found-object art in their home and community?

Inside the Kit

- **HEAL Activity Kit Guide**
  - Membrane Jungles (cells, membranes, sculpture, found-object art)
  - Sticky Viruses (viruses, receptor sites, "in the round")
- **Sculpture Materials**
- **Lab Sketchbook**
  - Become a Virologist, Virologist Files, Lock & Key Maze, and more!
- **Lab Tools**

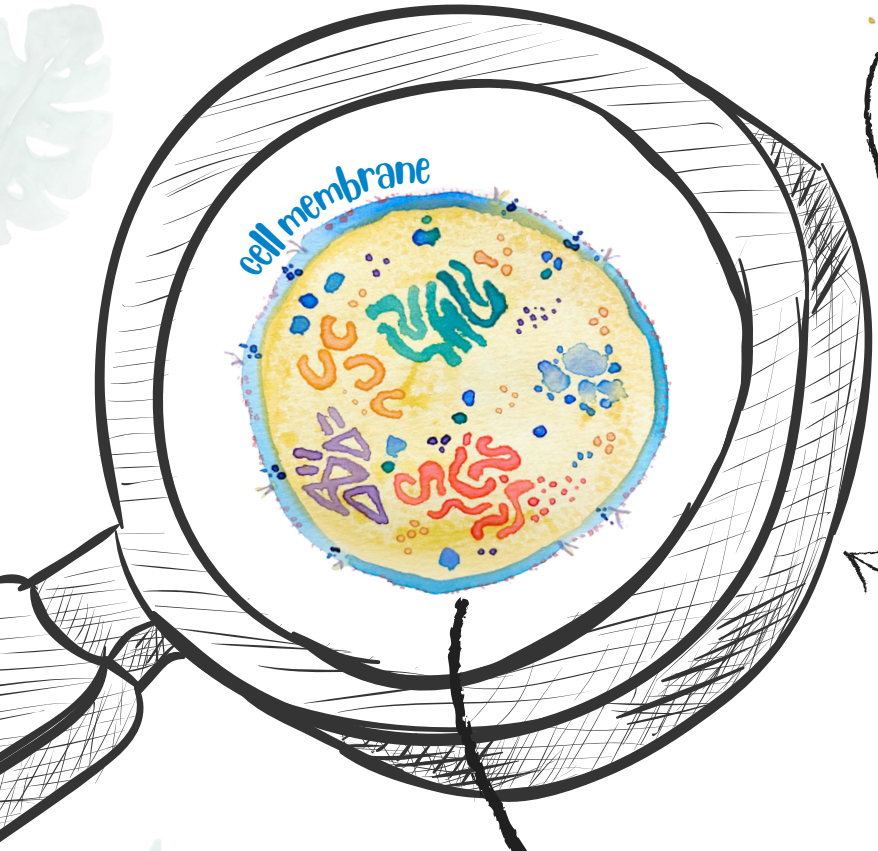
MEMBRANE JUNGLES

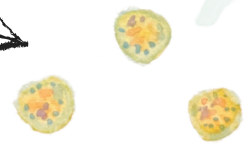
DID YOU KNOW?

Living things are made of **cells**, sometimes just one and sometimes a LOT. Your body is made up of trillions of cells.

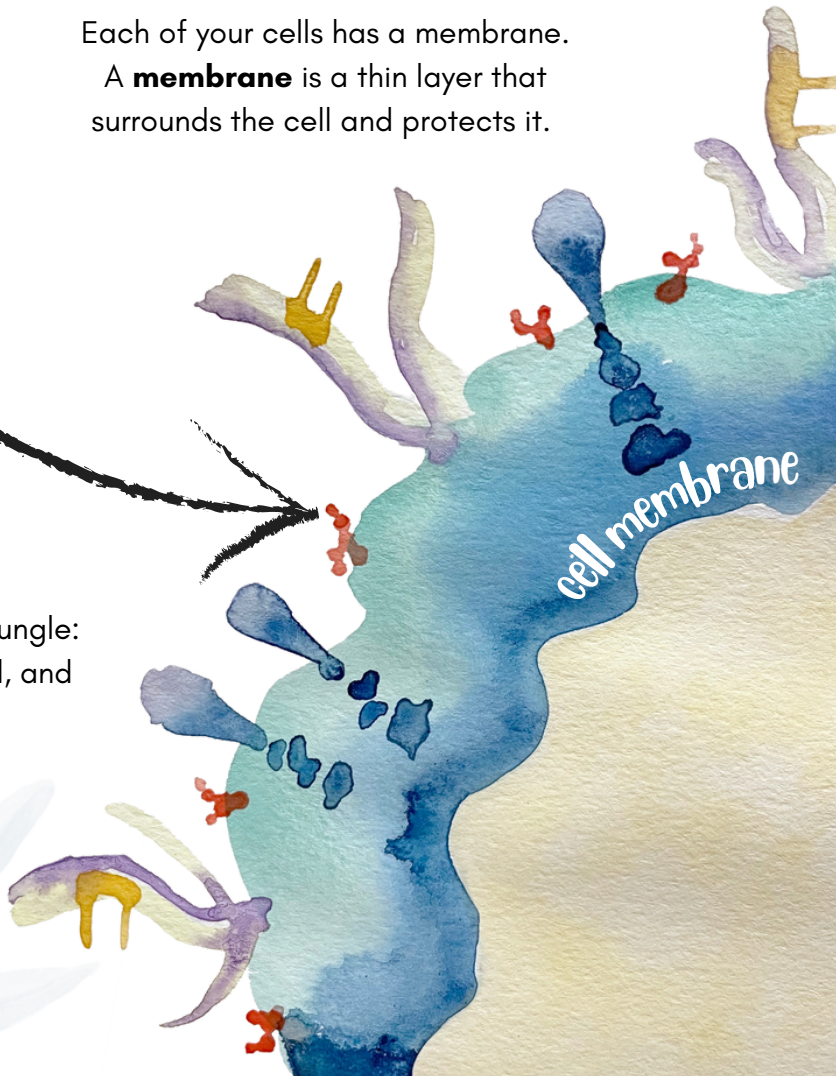
On average, there are **37 trillion 200 billion** (37,200,000,000,000) cells in a human body!

There are 100 times more cells in your body than there are stars in the night sky!





Each of your cells has a membrane. A **membrane** is a thin layer that surrounds the cell and protects it.



Cell membranes are not smooth!

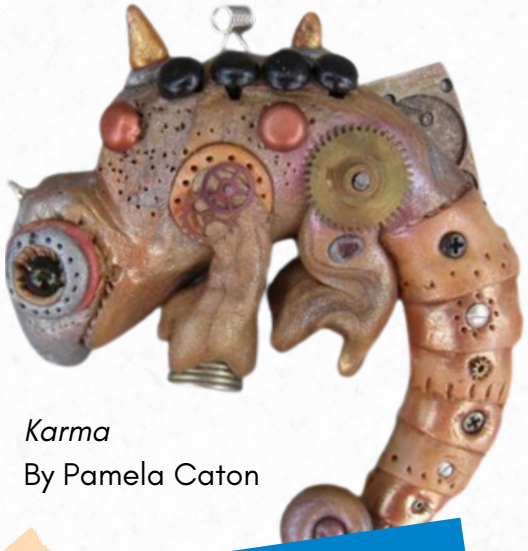
Close your eyes and imagine a jungle.

Try to picture all the different kinds of things in that jungle: trees, vines, bushes, and more. Some of them are still, and some of them are swaying and moving around.

Cell membranes are a little bit like jungles!

They have many different parts to them, some still and some moving. These parts help move things in and out of the cell to keep it working well.

SCULPTURE ART



Karma
By Pamela Caton

Sculpture Art involves carving, shaping, and combining materials to form a three-dimensional (3-D) object.

Many sculptors use materials like clay, wood, metal, or stone to create their art, but any material can be used.

Some sculptures are designed to accurately look like a specific thing. Other sculptures are **abstract**, which means they do not look exactly like anything.

FOUND-OBJECT ART

Found-object art uses everyday materials that are not common in other forms of art, like bottle caps, recycling, clean trash, fabric scraps, twigs, cardboard, orange peels, ...anything really!

Cyclical Adaptations
By Rachel Dorn

FOUND-OBJECT SCULPTURE ARTISTS

There are sculptors all around the world who use found-object art to express themselves.

Pamela Caton is a sculptor from Yakima, Washington. She sculpts clay into a basic shape and adds found objects like beads, gears, and paper clips. At the top of this page is one of her sculptures, Karma the chameleon.

Rachel Dorn is another artist from Yakima. She creates all sorts of sculptures using different materials. The piece to the left is an abstract sculpture made with clay and bike parts.

SCULPT YOUR OWN MEMBRANE JUNGLE

1 GATHER SCULPTURE SUPPLIES

Gather the supplies from your kit. You may also use **found objects** and other craft supplies:

- Buttons, Pen Caps, Plastic Bread Clips, small stones or twigs, and more!
- Clean Recycling: cardboard, small plastics, paper scraps, and more!
- Clean Trash: straws, bottle caps, popsicle sticks, and more!
- Other craft supplies you have permission to use.

Save some materials for the next activity!

Cell membranes are not the only art piece you will sculpt.

2 SCULPT ABSTRACT ART

Start with the foam sheet.
This is the base layer of your cell membrane.

Think about how you want your membrane to look.

What materials will you use to create a membrane jungle with lots of different textures and shapes?

Have fun and get funky! Science and art are all about creative experiments. Some materials can floss and thread through the foam, others may stick or hook together.

3 EXPLORE YOUR MEMBRANE JUNGLE

Sometimes, it is hard to understand and imagine things as small as cells because we cannot see them without a microscope.

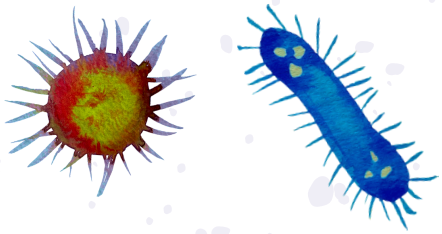
Try This!

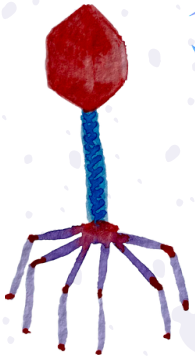
Put your membrane on a table and get eye-level with your art. Imagine yourself as a tiny explorer in this huge membrane jungle! Look at all the different shapes, textures, and structures. What do they do for the cell? How do they work together? How can things move through your membrane jungle and into the cell?

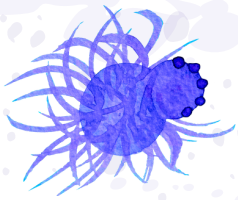
STICKY VIRUSES

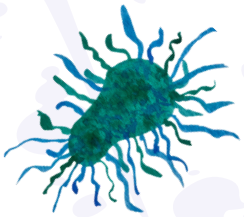
Tiny Invaders

Viruses are tiny germs that can make you sick. There are millions of different viruses of different shapes and sizes.









DID YOU KNOW?

Viruses don't just get people sick. They also cause disease in other animals and even plants.

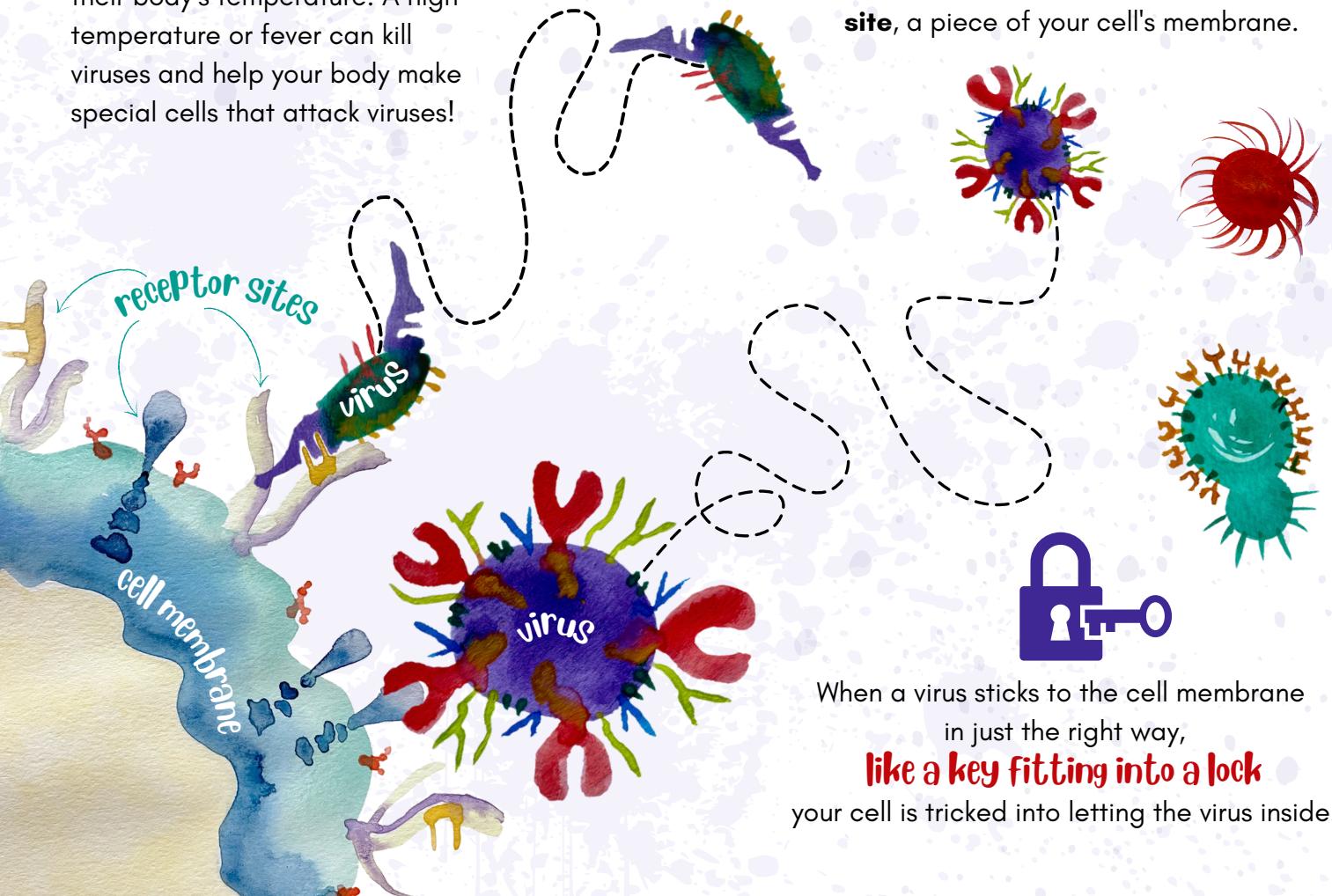
There can be
two hundred million virus germs
(200,000,000)
in a single cough or sneeze!

DID YOU KNOW?

People and other animals often fight invading viruses by raising their body's temperature. A high temperature or fever can kill viruses and help your body make special cells that attack viruses!

When a virus sneaks through your cell's membrane jungle into the cell, it can weaken or kill the cell and make you sick.

To sneak inside, a virus connects to a **receptor site**, a piece of your cell's membrane.



When a virus sticks to the cell membrane in just the right way,
like a key fitting into a lock
your cell is tricked into letting the virus inside.

SCULPT YOUR OWN STICKY VIRUSES

1 GATHER SCULPTURE SUPPLIES

Gather the supplies from your kit. You may also use **found objects** and other craft supplies:

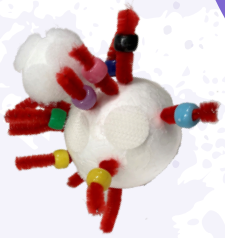
- Buttons, Pen Caps, Plastic Bread Clips, small stones or twigs, and more!
- Clean Recycling: cardboard, small plastics, paper scraps, and more!
- Clean Trash: straws, bottle caps, popsicle sticks, and more!
- Other craft supplies you have permission to use.

2 SCULPT "IN THE ROUND"

Create a virus or more anyway you wish! Will it be abstract art? Make sure to sculpt it "**in the round**"

What materials will you use to help your virus stick, hook, grip, or connect to your cell membrane? Have fun and get funky!

Remember, science and art are all about creative experiments!

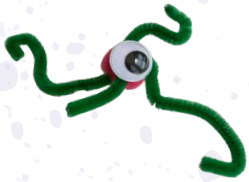


"IN THE ROUND"

Sculpting "**in the round**" means creating a sculpture that can be viewed from all sides. The sculpture may not be a round shape, but every side of the sculpture is a part of the art.

3 EXPERIMENT & PLAY

How many ways can your viruses stick, hook, grip, or connect to your cell membrane? Did you make a virus that sticks without the help of glue? Try it!

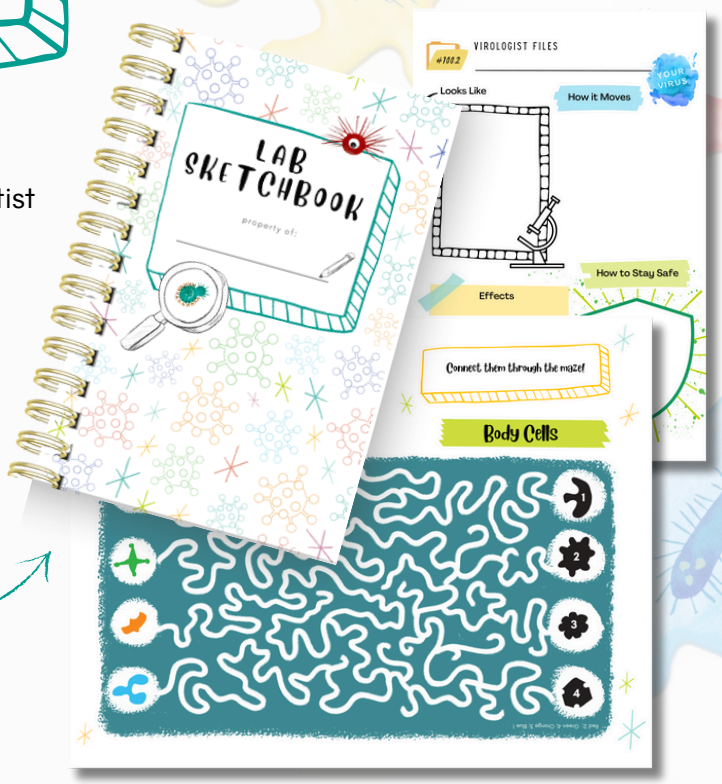


What happens when your virus sticks to your cell membrane?

Is it attacking the cell? Is the cell being infected? What happens next?

BECOME A VIROLOGIST

Virologists are puzzle solvers! A virologist is a scientist who studies viruses to figure out how they work, how they spread, and how they make people, animals, or plants sick. Virologists play an important role in stopping viruses from spreading.



CHECK OUT THE LAB SKETCHBOOK

Learn more what virologists do, use your lab tools to research the viruses you sculpted, and play games!

VISIT HEAL'S WEBSITE

- Discover more art+science activities!
- Explore germs and the science behind the human body!
- Check out art+science careers videos!
- Get creative with new art techniques and ideas!
- **Add your sculpture to HEAL's Student Art Gallery!**

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