FIELD TRIPS

Announcing an expanded catalog of science, engineering, and robotics field trips; plus, bring Van Andel Institute field trips to your school through our Virtual or Mobile Labs!

Van Andel Institute for Education Field Trips immerse classrooms of students—and their teachers—in learning science through inquiry. Students will conduct unique, grade-specific investigations and participate in hands-on discovery. In addition, when schools come to our facility—either in person or virtually—participants will speak with Van Andel Institute scientists and watch them in action at the Institute's demonstration lab. All topics are aligned to Next Generation Science Standards (NGSS).

Program Details

Where: Van Andel Institute for Education, 216 N Division Ave, Grand Rapids, MI 49503 or on location at your school through Virtual or Mobile Labs

Time: 2–4 hours (dependent on grade and content)

Class size: Up to 30 students and a teacher

Cost:

	Standard	**Premium** Includes additional cost for expanded supplies.
On Location at Van Andel Institute	$10 per student ($200 minimum)	$15 per student ($300 minimum)
On Location Via Virtual Field Trip	$10 per student ($200 minimum)	$15 per student ($300 minimum)
Mobile Lab at Your School	$15 per student ($300 minimum)	$20 per student ($400 minimum)

For more information or to schedule your field trip, email us at **information@vaei.org** or call **616-234-5528**

VAN ANDEL INSTITUTE®

Grades K–2

Create a Hand Pollinator
Explore the structures of flowers and the organisms that pollinate them. Help farmers solve the problem of vanishing pollinators by building a model that mimics how animals pollinate plants.

Sort and Recycle
How can recycling methods be improved to reduce waste? Consider this important question by exploring how better sorting methods for recycling can aid in cutting back excess waste. Use Lego® WeDo's to create and program a device that will sort recyclables according to size and shape.

Blow the House Down
Inspired by the *Three Little Pigs,* construct houses that can withstand the big bad wolf's huffing and puffing. Test completed houses and vote on the most successful design.

Save the Sand!
To better understand how wind can shape the land, explore how wind can change the shape of a sand tower. Use a pile of sand and simple objects to design and test a windbreak that prevents erosion.

Reversible Changes
To change or not to change...that is the question! Heat and cool different substances to gather evidence and discover whether changes are reversible. Discover how physical properties can help us determine which changes can be undone and which cannot.

Sensing the World Around You
Using your senses and scientific tools, investigate the characteristics of plants and animals living at Van Andel Institute.

Stop It! Forces and Motion
Explore the world of forces and motion using matchbox cars! Students send cars down a ramp and investigate what forces are able to stop the car.

Grades 3–5

Designing a Hand Pollinator
Observe and analyze plants and the animals that pollinate them. Engineer a hand pollinator that moves the most pollen.

Classical Conductors
Learn the basics of electrical circuits and engineer your own conductivity tester to find the answer to the question, "*What objects can transfer electricity?*" With your newfound knowledge put the "A" in "STEAM" and create a conductive sculpture!

Naked Egg Drop
Firefighters need to know how to safely catch people and pets. Use knowledge of forces and motion to engineer a device to safely catch precious cargo.

Un-frog-ettable Life Cycle
Explore the stages of metamorphosis, from birth to adult. Using Lego® WeDo, create and program a young frog, then observe and handle real frogs! Finally, use your observations to change your young Lego® frog into an adult.

Dare to Compare
Use your senses and scientific tools to observe plants and animals to determine an answer to the question, "Are organisms more alike or more different?"

Bird's Nest
Using a variety of common materials, students design and test a nest that will hold the weight of a chicken egg. Students explore how birds in different environments need different requirements to build a nest for their eggs to survive.

Rockin' Rockets
Become a rocket scientist and design a rocket capable of landing on a far-off planet! Investigate how different variables affect the flight of a rocket and learn about aerodynamics, forces, and motion along the way!.

Structural Traits
Investigate the physical adaptations of a variety of organisms to answer the question, "How do an organism's structural traits help it survive in its environment?"

Behavioral Traits
Investigate the behaviors of a variety of organisms to answer the question, "How do an organism's behavioral traits help it survive in its environment?"

Uncovering Our Past
Learn how fossils are formed, discovered, and used to help us understand Earth's past. Participate in a fossil dig and think and act like true paleontologists. Explore, ask questions, and find answers to the mysteries of prehistoric life.

Lights Out!
The power has gone out! Work with your team to engineer a device that will help you to survive in the dark. Discover different ways to create a circuit and light a bulb!

Mystery Powders
A beloved VAI organism has gone missing! Luckily, the criminal left behind a mysterious powder. Utilizing physical and chemical properties, identify the substance left behind and link it to a suspect to help bring our organism home.

Detecting Magnetic Fields
Invisible forces are all around us! Use understandings of magnetism to engineer a device that detects magnetic fields! Investigate the surface of the moon and discover where magnetic forces are the strongest and weakest. Discover the types of materials that are magnetic.

We can customize your Field Trip!

Topics are aligned to Next Generation Science Standards (NGSS). We can customize by grade level or topic just for you!

Filtering Polluted Water

A massive storm has caused the widespread pollution of our drinking water! Learn how the earth naturally filters water, and work as a team to design and build a filter to clean the water so it is safe to use once again.

Racing a Maglev Vehicle

It's a race to the finish line! Join our scientific pit crew and use your knowledge of magnetism to engineer a vehicle capable of levitation and movement on a magnetic track.

Our Living World: Exploring life from DNA to Whole Organisms

Model organisms are an important component of medical research. Observe levels of organization within plants and animals to discover similarities and differences. Hold plants and animals, create slides to view under a microscope, and extract DNA. Talk to a researcher about how and why model organisms are used in research.

All field trips are available for in-person or virtual delivery.

- Engineering Design Challenge
- Mobile Lab
- Premium Field Trip

Grades 6–8

Seismic Shake-Up!

Engineers utilize large shake tables to test the ability of buildings to withstand various types of seismic waves generated by earthquakes. Become an engineer, build your own building, and evaluate how well various designs withstand seismic activity on our shake table!

Robots and Coding: The Basics

Using Lego® Mindstorm®, explore the world of coding and robotics. No experience? No problem! Learn the basics of block coding and create your own Lego® robot to complete fun challenges.

Crime Scene Forensics: Learning the Basics!

Join the next generation of crime fighters. Learn skills and techniques that real forensic scientists use in the field. These techniques include fingerprinting, fiber analysis, and blood typing. Apply these new skills to solve a crime!

Who's Behind the Wheel?

The future is now! Grand Rapids, Michigan is currently piloting autonomous vehicles to understand how they will operate in our world. Code your own autonomous vehicle using mBots and discover where the future is taking us!

Oil Spill on the Grand

A catastrophe has struck Grand Rapids! An oil pipeline burst and is leaking oil into the Grand River, impacting both humans and wildlife. Use creative and critical thinking skills to stop the leak, cleanup the oil spill, and care for the affected animals.

Daphnia Investigation

Each year 1.2 trillion gallons of untreated sewage, storm water, and industrial waste are dumped into United States' water-ways. These pollutants affect the health of many organisms. Explore the effects of different environmental contaminants on the heart rate of *Daphnia.*

Transporting Water on Mars

Living on Mars presents unique challenges. Transporting water is an important part of survival on the red planet. Utilizing solar energy, can you design a pump to quickly move water from place to place?

What's for Dinner: Animal Choices and Food Chains

Investigate energy flow through a food web by observing the eating preferences of organisms. Dissect an owl pellet to learn where an owl's energy comes from and construct a bone diagram to take home.

Orion's Splashdown!

One of the many challenges associated with space travel is the return to Earth. Using everyday materials, design, build, and test a waterproof capsule that will protect astronauts as they splashdown on Earth!

Crime Scene Forensics: Sick to My Stomach

Someone poisoned the food! VAI needs your help to figure out who is responsible. Analyze the stomach contents of the victims to determine the presence of lipids, proteins, carbohydrates, and vitamins. Use that information to identify the culprit!

How Will You React?

Discover the world of neurobiology as students learn how distractions slow down their reaction time. Then, they will dissect a sheep brain to identify the different parts of the brain and their functions.

3...2...1...Blast off!

Design rockets and test multiple variables to learn how a rocket flies. Learn how Newton's laws of motion play a part in rocketry and use this knowledge to land your rocket on a far-off planet!

Grades 9–12

A Taste of Genetics
Do you like bitter foods? Does coffee taste disgusting to you? This could be due to your genotype! Extract and amplify your own DNA, then utilize PCR and electrophoresis to determine your genotype for the PTC tasting trait.

Wind at Work
Wind power has more than tripled over the past decade and is now the largest source of renewable generating capacity in the country. Explore different variables that will maximize the efficiency of your own turbine.

Daphnia Investigation
Drugs are defined as any substance having physiological effects on the body. Discover these effects using the model organism, *Daphnia.* Assess the heart rate of the *Daphnia* after it has been exposed to common substances such as caffeine and alcohol.

Showering on Mars
Explore the challenges of living on Mars. Design, test, and build a solar water heater to be used on the red planet. Successfully heat water to shower where no one has showered before.

C. elegans Investigation
Drugs are defined as any substance having physiological effects on the body. Discover these effects using the model organism, *C. elegans.* Assess the thrashing rate of the *C. elegans* after it has been exposed to common substances such as caffeine and alcohol.

Robots in Action!
Robotics are a growing component of manufacturing. Behind all automation is an engineer coding and designing a robot to complete tasks. Working with Lego® Mindstorm®, program and design your own robot to complete a series of tasks!

Crime Scene Forensics: A DNA Whodunit?
Practice the skills of forensic scientists by identifying a DNA sample left behind at a crime scene. Learn to use a micropipette, set a gel, run DNA samples with the aid of electrophoresis, and analyze the results.

Engineering Design Challenge: Roller Coasters
Discover how roller coasters work and design your own marble roller coaster to see how energy transformation works! Developing a computational model, students will investigate energy and work in a closed system.

Engineering Design Challenge: Visualizing Your Heartbeat
Become biomedical engineers as you design, create, and test a medical device that can measure a patient's pulse. Learn about a basic coding, how sensors gather data, how the human circulatory system works, and learn how your device can save lives!

Van Andel Institute

Creating classrooms where curiosity, creativity, and critical thinking thrive!

Student Programs
- Afterschool Cohort
- Summer Camps
- Science on Saturday
- Field Trips
- High School Journal Club
- Birthday Parties

Teacher Programs
- Flex PD (K–12)
- Blue Apple (K–8)
- NexGen Inquiry (K–12)
- Science on the Grand (K–12)

All field trips are available for in-person or virtual delivery.

Engineering Design Challenge

Mobile Lab

Premium Field Trip

vaei.org WeAreVAEI @We_Are_VAEI BLOG vaei.org/inquiry-insider

VAN ANDEL INSTITUTE®