



theHoustonMuseumofnaturalscience

2023-2024 School Year Lab Guide

Programming at HMNS Hermann Park and HMNS Sugar Land

Contact us at:

reservations@hmns.org

Program Pricing

WEEKDAY LABS

Lab Times: 9:30 am, 11:00 am, and 1:00 pm at Hermann Park

11:00am and 1:00 pm at Sugar Land

Capacity: 25 students per lab

Cost: \$200 per lab; \$250 for Dissection Lab

HMNS at Hermann Park: Available on select dates each month

HMNS at Sugar Land: Available on select Thursdays and Fridays each month

Homeschool Groups will receive a link to register for the school year via the Reservations team. If you are a new Homeschool group interested in booking a selection of weekday labs for the entire school-year, please email Reservations at reservations@hmns.org.

LAB ON DEMAND

Lab Times: subject to availability and group's schedule

Capacity: 25 students per lab **Standard**

Lab: \$250 **Dissection Lab:** \$250

Advanced Lab: \$250-500

Travel Fee: \$75 for traveling presentations

Book using the [Lab on Demand Form](#)

Need more information?

For Hermann Park Labs, visit us at hmns.org/labs.

For Sugar Land Labs, visit hmns.org/hmns-at-sugar-land/classes.

Lab Programming

Each lab lasts one hour, unless otherwise noted, and includes admission to the Museum's permanent exhibit halls for lab participants and one chaperone per participant.

WEEKDAY LABS

Students examine ancient objects, investigate technology, meet live animals, or conduct scientific experiments depending on the nature of the lab booking. Three new Weekday Lab topics are available monthly.

Available in-person, virtually, and for individual registration.

PAGES 6-8

DISCOVERY LABS

Classes presented in Jurassic James' collection are behind-the-scenes educational Labs on Demand, using the staff's training classrooms. These labs can be offered as either one-hour sessions or two-hour sessions.

PAGES 9-19

LABS ON DEMAND

Want to add a lab experience to your Field Trip? Add a TEKS-aligned Lab on Demand to your reservation. Each of these hands-on labs is tailored to your group's needs. Advanced Lab topics are available for High School students.

PAGES 20-24



Weekday Labs

Our Weekday Labs are appropriate for **1st - 8th grade students**. *Dissections are limited to 5th grade and up*. These labs are available in person at Hermann Park and Sugar Land, virtually via Zoom, and individual registration. Individual Registration Labs are perfect for those not a part of a group.

Weekday Lab & Lab on Demand Themes

- PAGE **Earth Science Labs** explore everything on Earth — from the depths of the sea to our place in space.
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- PAGE **Time Labs** brings history to life — explore various topics with interactive activities.
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- PAGE **ConocoPhillips TechnoScience Labs** feature interactive experiments in various chemistry and physics topics.
15
- PAGE **Biology Labs** cover a wide range of topics in molecular biology, ecology, genetics, and more.
16
- PAGE **Math Labs** bring numbers, beautiful shames, and equations to life. Check each class for skills requirements.
17
- PAGE **Wildlife Labs** use specimens to discuss the natural world and the unique creatures who inhabit it.
17
- PAGE **Dissection Labs** take an inside look at a variety of specimens, from organs to animals. Note: Some dissections are only offered at HMNS Hermann Park.
19

Weekday Lab Topics at HMNS Hermann Park and Sugar Land

Our Weekday Labs are appropriate for 1st - 8th grade students. Dissections are limited to 5th grade and up.

SEPTEMBER

Techno-Science Lab – *Magnets*: Investigate magnetic fields and other interesting magnetic behavior.

Wildlife Lab – *Environmental Indicators*: See into the future by looking at the present of environmental indicator species (such as amphibians).

Dissection Lab – *Heart*: Nothing beats that “Aww” moment! Take an in-depth look at one powerful muscle, the heart. Includes heart dissection.

OCTOBER

Earth Science Lab - *Layers of the Atmosphere*: Let’s take it from the top! We’ll explore the layers of the earth’s atmosphere, and discuss how altitude, pressure and temperature change in our atmosphere.

Time Lab – *History of Espionage*: Are you good at keeping secrets? Join us as we decode the mysterious world of spies.

Dissection Lab – *Leaping Lizards*: Moths, roaches and beetles, Yum! Discover a fascinating predator and local color changer, the anole. Includes lizard dissection.

NOVEMBER

Time Lab – *Race for Space*: Since the beginning of time Humanity has been fascinated by the stars. Learn about how we got to the moon and beyond!

Techno-Science Lab – *Light*: Explore fluorescence, luminescence and color as we experiment with light.

Wildlife Lab – *Misunderstood Sharks*: Dive into the world of these boneless, “tooth covered”, ecosystem-balancing predators and learn why the greatest thing we have to fear about sharks is the misinformation surrounding them.

Weekday Lab Topics at HMNS Hermann Park and Sugar Land

DECEMBER

Time Lab – *Civil War Science*: Venture with us as we take a look at the American Civil War through the lens of innovation.

Techno-Science Lab – *Polymers*: From plastic and rubber to gummy bears and slim, polymers are everywhere.

Wildlife Lab – *Radical Rainforests*: What makes rainforests such biodiverse hotspots? Learn about the unique flora and fauna that fulfill particular rainforest niches.

JANUARY

Time Lab – *Industrial Revolution*: Bigger, faster, stronger! Learn about the processes and technology that built the modern age.

Techno-Science Lab – *Shape Science*: Discover the science and math of shapes through tessellations, construction and more.

Dissection Lab – *Mendelian Genetics*: Investigate phenotypes, genotypes and Punnett squares using Mendel's Principles of Inheritance. (Biology lab)

FEBRUARY

Earth Science Lab - *Total Eclipse of the Sun*: Learn about what happens during an eclipse, and prepare for the next total solar eclipse

Time Lab – *Going Global!*: Explore how Planes, Trains and Ships changed how we interact with our world

Wildlife Lab – *Extreme Survivors*: Find out which adaptations allow animals to live in extreme environments.

Weekday Lab Topics at HMNS Hermann Park and Sugar Land

MARCH

Time Lab – *Art over the Ages*: From petroglyphs to photography - discover how humans have expressed themselves and how art shapes how we view history.

Biology Lab – *Blue Crab*: Learn what blue crabs, the Washington Monument, and the Capitol Dome have in common as you dissect a blue crab. Includes crab dissection.

Wildlife Lab – *Slow and Steady*: Shell-ebrate the turtle-y awesome world on Testudines in this lab.

APRIL

Earth Science Lab - *Our Place in Space*: Delve into our solar system to find out what makes it unique and see what lies outside of its boundaries.

Techno-Science Lab – *Falling Fast*: Explore parachutes and other ways to cushion a fall, then design and protect an egg ‘passenger’ from a crash.

Wildlife Lab – *Homebodies*: Did you know elephant footprints become frog breeding grounds? Discover unusual homebuilders of the Animal Kingdom.

MAY

Earth Science Lab - *Smaller than a Planet*: What else is in our solar system? Discover comets and asteroids, meteors and meteorites, and other bits found in space!

Techno-Science Lab- *Pressure*: Lift, crush and hover with the amazing power of air pressure.

Wildlife Lab – *Filter Feeders*: Sift through the details on sponges, clams and more in this lab all about the custodians of the ocean.

Recommended Labs on Demand

Labs on Demand are appropriate for **1st - 12th grade students**. Dissections and Biology labs are limited to 5th grade and up. Depending on availability, these labs are available in person at the date and time of your choice at Hermann Park and Sugar Land.

	Earth Science	Technoscience	Wildlife	Biology	Time	Dissection
K	Our Place in Space	-	Better to Bite	-	Castles	-
1	Fossil Sort	Balancing Act	Slow and Steady	-	Egypt 101	-
2	Rock Cycle	Discovering Density	Young Wonders	-	Egypt (Mummification)	-
3	Total Eclipse of the Sun	Falling Fast	All in the Family	-	Archaeology	-
4	Renewable Energy	Optical Illusions	Pollution and the Food Web	Flowers and Pollination	The Renaissance	-
5	Season's Greetings	Water Works	Polyp-palooza!	Plant Anatomy	Siege Machines	Intro to Dissection
6	Plate Tectonics	Kitchen Chemistry	Taxonomy	Cells	Spice	Owl Pellet
7	Livable Earth	Marvelous Mixtures	Nature's Revenge	Mitosis	Black Death	Frog
8	Behind the Tides	Light	Pollution and the Food Web	Blood	Fingerprinting	Lizard
9		Shape Science II		Carbohydrates		Heart
10	Advanced Renewable Energy	Polymers	Polyp-palooza!	Osmosis and Diffusion	Forensic Anthropology	Brain
11		Skyscraper Science	Taxonomy	Nitrogen Cycle/Water Quality	Bloodstain Pattern Analysis	Starfish
12		Probability and Problem Solving	Endangered Species	Mendelian Genetics		Shark

Labs on Demand

Labs on Demand are appropriate for **1st - 12th grade students**. Dissections and Biology labs are limited to 5th grade and up. Depending on availability, these labs are available in person at the date and time of your choice at Hermann Park and Sugar Land.



Lab on Demand Topics

Earth Science Labs

Grades 1st - 8th

Behind the Tides Find out why the tides change throughout the day, and what celestial body is to blame.

Bright Side of the Moon Explore the phases of the moon and find out what causes it to wax and wane over the course of a month. Tornado Alley – Join us in this whirlwind of a class to find out more about tornadoes, how they form, and where we can find them in the United States!

Compost, What Is It Good For? Explore what compost is all about! Determine what every compost pile needs to turn food scraps and yard waste into nutrient-rich soil!

Crystallography and Crystal Formation From salt to snowflakes, crystals are an important part of geology. Discover the importance of crystal structure and how they are formed!

Dams! From beavers to buttresses, dams are essential to modern society. From big to small, we will explore what they do and why we have them!

Discover Maps! Learn about latitude, longitude, and cartography in this class about maps!

Fossil Fuels Dig into fossil fuels! Explore the formation of these resources.

Fossil Sort Watch your students become paleontologists! From shark teeth to seashells, students will catch a glimpse of the past. They will have the opportunity to sort through the fossil matrix and identify the fossilized remains of prehistoric ocean creatures.

Hurricanes It's hurricane season! Learn about these powerful storms, how they form and how to prepare for them in this whirlwind class.

Land Forms Explore the basic landforms and waterways found in Texas. Follow our water from spring to shore!

Layers of the Atmosphere Let's take it from the top! In this lab, we'll explore the layers of the earth's atmosphere, and discuss how altitude, pressure, and temperature change in our atmosphere.

Layers of the Earth Journey to the center of the earth? Of course! We're going to explore everything from the core to the crust and all the layers in between.



Lab on Demand Topics

Earth Science Labs

Grades 1st - 8th

Layers of the Ocean Take a journey into the depths of the ocean! Learn about the ocean's layers and the pressure it creates for the living and nonliving things in each layer.

Livable Earth Discover the characteristics that make the Earth an ideal place for us to live!

Making (Seismic) Waves Explore seismic waves and the destruction left behind by earthquakes. Learn about how scientists predict them and what causes this natural disaster.

Minerals That Could Kill Lead, cinnabar, asbestos, OH MY! In this class, we will talk about what makes these minerals so deadly and the products that were created from them.

Mohs Hardness Scale From talc to diamonds, minerals have a known hardness. Discover the Mohs Hardness Scale and how that hardness can be harnessed!

Our Place in Space Delve into our solar system to find out what makes it unique and see what lies outside of its boundaries.

Petroleum Production Discover everyday items that come from this fossil fuel.

Plate Tectonics From Pangea to the present, the continents have shifted over time. Discover tectonic plates and how they shift a little bit every year!

Recycling Reduce, reuse, recycle! Discover the science behind recycling, and ways that you can improve your recycling skills!

Renewable Energy Discover the many forms of renewable energy at our fingertips.

Rock Cycle Sedimentary, metamorphic and igneous, oh my! Take a spin through the rock cycle and investigate how rocks are changed and formed.

Rocks and Minerals Is it a Mineral? Is it a Rock? Could it be both?! Discover the difference between rocks and minerals and learn how you use them daily.

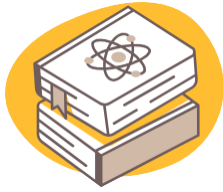
Season's Greetings Explore the earth's rotation and orbit and discover how it affects our seasons on Earth!

Smaller than a Planet What else is in our solar system? Discover comets and asteroids, meteors and meteorites, and other bits found in space!

Speleology: Let's Discover Spelunking! Dig into our course on caves and learn about caves, karst regions, and everything that's in between!

Total Eclipse of the Sun Explore what happens during an eclipse, and prepare for our next total solar eclipse!

Volcanoes Magma or lava? Explosive or effusive? Explore the types of volcanoes and discover some historic eruptions in this class!



Lab on Demand Topics

Time Labs

Grades 1st - 8th

Age of Exploration Discover the intrepid individuals who explored the world by sea and how this period contributed to the creation of modern museums like HMNS.

Ancient Persia Enter through the Gate of Xerxes as we explore the ruins of the ancient Persian city of Persepolis and discover how this ancient culture influenced our own.

Archaeology Dead men really do tell tales! Come explore the science of archeology from shards to skulls and beyond.

Aztecs Come meet the Mesoamerican people who lived in what is now Mexico City and the surrounding territory beginning in the 14th century. They established a broad empire that lasted roughly 200 years and was one of the most advanced for its time.

Black Death In 1348 Genoese sailors brought the Black Death to Europe from Asia. Explore the effects this plague had on the lives and cultures of Medieval Europe.

Bloodstain Pattern Analysis: Spatter Lab Bloodstains have a story to tell if you know how to listen. Get hands-on experience and learn to “listen” in our spatter lab.

Basics – 1 hour; Extended in-depth – 2 hours

Castles Explore the basics of medieval castle structure and life inside these amazing fortresses. Then use what you’ve learned to design your own.

Civil War Science Argued by some to be the first “modern” war, explore what made this conflict different than those before.

Cleopatra Last pharaoh of Ancient Egypt and shrewd politician meet this mysterious woman of the past.

Egypt 101 What is Egyptology? What does an Egyptologist do? Come explore this exciting field of study in our “mini” Egyptology Lab.

Egypt (Mummification) Discover the process of mummifying the dead; and delve into the closely held secrets of the ancient embalmers.

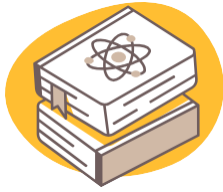
Fingerprinting Discover the techniques crime scene investigators use to collect and examine evidence. This hands-on class offers you the opportunity to practice lifting fingerprints and basic fingerprint identification in order to better understand the science.

Forensic Anthropology Get up close and personal with bones and discover what secrets they can tell you if you know how to listen. Class includes work with skeletal reproductions.

Basics – 1 hour; Extended in-depth – 2 hours

History of Espionage Do you have what it takes to crack the case? Discover the history of the covert world of espionage.

History of the Horse and Man Humans have a 6000-year history with the horse and only 100 years with the automobile. Come discover what makes this historical relationship so important.



Lab on Demand Topics

Time Labs

Grades 1st - 8th

Imperial Rome Experience the magnificence of Rome during its reign as the dominant political, economic, and military power of the western civilized world.

Indus River Valley Civilization The Indus River Valley Civilization, also known as the Harappan Civilization, is one of the three earliest civilizations. They were known for their urban planning and metallurgy. Discover this vast empire!

Is There a Doctor in the Hut? Explore the good and the bad as we consider medicine throughout the ancient world from trepanation to tourniquets.

Life in Victorian England Technology developed during this time brought a social and economic revolution. Come discover how these advances shaped your own life today.

Medicine from the Renaissance From the anatomical drawings of Leonardo da Vinci to movable print and the printing press, explore the modernization of medicine.

Medieval Japan Shogun to samurai; come on a journey to Medieval Japan.

Middle Ages/Castles Explore the basics of medieval castle structure and life inside these amazing fortresses.

Mongol Empire Come ride with the Mongols! In less than 80 years, a small band of warriors grew into an empire that stretched from the Pacific Ocean to the Danube River.

Monstrous Megaliths From Stonehenge to Easter Island, come uncover the mysteries of these fascinating stone structures.

Scientific Farming Science and innovation made farming more productive and better for the environment, find out how!

Siege Machines Discover the weapons of the “Medieval Arms Race” and design a working model.

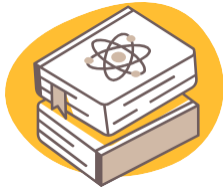
Spice Follow the spice routes as you take a flavorful journey to investigate spices and their impact on the economy, health, and food.

The Ottoman Empire One of the greatest empires in history, they reigned for hundreds of years before crumbling on the battlefields of World War I.

The Renaissance Discover the cultural movement that began in Italy in the 14th century that was a pivotal transition between the Middle Ages to the early modern period.

The Salem Witch Trials Delve into the history of what happened and explore scientific hypotheses of what may have driven this terrible phenomenon.

The Zulu Kingdom Discover this South African kingdom that gained fame during and after the Anglo-Zulu War.



Lab on Demand Topics

Time Labs

Grades 9th - 12th

Archaeology Dead men really do tell tales! Come explore the science of archeology from shards to skulls and beyond.

Black Death In 1348 Genoese sailors brought the Black Death to Europe from Asia. Explore the effects this plague had on the lives and cultures of Medieval Europe.

Bloodstain Pattern Analysis: Spatter Lab Bloodstains have a story to tell if you know how to listen. Get hands-on experience and learn to “listen” in our spatter lab.

Basics – 1 hour; Extended in-depth – 2 hours

Da Vinci Science Inventor, artist, architect, and genius - Leonardo Da Vinci is the ultimate Renaissance Man. Discover the range of Leonardo’s talents as you try out some challenges of your own.

Egypt (Mummification) Discover the process of mummifying the dead; and delve into the closely held secrets of the ancient embalmers.

Fingerprinting Discover the techniques crime scene investigators use to collect and examine the evidence. In addition to the classroom presentation, this hands-on class offers you the opportunity to practice lifting fingerprints and basic fingerprint identification in order to better understand the science.

Basics – 1 hour; Extended in-depth – 2 hours

Forensic Anthropology Get up close and personal with bones and discover what secrets they can tell you if you know how to listen. Class includes work with skeletal reproductions.

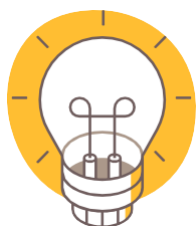
Basics – 1 hour; Extended in-depth – 2 hours

Maya Discover the Continent’s longest-lived indigenous civilization and some of their enduring contributions.

Middle Ages/Castles Explore the basics of medieval castle structure and life inside these fortresses.

Siege Machines Discover the weapons of the “Medieval Arms Race” and design a model.

Vikings Boatbuilders, farmers, and fierce warriors are but a few descriptors for the amazing people known as the Vikings. Experience Viking culture and activities in this hands-on class.



Lab on Demand Topics

ConocoPhillips TechnoScience Labs

Grades 1st - 8th

Balancing Act From levers and mobiles to leaning towers, explore the center of mass and find out why it matters.

Crash Course Investigate the physics of collisions and safety technology.

Discovering Density Discover how hot air balloons rise, why rocks sink, and explore cool density tricks.

Falling Fast Explore parachutes and other ways to cushion a fall, then design and protect an egg 'passenger' from a crash.

Kitchen Chemistry Check out the cool chemistry hiding in household items.

Light Explore fluorescence, luminescence, and color as we experiment with light. Magnets Explore properties of magnets, testing different materials and investigating magnetic fields.

Marvelous Mixtures Investigate properties of solutions, colloids, alloys, and other mixtures and figure out how to separate them.

Optical Illusions Investigate ambiguous pictures, impossible shapes, strobe effects, and other amazing illusions.

Optics Experiment with water drop lenses and mirrors to explore reflection, refraction, and light.

Polymers From plastic and rubber to gummy bears and slime, polymers are everywhere.

Pressure Lift, crush, and hover with the amazing power of air pressure.

Shape Science Discover the science and math of shapes through tessellations, construction, and more.

Shape Science II There's so much shape science it wouldn't all fit in one class! Explore more puzzles, tessellations, and symmetry.

Skyscraper Science Experiment with tension, compression, and more to solve the problems of building sky-high.

Sound Science Use tuning forks and tubes to investigate pitch, resonance, and the science of music.

Speed Explore circular motion and discover what shapes are speediest.

Water Works Discover surprising things about water and explore surface tension and capillary action.



Lab on Demand Topics

ConocoPhillips TechnoScience Labs

Grades 9th - 12th

Density Discover how hot air balloons rise, why rocks sink, and explore cool density tricks.

Polymers Investigation Polymers from plastics and rubber to gelatin and glue are all around us and are incredibly useful! Explore different polymer types and properties (like strength or stickiness) and learn how they are made.

Test for the Best Decide how to fairly test and compare products to discover which is the best chocolate bar, the most absorbent paper towel, the bubbliest bubble gum, and also how to select the best value as a smart consumer. Allergy note: We will consume food in this lab.

Probability and Problem Solving Explore the mathematics of chance, from game shows and dice rolls to the weather – what do the numbers really mean, and what is the probability of getting a certain outcome?



Biology Labs

Grades 5th - 12th

Blood Nobody can do without it, and we mean nobody! Learn about some different kinds of blood and use simulated blood to identify human blood types.

Carbohydrates Discover the facts about the structure and properties of a powerful energy source: carbohydrates. Crack the code and identify an unknown carbohydrate.

Cells What do you have over 75 trillion of but have never seen with the naked eye? Compare animal and plant cells as you take an up-close look at our most basic component.

Flowers and Pollination Get the buzz on how some plants pull out all the stops to attract their perfect, specific pollinator. Investigate how flower form meets function in full color.

Mendelian Genetics Investigate a variety of phenotypes, genotypes, and Punnett squares using Mendel's Principles of Inheritance, the three laws that are the foundation of genetics.

Mitosis Learn about chromosomes and cellular division as you study mitosis.

Nitrogen Cycle/Water Quality pH got you down? Are your microbes multiplying? Learn about the nitrogen cycle and how your water quality affects your quality of life.

Osmosis and Diffusion Explore the mystery of molecular motion as you experiment with diffusion and osmosis.

Plant Anatomy Examine the xylem and phloem of a celery stalk, spot the structures in leaf anatomy, and ponder over photosynthesis. Carotenes, anthocyanins, xanthophylls, and tannins color our world, in this class we uncover how.



Lab on Demand Topics

Math Labs

Grades 5th - 10th

Patterns in Nature Explore the Fibonacci sequence and other cool patterns found in animals, plants, minerals, and more! Should understand simple exponents.

Grades 6th - 12th

Fascinating Fractals Explore endlessly repeating patterns similar to the branches of a tree. Then figure out how to draw your own. Should understand orders of magnitude.



Wildlife Labs

Grades 1st - 8th

All in the Family School yourself with this fun class PACKED full of information!

Amphibians Are frogs and salamander fortune tellers? Study these environmental indicators to discover what they could tell you about your own future.

Animal Sense of Sight/Smell He who smelt it... gets the best meal! See the world through the eyes of alligators, rodents, hawks, and more; then test your own schnoz to see how it stacks up with the rest of the animal kingdom!

Australian Wildlife It's got flying foxes, the only two egg laying mammals in the world, and more!

Bite Your Tongue Why are giraffe tongues dark? Are frog tongues really on backward? Answer these questions as we study this important and often overlooked organ.

Get a Grip Animals use everything from claws to wrinkles to hang on tight.

Get Batty! Who runs the best pest control service in Houston? It might just be our bats! Get to know your neighbors as we learn about bats.

How It's Made If you have eaten honey or worn silk, you have benefited from the labor of industrious creatures. Take a behind-the-scenes look at animal-run factories.

Just Keep Swimming Become an amateur ichthyologist in this lab all about fish fins.

Magnificent Madagascar This island sits off the coast of Africa and is a hotspot for biodiversity. Learn more about the strange inhabitants of this land.

Magnificent Mollusca What has a beak (but it's not a bird), a mantle (but it's not a fireplace), a foot (but no legs), and jet propulsion (but isn't a rocket)?

Myrmecology There are over 10,000 ant species. Become a myrmecologist and discover ants that cooperate to form super colonies, set traps to capture prey, and even grow their own food!



Lab on Demand Topics

Wildlife Labs

Grades 1st - 8th

Nature's Revenge Don't make them mad; these animals are equipped with toxins to fight back! Delve into the world of venomous and poisonous animals, particularly those found in Texas.

One of These Things is Not Like the Other Study characteristics of living things and sort them into their taxonomic groups; then, meet the animals you sorted!

Pollution and the Food Web Small changes in an environment can have a big impact on wildlife. Discover the impact humans have had, both good and bad, as you explore the effects of pollutants in a food web.

Polyp-palooza! Often confused for plants or rocks, coral beds are full of fascinating animals working together to support an incredible amount of life forms. Pay these polyps the attention they deserve in this wildlife lab.

Signs of Intelligent Life Discover the creative methods used to study animal intelligence.

Slow and Steady Turtles and tortoises seem invincible with their heavy armor, but these living tanks are quite vulnerable to human influence. Investigate why in this lab.

Texas Wildlife Learn about this beautiful state that supports everything from alligators, to songbirds, and even tarantulas.

The Better to Bite You With Say cheese! Say plants! Say meat! Smile wide and examine your teeth and the teeth of other animals to see how they match up to their favorite meal.

Young Wonders Learn about the interesting forms young animals take on their journey to adulthood.

Grades 9th - 12th

Endangered Species Come quickly because they're going fast! Why are some animal populations on the decline? What can we do to help them?

Pollution and the Food Web Small changes in an environment can have a big impact on wildlife. Discover the impact humans have had, both good and bad, as you explore the effects of pollutants in a food web.

Taxonomy Study features of living things and sort them into their taxonomic groups; then, meet some of the animals you sorted!



Lab on Demand Topics

Dissection Labs

Grades 5th - 12th

Introduction to Dissection Learn how to hold a scalpel, what tools are needed for success, and which way is up in this class for anyone unfamiliar with dissection.

Brain Put your axons to work as you model nerves and neurotransmitters.

Eyeball Blind spots, color blindness, or myopia a problem? Come find out why as you take an inside look at the eye and see how it functions.

Fetal Pigs An extended lab for older students. Explore mammalian anatomy of thoracic and abdominal cavities with dissection of a fetal pig in this 2-hour advanced lab.

Frog A classic example of vertebrate anatomy, the frog still has a few surprises in store.

Grasshopper Explore the world of insects as you look at the Lubber grasshopper (Romalea).

Heart Nothing beats that “Aww” moment! Take a detailed, in-depth look at one powerful muscle and vital body organ, the heart.

Kidney From filtration to waste removal, investigate the body’s very own specialized water treatment plant and body fluid balancer, the kidney.

Lizard Moths, roaches, and beetles, yum! Discover the ins and outs of a fascinating predator and local color changer, the anole.

Lung Take a close look at the mammalian respiratory system as you dissect a sheep pluck, separating the lungs from the trachea and heart.

Owl Pellet Ever wonder what happens to the indigestible parts when raptors swallow food whole? Find out as you deconstruct and explore an owl pellet.

Starfish Dive deep into this class about the starfish and other aquatic Echinoderms.

Shark Dissection An extended lab of older students. Get up close and personal with a real shark specimen. Learn about shark ecology, anatomy, and physiology in this 2-hour advanced lab.

Worm Check out the internal anatomy of these awesome annelids. During this dissection, you will discover that there is more to a worm than you might have realized.

Discovery Labs

Classes presented in Jurassic James' collection are behind-the-scenes educational Labs on Demand, using the staff's training classrooms and, time permitting, featuring a special tour.



Discovery Labs can be offered as either one-hour sessions or two-hour sessions. One-hour sessions are suggested for 1st - 6th grade and two-hour sessions are suggested for 7th - 12th grade. The class curricula are adapted from James Edward Washington III's time as a supplemental instructor in the Lone Star College System.

PALEONTOLOGY | 1st Grade & up

DINOSAURS! There are thousands of dinosaur species known to science. In this class, we will look at the five major groups of dinosaurs - Theropoda (usually predatory dinosaurs), Sauropodomorpha (long-necked dinosaurs), Ornithomimiformes (iguanodonts and "duck-billed" dinosaurs), Marginocephalia (horned dinosaurs), and Thyrophora (armored dinosaurs) - and what defines them.

How Fossils Form Most people know the fundamentals of fossilization, but this class will look at the many subdivisions that are taught in college courses - from imprints, cast, molds, recrystallization, petrification, pyritization, permineralization, and trace fossils like coprolites (fossil droppings) and tracks.

Paleontology 101 (*Two-hour session recommended*) An Introduction to Paleontology & Fossils covers specimens from the earliest invertebrates in prehistoric seas to the dinosaur right up to the end of the last "Ice age". This lecture portion will focus on the origins of the fossil record as well as the various methods of fossilization. To complete your student's understanding of the topics covered, they will be encouraged to touch and examine a variety of actual fossils. Time permitting, an in-depth tour of the Morian Hall of Paleontology using the Museum's internationally acclaimed collection of specimens is also included- time permitting.

What is a Dinosaur? The objective of this class is to learn the fundamental anatomical features that classify dinosaurs from all other prehistoric life. The second half of the class will be a brief journey through the Morian Hall of Paleontology to observe the same features on mounted skeletons. In the Morian Hall of Paleontology, we will use the handout received in class to identify which specimens are dinosaurs and which are not.

Discovery Labs

PALEONTOLOGY | 1st Grade & up

Life in the Precambrian and Paleozoic: Before Dinosaurs This class is a detailed look at the earliest life on Earth and how they adapted to an ever-changing world. Bacteria, sponges, corals, Mollusca (clams, snails, and squid), Arthropods (bugs), Echinoderms (sea stars and sand dollars), and vertebrates (fish, amphibians, reptiles, and mammals) are all life forms that began during this time. These time periods culminated in the greatest extinction known to life on Earth, about 186 million years before the more well-known dinosaur extinction.

Life in the Mesozoic: The Age of Reptiles This is the time dinosaurs walked the Earth, but they were not alone. Flying above their heads were winged reptiles, and the oceans were filled with gigantic marine reptiles the likes of which could only be reimagined in Hollywood movies. And while these life forms dominated the world stage, mammals, snakes, crocodiles, turtles, legless snakes, bees, ants, and flowering plants acted as a supporting cast of characters.

Life in the Jurassic This class offers a detailed look at the museum's wildlife of the Jurassic Period, which includes Diplodocus, Stegosaurus, Allosaurus, Othnielosaurus, and Marine reptiles like Ichthyosaurs, Plesiosaurs, and Marine Crocodiles. We will discuss these animals and their lifestyles, then tour and see the actual skeletons for discussion.



Life in the Cretaceous This class offers a detailed look at the animals of the Cretaceous Period, which include Tyrannosaurus rex, Triceratops, Edmontosaurus (“duckbill”), Gorgosaurus, Denversaurus, Acrocanthosaurus, Deinonychus (raptor), Mosasaurus, Quetzalcoatlus, and more. We will discuss these animals and their lifestyles, then see the actual skeletons in the Morian Hall of Paleontology exhibit.

Life in the Cenozoic: Life After Dinosaurs!

This class focuses on the fact that the 66-million- year-old dinosaur extinction event did not lead straight into the Ice age. There was a mammal renaissance in which bats took flight and whales evolved from land mammals, while tree-loving primates learned to walk upright. Here we see the story of us, mammals, the heirs to the dinosaurs.

Life in the Pleistocene: Ice Age When people say the “Ice age” they are referring to the Pleistocene, which translates to “most recent.” The Pleistocene has been home to dire wolves, sabretooth cats, giant sloths, giant armadillos, the famed wholly mammoth, and the even larger Columbian mammoths. One thing that makes the animals from this time so interesting is that they lived in the Houston area, so you can consider them the local prehistoric wildlife!

Discovery Labs

PREHISTORTIC WILDLIFE

1st grade & up

Prehistoric African Wildlife This class will focus on the broad range of wildlife that inhabits many of Africa's variety of ecosystems. It will cover the feeding methods of many African species, carnivorous, herbivorous, and how all these species can coexist. The tour portion will take place inside the Frensey/ Graham Hall of African Wildlife, where we will see a short-necked giraffe, learn why humans domesticated horses and not zebras, and examine how elephants in India are like organic bulldozers, while African elephants are having none of it!

Prehistoric Animal Diets: Carnivores, Herbivores, and Omnivores, oh my! The focus of this class is to study the dentition (teeth) of dinosaurs and other prehistoric life. Determining how and what these prehistoric animals ate is easily derived from modern analogous and morphology of the tooth. Using the handout received in class while in the Morian Hall of Paleontology, we will compare the teeth of each skeletal mount to determine diet.

Prehistoric Defense: Teeth, claws, run, or hide! When people imagine dinosaurs, they often see them fighting for food, territory, mates, or just because! This class will study the teeth, hones, and claws used to execute these actions while referencing actual fossil finds from all over the world as evidence.



Prehistoric Texas Wildlife: Appreciate the Animal History of your Own Backyard! This exciting class will focus

on amphibians, reptiles, mammals, and birds of Texas. The instructor has been all over our great state and has seen and interacted with many of these species. Due to Texas' large size and geographical position, many species inhabit our state either year-round or seasonally. Have you ever wondered why they say "Where the deer and the antelope play" when Texas has no antelope, only pronghorns? This class will explain the answer to this as well as discuss many more ideas about your state's wildlife! We will also journey to the Farish Hall of Texas Wildlife, time permitting.

Discovery Labs

GEOLOGY | 1st grade & up

Introduction to Minerals (*Two-hour session recommended*) Using hundreds of specimens representing 200 different minerals species, this course focuses on the way different minerals form and how they are classified. With an emphasis on industrial and commercial uses, this course is a must for identifying and appreciating minerals in your day-to-day life. The second half of the class will be focused on the mineral collection of the Houston Museum of Natural Science. A quick tour of the Cullen Hall of Gems and Minerals (time permitting) will give you the chance to appreciate some of the world's finest mineral specimens and their uses in industry and art.

The Rock Cycle (*Two-hour session recommended*) Using a vast collection of rock and specimens (most of which were personally collected by the instructor), this tactile heavy introductory lecture will look at many of Earth's environments and geologic structures while explaining the rocks they produce. Time permitting, the accompanying tour of the Houston Museum of Natural Science features multiple exhibit halls.

Sedimentary Rocks and the Environments that Make Them This class focuses on the effects of weather, erosion, and transportation of the various sedimentary environments that make up the world. Highlights include the formation of the gulf coast, swamps, marshes, bogs, lakes, river features, estuaries, barrier islands, and lagoons. Time permitting, the tours will consist of portions of the Wiess Energy Hall, Morian Hall of Paleontology, Frensley/Graham Hall of African Wildlife, and Farish Hall of Texas Wildlife. These tours will provide visuals to clarify the concepts described in the classroom.

Igneous Rocks, Volcanoes, Metamorphic Rocks, and Metamorphism Emphasizing the relationship that volcanoes have with earthquakes and their effects on civilizations past and future, this course continues developing the concepts of the rock cycle, with a focus on the different types of volcanoes all over the world, what conditions create them, and the rocks they produce. The second portion of the lecture will focus on the various types of metamorphism caused by magma deep within the earth and lava at the surface.

Geology of and Paleontology of Texas? Most geology classes focus on global trends. This class is based solely on the rocks and fossils of the Lone Star State. Using materials personally collected by the instructor from every corner of the state. The story starts from the Precambrian a time before multicellular life and one of the oldest rocks you will ever touch to the last ice age's sediments and mammal bones.

Discovery Labs

GEOLOGY | 1st grade & up

Rocks and Minerals of Ancient Americas Have you ever wondered why some cultures leave pyramids and others do not? In this class, we will take a brief look at Granite, Scoria, Obsidian, Limestone, Sandstone, Gneiss, and more with the express emphasis on how the ancient peoples of the Americas used these materials to build their worlds. We will look at the different civilizations represented, with a focus on the specific geologic conditions that gave America's human inhabitants the building materials to create the megastructures, mythologies, and wealth of the Americas before the arrival of the old-world inhabitants. Time permitting, we will tour HMNS' Hall of the Americas. This course will show you how to tell the difference between Egyptian, Aztec, and Mayan pyramids, and much more!

Rocks and Minerals of Ancient Egypt This class provides a look at Granite, Scoria, Obsidian, Limestone, Sandstone, and Gneiss and how the ancient peoples of Egypt used these materials to build their worlds. The Ancient Egyptians are one of the most revered and researched ancient cultures. So, what more can we add to this grand story? Well, the simple question of how did they do it? We will focus on the specific geologic conditions that gave them the building materials to create their megastructures and mythologies. From a geologic standpoint, a majority of human history is a drive for resources, and the Egyptians were just downright lucky!

GEOLOGY | 6th - 12th grade

Plate Tectonics (*Two-hour class*) The idea of moving continents was first proposed a little over a century ago with Alfred Wegner's Theory of Continental Drift. The Theory of Plate Tectonics did not completely form until the late 1960s. This class will look at the clues scattered throughout the world and will end inside the Weiss Energy Hall, time permitting, where we will review the models and animations created to explain these theories.



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Questions?

Email us at reservations@hmns.org.

Due to the high volume of booking requests, email is the best way to reach us at this time.

Office Hours

Mon-Fri; 9:00am - 4:00pm



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