



FIELD TRIP PACKET

September 2019- February 2020

The Health Museum
JOHN P. MCGOVERN MUSEUM OF HEALTH & MEDICAL SCIENCE
A real body of knowledge

FIELD TRIPS

GENERAL INFORMATION ABOUT FIELD TRIPS

- The Health Museum offers immersive experiences with exciting exhibits and fun interactive activities as well as stimulating **Discovery Lab** add-ons that will make your field trip memorable and unique.
- ✓ *The Field Trip Experience* (\$8 per student) – a complete and entertaining journey created for the most curious minds.
- ✓ *Discovery Labs* – an exciting selection of add-ons for a more customized experience.
- No one is left behind; we have activities that fit all ages. The icon below identifies the target age group of the activity.



- Activities are on-going, with flexible time schedules. **A variety of activities will be offered every day to ensure every visit is unique.**
- All Field Trips include open access to **our ongoing exhibits** and optional guided tours on request. Guided tours must be scheduled at least 20 business days in advance.

RESERVATION AND CANCELLATION POLICIES

- Discovery Labs must be scheduled at least 20 business days in advance, on a first come first serve basis.
- Reservation deposits must be paid within 10 business days of the confirmation email.
- All reservations must be confirmed and paid in full 10 business days in advance.
- The number of participants can be changed up to 10 business days prior to your field trip. After this period, if you have less students than expected, you will be credited with a voucher that can be redeemed within 1 calendar year for general admission. If you have more students than expected, space is not guaranteed and accommodations will be made based on availability.

ONGOING ACTIVITIES - INCLUDED WITH EVERY FIELD TRIP

	Duration
Amazing Body Gallery - Open Access	30 - 45 min
Brain Teasers - Open Access	15 - 30 min
Museum Exhibits - Open Access <i>Our Global Kitchen</i> – June 2019 – February 2020 <i>Outbreak</i> – October 2019 – May 2020	30 - 45 min
Scavenger Hunt	20 min
Educational Movies	15 – 20 min
Live Dissection Demos: Cow Eye, Sheep Brain, or Sheep Heart - Offered daily at pre-scheduled times	30 min
Village Green EPA Bench - Open access	10 min
Food Origins	15 min
Harvest Time Bingo	15 min
Super Seeds	15 min
DIY Produce Cleaner	15 min
Mystery Microbes	15 min
You've Got Guts	15 min

Find out more details about the ongoing activities on pages 4-6.

Disclaimer: All activities may not be offered everyday and are subject to change at the museum's discretion.

DISCOVERY LABS

- **Must be booked at least 20 business days in advance. After that period, all activities are subject to availability (depending on staff and supplies)**
- **Offered on a first come, first served basis**

Discovery Labs are an exciting selection of add-on classes that allow students to explore health science one step further. Through a fun, experiential learning approach, students are challenged to think creatively, collaborate and problem-solve. Each Discovery Lab encourages curious minds of all ages to think in new and different ways about their own health. Labs are aligned to state and national standards and integrate Science, Technology, Engineering, Art, and Math (STEAM) content.

		Additional fee	Duration
DNA Lab		\$5 per student	60 min
<i>DeBaKey Cell Lab – 2 stations</i>		\$5 per student	60 min
Dissect It Yourself (DIY) Labs	<i>Cow Eye Dissection</i>	\$5 per student	40 min
	<i>Owl Pellet Dissection</i>	\$5 per student	40 min
	<i>Sheep Heart Dissection</i>	\$8 per student	60 min
	<i>Sheep Brain Dissection</i>	\$15 per student	60 min
Amazing Body Lab (min 10 - max 30 students per session)		\$10 per student	75 min
Clinical Case Lab - Diabetes (min 10 - max 30 students per session)		\$8 per student	60 min
Clinical Case Lab – Air Pollution & Your Health (min 10 - max 30 students per session)		\$8 per student	60 min
Nutrition Lab (min 10 - max 30 students per session)		\$5 per student	60 min

Find out more details about the Discovery Labs on pages 6-8.

DETAILS ABOUT THE ACTIVITIES

The Field Trip Experience

Amazing Body Gallery

Explore the science of health and the human body with interactive kiosks, larger-than-life models of human organs including a giant beating heart!



Brain Teasers:

Who will be the most successful at cracking puzzles?



Exhibits:

Our Global Kitchen - June 2019 – February 2020

Our Global Kitchen: Food, Nature, Culture explores our complex food system from farm to fork. With sections devoted to growing, transporting, eating, cooking, and celebrating food, *Our Global Kitchen* illuminates the myriad ways that food is produced, moved, and enjoyed throughout the world.



Outbreak - October 2019 – May 2020

Why do infectious diseases emerge where they do?
What makes them spread so quickly?
Where do we look for the next one?



Our world is more connected than ever before by global travel and trade, by technology – and by our microbes. Explore the connections between human, animal, and environmental health, and discover how people around the world track down and respond to disease outbreaks. Examine models of viruses up close, engage with videos and maps, and play an interactive game to contain an outbreak. Learn about epidemics that have affected the Greater Houston Area and the impact that they've had on our community.

Scavenger Hunt:

Using a TEKS-based scavenger hunt as a guide, you'll take selfies and explore the science of health all over the different museum exhibits.



Educational Movies:

Take a break in our McGovern Theater and participate in a fun activity related to the movie to learn more about your health and body.



Live Dissection Demos:

Take a seat inside the McGovern theater and follow a live dissection of a cow eye or a sheep brain performed by one of the Museum science educators.



Village Green EPA Bench:

Our new green bench is unique to Houston. It's made of recycled materials and solar panels providing the power necessary to measure ozone and fine particle pollution. Learn how the bench also gathers meteorological information: humidity, wind speed, and temperature.



Food Origins

Food can come from the ground beneath our feet, or from animals that fly, walk, crawl, or swim. Students will take part in a culinary exploration of the origins of some familiar and not-so-familiar foods from around the world.



Harvest Time Bingo

Did you know that the United States Supreme Court officially classified a tomato as a vegetable rather than a fruit in 1893? Students will discover more fun facts about fruits and vegetables and have a chance to win a prize in this fun-filled game of Bingo with a twist.



Super Seeds

What do K cups, coffee grounds and eggshells have in common? They can all be reused to grow healthy edible plants. Students will learn about the parts of plant, and recycling as they sow their own seeds and discover the culinary and health benefits associated with the consumption of fresh herbs.



DIY Produce Cleaner

The USDA recommends that Americans eat at least 2 servings of fruits and 3 servings of vegetables per day. But how do we make sure that these foods are free of germs and pesticides? Students will learn about the antimicrobial benefits of common kitchen ingredients such as vinegar as we create a DIY produce cleaner to destroy bacteria and make our food taste better!



Mystery Microbes

Bacteria are tiny organisms, so small that you need a microscope to see them. Bacteria live inside of our body, too! **What do you think bacteria look like?** Students will learn that bacteria come in many different range of shapes and bacterial cells multiply.



You've Got Guts

Our intestines use tiny organisms called microbes to absorb nutrients. There are microbes all over our bodies, but most of them live in our intestines! Over 100 trillion of them, in fact! They're tiny, and you'd need a microscope to see them. Students will investigate their intestines are.



Discovery Labs

→ **Must be registered 20 business days in advance**

DNA Lab \$5 per student (1 hour)

Students learn about their DNA make up, enjoy an advanced Scavenger Hunt, and take home a necklace with their very own DNA.



DeBakey Cell Lab \$5 per student (1 hour)

Students participate in 2 of the 7 stations. More details about the DeBakey Cell Lab experience below.



DIY Labs: Dissect it Yourself (45-60 min)

DIY Labs are hands-on dissections for all ages. Students will get a chance to actively explore the structure and function of organs.

→ *DIY Owl Pellet* \$5 per student



→ *DIY Cow Eye Dissection* \$ 5 per student



→ *DIY Sheep Heart* \$8 per student



→ *DIY Sheep Brain* \$15 per student



Amazing Body Lab - \$10 per student (75 min) - max. of 30 students



Take a sneak peek inside the human body and explore our SynDaver, a medical simulator that has been seen on Mythbusters and Grey's Anatomy. Not only will anatomy come alive, but students will try their hand at real surgical skills as they scrub up, dissect, and practice stitching and suturing. Bring a steady hand and an excitement for learning.

Clinical Case Lab - Diabetes - \$8 per student (60 min) – max 25 students



Brought to you in collaboration with the Chicago Museum of Science & Industry. Students will do much more than trying on a stethoscope and performing compressions on a non-responsive dummy in this Lab. They will step into the role of “Doc for an Hour”—complete authentic medical tests using professional lab tools, work with a state-of-the-art human patient simulation robot, analyze test results, develop a diagnosis, and suggest treatment for illness. Upon completion of the Lab, students will feel empowered to take greater initiative in improving personal, family and/or community health.

Clinical Case Lab – Air Pollution & Your Health - \$8 per student



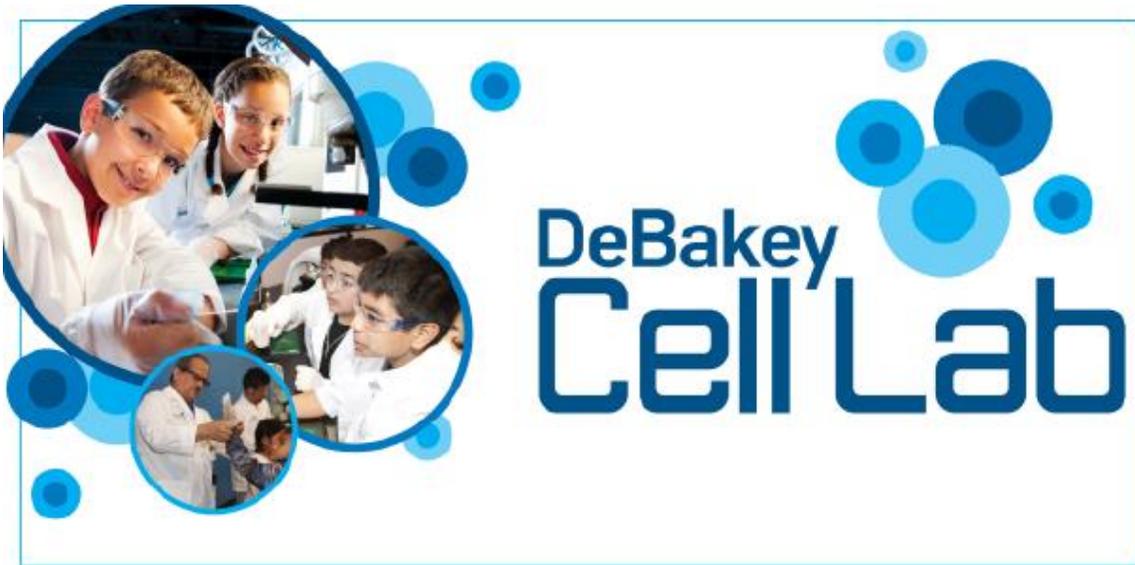
Brought to you in partnership with Environmental Defense Fund

This class offers a unique immersive experience in which students will have the opportunity to learn about air pollution and its impact on human health. Through interactive, hands-on activities, students will learn about air pollutants, air quality measurement techniques, the effect of air pollutants on human health, asthma as a condition affected by air quality, the importance of environmental factors, and novel strategies and technologies to improve air quality and environmental health. Our program simulates a real-life clinical scenario in which students perform and analyze authentic medical tests, use professional clinical and lab tools, and interact with a state-of-the-art human patient simulator. Clinical Case Lab empowers students to take greater initiative in improving personal, family, and community health.

Nutrition Lab - \$5 per student (60 min) - max. of 25 students

Students will whisk and stir their way through hands-on cooking activities including lessons on eating a balanced diet, understanding the importance of micro and macro nutrients, and reading food labels. Participants will have the opportunity to feast on their culinary creations and take home healthy recipe cards incorporating foods that promote optimal growth and development of specific body systems.





The DeBakey Cell Lab is a distinct, new kind of museum experience honorably named after the respected and accomplished medical pioneer, Dr. Michael E. DeBakey. Gear up with a lab coat, gloves, and goggles and travel through three experiment stations in both English and Spanish. This bilingual exhibit is designed to introduce biology-based science to the public and inspire future scientists and science-lab leaders in the medical field.

- ✓ *The lab is recommended for ages 7 and up due to the complexity of the experiments.*
- ✓ *All guests, ages 13 and under, must be accompanied by an adult chaperone.*
- ✓ *This hands-on exhibit is an additional \$5.00 per student*
- ✓ *Participants will do 2 experiments per visit to the Museum.*



Travel through 2-3 of 7 lab benches that get you up close and personal with cellular biology.

- ✓ *Get Cheeked!*
- ✓ *Anti-Microbial Investigations*
- ✓ *Unrolling DNA*
- ✓ *Break it Down*
- ✓ *Seeing Red*
- ✓ *Mystery Microbes*
- ✓ *Giant Chromosomes*

CELLULAR BIOLOGY BENCH DESCRIPTIONS

| Get Cheeked!

Goal: Stain and examine your own cheek cells

Time: 15 Minutes – Age 7 up

- You will examine a small sample of your cheek cells under a microscope.
- You will be looking for the large nucleus, cell membrane, and bacteria.

| Anti-Microbial Investigations

Goal: The objective of this bench is to determine which common antimicrobial products are the most effective in killing bacteria.

Time: 20 (plus) Minutes - Age 7 up

Many common household cleaners are antimicrobials.

- You will test the effectiveness of several of these agents, such as bleach, hand soap, and hand gel on a common strain of bacteria, *bacillus moratorium*.
- Engage in the scientific process by first proposing a hypothesis, then testing the hypothesis with positive and negative controls, and finally interpreting the results.

| Unrolling DNA

Goal: Isolate DNA from raw wheat germ

Time: 15 Minutes – Age 7 up

Each one of us are unique. This activity bench focuses on a simple extraction of DNA from wheat germ.

DNA is considered the “thread of life”. It is contained in the nucleus of the cell compacted into what are called chromosomes. This activity allows you to see long, stringy strands of DNA after you lyse open the cell and break down membranes.

- You’ll put wheat germ in a solution and add soap. Soap will break down the cell plasma membrane (the membrane is made up of lipids and they break down in the presence of soap).
- You’ll release the DNA bound by proteins by adding meat tenderizer and with a precipitation method using alcohol. DNA does not break down in alcohol but does in water. Alcohol allows us to spool together thousands of strands of wheat DNA. Use the stirring rod to swirl it around and gather the DNA on a glass rod.

| Break it Down

Goal: To identify amylase enzymes in saliva

Time: 15 (plus) Minutes – Age 10 up

Digestion of food begins in the mouth when saliva is secreted to break down starchy substances. This activity allows you to analyze a sample of your saliva and the role enzymes play in digesting starch. Several different levels of testing the enzyme, *amylase*, are provided.

Examples of these tests include timing--how long it takes the enzyme to convert starch to simple sugars and testing substances other than starch that the enzymes does not break down. You'll see how our starch solution begins as a dark blue. As amylase begins to break down the starch, you'll see it turn to yellow as we add iodine.

| Seeing Red

Goal: To realize the complexity of blood

Time: 30 (plus) Minutes – Age 10 up

Blood is more than a red liquid, it is a mixture of plasma and cells.

- You will explore the properties of blood in up to three different procedures.
- Look at real sheep's blood through a microscope.
- Measure the proportion of red blood cells (RBC), and determine the blood type of a sample using simulated blood.
- Learn what a sample of blood looks like under the microscope.
- You'll apply a stain to highlight the RBCs and white blood cells (WBCs).
- You'll be able to identify the shape of RBCs, learn why they look like little rings, and identify WBCs based on the stain.

| Mystery Microbes

Goal: To identify bacteria using stains and chemicals test

Time: 40 (plus) Minutes – Age 12 up

Bacteria are an essential part of our life. We rely on bacteria to keep us healthy.

- You will stain, test, and identify one of 4 unknown strains of bacteria that are commonly found in and on the human body. This bench uses equipment and materials typically found in clinical bacteriology labs.
- You will learn techniques of microbiology, while also practicing the detective work of using techniques to identify unknown substances.

| Giant Chromosomes

Goal: To identify chromosomes from a fruit fly

Time: 40 Minutes

Many of genetic sequences found in the fruit fly genome are similar to those found in humans.

- You'll stain DNA from fruit fly salivary glands.
- Examine the DNA in tightly packed chromosomes under a microscope.

This activity involves a longer time commitment and is recommended if you have completed the other benches and would like an extra challenge.



SCHOOL FIELD TRIP CODE OF CONDUCT & EXPECTATIONS

The Health Museum welcomes you and your students to the Museum. We hope you have a fun visit filled with new experiences and discoveries. We understand young students are in the beginning stages of socialization with others, and we want to provide a foundation for helping students reinforce positive social skills and behaviors. The Museum expects all patrons to follow Museum rules during their visit. The Museum team is here to facilitate a positive visit but cannot be expected to supplant the role of the adult in supervising all children they accompany. If any patrons ever need assistance, please let a Museum team member know how we can help!

MUSEUM RULES

In general, remember low and slow—low voices and slow feet.

- ✓ All children MUST be under constant supervision of the adult(s) accompanying them. Please do not allow your child to roam freely without you.
- ~~✓ Chaperones will be given specific badge colors to identify their groups for field trip activities.~~
- ✓ Appropriate conduct is expected of all patrons (both big and small) at all times. The Museum reserves the right to intervene and ask you to return another day if you are not meeting the Museum rules for conduct.
- ✓ Treat others as you would like to be treated.
- ✓ Respect the property of others, including the property of both the Museum and fellow patrons.
- ✓ Appropriate behaviors include, but are not limited to the following:
 - ✓ Being respectful.
 - ✓ Being courteous.
 - ✓ Being helpful.
 - ✓ Do not allow older children to engage in rowdy play, running, or roughhousing. Remember that safety is a priority.

- ✓ Walking feet, kind choices, and inside voices please.
- ✓ Shoes are required for all children of walking age, even for little feet.
- ✓ Please do not bring food or drink into the Museum Exhibits. Please enjoy your snack or lunch in the courtyard or in the vending machine area.
- ✓ Be curious! Participate in activities and ask questions!

We thank you for joining us at The Health Museum. Have fun!

FIELD TRIP CHECK LIST

Implementing a successful learning experience at The Health Museum requires preparation. In order to effectively lead your group, you need to have a clear understanding of the Museum's layout, available resources, and the day's learning activities. Use our Field Trip Check List to ensure you are well prepared for your visit.

At least 10 business days before your field trip:

- Prepare to register.
- Visit our website: www.thehealthmuseum.org
- Choose three potential field trip dates.
- Decide which program offerings you would like to do.
- Determine the total number of students and chaperones who will be visiting.
- Identify your lunch needs.
- Contact the Reservations Department at reservations@thehealthmuseum.org
- Complete necessary school paperwork (e.g. field trip application, student permission slips, etc.).
- Coordinate transportation.
- Recruit chaperones.
- Prepare yourself.
- Prepare chaperones.
- Create chaperone groups.
- Remember to follow our chaperone-student ratio. One adult chaperone per ten students.

BEFORE THE FIELD TRIP

A successful field trip begins well before students board the bus.

Goals

- ✓ Students have realistic expectations about what they will see and do at the Museum.
- ✓ Students understand the goals for learning at the Museum.
- ✓ Students understand how the field trip fits into classroom learning.
- ✓ Students complete activities that prepare them for learning at the Museum.

Strategies

- ✓ Prepare for the field trip experience.
- ✓ Read a book about health.
- ✓ Examine a museum map.
- ✓ Explore the Museum website.
- ✓ Discuss students' prior visits to The Health Museum or other museums.
- ✓ Communicate behavior expectations and consequences.

POLICIES AND PROCEDURES FOR FIELD TRIPS

By submitting your reservation form, you agree to the following policies:

HOW DO I MAKE A RESERVATION?

- ✓ Reservations are made online through our website and are not accepted by telephone or email.
- ✓ Reservations are taken on a first come, first served basis. We recommend scheduling your field trip early in the year in order to secure your preferred dates.
- ✓ Discovery Labs must be scheduled at least 20 business days in advance.

DO WE NEED TO PRE-PAY FOR OUR FIELD TRIP?

- ✓ A \$50 non-refundable deposit holds your date and time; please know that your reservation is not secured until this deposit is paid.
- ✓ Your full payment, minus the deposit amount, is due at least 10 business days before your field trip.
- ✓ The Museum accepts payment in the form of checks, Visa, MasterCard, Discover, or American Express.
- ✓ We do not accept purchase orders.

Please call Reservations at 713.337.8451 with a credit card number or mail checks to: The Health Museum, ATTN: Reservations, 1515 Hermann Drive, Houston, TX 77004

HOW WILL I KNOW IF MY RESERVATION HAS BEEN ACCEPTED?

- ✓ The Health Museum will email a copy of your reservation confirmation form within a week of receiving your submitted online reservation request.
- ✓ We will contact you via the email address you provide if your preferred time/date is not available. You will then review the reservation for accuracy, and pay your \$50 deposit.

- ✓ Your reservation will only be confirmed after the deposit amount has been received.
- ✓ If you do not receive your reservation confirmation letter via e-mail within a week of submission, please contact:

Reservations at 713.337.8451 or reservations@thehealthmuseum.org.

CAN I MAKE CHANGES TO MY RESERVATION?

- ✓ Rescheduling or changes can be made until 10 business days before your scheduled field trip.
- ✓ Changes must be made in writing via email to reservations@thehealthmuseum.org.
- ✓ Schools bringing fewer students than reserved will be given general admission vouchers for each student that is paid for but not attending; no monetary refunds will be given.
- ✓ Schools bringing more students than reserved will be expected to pay for the additional students and chaperones upon arrival. Space is not guaranteed and accommodations will be made based on availability.
- ✓ Vouchers, gift passes, Museum memberships, and general admission tickets cannot be used to pay for field trip reservations.

WHAT IF I NEED TO CANCEL MY FIELD TRIP?

- ✓ Cancellations must be received in writing by e-mail within at least 10 business days prior to the scheduled field trip date.
- ✓ Any “no-shows” or schools that fail to cancel within 10 business days prior to the scheduled field trip will be billed for the full contracted amount of the reservation.

HOW MANY CHAPERONES CAN I BRING?

- ✓ We require that K-12 schools bring one chaperone for every ten students. The required chaperones will receive complimentary general admission.
- ✓ Each additional chaperone will be charged the adult group rate of \$7.
- ✓ Chaperones or parents that arrive and pay independently of the group will be charged the regular adult admission rate of \$10.

WHERE DO BUSES DROP-OFF AND PICK-UP STUDENTS?

Bus pick-up and drop-off is on La Branch Street at the group entrance of The Health Museum. Bus parking is not available along La Branch Street but limited bus parking is available along other streets in the Museum District. For The Health Museum, we recommend trying to park your bus along Crawford Street next to the museum or along Hermann Drive. Please give your bus driver this information so all our guests can safely arrive and depart.

WHERE DO INDIVIDUAL VEHICLES PARK?

If you will be arriving in individual vehicles, parking is available in our surface lot for \$5 per vehicle.

CAN WE EAT LUNCH AT THE HEALTH MUSEUM?

- ✓ We do not have an onsite lunch facility, or an area for students to eat lunch.
- ✓ However, many groups bring a picnic lunch and eat across the street at Hermann Park or McGovern Centennial Gardens before or after their scheduled field trip.
- ✓ Lunch breaks are not offered during the middle of a field trip.

CAN I PREVIEW THE HEALTH MUSEUM BEFORE OUR FIELD TRIP?

We welcome all teachers to visit the Museum in advance of their scheduled field trip. We recommend attending a Teacher Tour or just visiting to find out what the Museum has to offer and how to use it in your classroom. We would also be happy to attend a faculty meeting or parent organization meeting to present our programs.

AS A CURRENT MEMBER, WILL MY FIELD TRIP RESERVATION HAVE ANY ADDITIONAL DISCOUNTS?

Memberships cannot be used for additional discounts on school field trips or group visits.

TEKS & NEXT GENERATION SCIENCE STANDARDS

Elementary

Health: 2; 1(d), 3; 1(C), 4; 1(A), 5; 1(B-C)

Science: K; 9(B), 1; 10(B), 2; 10(b), 3; 9(A-B), 4; 9(A), 5; 10 (A)

Social Studies: K; 12(A), 1; (A-D), 2; 16(A-B), 3; 13 (A-B), 4; 19(B), 5; 22(B)

Next Generaton Science Standards

K-LS1, 1-LS1, 2-LS2, 3-LS2, 4-LS1, 5-ESS3

Middle School

Health: 6; 1(A)

Science: 6; 1 (A-B), 7; 12 (C), 6; 11(A)

Social Studies: 6; 17(A-D), 7; 19(B), 8; 27(A-C)

Next Generaton Science Standards

MS-LS1, MS-LS2, MS-ESS3

High School

Health: 9-10; 1(C)

Science: (Biology) 9-12; 6(A-C), (Chemistry) 9-12; 1(C)

Social Studies: (World History) 9-12; 28(A), (World Geography) 9-12; 17(A-D)

Next Generaton Science Standards

HS-PS1, HS-PS3, HS-LS1, HS-LS2