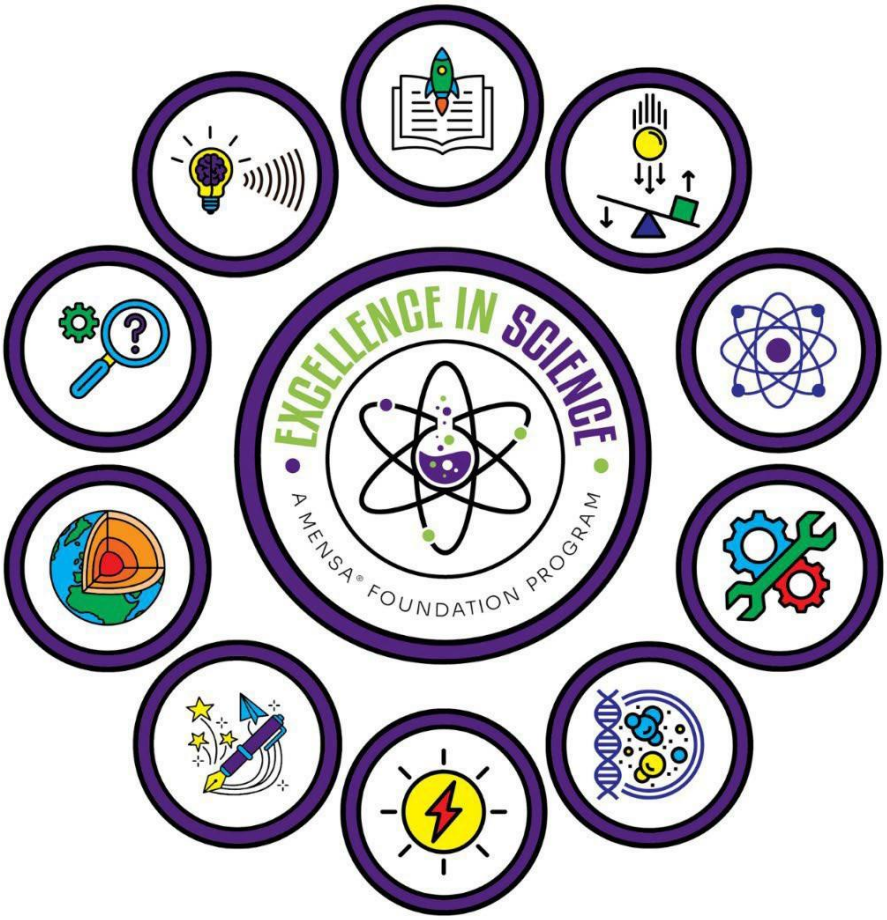
EXCELLENCE IN SCIENCE AWARD PROGRAM



GRADES 9-12 BADGE WORKBOOK

NAME: _____

MENSA FOUNDATION

MENSA FOUNDATION EXCELLENCE IN SCIENCE AWARD PROGRAM

To encourage curiosity and exploration in STEM-related fields, the Mensa Foundation has developed the **Excellence in Science Award Program** - complete science activities, earn a commemorative certificate in recognition of your outstanding achievement and get an Excellence in Science T-shirt, too!

The Mensa Foundation recognizes and encourages education, gifted youth, and lifelong learning through resources like the Mensa for Kids website and other programs for youth and those who support them.

While these activities were written or selected for children in grades K-12, this program is open to all (including parents and teachers!) – the only requirement is an interest in science.

Inspired by the principles of the Next Generation Science Standards (NGSS), the *Excellence in Science* program invites learners to complete hands-on, research-based, creative, and real-world activities across a variety of science topics. The Mensa Foundation aims to help every participant build a lasting passion for science, one badge at a time.

To participate in the Mensa Foundation Excellence in Science Program, follow these steps:

1. Select a workbook from the grade level bands available. Participants can choose any workbook that best fits their skills and interests.

2. Print the appropriate workbook and track each activity you complete by checking it off as you go. When you finish all the activities for a given badge, record the completion date on your badge sheet. Please complete the form by hand. We operate on the honor system, and we encourage honesty in this way.

3. Once you've completed an entire workbook by finishing every badge, both the participant and an adult will need to sign the badge sheet as verification and return it and the order form to the Mensa Foundation at the address provided. Once we've received your signed badge sheet and verified it, we'll send you a recognition certificate and T-shirt. Please allow 6 weeks for delivery.

MENSA FOUNDATION

MENSA FOUNDATION EXCELLENCE IN SCIENCE AWARD PROGRAM

Important Questions Answered

Is Mensa membership required?
No, the program is open to anyone, regardless of Mensa affiliation or membership.

Do I have to use the workbook for my grade level?
No, participants can pick the workbook that's best for them.

Do I have to complete the activities exactly as written?
No, feel free to make adjustments to any activity as needed. This program is meant to be flexible and inclusive – if you can adapt the activity while keeping the scientific concepts intact, go for it!

Do I need to complete the activities in order?
No, activities can be completed in any order. Just make sure all badge requirements on the list are checked off before submitting your form.

Do I have to submit my completed projects?
No, all you need to submit is your signed badge sheet. We operate on the honor system, and we trust parents/teachers to verify that each badge was completed in its entirety.

Can the same activity be used satisfy multiple badge requirements?
Yes, we recommend reading the workbook in its entirety before you begin so you can make note of any activities that can be combined or modified to use across two or more badges.

Can I redo the program if I already completed it at a younger grade level?
Yes! We encourage participants to continue exploring science at any age or level, and we're happy to issue additional awards for each new badge workbook completed.

Can school projects or classroom assignments count toward badge activities?
Yes, if a school project or classroom activity aligns with one of the badge requirements, it absolutely counts.

I'm a teacher – can I swap some of these for similar activities that are already part of my school curriculum?
Please do! We trust teachers to make the right decisions for their students' educational needs while maintaining the integrity of the Excellence in Science Award Program.

If a teacher does an activity with the whole class, does every student in the class get credit for completing the activity?
Yes, as long as the student is present for the activity. Students who are absent must complete the activity another time before checking it off their list.

Can a teacher/parent submit a form and be recognized as well?
Of course!

Will you send my students' awards to our school?
Yes, just include your school's name, address, and who to attention it to.

Do you ship awards internationally?
Yes! We're happy to send certificates and T-shirts to participants outside the U.S. Please note that international delivery may take longer than the standard 6-week timeline.

The pages that follow contain the activities for each Excellence in Science badge. These activities are designed to help you explore science through hands-on experiments, creative projects, and real-world investigations.

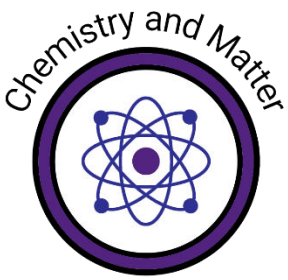
There are **10 badges** needed to complete the Excellence in Science Award Program:

- Chemistry and Matter
- Earth and Space Science
- Energy
- Engineering
- Forces and Motion
- Life Sciences
- Sound, Light, and Waves
- Science Literacy
- Science Exploration
- Arts and Science

Complete each activity to the best of your ability. You don't need to be perfect; the most important thing is to have fun, stay curious, and try something new. Some activities include suggested links to websites with examples, videos, or how-to instructions.

If you're viewing this workbook on a screen, you can click those links directly.
If you're using a printed workbook, **scan the QR code below** to visit a webpage with all the activity links in one place. If you experience any issues with the QR code or links provided, please let us know by emailing giftedyouth@mensafoundation.org.

Look for the □ symbol next to activities that have a suggested online resource.



CHEMISTRY AND MATTER

Use these activities to explore the structure and behavior of matter at the atomic and molecular levels. Investigate chemical bonding, reactions, conservation of mass, and how properties of materials relate to their structures. Check off each activity as you go, and when you've completed them all, record the date on your badge sheet.

- ☐ Design your own chemistry-themed scavenger hunt or digital "escape room" using chemistry concepts. Examples may include:
  - Balancing chemical equations
  - Identification of elements, molecules, and substances
  - Chemical safety

- ☐ Investigate the history of atomic theory and create a timeline showing key developments in our understanding of atoms from ancient history to now

- ☐ Use pennies to model the process of radioactive decay.

- ☐ Investigate how chemical reactions can be influenced by physical properties by completing one of the following:
  - Altering a chemical reaction by changing a variable's temperature
  - Altering a chemical reaction by changing a variable's size

- ☐ Create a natural pH indicator using red cabbage, then use it to test the acidity of various solutions and liquids you have at home.

- ☐ Explore real-world applications of chemistry by creating a report or presentation about one of the following:
  - The role of chemistry in forensic science
  - The role of chemistry in cooking and baking
  - The role of chemistry in medicine

- ☐ Investigate chemical safety by reading and reviewing the safety data sheets (SDS) for various cleaning, beauty, and other products in your home or school. Identify their chemical ingredients, their hazards, and what makes them reactive or dangerous. Brainstorm ways you can reduce risk by changing how items are stored and handled.

- ☐ Select a chemistry-related Nobel Prize winner. Research their contribution to the field, explain the chemical principles involved in their discovery or innovation, and reflect on its real-world implications. Present your findings in the form of an essay, presentation, infographic, or video.

- ☐ Complete one of the following research investigations:
  - How chemical compounds in medicines break down over time, what factors influence their degradation, and how expired medications can be harmful to humans and the environment.
  - Investigate PFAS compounds used in things like Teflon and waterproof gear, research their chemical properties, their uses, and what makes them potentially harmful to humans and the environment.
  - Research how plastics are made, their properties and structure, and the effects of plastic-related pollution on humans and the environment.

- ☐ Learn about careers related to chemistry and materials science by interviewing a professional or researching a job in a chemistry-related field. Be sure to include information about education and certifications, the skills needed to perform a particular job, and how people in this job apply chemistry concepts to the real world.

DATE COMPLETED: _____

EARTH AND SPACE SCIENCE

Use these activities to examine Earth's systems and the forces that shape our planet and solar system. Explore geological processes, climate patterns, natural resources, and how Earth's history is recorded in rock layers and space exploration. Check off each activity as you go, and when you've completed them all, record the date on your badge sheet.

- ☐ Create a visual timeline of significant events in the history of the solar system. You can be as detailed as you like, but major events might include:
  - The Big Bang
  - Birth of the sun
  - Formation of the planets
  - Major developments of planetary features (moons, rings, atmospheres, volcanism, life, etc.)

- ☐ Demonstrate an understanding of the sun and its key features by completing one of the following:
  - Create a timeline or other visual representation of the sun's evolution, from nebula to its eventual death. Compare the sun's lifespan to larger and smaller stars and explore what will happen to the rest of the solar system when the sun becomes a red giant.
  - Research the sun's layers and their composition, properties, and processes that occur in each layer. Make a physical model of the sun using different household materials or arts and craft supplies for each layer.

- ☐ Explore how the sun produces energy and the way it impacts life on Earth by completing one of the following:
  - Write a science-based fiction essay, presentation, video, or art piece imagining what would happen to the Earth if the sun were to suddenly disappear. Consider the effects over days, weeks, and years. Discuss how temperature, food sources, and the atmosphere would change without solar energy.
  - Research historical solar storms, and using what you've learned, create a risk assessment report on how modern society is vulnerable to solar flares. Predict how a major solar storm today could affect daily life.
  - Research how the sun produces heat and energy through nuclear fusion, and how scientists are working to recreate this power with nuclear fusion reactors like ITER. Create a presentation, infographic, or write-up on challenges and advancements in fusion energy and what impact we could see on Earth should nuclear fusion become a viable energy source.

- ☐ Choose two planets and research their atmospheres, geology, and surface conditions. Present your findings in a travel guide or comparative brochure.

- ☐ Investigate how climate variables, such as temperature and precipitation, have changed in your local area over the past several decades. Collect historical climate data from reliable sources such as the National Oceanic and Atmospheric Administration (NOAA) and analyze the data for trends or significant changes over time.

- ☐ Model the greenhouse effect with a simple experiment using glass jars, thermometers, and a plastic bottle.

- ☐ Explore the relationship between human activity, pollution, and the environment by completing one of the following:
  - Use a vinegar solution to simulate acid rain and observe its effect on plants over several weeks by spraying one plant with a vinegar solution and the other with plain water. Note any significant findings about the plants' health and appearance.
  - Make your own air quality sensors out of petri dishes and petroleum jelly, and place them in various locations, inside and outside. After about a day, compare the contents of your dishes and draw conclusions about the impact of human activity on air quality.

- ☐ Complete one of the following:
  - Research a real-world earthquake, tsunami, volcanic eruption, hurricane, or other natural disaster. Analyze the science behind the event, its human impact, and how communities responded.
  - Research the most likely natural disaster in your region (earthquake, flood, wildfire, etc.), then create a preparedness plan for your household or neighborhood. Include evacuation routes, supply lists, and safety steps.

- ☐ Complete one of the following:
  - Design a campaign (flyers, short video, or social media posts) on a key earth science issue such as groundwater depletion, space debris, or climate change, and suggest ways people can help.
  - Organize or participate in a cleanup at a park, stream, or beach. Document how pollution affects soil, water, or wildlife in your area and present your thoughts in a journal entry, article, blog or vlog.
  - Join a real-world science project like GLOBE Observer, iNaturalist, or Zooniverse to help researchers collect data on weather, animals, or space events.

- ☐ Learn about careers related to earth and space science by interviewing someone who works in an earth and space science field or selecting a career and researching it. Be sure to include information about education and certifications, the skills needed to perform a particular job, and how people in this job apply earth and space science concepts to the real world.

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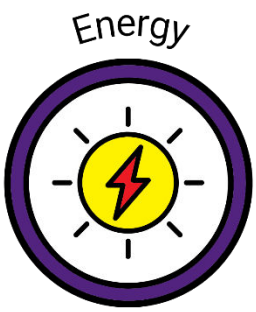

ENERGY

Use these activities to understand how energy is stored, transferred, and conserved across different systems. Investigate energy transformations in mechanical, thermal, electrical, and nuclear systems, and how energy use impacts the environment and society. Check off each activity as you go, and when you've completed them all, record the date on your badge sheet.

- ☐ Investigate how mechanical energy can be converted into electrical energy by designing and testing a simple electric generator made from copper wire, magnets, LED lights, string, and cardboard.

- ☐ Investigate how chemical energy can be converted into electrical energy by completing one of the following:
  - Create a battery using a potato
  - Create a battery using a lemon
  - Create a battery using a coin

- ☐ Explore how organic matter can be used to create energy by conducting an experiment that tests the amount of gas produced by different types of biomass.

- ☐ Conduct an experiment to test the energy efficiency of various lightbulbs used in your home or school.

- ☐ Track your household's energy usage over the course of at least two weeks. Include information about the types of energy used. Recommend ways your family could conserve energy.

- ☐ Research an energy innovation, including its history, how it works, why it's used, what forms of energy are involved, and its impact on the energy landscape. Present your findings in the form of an article, blog post, infographic, presentation, or video. Examples of energy innovations may include:
  - Solar canals
  - Regenerative braking
  - Carbon nanotubes
  - Vertical axis wind turbines
  - Algal biofuels

- ☐ Research 3 energy sources and compare them in terms of efficiency, environmental impact, and sustainability. Make a case for if and how each should be used.

- ☐ Explore energy innovations by completing one of the following:
    - Research energy-efficient home designs, then sketch or build a model home using materials that improve heat retention or solar energy absorption. Include a writeup explaining how your design conserves energy.
    - Research different sustainable transportation options and design a new energy-efficient vehicle that reduces fossil fuel consumption. Then, sketch a vehicle blueprint and write an engineering proposal explaining how it works.
    - Design a school campus that produces as much energy as it consumes, using solar panels, wind turbines, smart lighting, and insulation techniques. Create a detailed campus map and sustainability plan, including estimated costs and energy output.
    - Research the energy challenges of colonizing Mars or the Moon (e.g., solar panel efficiency, fuel generation, life support). Design an energy plan for a self-sufficient colony and write a proposal arguing for the best energy sources and their trade-offs in space environments.

- ☐ Plan and execute a volunteer service project related to energy. Examples may include:
    - Organizing a local “lights out” campaign in your school or community
    - Host a fix-it fair or device recycling drive to reduce waste
    - Lead a sustainable commuting challenge in your school or community
    - Create an energy literacy video series or social media campaign

- ☐ Learn about careers related to energy by interviewing an energy professional or researching a job in an energy-related field. Be sure to include information about education and certifications, the skills needed to perform a particular job, and how people in this job apply energy concepts to the real world.

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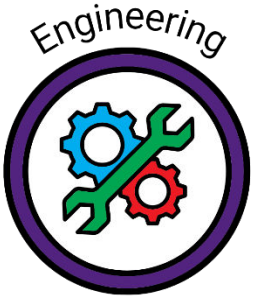

ENGINEERING

Use these activities to apply the engineering design process to real-world problems. Design and test solutions using science, math, and creativity, while considering criteria, constraints, and tradeoffs used in professional engineering and technology fields. Check off each activity as you go, and when you've completed them all, record the date on your badge sheet.

- ☐ Identify, define, and describe the steps of the engineering process (Ask, Imagine, Plan, Create, Test, Improve).

- ☐ Apply the engineering process to design a device, tool, or modification that improves accessibility or independence for people with physical or sensory disabilities. Research existing assistive technologies to understand how they help users and identify any limitations. Examples of projects may include:
  - An eating utensil that helps people with limited hand mobility and grip strength
  - A walking cane with an adaptable base that can be modified for different terrains
  - A 3D tactile map for the visually impaired
  - A smart cane that can alert users of obstacles
  - A voice-controlled light switch

- ☐ Select a city from around the world and identify one of its major engineering challenges. This might include aging infrastructure, poor public transportation, access to clean water, or sufficient housing to support an increasing population. Research urban planning and civil engineering, and use concepts learned to create a solution. Present your findings in the form of an essay, blog post, presentation, or video.

- ☐ Perform a case study comparison of a real-world engineering solution by identifying an engineering challenge, researching at least two different solutions developed to address that challenge, and evaluating which solution has the biggest net positive impact. Examples of engineering challenges may include:
  - Vaccine or other medicine distribution
  - Water filtration systems
  - Transportation of people or goods
  - Disaster relief

- ☐ Reverse engineer an item by disassembling a household object, diagram its parts and functions, and brainstorm how it could be redesigned to improve performance, reduce waste, or save on cost of production materials.

- ☐ Research the development history of a product or technology and how it has changed over time through engineering improvements. Create a visual timeline or written description that includes design and development milestones, shifts in materials used in production, and how engineers have responded to changing constraints.

- ☐ Read a book that centers on engineering decisions or technological innovations. Identify the engineering problems involved and what constraints shaped the decision or design along the way. Evaluate how effective the solutions are and how you might have approached the same problem. If you choose a fiction book, discuss how accurate the author's engineering decisions are.

- ☐ Participate in an engineering-related volunteer service project. Examples may include:
  - Volunteering with Habitat for Humanity or a local housing project
  - Design and build community compost bins
  - Work with a local disability services or advocacy organization to identify, report, and improve accessibility issues in your community
  - Help with a hands-on engineering workshop for younger students at a local school, library, or community center.

- ☐ Choose a current local or national infrastructure project and research it using news articles, planning documents, and other available reports. Explain the project's goals and constraints, evaluate proposed solutions, and write a report analyzing whether these solutions will meet the project's goals. Identify other possible solutions that have not been considered.

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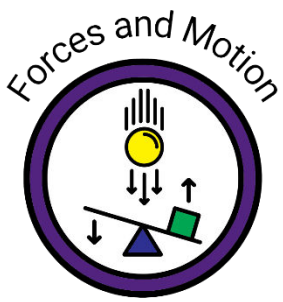


FORCES AND MOTION

Use these activities to deepen your understanding of Newton's laws, momentum, and how objects move under the influence of forces. Apply physics concepts to real-world systems like vehicles, machines, and sports. Check off each activity as you go, and when you've completed them all, record the date on your badge sheet.

- ☐ Explore Newton's Laws of Motion and gravitational force by designing and building your own marble run or roller coaster track.

- ☐ Create a friction lab with a ramp and a remote-controlled car. Place various solid and liquid materials on the ramp and measure how each material impacts the car's velocity. Use your observations to draw conclusions about design considerations engineers and auto manufacturers must make for performance and safety.

- ☐ Explore how air currents can reduce friction and facilitate movement by building a simple hovercraft out of a balloon and a disc or a more complicated hovercraft out of plywood, a plastic sheet, and a leaf blower. ☐

- ☐ Conduct an experiment to identify the coefficient of restitution (aka the bounciness) of various types of balls. ☐

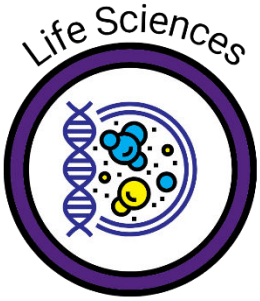
- ☐ Choose a sport and analyze how athletes maximize force, momentum, and stability to achieve top performance. Discuss how physics affects the sport's rules, gear design, and safety. Present your findings in the form of a paper, blog post, presentation, infographic, or video.

- ☐ Pick an automobile safety feature, research the physics behind how it reduces injury, and analyze real-world data from crash tests or safety studies. Examples of safety features may include:
  - Airbags
  - Anti-lock brakes
  - Crumple zones
  - Seatbelts

- ☐ Choose an amusement park ride and identify key physics concepts involved in its operation. Present your findings in the form of a poster, infographic, diagram, presentation, or video. Physics concepts might include:
    - Kinematics (linear motion, curvilinear motion, harmonic motion)
    - Energy and power
    - Gravitational and frictional forces
    - Inertia
    - Free fall
    - Circular motion
    - Pneumatics

- ☐ Create a video safety demonstration or presentation for younger kids to teach them about the importance of wearing helmets, seatbelts, and other safety gear using demonstrations of force and motion.

DATE COMPLETED: _____



LIFE SCIENCES

Use these activities to investigate biological systems from the molecular to the ecological level. Explore topics like DNA and heredity, evolution, homeostasis, ecosystems, and the relationship between human activity and biodiversity. Check off each activity as you go, and when you've completed them all, record the date on your badge sheet.

- ☐ Explore human anatomical systems by completing one of the following:
  - Build a working model of the human lung using a balloon and plastic bottle. Use it to explain the mechanics behind breathing and observe what happens when you make the lung breathe slower and faster. ☐
  - Build a working model of the human heart. Observe what happens when the arteries are clogged vs. unclogged. ☐

- ☐ Choose a genetic disorder, then research inheritance patterns and symptoms, as well as how it is diagnosed and treated. Present your findings in the form of a paper, blog post, infographic, presentation, or video. Examples of genetic disorders may include:
  - Sickle cell anemia
  - Cystic fibrosis
  - Huntington's disease
  - Duchenne muscular dystrophy

- ☐ Investigate the effects of exercise on heart rate by measuring your heart rate before and after different exercises, tracking how long it takes your heart rate to return to normal, and graphing your recovery time.

- ☐ Research a modern bioethical issue and prepare arguments representing both sides in the debate. Examples of issues may include:
  - Genome editing
  - Cloning
  - Organ donation
  - Cryonics
  - The use of AI in healthcare

- ☐ Explore the balance of life within ecosystems by selecting an ecosystem and researching how threats such as invasive species, overexploitation, habitat loss, climate change, and pollution affect its stability. Present your findings in the form of an article, blog, infographic, poster, presentation, or video.

- ☐ Make a conservation field guide by researching at least five extinct or endangered species or organisms. Include key details such as taxonomic information, evolutionary history, habitat, and population over time, as well as factors contributing to their decline or extinction.

- ☐ Create a human evolution comparison sketchbook or scrapbook by drawing or compiling pictures of hominid skulls. Label important features and bones and include details such as size, descriptions, and how long ago each hominid lived. Observe how these features changed over time and hypothesize about why these changes occurred.

- ☐ Investigate a crop or animal that has been selectively bred and explain how artificial selection has influenced the development of traits over generations. Present your findings in the form of an essay, blog post, infographic, poster, presentation, or video.

- ☐ Perform a biogeography case study and explore how isolated island environments lead to unique evolutionary paths. Examples of possible species to research include:
    - Coconut crab
    - Kakapo parrot
    - Island fox
    - Komodo dragon

- ☐ Learn about careers related to life sciences by interviewing a professional or researching a job in a biology-related field. Be sure to include information about education and certifications, the skills needed to perform a particular job, and how people in this job apply life sciences concepts to the real world.

DATE COMPLETED: _____

SOUND, LIGHT, AND WAVES

Use these activities to explore wave properties and how waves are used in technologies for communication, imaging, and exploration. Investigate sound, light, and electromagnetic waves, and understand concepts like frequency, interference, refraction, and signal transmission. Check off each activity as you go, and when you've completed them all, record the date on your badge sheet.

- ☐ Explore how waves work by building a simple wave machine out of skewers, candy, and duct tape. Observe changes in how the wave machine moves based on how hard or soft you tap it. ☐

- ☐ Test how UV light affects different materials by exposing items like plastic, fabric, paper, leaves, and fruit to a UV flashlight. Compare physical changes over time and research how UV radiation contributes to material degradation and skin damage. Explain your findings in the form of an article, blog, presentation, infographic, or video.

- ☐ Build a model of the human ear using simple materials to demonstrate how sound waves travel through the outer, middle, and inner ear. Use the model to explain how vibrations are captured, amplified, and converted into electrical signals the brain can understand.

- ☐ Explore how different electromagnetic waves interact with the human body and materials by comparing their penetration depths, analyzing their roles in medical and industrial technologies, and evaluating common claims about their safety and effectiveness. Present your findings in the form of an article, blog, presentation, or video. Examples may include:
  - Medical X-ray imaging
  - Infrared heat scanners in medicine, surveillance, and firefighting
  - Gamma rays in cancer treatment

- ☐ Research how information is transferred through fiber optic cables and satellites. Create a flowchart, video, or infographic showing how a message gets from your cell phone to one in a different part of the world.

- ☐ Choose a song and draw or digitally render a "sound wave portrait" of it. Visually interpret pitch, amplitude, and rhythm using colors and shapes. Label how different frequencies show up in visual form.

- ☐ Examine the science of noise canceling headphones and how destructive interference is used to cancel sound waves. Research the physics behind active noise canceling. Present your findings in the form of an article, blog post, infographic, presentation, or video.

- ☐ Complete one of the following:
  - Explore how different media formats preserve information over time, and investigate which methods are more reliable for long-term storage. Be sure to include both digital and analog media formats.
  - Investigate how digital information is stored, transmitted, and protected through technologies like cloud storage and encryption, and compare it to the security of analog formats.

- ☐ Investigate how companies use specific sound frequencies, jingles, and haptics to influence consumer behavior. Examples may include startup chimes, notification tones, in-store soundscapes, or payment confirmation sounds. Present your findings in the form of a video, podcast, or presentation.

- ☐ Learn about careers related to wave science by interviewing a professional or researching a career field. Be sure to include information about education and certifications, the skills needed to perform a particular job, and how people in this job apply wave concepts to the real world.

DATE COMPLETED: _____

SCIENCE LITERACY

Use the following activities to think and talk about science like a real scientist. You'll build skills like asking questions, analyzing what you see and read, and talking with others about scientific concepts. Check off each activity as you go, and when you've completed them all, record the date on your badge sheet.

Complete at least 7 of the following:

- ☐ Keep a science journal while working on your badges to record your observations.
- ☐ Read at least 10 science-related books. Write or record a video review of at least two books.
- ☐ Make a list of at least 20 vocabulary words you learned while working on your badges.
- ☐ Watch a science documentary or video and write or draw about something you learned.
- ☐ Select a topic you learned about and design a poster or infographic about it.
- ☐ Interview a scientist (or watch one in a video) and write about why their job is important.
- ☐ Teach a science concept to someone else or make a short video of yourself explaining a science concept.
- ☐ Read and summarize a science article from a reputable source (e.g., National Geographic for Kids).
- ☐ Select a scientist and write a journal entry from their perspective.
- ☐ Write an article or blog post about how science has impacted you, your family, or your community.
- ☐ Select and research a popular science-related myth or misconception. Present your findings in a paper, blog post, presentation, infographic, or video.

DATE COMPLETED: _____

SCIENCE EXPLORATION

Use the following activities to connect science to the real world and see how science is used in everyday life. Check off each activity as you go, and when you've completed them all, record the date on your badge sheet.

Complete at least 5 of the following:

- ☐ Visit a science museum or natural history museum. Write or draw your favorite exhibit and explain what you learned.
- ☐ Visit a zoo, aquarium, or botanical garden. Observe an animal or plant and record 3 facts about it in your science journal.
- ☐ Visit a planetarium or stargazing event. Write or draw about something you learned about space.
- ☐ Attend or participate in a science fair. Take notes on 3 interesting projects or present your own project.
- ☐ Take a nature walk or go on a hike. Collect data or take pictures of interesting rocks, insects, plants, or animals and describe them.
- ☐ Do a virtual field trip to a science lab, museum, or NASA site. Reflect on something new you discovered.
- ☐ Interview a scientist, zookeeper, astronomer, or science educator about their work and share what you learned.
- ☐ Visit a farm or environmental center. Learn about ecosystems, food production, or conservation and write about it.
- ☐ Volunteer at or attend a science outreach event (e.g., STEM night, Earth Day festival, robotics competition).
- ☐ Design your own science field trip—research and visit a local place of scientific interest and explain why it's important.

DATE COMPLETED: _____

ARTS AND SCIENCE

Use the following activities to blend scientific thinking with creativity and explore the beauty of science through artwork. Check off each activity as you go, and when you've completed them all, record the date on your badge sheet.

Complete at least 5 of the following:

- ☐ Make a nature journal with sketches and notes.
- ☐ Make an art piece out of recycled materials.
- ☐ Research a scientist and create a piece of art inspired by their work.
- ☐ Create a collage, photo album, or photo essay using pictures related to one of the scientific concepts you've learned.
- ☐ Create a calligram related to a science topic.
- ☐ Make a piece of digital data art using data collected from one of your experiments/ projects.
- ☐ Create a wearable science project, such as a piece of jewelry or clothing, inspired by one of the scientific concept's you've learned.
- ☐ Write a poem, song, skit, or monologue related to one of the scientific concepts or science innovators you've learned about.
- ☐ Build a diorama of a science scene related to one of the concepts you've learned.
- ☐ Create a piece of process art using the scientific concepts you've learned so far. Examples may include:
  - Chemical reaction art
  - Spin Art
  - Magnet painting
  - Sun prints
  - Leaf prints
  - Soundwave art

- ☐ Write and illustrate a fiction story or record a short film about a science-related topic. Examples might include:
  - The moon, stars, or planets
  - A severe weather event
  - A plant or animal that is native to your area
  - An invention that could change the world

DATE COMPLETED: _____

EXCELLENCE IN SCIENCE
A MENSA® FOUNDATION PROGRAM

BADGE SHEET (GRADES 9-12)

Record the date you completed each badge, then sign below. Mail this page to the Mensa Foundation, along with your award order form. **This page is required to receive your award.**

_____

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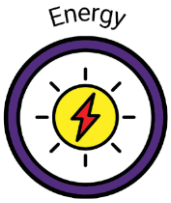

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By signing, we attest that _____ has completed all the activities required to earn each Excellence in Science badge and that this record is true.

_____ _____

Participant's signature Adult's signature

EXCELLENCE IN SCIENCE AWARD ORDER FORM

Thank you for participating in the Mensa Foundation's **Excellence in Science Award Program!** Participants who complete an entire badge workbook are eligible to receive a commemorative certificate and an Excellence in Science T-shirt. We're excited to celebrate your achievement and love of science!

To receive your awards, complete this form and mail it along with your signed badge sheet to the address below. **Both the badge sheet and order form are required to receive your certificate and T-shirt.** Please allow up to 6 weeks for processing and delivery.
Send your badge sheet and order form to:

Mensa Foundation
Excellence in Science
1315 Brookside Dr
Hurst, TX 76053.

(Completed lists must be mailed. We do not accept scans or faxes.)

Scientist's Name	Scientist's Age	Mensa Membership Number (if applicable)
House Address (City, State ZIP code)		
Email Address		Phone Number

Scientist's T-shirt Size

❑ Youth S ❑ Youth M ❑ Youth L ❑ Youth XL ❑ Adult S ❑ Adult M ❑ Adult L ❑ Adult XL

Parent/Teacher's Name	Mensa Membership Number (if applicable)

MENSA FOUNDATION