HOUSTON MUSEUM
of NATURAL SCIENCE

6th–8th Grade Discovery Hunt: Matter & Motion

Use this guide as you explore the Matter & Motion exhibit. Observe, ask questions, and record your discoveries as you investigate the universe—from the tiniest particles to the largest galaxies. Write neatly and use complete sentences.

Scientific Tools and Equipment

Find two scientific instruments in the exhibit. Draw each one in the space provided and explain what scientists use it for.

Scientific Models

Scientists use models to show things that are too big, too small, or too complex to observe directly. Find a model in the exhibit and explain why scientists need to use a model instead of showing the real thing.

Scientific Thinking

If you were a scientist studying one of the exhibits, what question would you ask?

The Amazing Brain (Walk-In Brain Exhibit)

Observe the walk-in brain exhibit. How do the moving lights show how neurons communicate with each other?

Choose one part of the brain you can identify. What job does this part do in your body?

Find the display on neurotransmitters. Name one chemical involved in neuron signaling and its effect on behavior.

Elements and the Periodic Table (Periodic Table Floor)

Find the periodic table display. Choose two elements and record the following for each:

Element 1:
Name and symbol: _____
Solid, liquid, or gas at room temperature: _____
One place you might find this element in your daily life: _____

Element 2:
Name and symbol: _____
Solid, liquid, or gas at room temperature: _____
One place you might find this element in your daily life: _____

Atoms and Chemistry (Alchemist's Laboratory)

Draw a simple model of an atom. Label the protons, neutrons, and electrons.

Sketch one alchemical apparatus. Contrast its purpose with modern laboratory equipment.

Scale of the Universe (Quarks to Quasars Immersive Theater)

List or draw three objects shown in the film, ordered from smallest to largest.

Observe the visualization of a black hole. Describe how gravity distorts light and matter near the event horizon.

Which is more amazing to you—the smallest things or the largest things in the universe? Explain why.

Forces and Energy (Forces & Energy Galleries)

Identify two different forms of energy you observe in the exhibit.

Describe how one form of energy changes into another form.

Use the pulley system to lift the piano. Calculate the mechanical advantage gained by the rope configuration.

Earth and Space Science (Black Hole Whirlpool & History of the Universe)

How do scientists study objects in space without actually traveling there? Find an example in the exhibit.

Observe the spiraling stars in the black hole model. Predict what happens to matter crossing the event horizon.

Quantum Computing and Great Graphene

Enter the carbon nanotube model. Explain how graphene's hexagonal lattice contributes to its strength.

Study the quantum computing replica. Contrast qubits with classical bits, referencing superposition.

Connections and Reflection

What was the most interesting or surprising thing you learned in this exhibit?

How does something you observed today connect to what you're learning in your science class?

If you could design a new exhibit about science, what topic would you choose and what would you include?

Science Words to Know

Atom: The smallest unit of an element, made of protons, neutrons, and electrons.

Element: A pure substance made of only one type of atom.

Energy: The ability to make things move or change.

Force: A push or pull that can change how something moves.

Model: A representation that helps us understand something that's hard to observe.

System: A group of parts that work together.

TEKS Alignment

6th Grade

- **6.5.A**: Classify elements as metals, nonmetals, or metalloids based on physical properties.
- **6.5.C**: Identify evidence of chemical changes such as gas production, temperature change, or color change.
- **6.8.C**: Calculate mechanical advantage in pulley systems.

7th Grade

- **7.1.A**: Ask questions based on observations from text, phenomena, or models.
- **7.7.D**: Analyze balanced and unbalanced forces using Newton's First Law of Motion.
- **7.8.B**: Describe energy transfers in systems such as electrical to light.
- **7.9.A**: Describe physical properties and movements of celestial bodies.

8th Grade

- **8.5.A**: Describe atomic structure including protons, neutrons, and electrons.

- **8.5.C**: Interpret the organization of the periodic table, including groups and periods.
- **8.6.C**: Explain energy conservation in systems.
- **8.8.A**: Describe how gravity governs orbital motion.