

ELEMENTARY CURRICULUM

CONTENTS

PURPOSE AND OVERVIEW 1

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.

TURNING **STEM** INTO STRANG

In Pitsco Missions, students learn through structured and guided inquiry, student-centered technology, and interdisciplinary instruction. **Reading** practice, **art**, math, and **social and emotional learning** are woven into core science instruction in every Mission, turning STEM into STREAM.







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AN ALL-ENCOMPASSING SYSTEM

There are many challenges faced by teachers and principals in implementing STEM-centric curriculum.

"We're preparing students for standardized tests, but we're not preparing them for the real world."

"We don't have time to incorporate science."

"We aren't comfortable teaching science."

"Teaching STEM and science requires a lot of materials that we won't have room for in our classrooms."

Many teachers don't have the time to prepare the science or STEM curriculum *they want to teach*. Meanwhile, administrators can't find the time and resources for students to learn the science *they need to learn*.

In direct response to these challenges, Pitsco Education has developed a complete, interdisciplinary STREAM curriculum for the elementary grades.

Our team-directed framework is designed to bring hands-on, projectbased curriculum into the elementary school. This system is convenient and effective – providing everything you need and offering a socially interactive and engaging learning experience to students via a teacherfriendly turnkey solution.

Preparing students for college and career at the elementary level

STREAM Missions were designed to help students learn academically, socially, and emotionally through a framework that provides opportunities to develop perseverance through failure, practice leadership and communication, explore careers, and ultimately grow into globally competent citizens.

PITSCO EDUCATION'S ELEMENTARY MISSIONS PROGRAM:

- Is grounded in research about the best instructional methods for teaching at this level.
- Weaves reading practice, art, engineering, and math application into core science instruction.
- Delivers content through structured and guided inquiry, studentcentered technology, and true interdisciplinary instructions.
- Includes a variety of hands-on activities in every unit.
- Increases students' awareness of careers.
- Was developed to state and national standards.
- Provides teachers everything they need to be successful.





DEFINING ELEMENTS

The Missions program has been successful in helping students become critical thinkers and collaborators since 1997. The core components that have always made Missions great remain intact, and research has proven the effectiveness of these concepts and methodologies.

WORKING IN TEAMS

Teamwork is an integral part of Missions. Students work in teams of four, which enables each team member to be accountable and provide contributions to the group. Throughout the Mission, students are required to solve problems and communicate as a team and with their teacher.

STUDENT ROLES

Well-defined roles for each team member allow for individual and team accountability. Designated roles with assigned duties teach students how to work collaboratively with a team – critical skills for future success.

ASSESSMENT AND ACCOUNTABILITY

The Missions program contains multiple opportunities for individual and student assessment and evaluations. These include self-evaluation, peer evaluation, group evaluation, teacher observation, and selfmonitoring questionnaires. These different evaluation methods enable students to reflect and improve.

STUDENT GROUPINGS

When we enter the workforce, it isn't likely that we will be grouped with others of the same abilities. With Missions, a teacher resource is available to determine student groups heterogeneously. This resource enables the teacher to make student group determinations based on ranking of students by academic and social skills. Students switch groups with every new title and learn how to work with other personalities.

SCIENCE AND LITERACY

Missions utilize informational text to facilitate student learning through questioning, predicting, clarifying, and summarizing information. A reciprocal teaching method is utilized to help with reading comprehension, and doing this through student roles offers better reading comprehension for the group.

INVESTIGATING CAREERS

Career Connections are provided as an extension to the Mission experience. Within each Mission, the Career Connection contains four careers related to the topic, and five activities are provided for the students to choose from. This translates the STEM content students learn into real-life careers to which they might not have otherwise been exposed.

"We want to put in Pitsco Missions science classrooms because we see the engagement, we see the quality of science instruction, we see the link to the future for careers, and it's a win-win for us."

- Dr. ReNae Kehrberg, assistant superintendent for curriculum, instruction, and assessment, Omaha Public Schools, Omaha, NE

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HOW OUR ELEMENTARY STREAM PROGRAM WORKS

There are 15 titles at each grade level – 3rd, 4th, and 5th – that provide comprehensive hands-on instructions.

Each Mission is organized into sets of integrated activities to be completed in five sequential intervals of instruction. Each interval consists of a Briefing, Reading, and Exploration, and learning is guided by essential questions provided to the teacher in the Teacher Notes. Vocabulary, Math, Research, Career, Science, and Social Studies Connections are also included with every title.

BRIEFINGS

Each Briefing provides content to the students. There are coordinating Briefing sections in the Mission Journal. Students learn vocabulary and experience checkpoints to assess knowledge in the Briefings.

READINGS

Each Mission has unique informational text that students read. Each interval, students read a different set of pages and answer questions through reciprocal teaching.

EXPLORATIONS

Students complete Explorations through online content. Instructions, pictures, and videos help students complete the hands-on activity. Math, engineering, and art principles are applied in all Explorations.

ASSESSMENTS

Formal digital assessments are available through Pitsco's cloud-based learning content management system. Each Mission comes with a pretest, called a Pre-check, and a posttest, called a Debrief. Teachers have the ability to create their own assessments in the system as well. Students also conduct peer evaluations and weekly self-evaluations throughout the Mission.

THE MISSION JOURNAL

Every Mission title has a unique Mission Journal that students use to document their progress through a Mission. This journal serves as a proof of learning and provides opportunity for authentic assessments. Teacher facilitators are provided grading rubrics to guide assessment of Mission Journals and completion of hands-on activities and deliverables.

"This lab teaches them to problem-solve, and problem-solving skills are so important in life. Kids that can't problem-solve become adults that can't problemsolve. . . . I've worked outside in the real world, and if you go to any employer and you can't problem-solve, you're not going to be employed very long."

- Steve Kline, STEM teacher, Kriewald Road Elementary School, San Antonio, TX

"I love that because in the workplace you're given certain responsibilities. That's what you do in a job. The fact that they're learning that now at the elementary age is amazing."

- Matthew Way, teacher, Sweeny Elementary School, Sweeny, TX



MAKING LEARNING A SOCIALLY INTERACTIVE EXPERIENCE

COMMUNICATIONS SPECIALIST (CS):

CS

CR

Operates all electronic devices and communicates questions to the teacher

COMMANDER (CR):

Accepts responsibility for the overall leadership of the Crew, especially in leading the Crew through Explorations





Student instruction and content, assessments, class scheduling, and more is all available in our proprietary cloud-based learning management system (LMS) called Synergy. At its core, Synergy by Pitsco is a cloud-based multimedia environment that houses all student-facing content and educator- and administrator-facing resources. It is FERPA compliant and designed to provide reliable privacy and security to our users and customers.

LEARNERS

- The LMS blends computer-delivered multimedia materials, inquirybased lessons, and independent student work and projects with teacher-led experiential learning.
- Within Synergy, students working in groups of four navigate their own Missions experience. This allows for learner agency, to the degree of choosing their learning path.
- Students experience the content to learn background knowledge and follow instructions to gain real-world relevance for CTE and soft skill competencies.

EDUCATORS

- Facilitators and administrators can use Synergy to create assignments, customize assessments, monitor student progress, and more.
- Professional development tutorials and resources for teachers are available for on-demand access within Synergy.

PRIVACY POLICY

By design, Synergy does not require personal student data or information to be used in order to function properly, nor do we share, distribute, or otherwise use any student information or data collected other than to ensure the efficacy of the program or as may be required by law. Teachers or other users have the option to use identity parameters other than students' names, school ID numbers, or other similar identifiers. Teachers or other users may assign arbitrary usernames and IDs for students whose information is tracked by Synergy. Full privacy policy available upon request.

SUPPORTED INTERNET BROWSERS

- Google Chrome (current two versions)
- Mozilla Firefox (current two versions) Extended Support Release (ESR) versions not supported
- Safari (current two versions) Macintosh only
- Microsoft Edge (current patch level) Windows only
- iOS/Android no third-party browsers supported

SUPPORTED DEVICES

- Desktop computers
- Laptop computers
- Chromebooks
- Tablets
- Smartphones (This works but is not a preferred device due to screen size.)

ACCESSIBILITY

Synergy incorporates the Immersive Reader learning tool by Microsoft. This tool is available throughout the Synergy platform, from the navigation pages to the content, making it more accessible to both ESOL and students with disabilities. Users will be able to choose their own preferences: translate the audio and text into the preferred language or dialect; adjust the audio speed; change the on-screen text's font size, style, and color; and more.

SSO CAPABILITIES

Synergy incorporates single sign-on through OneRoster®, enabling compatibility with ClassLink and Clever.

LTI COMPLIANCE

Synergy is Learning Tools Interoperability (LTI) compliant and integrates with industry-standard learning management systems including Canvas, Schoology, Moodle, and Blackboard Learn. The content meets the latest LTI standards version 1.3 and LTI Advantage. This means Missions content may be delivered to learners via the educator's preferred LMS instead of Synergy.



"What I love about STREAM and what I've seen in the past year is that it is essential to reaching students who may not excel in that traditional classroom by giving them the opportunities to discover who they are, what they love, and even potentially what they want to do when they grow up. I've seen that happen in this past year, and it's remarkable."

A STUDENT-CENTERED ENVIRONMENT



The Pitsco learning environment is unique. Students are active in learning and doing through structured and guided inquiry. The instructional system and environment was created to be convenient to use and easy to implement while affording the teacher more time with students.

Teachers have the option to have students read from the Mission Journal, read from the online content, or listen to the content being read aloud through the online system. Customizable grading rubrics, assessments, and reports are included for all titles within the system. Teachers can access the library of Mission titles and jump to view content of any page at any time to prepare or review the content. Flexibility and teacher ease was in mind in the creation of the software, and the many tools and resources reflect it.

Missions are delivered via Synergy, the Pitsco proprietary cloud-based learning content management system. The program accommodates 4:1, 2:1, or 1:1 computing ratios, though students work in teams of four.

Students access their content, complete Explorations, and view their progress through online content. A variety of instructions are delivered via multimodal methods – audio, pictures, video, and hands-on activities. Each online Exploration also has a related Mission Journal page that students complete. Game-based learning activities, called checkpoints, check for understanding and provide students feedback on their responses.



"How you guys do what you do is simply magical. You turned an empty shell of a portable into the most dynamic learning space a school can offer a child. And, you did it with a smile the whole time."

– Dr. Sharrah Pharr, PhD, director of federal programs and grants, Hays CISD, Kyle, TX

A DYNAMIC LEARNING SPACE

Our furniture is designed to meet the needs of both the elementary student and the school. The Elementary Series furniture is both ergonomic and spacious, providing students a large workspace for the four-student teams to properly function and have easy access to technology, equipment, and supplies. It's large enough for hands-on activities, yet small enough to allow for unobstructed reading and teamwork and flexible classroom layouts.

Each furniture piece is built for quality in our US-based manufacturing facility to tolerances measured in 1/1,000th of an inch. The same talented, hard-working team of people who build the furniture also install it in the classrooms to ensure quality and durability.



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MEETING STANDARDS WITH RIGOR AND RELEVANCE

Pitsco Education's hands-on STREAM Missions program was developed to meet rigorous educational standards while providing an exciting, motivating experience for learners in Grades 3-5 that prepares them for the future.

MEETING EVERYONE'S STANDARDS

Development of our STREAM Missions program centered around improving science education for all students – just as is the goal of Next Generation Science Standards (NGSS).

Despite the stigma about NGSS and Common Core Math standards, the goal to provide clarity and preparation for college, career, and life align with our goals for students.

We deliver students from textbooks to a real-world application of science through math, art, and engineering applications as well as reading practice.

Each Mission title addresses national science, math, technology, and ELA standards, and custom standards alignment reports are available upon request.

DESIGNING A CUSTOM PROGRAM FOR YOU

Through goal-focused communication with an emphasis on student success, our program design team, all former educators, work hand in hand with your school or district to outline a program that fits into your STEM initiative.

Pitsco Education representatives are dedicated to ensuring each and every implementation is strategic and practical.





"We selected Missions to support areas where our students could grow in math and science. We witnessed unprecedented growth in those areas this year, despite losing 10 days for construction due to the hurricane."

- Dr. Tory Hill, superintendent, Sweeny ISD, Sweeny, TX

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RESULTS

"The rate of fifth graders passing the State of Texas Assessments of Academic Readiness (STAAR) science test shot up 25 percent over the previous year to 66 percent."

Two Pitsco STEM labs – STREAM Missions for Grades 3-5 and STEM Units for Grades K-2 – were the cornerstone additions made possible through a four-year, \$5 million Texas Title I Priority Schools (TTIPS) grant awarded in 2016. The district also added a family STEM night, STEM Saturdays, and STEM camps that utilize Pitsco materials. The experiential STEM curriculum helps students develop a foundation of lifelong, transferable 21st-century skills such as critical thinking, collaboration, career exploration, and problem-solving.

"I have not walked into the STEM lab, not once, where the kids aren't just completely immersed and operating at a high level of engagement. . . . There's an authentic play going on and they're learning. There's a lot of dialogue."

Dr. Samuel Bueno, superintendent,
 San Diego Independent School District

STATE OF TEXAS ASSESSMENTS OF ACADEMIC READINESS (STAAR)

Collins-Parr Elementary School

Percentage of fifth graders approaching, meeting, or mastering grade level



A variety of Connections are included with each title: Career, Math, Science, Social Studies, Vocabulary, and Research. Connections help students stay on task if they finish their work early.

Vocabulary Connection | Magnetism Vocabulary Magnetism | Research Connection 1. repel 6. core Discuss the following questions as a Crew. Then, each person will write 2. attract Discuss the rown answers. You may illustrate your written answers. 7. magnetic field Its or net very analysis included inside a metal building might not work. 1. A magnetic compass located inside a metal building might not work 3. atoms 8. aurora borealia element 9. permanent 5. compass 2. Strong magnets should never be stored near computers or cell 10. direction Activities A. Write three paragraphs about the ways a magnet can be used. Conrectly use as many vocabulary words as you can B. Create three questions and answers using at least five of the words Magnets are everywhere. Some magnets are easy to see, and some are nagness are virerymines, while hearing are very to see, and some an hidden. Electromagnets can be found in earphones, electric doorbels, data storage equipment, and speakers. A form of electromagnet is used C. Create a word search puzzle using graph paper. Use the definitions for cooking and even medical diagnosis and treatment. Dr. Raymond Damadian saw a need for a way to take pictures of the Lor, response contractant area at the way of a may be the please or the soft tissues of the body. X-rays take images of bones but not organs and D. Create cards for each word and definition. Make sure you have about easilies of the twolf, where the improve output out not organic and muscles. Improving on the technology of the time, he created a magnetic 10 cards web words and 10 cards with definitions. Place the cards muscles, improving on an exchange of the server, no server a magnetic resonance (maging (MRI) machine. His work has saved countiess lives. To carea way works and to carea while territorial index we care a facedown. Play Concentration by taking turns trying to match the and improved the quality of life for many more Select one of the following topics, Research the topic. Write a paragraph E. Draw a picture of a magnetic interaction. Label the picture using the oreast one of the according to the strategy of the rest of the strategy of the strategy applies and draw at least one picture to illustrate what you have learned. If time braw a positive or a respective statements, cause the provide using the vocabulary words. You may use phrases or sentences to make your electromagnet Note: Complete this Connection on a separate sheet of p · magnet thera · mul Checkpoint ¢. Permanent Label each picture as either permanent or temporary. Temporary 18 2 on page 24.

3RD-GRADE TITLES

- Being Healthy
- Ecology
- Electricity
- Environment and Climate
- Forces
- Fossils and Survival
- Life Cycles
- Magnetism
- Matter
- Motion
- Science Skills
- Seasons and Weather
- Skyscrapers
- Space
- Traits and Variation

All content is delivered via Synergy. **Delivery via your LMS** available May 2024.

Tabs on the vertical edge help students easily navigate to where they need to be.

Journal

MAGNETISM

Learn more about the Magnetism title

3RD-GRADE 20 MISSIONS

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BEING HEALTHY

In *Being Healthy*, students learn about different things that affect the body both in positive ways and negative ways.

- Analyze the experiences your body goes through as you wake up.
- Design a device that produces sounds of different volume and pitch.
- Categorize the nutrients that are essential for a healthy body.
- Categorize food into groups and plan meals for a day.
- Evaluate food choices for a healthy diet.
- Perform different cooking measurements and examine nutrition labels.
- Determine how the skin is an important line of defense for the body.
- Play a game that demonstrates the importance of being healthy.
- Compare and contrast the roles of muscles and the skeleton for movement.
- Design a cast for a broken wrist while staying within a budget for materials.

MATH APPLICATIONS:

- Basic Operations
- Costs
- Following a Budget



ECOLOGY

In *Ecology*, students learn about interactions, populations, and habitats in ecosystems. They examine food webs, water pollution, animal population, and survival.

- Explore the variety of interactions in ecosystems.
- Make a terrarium showing interactions between living and nonliving things to meet a design challenge.
- Compare the benefits of being part of a population.
- Simulate a mouse colony and compete for resources.
- Investigate how different organisms fit in different habitats.
- Create a temperate forest or rain forest animal to meet a design challenge.
- Relate change people cause to how organisms respond.
- Test the pH and hardness in two types of water.
- Evaluate the importance of decomposers and recycling.
- Construct a food web.

- Collecting Data
- Graphing



ELECTRICITY

In *Electricity*, students experiment with electricity in different ways. They build circuits and test objects.

- Link electricity and lightning at the atomic level.
- Design models of two different atoms.
- Consider the characteristics and examples of conductors and insulators.
- Determine which objects are conductors or insulators.
- Study series and parallel circuits.
- Build series and parallel circuits and make circuit drawings.
- Examine electromagnets and the relationships between electricity and magnetism.
- Create electromagnets.
- Make sense of the mystery of static electricity.
- Experiment with static electricity.

MATH APPLICATIONS:

- Fractions
- Graphing
- Measurement
- Multiplication



ENVIRONMENT AND CLIMATE

In *Environment and Climate*, students learn about weather, climate, Earth's atmosphere, and air pollution. They explore wind and water power and nonrenewable and renewable resources.

- Differentiate between weather and climate.
- Engineer a house to withstand the climate in an environment.
- Learn about Earth's different atmosphere layers.
- Make a 2-D model of Earth's atmosphere layers.
- Examine how air pollution affects Earth.
- Calculate, chart, and graph how air pollution can travel.
- Explore wind and wave power.
- Create and demonstrate pinwheels.
- Investigate renewable and nonrenewable resources.
- Act as a miner looking for nonrenewable resources.

- Comparing Numbers
- Collecting and Analyzing Data
- Graphing
- Measuring Distances and Angles
- Multiplying



FORCES

In *Forces*, students experiment with how forces work in different scenarios and predict future motion.

- Compare three different natural forces.
- Build a ball launcher and test strength of forces.
- Examine how mass and density affect the motion of objects.
- Investigate the different properties of various materials.
- Discover how scientists measure weight and force.
- Create a spring scale and measure forces.
- Explore how the energy of moving objects can be changed.
- Test balanced and unbalanced forces on a force sled.
- Investigate using forces and the benefits of simple machines.
- Design and engineer a Newton's cradle.

MATH APPLICATIONS:

- Geometry
- Measurement
- Multiplication



FOSSILS AND SURVIVAL

In *Fossils and Survival*, students learn about dinosaur fossils, skeletons, and remains. They learn about the roles and job duties of a paleontologist and the Cambrian period.

- Explore the role of a paleontologist.
- Act as a paleontologist looking for dinosaur remains.
- Discover the formation of fossils and their clues to the past.
- View real fossils and make fossil imprints.
- Investigate how paleontologists reconstruct the lives of dinosaurs from their fossils.
- Assemble a dinosaur skeleton.
- Uncover fossils from the Cambrian period and their adaptations.
- Design and create a trilobite or *Opabinia* fossil model.
- Relate the shape of a dinosaur's teeth to what it ate.
- Construct a dinosaur with specific qualities to meet a design challenge.

- Collecting and Analyzing Data
- Graphing



LIFE CYCLES

In *Life Cycles*, students demonstrate the life cycles of humans, plants, and animals. They witness the effect of pollution on a food chain.

- Identify similar stages in different life cycles.
- Create a human life cycle comic strip depicting different stages.
- Examine the stages in a plant's life cycle.
- Make a plant model and label the parts and functions.
- Distinguish between complete and incomplete metamorphosis in insect life cycles.
- Build a complete or incomplete metamorphosis insect life cycle model to meet a design challenge.
- Compare how various offspring change and are cared for.
- Produce a frog life cycle model to meet a design challenge.
- Construct a food chain and explore the influence of pollution.
- Perform a simulation that represents how pollution can affect the number of organisms in a food chain.

MATH APPLICATIONS:

- Addition
- Collecting Data



MAGNETISM

In *Magnetism*, students experiment with magnets in different ways. They design an original magnetic game, create a magnetic painting, and build a crane.

- Investigate how magnetic poles can attract or repel metal.
- Experiment with different magnets and lodestones.
- Discover atoms and how iron can become magnetic.
- Engineer and design an original magnetic game.
- Illustrate Earth as a giant magnet and how a compass can be used.
- Test a compass with a bar and circle magnet.
- Demonstrate the importance of magnetic fields.
- Create a magnet painting.
- Compare permanent and temporary magnets.
- Build a crane with attached magnets to pick up paper clips.

- Collecting and Analyzing Data
- Graphing



MATTER

In *Matter*, students experiment with the different states of matter. They investigate how matter can change and be used.

- Summarize the three states of matter.
- Explore the different states of matter of water.
- Compare the changing states of matter.
- Create a puzzle picture that demonstrates a physical change.
- Examine measuring solids and the process of evaporation.
- Design insulated containers to protect ice cubes.
- Determine different ways to combine matter.
- Determine what materials conduct and insulate heat.
- Explore the properties of density and conductivity.
- Experiment with the densities of different liquids.

MATH APPLICATIONS:

• Basic Math Operations

• Measurement



MOTION

In *Motion*, students experiment with how motion is created with different actions and forces.

- Relate the position of an object to its frame of reference.
- Play a game to learn how to give directions in different ways.
- Discover how to calculate speed.
- Create a motion sequence depicting speed and motion.
- Connect the relationship of mass and motion.
- Investigate how gravity and mass affect the force of impact on falling objects.
- Interpret how motion can be predicted through the study of pendulums.
- Test the effect of mass on pendulums.
- Describe energy transfer through the example of a roller coaster.
- Design a surfboard and test the effect of friction.

MATH APPLICATIONS:

- Directions
- Measurement
- Multiplication

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SCIENCE SKILLS

In *Science Skills*, students learn about the scientific method. They explore observations, measurements, science tools, steps of the scientific method, variables, evaluating, concluding, and communicating.

- Differentiate between the various science process skills.
- Practice observing to develop inferences with science mystery bags.
- Discover science tools and their uses.
- Conduct tasks with science tools to observe and measure.
- Journey through the steps of the scientific method.
- Use the scientific method to rescue frozen toy cars.
- Compare variables and constants.
- Experiment with cloud dough and variables.
- Consider the final steps of an experiment.
- Engineer an ear trumpet.

MATH APPLICATIONS:

- Collecting and Analyzing Data
- Graphing
- Measurements
- Time



SEASONS AND WEATHER

In *Seasons and Weather*, students learn about what causes the weather and seasons. They explore weather tools and forecasts.

- Learn about how the Earth's tilt determines the seasons.
- Graph temperatures and precipitation from different regions in the US.
- Explore different tools scientists use to measure the weather.
- Design an anemometer to measure wind speed and direction.
- Determine how weather reports are written.
- Analyze different weather maps and write forecasts.
- Investigate how forecasters use symbols to report the weather.
- Create a solution to prevent water damage in a flood model.
- Examine how the water cycle affects Earth.
- Create a model of the water cycle.

- Analyzing Data
- Graphing





- Follow the path and effects of sunlight.
- Create a model displaying the rotations and orbits of the Earth, Moon, and Sun.
- Visualize various objects in the solar system and their orbits.
- Build a model showing the planets' orbits around the Sun.
- Determine the influences on Earth's rotation.
- Construct a model to represent the eight Moon phases.
- Evaluate the reason for creating models and using scales.
- Make a distance model of the solar system to scale.
- Recognize patterns that the Sun and stars make in the sky.
- Engineer a model spacecraft.

MATH APPLICATIONS:

- Decimals
- Fractions
- Graphing
- Math Operations
- Measurements

SKYSCRAPERS

In Skyscrapers, students build and create different structures. They experiment with different materials and forces.

- Learn about buildings, costs, and efficiency.
- Build a tower with blocks and determine cost and efficiency.
- Investigate shapes in different structures.
- Test the strength of different shapes in structures.
- Explore the form and function of structures.
- Solve a design challenge to create a card tower.
- Discover how architects represent buildings in drawings.
- Re-create a city skyline in a drawing.
- Study how different forces act on structures.
- Conduct an experiment to determine which type of ground material is most resistant to earthquakes.

- Basic Math Operations
- Geometry
- Measurement



TRAITS AND VARIATION

In *Traits and Variation*, students learn about inherited and learned traits, inheritance, variations, and environmental effects.

- Consider how traits can be passed on through generations.
- Explore how traits can be inherited and passed on.
- Discover variety through variations and mutations.
- Examine your fingerprints to discover how the trait can vary.
- Investigate the father of genetics and his most famous experiment.
- Draw the offspring of two parents based on specific genes.
- Distinguish between inherited traits and learned behaviors.
- Practice identifying inherited and learned traits in a game.
- Relate how the environment can influence traits.
- Create an animal with a camouflaged trait to meet a design challenge.

MATH APPLICATIONS:

- Collecting Data
- Graphing
- Probability



28 MISSIONS 3RD-GRADE TITLES

4TH-GRADE TITLES

- Amazing Body
- Design and Solutions
- Earth Processes •
- Earth Rocks ٠
- Energy and Work
- Extreme Earth
- Light
- Ocean Life
- Plants
- Science Inquiry
- Simple Machines
- Space Exploration
- Structure and Function
- Transportation and Power
- Waves

Learn more about the *Space Exploration* title on page 35.



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AMAZING BODY

In *Amazing Body*, students explore how the body works in different scenarios and how body systems work together.

- Learn about the breathing process and what happens when the "wind gets knocked out of you."
- Design and create a lung model.
- Explore inheritance and what it means to be color-blind.
- Create glasses that simulate color blindness.
- Investigate the anatomy of a bone and what happens when a bone fractures.
- Create a bone composition model and examine X-rays.
- Distinguish between multiple beneficial structures in the skin.
- Design a first aid kit and choose the items that go in it.
- Reconstruct the process the body goes through in hitting a baseball.
- Play a tabletop baseball game and explore body systems used to swing a baseball bat.

MATH APPLICATIONS:

• Area

• Perimeter

Measurement

• Volume



DESIGN AND SOLUTIONS

In *Design and Solutions*, students explore and apply the design process to create a card car solution. Students also explore different forms of communication.

- Examine the steps in the design process.
- Start the card car challenge and design signal flags.
- Discover the method of brainstorming.
- Brainstorm solutions to the card car challenge and interpret different forms of communication.
- Explore how planning leads to creating a prototype.
- Plan and create a solution to a design challenge.
- Consider how testing and evaluation can lead to an improved product.
- Test a prototype, record data, and evaluate a design.
- Identify ways to communicate results of the design process.
- Improve and redesign a prototype and test it.

- Division
- Measurement



EARTH PROCESSES

In Earth Processes, students build and create models of landforms and the rock cycle. They conduct experiments showing mechanical weathering, erosion, watershed runoff, and acid rain.

- Discover events that transform the Earth
- Build a model of landforms on Earth to meet the challenge.
- Analyze the rock cycle and its effect on the Earth.
- Create several landform models and demonstrate changes that form different rocks.
- Explore glaciers and tectonic plate movement.
- Show how glaciers change the landscape and map their movement.
- Investigate erosion and its effects.
- · Conduct an experiment demonstrating mechanical weathering and erosion.
- Determine how pollution affects the Earth.
- Demonstrate watershed runoff and acid rain

MATH APPLICATIONS:

- Collecting and Analyzing Data Percentages
- Decimals

• Unit Cubes

• Fractions

- Volume

• Graphing



EARTH ROCKS

In Earth Rocks, students explore the rock cycle, fossils, Earth's layers, minerals, and fossil fuels.

- Categorize the three main rock types.
- Create a model of each rock found in the rock cycle and compare it to real rocks.
- Interpret the significance of fossils and sedimentation.
- Create a sedimentary rock model and measure materials.
- Compare Earth's strata.
- Create a model of Earth's layers and take core samples.
- Discover ways geologists distinguish among different minerals.
- Conduct different tests on the rocks in the rock sets.
- Connect fossil fuels with the way they are formed.
- Create an effective method for cleaning up an oil spill.

MATH APPLICATIONS:

- Comparing Numbers
- Graphing

- Decimals
- Fractions

Measurements

Volume



ENERGY AND WORK

In *Energy and Work*, students explore energy, work, and gravity. They study the different types of energy and the way energy is converted. Students also analyze the formula for calculating work.

- Learn about the scientific meaning of work.
- Create a pom-pom shooter to study force and distance.
- Make connections between energy, work, and gravity.
- Create a mobile and witness how gravity affects balance.
- Study the differences between potential and kinetic energy.
- Engineer a hockey puck to explore energy and friction.
- Learn about the six types of energy and conversions.
- Demonstrate mechanical energy being converted into thermal energy.
- Explore the formula to calculate work.
- Calculate and compare force, work, energy, and power in metric units.

MATH APPLICATIONS:

- Collecting and Analyzing Data
 Graphing
- Converting Numbers
- Decimals
- Measurements



EXTREME EARTH

In *Extreme Earth*, students discover natural disasters that can happen all over Earth. They explore natural disasters from water, from severe storms, and from mountains.

- Investigate different types of natural disasters.
- Develop a model emergency pack containing items needed to survive a natural disaster.
- Learn about hurricanes and their effects.
- Design a diorama illustrating the different categories of hurricane damage.
- Study how tornadoes work and how they are formed.
- Create a model demonstrating how a tornado works.
- Explore the effect of snow and volcanoes.
- Map the locations of various mountains in the United States.
- Uncover how plate tectonics cause earthquakes.
- Construct a shake table and structure to withstand an earthquake.

- Geometry
- Graphing
- Measuring



LIGHT

In *Light*, students investigate the properties of light, energy, and waves through experiments.

- Investigate waves, matter, and energy transfer.
- Test how energy can be converted into light and sound.
- Identify different electromagnetic waves and how light travels.
- Explore the electromagnetic spectrum and visible light.
- Discover reflection and refraction and how color is seen.
- Experiment with light and explore how light is reflected.
- Uncover the mysteries of illusions and the tricks they play on the brain.
- Create a kaleidoscope that captures light.
- Explore shadows and the effect of distance on light.
- Complete a challenge to design a shadow sculpture.

MATH APPLICATIONS:

- Angles
- Reflection
- Symmetry



OCEAN LIFE

In *Ocean Life*, students discover life in the different layers of the ocean and on the ocean floor. They explore many parts of the ocean from waves at the surface to tectonic plate movement below.

- Learn about Earth's surface and how it is organized.
- Investigate Earth's four spheres and how they are connected.
- Dive into the life and conditions in the zones of the ocean.
- Create and map out an ocean floor scene.
- Analyze the ocean floor and how the continents move.
- Reveal the mystery of earthquake and volcano locations.
- Discover what can cause ocean waves.
- Explore wave properties and ocean wave effects.
- Examine what adaptations are useful for survival in the ocean.
- Design an ocean organism.

- Data
- Graphs



PLANTS

In *Plants*, students discover the parts of a plant and its life cycle. They learn how plants grow through photosynthesis, adapt to survive, and develop interdependent relationships with animals.

- Explore what a plant needs and how it transports nutrients.
- Create a model and label the parts of a plant's life cycle.
- Consider the various stages in a plant's life cycle.
- Design a seed that has two or more dispersing methods.
- Discover how plants make food through photosynthesis.
- Measure and graph plant growth over time and create a photosynthesis model.
- Learn how different traits help plants survive in different environments.
- Create a carnivorous plant and explain how its external parts help it get food and survive in its environment.
- Make connections among plants, animals, and humans and their effect on the environment.
- Observe and demonstrate interdependent relationships.

MATH APPLICATIONS:

- Collecting and Analyzing Data
 - ata Lines of Symmetry

• Graphing

Measuring



SCIENCE INQUIRY

In *Science Inquiry*, students learn about the scientific method. They explore gravity, robotics, hypotheses, variables, observations, and data and perform different experiments.

- Examine how scientific curiosity leads to new discoveries.
- Explore how holding weight affects the height of your jump.
- Explore how needs lead to inventions and new technology.
- Design, create, and test a moving toy.
- Discover the importance of hypotheses and variables.
- Experiment with food coloring and water.
- Investigate how scientists use the scientific method.
- Experiment with different types of liquids, paper clips, and a magnet.
- Compare how scientists make observations and gather data.
- Use observations and data to answer a question.

MATH APPLICATIONS:

- Collecting and Analyzing Data
 Temperature
- Graphing

• Time

Measuring



SIMPLE MACHINES

In *Simple Machines*, students learn about the different types of simple machines. They create a mechanism using the simple machines.

- Explore the different classes of levers.
- Experiment with the fulcrum, load, and effort on different levers.
- Learn about inclined planes and screws.
- Test the impact of slope and mass on the speed of a skier traveling downhill.
- Discover how wheels and axles work.
- Test how wheels and axles work in a gear train and pulley system.
- Study the different types of pulleys.
- Create a castle pulley system.
- Examine wedges and compound machines.
- Build a moving sign-waving compound machine with simple machines.

MATH APPLICATIONS:

- Angles
- Fractions
- Measurement



SPACE EXPLORATION

In *Space Exploration*, students learn about the different ways humans discover the universe.

- Visualize Earth's location in the universe.
- Design, build, and test a Mars rover.
- Determine key characteristics of the Sun and other stars.
- Create constellations and analyze how they change through the seasons.
- Journey through the beginnings of the race to space.
- Test how trajectory affects the distance and speed of rocket flight.
- Discover the trek humankind has taken through the history of space exploration.
- Plot crewed and uncrewed landing sites on the Moon.
- Explore the *International Space Station* and the effects of living in space.
- Create a parachute so your rocket can land safely on a surface and test its success.

MATH APPLICATIONS:

Fractions

• Math Operations

• Graphing

Measurement



STRUCTURE AND FUNCTION

In *Structure and Function*, students explore different animal structures and their functions. They classify animals by different characteristics.

- Distinguish different ways scientists classify organisms.
- Build different birds and then design a bird to meet the challenge.
- Connect the fossil records with changes in organisms and continental movement.
- Study fossil patterns to explain how the Earth has changed and what structures helped dinosaurs survive.
- Compare advantages and disadvantages of vertebrates and invertebrates.
- Classify animals as invertebrates and vertebrates while determining animal symmetry.
- Explore desert and nocturnal animal structures.
- Examine how human and animal eyes work using lenses.
- Discover how animals process different stimuli.
- Investigate how animals have special structures to sense their surroundings.

MATH APPLICATIONS:

- Measurement
- Symmetry



TRANSPORTATION AND POWER

In *Transportation and Power*, students design, build, and test pipelines, boats, airplanes, and cars. They also investigate how energy is transferred when cars collide.

- Identify different forms of transportation and people or goods that can be transported.
- Engineer a pipeline without harming the environment.
- Compare vehicles used in land and water transportation.
- Design a boat that floats and holds as many washers as possible.
- Discover vehicles used in air and space transportation.
- Create a paper airplane that holds cargo and glides.
- Examine motion and safety features to protect passengers.
- Investigate how energy is transferred when cars collide.
- Explore ways scientists and engineers are making transportation more energy efficient.
- Make a wind-powered sail car that travels as far as possible.

- Collecting and Analyzing Data
 Graphing
- Converting and
 Comparing Numbers
- Measurements



WAVES

In *Waves*, students discover that waves are a part of many natural events. They explore waves from water and sound.

- Learn the basic structure of a wave.
- Create waves and measure amplitude and wavelength.
- Explore similarities and differences between two types of waves.
- Build a wave model to see crests and troughs.
- Discover how sound travels.
- Design a gong that would best enable sound waves to travel.
- Relate the properties of sound to investigate music.
- Make instruments to hear different pitches and frequencies.
- Uncover the consistency and patterns of pendulums.
- Construct pendulums to explore frequencies and amplitudes.

MATH APPLICATIONS:

- Collecting and Analyzing Data
- Measuring
- Solving Word Problems



37 MISSIONS 4TH-GRADE TITLES



5TH-GRADE TITLES

- Adaptations and Survival
- Body at Work
- Crime Lab
- Ecosystems
- Energy
- Engineering Structures
- Limited Resources
- Matter Properties
- Motion and Force
- Rocketry
- Scientific Discovery
- Solar System
- Technology and Design
- Under the Microscope
- Weather and Water

Learn more about the *Crime Lab* title on page 40.

38 MISSIONS 5TH-GRADE TITLE

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ADAPTATIONS AND SURVIVAL

In *Adaptations and Survival*, students learn how living things adapt in order to survive. Students study different types of adaptations for different environments.

- Compare behavioral and structural adaptations.
- Experiment with various adaptations of bird beaks.
- Discover how living things use camouflage for survival.
- Investigate the effectiveness of camouflage.
- Learn how animals have adapted to different temperatures.
- Evaluate the efficiency of blubber as insulation.
- Explore the ways different creatures adapt to their homes.
- Design and create a biodome.
- Understand how animals adapt for reproduction and the survival of their offspring.
- Simulate a wolf pack to compete for resources.

MATH APPLICATIONS:

- Data Analysis
- Decimals
- Fractions
- Place Value



BODY AT WORK

In *Body at Work,* students learn about the different body systems and complete activities utilizing these body systems.

- Learn about the organization of the human body and the circulatory system.
- Determine whether your jumping ability is affected by your height.
- Explore the respiratory and digestive systems.
- Determine your breathing rate and lung volume.
- Examine the skeletal and muscular systems.
- Build a model of the human skeleton.
- Investigate the immune and nervous systems.
- Test your reaction times.
- Study the remaining body systems and the skin.
- Design a model of the human hand.

- Averages
- Conversions in the Body System
- Decimals
- Fractions



CRIME LAB

In Crime Lab, students work together to solve a crime by examining different types of evidence. Students perform different tests and investigations that investigators would do.

- Explore crime scenes and different types of evidence.
- Reconstruct a model of the crime scene.
- Learn about DNA and how it's used as evidence.
- Perform tests on mystery powders to determine which one matches the evidence.
- Investigate how fingerprints or other marks at a crime scene can identify the culprit.
- Inspect your fingerprints and how they differ from others.
- Study how different blood types and bones act as evidence.
- Create dental impressions and investigate the math behind teeth.
- Examine different types of trace evidence and forgeries.
- Conduct chromatography tests to match inks to evidence.

MATH APPLICATIONS:

- Basic Math Operations
- Place Value
- Comparing Numbers
- Rounding
- Data Analysis



ECOSYSTEMS

In Ecosystems, students learn about ecosystems and their components. Students examine food webs and chains. Students investigate adaptations and resources.

- Learn about ecosystems and the environment.
- Perform a simulation that represents how animals with certain adaptations survive over generations.
- Examine food chains and food webs and the different types of organisms found in them.
- Create a food web and examine how energy is received at the different trophic levels.
- Investigate how adaptations and resources affect how animals survive.
- Learn about butterflies and their various adaptations. Create butterflies that blend into their surroundings.
- Explore different biomes and the organisms found in those biomes.
- Identify different biomes that animals live in and examine the distribution of biomes across Farth
- Study different types of succession and how humans impact ecosystems.
- Design and build a model of primary succession.

MATH APPLICATIONS:

- Comparing Data Analysis Numbers • Fractions
- Patterns
- Place Value

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ENERGY

In *Energy*, students learn about energy and its different uses. Students study the different types of energy and how energy is transformed. Students analyze the law of conservation of mass and energy. Students experiment with various energy forms and calculate their effects.

- Explore energy uses and how to calculate energy.
- Determine how much energy is used by your body.
- Learn about kinetic and potential energy.
- Test the effects of a rubber band-powered racer.
- Read about the law of conservation of matter and energy.
- Experiment with chemical reactions and energy conversions.
- Examine different types and sources of energy.
- Use a solar-powered car to convert light into electricity.
- Investigate different energy transformations and examples.
- Discover the effects of light on a solar panel.

MATH APPLICATIONS:

• Area

- Measurement
- Coordinate Planes
- Measuremen
- Perimeter
- Graphing



ENGINEERING STRUCTURES

In *Engineering Structures*, students think like engineers to overcome construction and load-bearing challenges.

- Learn the importance of the properties of materials.
- Create and test 3-D structures for maximum load.
- Understand how different designs resist compression and tension.
- Evaluate the benefits of gussets in creating a frame.
- Explore how the design phase is used to plan smarter.
- Model the benefits of supports in bridge building.
- Compare potential reasons for structural failure and how designers attempt to overcome them.
- Explore strategic placement of support in a building to better withstand an earthquake.
- Examine proper design testing techniques and the benefits of plans and technology.
- Integrate knowledge of structure design and loads to solve a design challenge.

MATH APPLICATIONS:

Angles

Area

Shapes

Volume



LIMITED RESOURCES

In *Limited Resources*, students work with different types of renewable and nonrenewable resources. Students examine the impact people have on the environment and how to reduce that impact.

- Learn about fossil fuels and nonrenewable resources.
- Create a plan to manage energy resources.
- Explore different types of renewable energy.
- Engineer a solar car.
- Examine how the choices people make impact the environment.
- Perform a pollution experiment.
- Study about resource consumption and how to reuse, reduce, and recycle.
- Make recycled jewelry.
- Investigate how living and nonliving things help with the cycling of nutrients in the environment.
- Inspect the components of soil.

MATH APPLICATIONS:

- Basic Math Operations
- Decimals

• Patterns

Beennais

Place Values

Fractions



MATTER PROPERTIES

In *Matter Properties*, students learn about mass and other properties of matter. Students experiment with physical and chemical changes. Students explore mixtures and solutions and investigate heat movement.

- Learn about mass and matter.
- Investigate the different matter properties of various materials.
- Study different matter properties.
- Calculate the properties of volume and density of different materials.
- Learn about physical and chemical changes.
- Explore examples of physical and chemical changes.
- Explore mixtures and solutions.
- Examine mixtures and determine if they are heterogeneous mixtures or solutions.
- Identify types of heat movement.
- Design an insulated container that resists the heat lost due to conduction and radiation.

Density

Volume

MATH APPLICATIONS:

- Basic Math Operations
- Data Analysis

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MOTION AND FORCE

In *Motion and Force*, students learn about motion and force through different amusement park rides.

- Learn about the laws of force and motion.
- Engineer a marble run coaster.
- Investigate Newton's first law and the effect of gravity on forces.
- Create a swinging pendulum ride.
- Examine Newton's second law and the relationship between force, mass, and acceleration.
- Design a balloon vehicle that travels on a zip line.
- Study how Newton's third law relates to forces.
- Test balanced and unbalanced forces on bumper cars.
- Explore how Newton's laws are demonstrated in amusement park rides.
- Build a carousel that demonstrates centripetal force.

MATH APPLICATIONS:

• Angles

- Decimals
- Data Analysis

• Lines



ROCKETRY

In *Rocketry*, students design, build, and test straw rockets. Students determine the best design for a rocket to land in a specific target, and explore how different variables affect a rocket's flight.

- Learn about the design process and its application to rocket design.
- Design and build a straw rocket.
- Explore parts of rocket flight and the variables that affect it.
- Launch your rocket and record the data collected.
- Delve into the history of rockets.
- Redesign your rocket and test it.
- Examine how Newton's laws apply to rocket flight.
- Test how trajectory affects the range of the rocket.
- Learn about current events and future plans in space travel.
- Plot coordinate points based on a rocket target.

MATH APPLICATIONS:

Angles

- Lines
- Coordinate System
- Measurements

43 MISSIONS 5TH-GRADE TITLES



SCIENTIFIC DISCOVERY

In Scientific Discovery, students learn about the scientific method. Students explore constants, variables, hypotheses, and conclusions. Students perform different experiments.

- Discover the steps of the scientific method.
- Experiment with yeast and sugar.
- I earn about observations and data
- Perform volume measurements.
- Investigate constants and variables.
- Write and conduct your own experiment.
- Study how scientists work and communicate.
- Engineer a safe bungee cage ride.
- Explore models and classifications used by scientists.
- Create your own rock classification key.

MATH APPLICATIONS:

- Basic Math Operations
- Numerical Expressions
- Data Analysis

- Volume



SOLAR SYSTEM

In Solar System, students learn about components of the universe. Students examine our solar system and its planets. Students explore Earth and the Moon in detail and create models that represent concepts studied.

- Explore the eight different planets in our solar system.
- Create planet puzzles capturing information about the planets.
- Examine how distances are represented in our solar system.
- Create a scale model of the planets and their distances from the Sun.
- Discover the movements of Earth and the Moon and how eclipses occur.
- Investigate the phases of the Moon and how they relate to fractions.
- Learn about stars, constellations, and the universe.
- Design a number line to represent the astronomical magnitude scale.
- Study Earth's rotation and revolution and how both affect the seasons.
- Determine how angles relate to Earth's revolution around the Sun.

MATH APPLICATIONS:

Angles

Number Lines

• Fractions

Scale



TECHNOLOGY AND DESIGN

In *Technology and Design*, students learn about how people create new things to solve problems. Students design, build, and test several creations.

- Understand the importance of technology and how it evolves.
- Construct a simple robot that creates art.
- Identify the categories of technology.
- Design and build a Fold-N-Roll vehicle.
- Investigate the design process.
- Test and improve your Fold-N-Roll vehicle.
- Explore the input, process, and output of systems.
- Use code to create a structure.
- Recognize the relationship between technology and science.
- Design a sail and evaluate its efficiency.

MATH APPLICATIONS:

- Calculating Speed
- Decimals

Conversions

- Decimais
- The Coordinate System

UNDER THE MICROSCOPE

In *Under the Microscope,* students learn the history and parts of the microscope. Students explore animal and plant cells. Students examine cells under the microscope and learn how to use it properly.

- Explore animal and plant cells and their organelles.
- Build a plant and animal cell as a design challenge.
- Learn about mitosis, DNA, chromosomes, and genes.
- Create a mitosis comic strip depicting the different phases.
- Investigate the classification of different living things.
- Examine different cells and compare their characteristics.
- Study the history of microscopes, the different types of microscopes, and the people who used them.
- Draw images at different scales using measurement.
- Explore how a microscope uses light and lenses and its parts.
- Operate a microscope and learn about its parts and proper use.

MATH APPLICATIONS:

- Angles
- Basic Operations
- Lines

Measurement

45 MISSIONS 5TH-GRADE



WEATHER AND WATER

In *Weather and Water*, students learn about Earth's different systems and resources. Students complete hands-on activities and investigations around weather, air, and water.

- Learn about different Earth systems and how they impact weather and climate.
- Make a scale model of Earth's atmosphere.
- Explore the water cycle and its impact on Earth.
- Create a cloud model and simulate the water cycle through an experiment.
- Investigate weather patterns and extreme weather events.
- Build weather forecasts on the map using the appropriate weather symbols.
- Examine the different water resources on Earth.
- Model the different types of water resources and their distributions on Earth.

Place Values

- Study the natural and human impacts on Earth's air and water resources.
- Design a clean water filter.

MATH APPLICATIONS:

• Decimals

- Volume
- Percentages
 Scale

3RD GRADE

Being Healthy

- Cryptologist
- Genetic Engineer
- Pet Psychologist
- Taxidermist

Ecology

- Animal Care Assistant
- Animal Welfare Inspector
- Police Dog Handler
- Wildlife Biologist

Electricity

- Automotive Engineer
- Electrical Engineer
- IT Support Technician
- Robotics Designer

Environment and Climate

- Astrophysicist
- Data Analyst
- Land Surveyor
- Math Teacher

Forces

- Architect
- Civil Engineer
- Construction Manager
- Set Designer

Fossils and Survival

- Archaeologist
- Conservator
- Museum Curator
- Museum Educator

Life Cycles

- Alligator Wrestler
- Beekeeper
- Fish Farmer
- Vermiculturist

Magnetism

- Electrician
- Mechanic
- Motorsports Engineer

Welder

Matter

- Doctor
- Food Scientist
- Laboratory Technician
- Pharmacist

Motion

- Environmental Scientist
- Materials Scientist
- Pilot
- Sports Scientist

Science Skills

- Archivist
- Researcher
- Teacher
- Tour Guide

Seasons and Weather

- Forensic Scientist
- Meteorologist
- Oceanographer
- Website Designer

- - Recycling Entrepreneur

Skyscrapers

- Market Researcher
- Product Designer
- Software Developer
- Structural Engineer

Space

- Astronaut
- Bomb Squad Technician
- Smokejumper
- Test Pilot

Traits and Variation

- Entomologist
- Farmer
- Veterinarian
- Zookeeper

4TH GRADE

Amazing Body

- Chemist
- Medical Technologist
- Nutritionist
- Pharmacist

Design and Solutions

- Manufacturing Engineer
- Real Estate Agent
- Urban Planner
- Venture Capitalist

Earth Processes

- Hydrologist
- Land Surveyor
- Park Ranger

Earth Rocks

- Astronomer
- Horticulturist
- Landscape Architect
- Meteorologist

Energy and Work

Industrial Designer

Museum Curator

Photojournalist

Extreme Earth

Archaeologist

Food Scientist

Oceanographer

CONNECTIONS

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MISSIONS

4

• Veterinarian

Composer

Disc Jockey

Ocean Life

Plants

•

Arborist

Farmer

Botanist

Animal Trainer

Marine Biologist

Merchant Mariner

• Agribusiness Consultant

Hydrologist

Lighting Technician

Music Video Producer

Light

• Architect

Science Inquiry

- Detective
- Diplomat
- Firefighter
- International Relief Worker

Simple Machines

- Archaeologist
- Engineer
- Robotics Technician
- Science Educator

Space Exploration

- Airport Personnel
- Astronaut
- Military Serviceperson
- Travel Agent

Structure and Function

- Entomologist
- Pet Groomer
- Veterinarian
- Zoologist

CONNECTIONS

MISSIONS CAREER

48

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1:

Transportation and Power

- Commercial Fisher
- Cruise Director
- Expedition Leader
- International Businessperson

Waves

- Music Therapist
- Musician
- Music Video Producer
- Sound Engineer

5TH GRADE

Adaptations and Survival

- Animal Care Worker
- Horticultural Worker
- Landscape Architect
- Veterinarian
- **Body at Work**
 - Nurse
 - Personal Trainer
 - Physical Therapist
 - Professional Athlete

Crime Lab

- Forensic Scientist
- Journalist
- Lawyer
- Police Officer

Ecosystems

- Ecologist
- Farm Manager
- Marine Biologist
- Microbiologist

Energy

- Drilling Engineer
- Electrical Engineer
- Electrician
- Plumber

Engineering Structures

- Architect
- Builder
- Material Scientist
- Structural Engineer

Limited Resources

- Geoscientist
- Politician
- Public Relations Officer
- Town Planner

Matter Properties

- Chemical Engineer
- Cosmetologist
- Pharmacist
- Pharmacologist

Motion and Force

- Logistics Manager
- Railroad Engineer
- Transportation Planner
- United States Marine

Rocketry

- Aerospace Engineer
- Airline Cabin Crew
- Air Traffic Controller
- Air Force Airman

Scientific Discovery

- Chef
- Elementary School Teacher
- Firefighter
- Game Developer

Solar System

- Airline Pilot
- Astronaut
- Astronomer
- Telecom Engineer

Technology and Design

- Graphic Designer
- Interior Designer
- Mechanical Engineer
- Product Designer

Under the Microscope

- Biotechnologist
- Dentist
- Medical Doctor

Weather and Water

Camera Operator

Coast Guardsman

Meteorologist

Navy Sailor

Paramedic

NS NATIONAL CAREER CLUSTERS
 49 MISSIONS N

		Agriculture, Food, & Natural Resources	Architecture & Construction	Arts, A/V Technology, & Communications	Business Management & Administration	Education & Training	Finance	Government & Public Administration	Health Science	Hospitality & Tourism	Human Services	Information Technology	Law, Public Safety, Corrections, & Security	Manufacturing	Marketing	Science, Technology, Engineering, & Math	Transportation, Distribution, & Logistics
	Being Healthy	•					•	•	•	•	•					•	
	Ecology	•											•			•	
	Electricity		•									•				•	•
	Environment and Climate	•				•	•									•	
	Forces		•	•												•	
	Fossils and Survival	•				•				•						•	
ADE	Life Cycles	•							•		•					•	
GR/	Magnetism		•											•		•	•
3RD	Matter	•							•							•	
	Motion	•							•					•		•	•
	Science Skills					•		•		•						•	
	Seasons and Weather	•		•								•	•			•	
	Skyscrapers		•				•					•				•	
	Space												•			•	•
	Traits and Variation	•							•							•	
	Amazing Body								•		•					•	
GRADE	Design and Solutions		•		•		•			•				•		•	
	Earth Processes	•	•													•	
	Earth Rocks		•							•						•	
4TH	Energy and Work															•	
	Extreme Earth	•											•		•	•	
	Light			•												•	

The chart above represents the overall content of Missions and careers presented in Career Connections aligned to the National Career Clusters.

50 MISSIONS NATIONAL CAREER CLUSTERS **!**: :

		Agriculture, Food, & Natural Resources	Architecture & Construction	Arts, A/V Technology, & Communications	Business Management & Administration	Education & Training	Finance	Government & Public Administration	Health Science	Hospitality & Tourism	Human Services	Information Technology	Law, Public Safety, Corrections, & Security	Manufacturing	Marketing	Science, Technology, Engineering, & Math	Transportation, Distribution, & Logistics
	Ocean Life	•														•	•
	Plants	•			•											•	
ш	Science Inquiry							•			•		•			•	
RAD	Simple Machines	•	•			•										•	
THG	Space Exploration							•		•			•			•	•
4	Structure and Function	•							•							•	
	Transportation and Power	•	•		•					•				•		•	•
	Waves			•												•	
	Adaptations and Survival	•														•	
	Body at Work								•		•					•	
	Crime Lab			•					•		•	•	•			•	
	Ecosystems	•							•							•	
	Energy	•	•						•							•	•
	Engineering Structures		•											•		•	
DE	Limited Resources	•			•			•							•	•	
GR₽	Matter Properties								•		•					•	
5TH	Motion and Force		•							•			•			•	•
	Rocketry									•			•			•	•
	Scientific Discovery	•				•						•	•			•	
	Solar System											•	•			•	•
	Technology and Design	•	•	•					•			•		•	•	•	•
	Under the Microscope	•							•							•	
	Weather and Water	•	•	•				•					•			•	

The chart above represents the overall content of Missions and careers presented in Career Connections aligned to the National Career Clusters.



"When you have kids like little Daisy who were just planning on cutting hair for the rest of their lives deciding that they're going to go off and be a forensic scientist, it's very much a door opener and an enabler. It's going to enable them to do whatever they want to do."

- Cathy Johnson, fifth-grade teacher, Elmore City-Pernell Elementary School, Elmore City, OK



PITSCO EDUCATION IS A LEADER IN FUTURE-READY LEARNING, FUNDAMENTALLY ROOTED IN STEM.

Our competency-based and collaborative hands-on programs effectively integrate core disciplines while helping students master transferable skills – such as collaboration, critical thinking, and creative problem-solving.

We aim to produce employable students from our STREAM Missions programs, and we will provide you everything you need to prepare your students for a world no one can describe.

