



Quick, yet comprehensive Pennsylvania Academic Standards science coverage

Grades 4 and 8

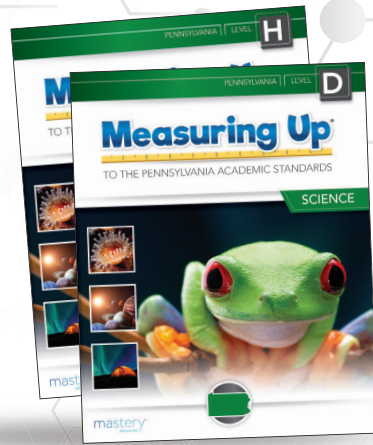
Measuring Up to the Pennsylvania Academic Standards for science meets the needs of the PSSA. The Instructional Worktexts promote the analysis and interpretation of data, critical thinking, problem solving, and connecting science curriculum to other subject areas.

Lessons feature:

- Coverage of the most tested Pennsylvania Academic Standards and Assessment Anchors for science.
- Lesson goals that outline what students will learn, connecting prior knowledge to scientific concepts.
- Independent practice with items that meet the rigor of the PSSA for Science.
- Building Stamina unit tests that check for student understanding.
- Hands-on activities, experiments, and investigations.



Available for grades 4 and grade 8



WHAT YOU'LL SEE IN EACH LESSON

WORDS TO KNOW:
Vocabulary students will encounter is listed and defined in context.

THE BIG IDEA:
Lesson objectives set the stage for what students will learn.

WHAT I NEED TO KNOW:
Quickly highlights and reviews the lesson concept.

CRITICAL-THINKING ITEMS:
Starred items indicate critical-thinking questions.

UNIT 1

HOW ARE ANIMALS ABLE TO GROW, SURVIVE, AND REPRODUCE? Lesson 3

WORDS TO KNOW
adaptation
growth
behavior
reproduction

Lesson 3

HOW ARE ANIMALS ABLE TO GROW, SURVIVE, AND REPRODUCE?

THE BIG IDEA

- Animals have structures inside and outside their bodies that help them live, grow, and reproduce.

WHAT I NEED TO KNOW

Animals live in different places, so they have different adaptations, or features that help them survive in their environments. For example, a seal has a layer of fat to keep it warm in ocean water.

Adaptations include structures on the outside of the animal, such as scales, long necks, or feathers. Adaptations also include structures inside the animal. For example, a sea turtle can slow its heart down to one beat every nine minutes! Other internal structures of animals include their lungs, brains, muscles, and stomachs.

These structures are important to an animal's **growth**, or the process of getting bigger. For example, the long, thin nose and tongue of an anteater helps it find and slurp up ants. The anteater's stomach does its job, sending nutrients to the body.

TURN AND TALK

What is one of your favorite animals? Does it have any unique structures, such as the elephant's trunk or the hummingbird's wings? Does it have any unique behaviors, such as otters cracking open clams or fish swimming in schools? Talk about how these special features help the animal survive.

THINK ABOUT IT

Think about a favorite animal again. What structures does it use to catch and eat food? How do you think these structures help this animal grow?

WHAT I HAVE LEARNED

1. Which is not a function of the system of structures on the outside and inside of an animal?

A To help the animal grow

B To assist in reproduction

C To help the animal survive

D To provide the animal's ecosystem

UNIT 1

HOW ARE ANIMALS ABLE TO GROW, SURVIVE, AND REPRODUCE? Lesson 3

2. To live and grow, hawks and eagles catch prey such as mice or rabbits. They scan the ground for these small animals from up to 1,000 feet in the air, which is as high as a 100-story skyscraper. These birds can see 8-10 times better than humans.

Which conclusion makes the most sense?

A Hawks and eagles have better eyesight because they spend time training their eyes from high in the sky.

B Hawks and eagles have adaptations in their eyes that allow them to find food so they grow and survive.

C Hawks and eagles probably use sonar like bats to see such small objects from far away.

D Hawks and eagles decided to adapt because they have to fly so high.

3. When oil spills pollute water and shorelines, animals are affected. Sea otters and fur seals are marine mammals that grow thick fur on their skin. When oil coats their bodies they quickly become cold. They may die of hypothermia, or low body temperature, from the excess cold.

Based on this information, how does fur help marine mammals survive?

A Fur helps otters and seals keep oil spills off of their skin.

B Fur helps otters and seals keep their bodies at the right temperature.

C Fur attracts the best mates during mating season.

D Fur traps oil that helps the otters and seals stay warm.

4. Scientists observed Hawaiian crows picking up sticks with their beaks and putting the sticks into holes in logs. If a stick did not fit, the crows chose different sticks. Using the sticks, the crows pulled insects and larvae out and ate them.

What conclusion could the scientists make based on this information?

A Crows are not very smart animals, so they eat insects and larvae.

B Crows like to play with sticks, logs, and insects.

C Crows' behavior, beaks, and brains helps them grow and survive.

D Crows are loud and noisy animals that get into a lot of trouble.

5. Some frog tadpoles in a pond had white skin instead of the normal dark color. A scientist put some in a tank and left others in the pond. The white tadpoles in the pond disappeared, while those in the tank lived. She concluded that the white tadpoles did not survive as well because predators were more likely to eat them.

What other evidence would help support the scientist's conclusion?

A Evidence of predators eating white tadpoles more often than dark tadpoles

B Evidence that the white tadpoles had more difficulty finding algae to eat

C Evidence that the predators found tadpoles by listening for their sound, not seeing their color

D Evidence that all the tadpoles in the pond died

HINT, HINT

Read all the choices. For each one, ask yourself these questions. Does this support the conclusion that the tadpoles died because predators ate them? Does this support the conclusion that the color of the tadpoles mattered?

TEACHER EDITION

The **Teacher Edition** includes support for:

- performance expectations
- disciplinary core ideas
- cross cutting concepts
- prerequisite knowledge and standards
- misconceptions
- working with struggling, advanced, and English language learners

Full-length, grade-level practice tests built to the Pennsylvania Academic Standards.

UNIT 1

HOW ARE ANIMALS ABLE TO GROW, SURVIVE, AND REPRODUCE? Lesson 3

TEACHER NOTES

TIPS FOR THE STRUGGLING LEARNER

- If students are struggling with how an animal has a system of parts that work together, demonstrate with a familiar human example. Provide students with a small stack. As a group, use slowly and discuss what parts the body uses with each step toward getting the nutrients into the bloodstream. Ask students these questions: How do your eyes help you eat this snack? How do your hands help you eat this snack? Continue with teeth, tongue, esophagus, and stomach. Emphasize that eating is important to growth and survival because their bodies need nutrients to work.

TIPS FOR THE ENGLISH LANGUAGE LEARNER

- Support English language learners by providing visuals of all the animals discussed to provide context for vocabulary such as structure, adaptation, behavior, reproduction, and the different names of animals and their parts. Have students work in groups to select an animal to draw and label with its important or unique adaptations.

ACTIVITIES FOR THE ADVANCED LEARNER

UNIT 1

HOW ARE ANIMALS ABLE TO GROW, SURVIVE, AND REPRODUCE? Lesson 3

TEACHER NOTES

STANDARDS 3.1.4A2, 3.1.4A3, 3.1.4C1, 3.1.4C2

The Big Idea

Animals have structures inside and outside their bodies that help them live, grow, and reproduce.

Prerequisite Knowledge & Standards

3.1.3A1 Describe characteristics of living things that help to identify and classify them.

3.1.3A2 Describe the basic needs of living things and their dependence on light, food, air, water, and shelter.

3.1.3A3 Identify differences in the life cycles of plants and animals.

3.1.3C1 Recognize that many plants and animals can survive harsh environments because of seasonal behaviors (e.g. hibernation, migration, tree shedding leaves).

3.1.3C2 Describe animal characteristics that are necessary for survival.

Math Connection

CC.2.3.4.A.3 Recognize symmetric shapes and draw lines of symmetry.

ELA Connection

CC.1.4.4.G Write opinion pieces on topics or texts.

CC.1.4.4.I Provide reasons that are supported by facts and details.

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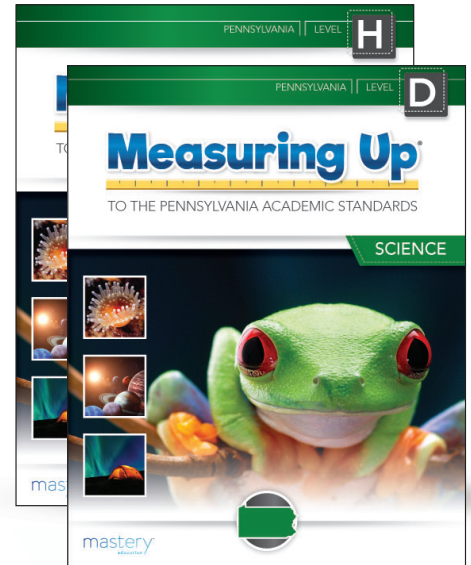
WHAT I HAVE LEARNED:
Offers independent practice with item types that meet the rigor of the PSSA exam.

LESSON PROMPTS:
Hints, Turn and Talk, Sketch It, and other prompts guide students throughout the lesson.

Measuring Up[®]

Science

Quick, yet comprehensive
PA Core Standards science
coverage



Grades 4 and 8

Lessons feature:

- Comprehensive PA Standards science content with independent practice items that meet the rigor of the PSSA.
- Building Stamina unit tests that check for student understanding.
- Hands-on activities, experiments, and investigations.

Each grade level covers a wide variety of scientific concepts including life, earth, and physical science.

Grade 4

- Structure, Function, and Information Processing
- Transferring Energy and Information
- Energy and Collisions
- Earth's Landscape
- Earth's Systems and Change

Grade 8

- Human Body Systems
- Reproduction and Growth
- Energy Transfer and Weather
- Climates and Human Impacts
- Properties of Matter
- Dynamic Interactions within Ecosystems
- Geologic Changes in the Earth
- Forces and Energy
- Energy in Waves
- Mechanisms of Diversity
- Changing Earth

ISBN	Level/Grade	Price
STUDENT EDITION		
978-1-64090-116-2	D/4	\$14.95
978-1-64090-117-9	H/8	\$14.95
ANNOTATED TEACHER EDITION		
978-1-64090-118-6	D/4	\$32.95
978-1-64090-119-3	H/8	

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