



SCIENCE • GRADE 4

Science Assessments

FOCUScurriculum

Curriculum materials for **your** content standards

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Introduction

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Check Understanding Assessments

The following assessments are designed to assist you in evaluating your students' knowledge of Ohio's Science Content Standards. Check Understanding assesses the content of each *Focus on Ohio Standards* book. You will find multiple choice and short answer questions that assess literal and interpretive comprehension of each book's content. In addition, these assessments will evaluate your students' ability to synthesize and apply the content and concepts identified in the Ohio Academic Content Standards Benchmarks and Grade-Level Indicators. Students will obtain valuable practice in answering 2-point and 4-point response questions they will encounter on the Ohio Achievement Test.

Ohio Achievement Practice Test

Half-length practice tests that mirror the Ohio Achievement Test for science are available for each grade level. Visit our Web site at www.focuscurriculum.com for purchasing information.

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SCIENCE • GRADE 4

Below Level

Benchmark	Grade-Level Indicator
Life Sciences: A	Heredity: 1
Life Sciences: A	Diversity and Interdependence of Life: 5

Assessments

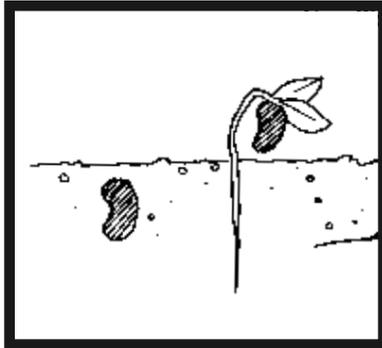
Comparing Life Cycles of Plants

Print pages 5–7 of this PDF for the assessments.

Check Understanding

Shade the circle next to the correct answer.

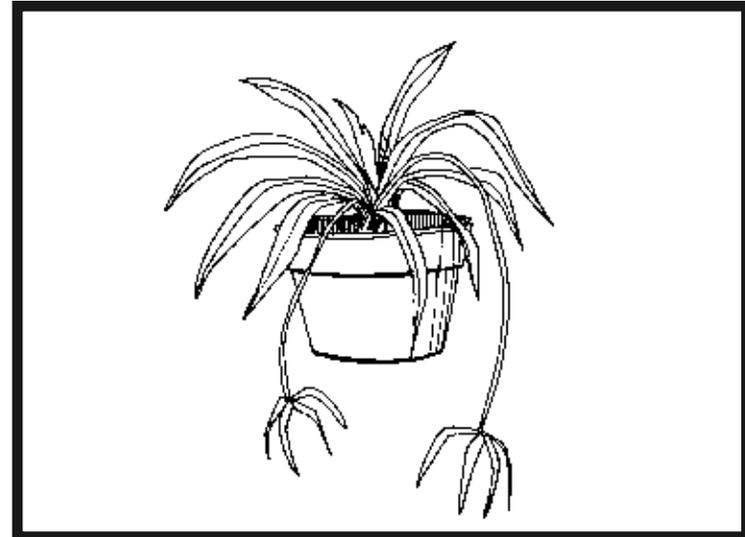
1. The following picture shows part of the life cycle of a seed plant.



Which statement describes what is happening?

- Ⓐ The seed is extinct.
 - Ⓑ The seed is pollinating.
 - Ⓒ The seed is germinating.
 - Ⓓ The seed is producing spores.
2. Which statement best explains how pollen travels from one flower to another?
- Ⓐ A bulb or bud produces the pollen.
 - Ⓑ A bird, bee, or bat carries the pollen.
 - Ⓒ A squirrel buries pollen in the ground.
 - Ⓓ A spore cluster breaks open to release pollen.

3. A spider plant produces stems that grow out and become new plants.



What is another plant that grows from part of a parent plant?

- Ⓐ fern
- Ⓑ pine
- Ⓒ potato
- Ⓓ maple

Check Understanding

Write your answers in the boxes.

4. One summer, a student planted flower seeds in the garden. The flowers grew. The next summer, the flowers grew in the garden and in the yard, where she had not planted seeds.

Identify two ways that seeds may spread and explain how this helps the seeds to grow. (4 points)

Identify

Identify

Explain

Explain

Assessment Scoring Guidelines

1. Answer C is correct.
2. Answer B is correct.
3. Answer C is correct.
4. Exemplar 4-point responses may include:

Identify: Wind

Explain: Wind blows seeds from the plant to the soil, where they can grow.

Identify: Water

Explain: Rain can wash seeds to a new place with enough room to grow.

Identify: People

Explain: People can plant seeds in a garden and care for them so they can grow.

Identify: Animals

Explain: Squirrels and birds may carry seeds far away or bury them so they can grow.



SCIENCE • GRADE 4

On Level

Benchmark	Grade-Level Indicator
Life Sciences: A	Heredity: 1
Life Sciences: A	Diversity and Interdependence of Life: 5

Assessments

Comparing Life Cycles of Plants

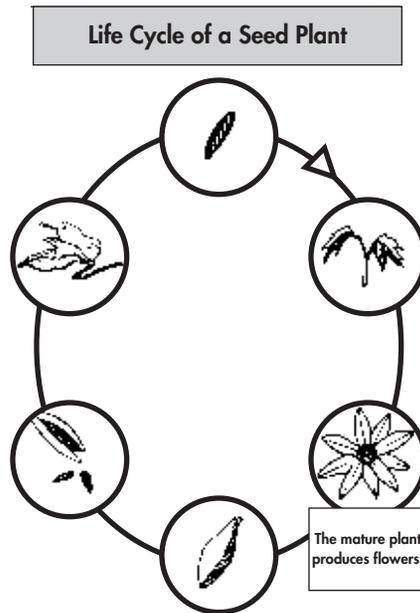
Print pages 9–11 of this PDF for the assessments.

Comparing Life Cycles of Plants

Check Understanding

Shade the circle next to the correct answer.

1. The following diagram shows the life cycle of a seed plant.



Which statement describes what happens after the mature plant produces flowers?

- Ⓐ The seeds produce bulbs.
 - Ⓑ The flowers become spores.
 - Ⓒ The seeds become dormant.
 - Ⓓ The flowers produce seeds.
2. Which plant uses spores to reproduce?
- Ⓐ fern
 - Ⓑ potato
 - Ⓒ daffodil
 - Ⓓ strawberry

Write your answer in the boxes.

3. A student purchased some vegetable seeds to plant in his garden.

Identify one thing that the seeds need to germinate and explain why it is necessary. (2 points)

Identify

Explain

Check Understanding

Write your answers in the boxes.

4. Identify two plants that produce seeds and explain how these seeds may be spread. (4 points)

Identify

Identify

Explain

Explain

Assessment Scoring Guidelines

1. Answer D is correct.
2. Answer A is correct.
3. Exemplar 2-point responses will include:
Identify: moisture
Explain: Moisture causes the seed covering to swell and crack open.
4. Exemplar 4-point responses may include:
Identify: Mapple trees
Explain: The wind can blow the seeds far away.
Identify: Coconut trees
Explain: Coconuts can float across the ocean.
Identify: Oak trees
Explain: Squirrels and other animals can bury the acorns.



SCIENCE • GRADE 4

Above Level

Benchmark	Grade-Level Indicator
Life Sciences: A	Heredity: 1
Life Sciences: A	Diversity and Interdependence of Life: 5

Assessments

Comparing Life Cycles of Plants

Print pages 13–15 of this PDF for the assessments.

Check Understanding

Shade the circle next to the correct answer.

1. A student is examining the plants in her house and yard to determine how they reproduce. She creates a list of all the plants she can identify.

apple trees	daffodils
oak trees	orchids
spider plants	ferns
dandelions	

What is one example of a plant that reproduces without seeds?

- Ⓐ The ferns produce spores.
 - Ⓑ The apple trees produce apples.
 - Ⓒ The dandelions produce flowers.
 - Ⓓ The evergreen trees produce pinecones.
2. Which statement describes one way that seeds are spread?
- Ⓐ Mosses release them into the air.
 - Ⓑ Squirrels bury them underground.
 - Ⓒ People eat them in vegetables and fruit.
 - Ⓓ People eat them in vegetables and fruit.

Write your answer in the boxes.

3. Pollination is needed before a flower can produce seeds. Some plants produce a lot of pollen that is released into the air. The wind helps to spread this pollen.

Identify one other way that pollen is spread and explain why many pollen-producing plants also produce nectar. (2 points)

Identify

Explain

Check Understanding

Write your answers in the boxes.

4. The strawberry plant is one type of plant that uses runners to reproduce.

Identify two other plants that grow from parts of a parent plant and explain how it happens. (4 points)

Identify

Identify

Explain

Explain

Assessment Scoring Guidelines

1. Answer A is correct.
2. Answer B is correct.
3. Exemplar 2-point responses will include:

Identify: Birds, bees, or bats

Explain: Nectar is sweet and attracts the insects and animals to the pollen-producing flowers.

4. Exemplar 4-point responses may include:

Identify: Spider plant

Explain: Spider plants have runners, which send roots into the soil and grow new plants.

Identify: Onions

Explain: Onions grow small new bulbs on the side of the parent bulb.

Identify: Potatoes

Explain: Potatoes grow new plants from the “eyes” when they are cut off and planted.

Identify: African violet

Explain: African violets grow new plants when a leaf from the parent is planted in soil.



SCIENCE • GRADE 4

Below Level

Benchmark	Grade-Level Indicator
Life Sciences: B	Diversity and Interdependence of Life: 3
Life Sciences: B	Diversity and Interdependence of Life: 4

Assessments

Classifying Plants

Print pages 17–19 of this PDF for the assessments.

Check Understanding

Shade the circle next to the correct answer.

1. Which part of a vascular plant absorbs water?

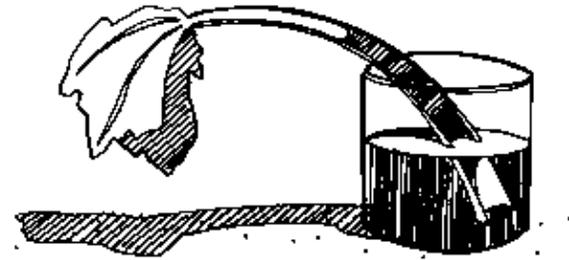
- (A) stem
- (B) roots
- (C) tubes
- (D) leaves

2. Fossils can give us clues to the past.

Which statement describes how a fossil forms?

- (A) A plant has no roots, stems, leaves, or tubes.
- (B) A plant's leaves and stem die but its roots stay alive.
- (C) A plant is buried in mud, which slowly turns to rock.
- (D) A plant grows close to the ground, acting like a sponge.

3. Students do an experiment. They put red food coloring in a tall glass of water. Then, they place a long celery stalk in the glass. Over the next few days, they observe that the color is moving up the stalk.



What does this prove about celery?

- (A) It has seeds.
- (B) It has spores.
- (C) It is vascular.
- (D) It is nonvascular.

Check Understanding

Write your answers in the boxes.

4. One way to sort plants into groups is by life cycle.

Identify two of these groups and explain how long each group lives. (4 points)

Identify

Identify

Explain

Explain

Assessment Scoring Guidelines

1. B is correct. D is a common misconception.
2. Answer C is correct.
3. Answer C is correct.
4. Exemplar 4-point responses may include:

Identify: Annual

Explain: This plant lives for one growing season.

Identify: Biennial

Explain: This plant lives for two growing seasons.

Identify: Perennial

Explain: This plant lives for three or more growing seasons.



SCIENCE • GRADE 4

On Level

Benchmark	Grade-Level Indicator
Life Sciences: B	Diversity and Interdependence of Life: 3
Life Sciences: B	Diversity and Interdependence of Life: 4

Assessments

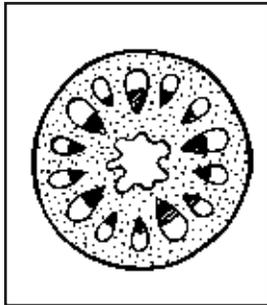
Classifying Plants

Print pages 21–23 of this PDF for the assessments.

Check Understanding

Shade the circle next to the correct answer.

1. What type of plant completes its life cycle in one growing season?
Ⓐ annual
Ⓑ biennial
Ⓒ perennial
Ⓓ centennial
2. Not all plants absorb water and reproduce in the same way.



Which is a true statement about the plant in the illustration above?

- Ⓐ It is fungus.
- Ⓑ It is petrified.
- Ⓒ It is a vascular plant.
- Ⓓ It reproduces using spores.

Write your answer in the boxes.

3. Fossils can show us what plants existed on Earth millions of years ago.

Identify one ancient plant that is still alive today and explain how its fossil formed. (2 points)

Identify

Explain

Check Understanding

Write your answers in the boxes.

4. Nonvascular plants are very small and grow close to the ground.

Identify two nonvascular plants and explain two ways that nonvascular plants are useful. (4 points)

Identify

Identify

Explain

Explain

Assessment Scoring Guidelines

1. Answer A is correct.
2. Answer C is correct.
3. Exemplar 2-point responses may include:

Identify: Fern

Explain: A leaf was buried in mud. Over time the mud turned into rock, leaving the shape of the leaf.

Identify: Ginkgo

Explain: A leaf was buried in mud. Over time the mud turned into rock, leaving the shape of the leaf.

4. Exemplar 4-point responses may include:

Identify: Hornwort

Explain: It keeps soil from washing away during a storm.

Identify: Moss

Explain: It keeps soil from washing away during a storm.

Identify: Mushrooms

Explain: We eat some mushrooms as food.

Identify: Liverwort

Explain: It stores water.



SCIENCE • GRADE 4

Above Level

Benchmark	Grade-Level Indicator
Life Sciences: B	Diversity and Interdependence of Life: 3
Life Sciences: B	Diversity and Interdependence of Life: 4

Assessments

Classifying Plants

Print pages 25–27 of this PDF for the assessments.

Check Understanding

Shade the circle next to the correct answer.

1. A scientist identifies moss and daisies growing in a wild forest. She observes that the moss and daisies are growing in the same location as they were one year before.

How are these two plants different?

- Ⓐ Moss is a fungi, while daisies are plants.
 - Ⓑ Moss has tubes, while daisies do not have tubes.
 - Ⓒ Moss is a perennial, while daisies are annual plants.
 - Ⓓ Moss is nonvascular, while daisies are vascular plants.
2. The illustration below shows Gingko leaves and a fossil of Gingko leaves from millions of years ago.



Based on this illustration, which statement is true?

- Ⓐ Gingko trees have existed for millions of years.
- Ⓑ The Earth was covered in fossils millions of years ago.
- Ⓒ Gingko trees are the only trees that have not changed over time.
- Ⓓ The environment millions of years ago is the same as it is today.

Write your answer in the boxes.

3. Plants can be classified as vascular or nonvascular.

Identify one way a plant soaks up water and explain how this works. (2 points)

Identify

Explain

Check Understanding

Write your answers in the boxes.

4. Fungi are neither plant nor animal. They are alive but they cannot make their own food.

Identify two uses for fungi and explain how each helps us. (4 points)

Identify

Identify

Explain

Explain

Assessment Scoring Guidelines

1. Answer D is correct.
2. Answer A is correct.
3. Exemplar 2-point responses may include:
 - Identify:** Through roots
 - Explain:** A plant with roots sends water through tubes to the rest of the plant.
 - Identify:** Through the entire plant
 - Explain:** Tiny, nonvascular plants soak up water like a sponge.
4. Exemplar 4-point responses may include:
 - Identify:** Penicillin
 - Explain:** The medicine is made from a fungus and has cured diseases.
 - Identify:** Yeast
 - Explain:** This fungus helps bread rise.
 - Identify:** Mushrooms
 - Explain:** We eat some mushrooms as food.
 - Identify:** Crop protection
 - Explain:** Farmers spray fungi spores on crops to kill insects.



SCIENCE • GRADE 4

Below Level

Benchmark	Grade-Level Indicator
Physical Sciences: A	Nature of Matter: 1
Physical Sciences: B	Nature of Matter: 3, 4

Assessments

Physical Changes in Matter

Print pages 29–31 of this PDF for the assessments.

Check Understanding

Shade the circle next to the correct answer.

1. Cutting bread and bending a paperclip are examples of physical changes.

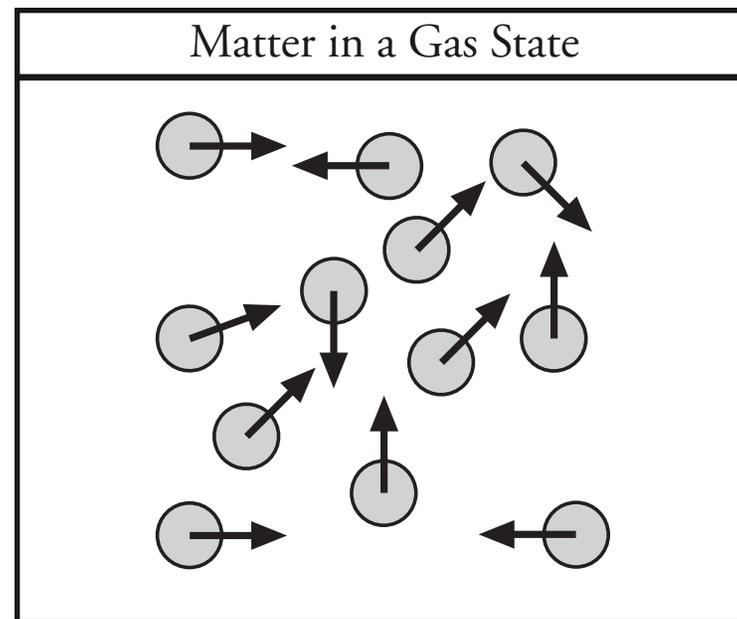
Which statement describes why these are physical changes?

- Ⓐ The objects have changed state.
 - Ⓑ The objects are no longer useful.
 - Ⓒ The objects have changed shape.
 - Ⓓ The objects are made from new materials.
2. Students dissolve a spoonful of salt in a glass of water. They stir the mixture until they cannot see the salt anymore.

What type of mixture is salt and water?

- Ⓐ solution
- Ⓑ diffusion
- Ⓒ suspension
- Ⓓ condensation

3. The following diagram shows particles of matter in a gas state.



Which description is true of matter in a gas state?

- Ⓐ It has no shape or size.
- Ⓑ It has size but no shape.
- Ⓒ It has shape but no size.
- Ⓓ It has a certain size and shape.

Check Understanding

Write your answers in the boxes.

4. We often describe materials by the matter from which they are made.

Identify two types of matter and explain what types of materials they can make. (4 points)

Identify

Identify

Explain

Explain

Assessment Scoring Guidelines

1. Answer C is correct.
2. Answer A is correct.
3. Answer B is correct.
4. Exemplar 4-point responses may include:

Identify: Paper

Explain: Paper can make newspaper, paper towels, and paper bags.

Identify: Glass

Explain: Glass can make light bulbs, windows, and bottles.



SCIENCE • GRADE 4

On Level

Benchmark	Grade-Level Indicator
Physical Sciences: A	Nature of Matter: 1
Physical Sciences: B	Nature of Matter: 3, 4

Assessments

Physical Changes in Matter

Print pages 33–35 of this PDF for the assessments.

Check Understanding

Shade the circle next to the correct answer.

1. The following picture shows water in its three states.



What type of change is taking place?

- Ⓐ physical, because the water is affected by temperature
 - Ⓑ chemical, because the water is disappearing into the air
 - Ⓒ chemical, because the water is becoming a new substance
 - Ⓓ physical, because the water can change back to another state.
2. When heat is applied to matter, what happens to the particles in the substance?
- Ⓐ They move faster.
 - Ⓑ They stop moving.
 - Ⓒ They move slower.
 - Ⓓ They move slower.

Write your answer in the boxes.

3. Matter can be described using many different physical properties.

Identify one physical property of matter and explain how you know it is a physical property. (2 points)

Identify

Explain

Check Understanding

Write your answers in the boxes.

4. Physical changes occur every day in our lives.

Identify two physical changes and explain how they are useful or problematic. (4 points)

Identify

Identify

Explain

Explain

Assessment Scoring Guidelines

1. Answer D is correct.
2. Answer A is correct.
3. An exemplar 2-point response may include:

Identify: Color

Explain: It can be observed.

Identify: Shape

Explain: It can be observed and measured.

4. Exemplar 4-point responses may include:

Identify: Melting butter

Explain: It is useful because it helps us cook food.

Identify: Cutting a finger

Explain: It is problematic because it injurs a person.



SCIENCE • GRADE 4

Above Level

Benchmark	Grade-Level Indicator
Physical Sciences: A	Nature of Matter: 1
Physical Sciences: B	Nature of Matter: 3, 4

Assessments

Physical Changes in Matter

Print pages 37–39 of this PDF for the assessments.

Check Understanding

Shade the circle next to the correct answer.

1. A student is studying physical change in an unknown solid. Her teacher has asked her to plan an experiment to discover the melting point of the substance.

What must the student do to change the substance into liquid?

- Ⓐ Freeze the substance.
 - Ⓑ Dissolve the substance.
 - Ⓒ Add thermal energy to the substance.
 - Ⓓ Subtract thermal energy from the substance.
2. Which of the following statements is true of physical change?
- Ⓐ The change is reversible.
 - Ⓑ The change is permanent.
 - Ⓒ A new substance is created.
 - Ⓓ The physical properties remain unchanged.

Write your answer in the boxes.

3. In a mixture, two or more substances are combined.

Identify one type of mixture and explain its characteristics. (2 points)

Identify

Explain

Check Understanding

Write your answers in the boxes.

4. All substances are made of matter.

Identify two states of matter and explain the movement of particles in each state. (4 points)

Identify

Identify

Explain

Explain

Assessment Scoring Guidelines

1. Answer C is correct.
2. Answer A is correct.
3. An exemplar 2-point response may include:

Identify: Diffusion

Explain: Enzymes break down food into chemicals that the body uses for energy.

Identify: Suspension

Explain: Particles move throughout another substance until they are evenly distributed.

Identify: Solution

Explain: : One substance is completely dissolved in another.

4. Exemplar 4-point responses may include:

Identify: Solid

Explain: The particles are packed tightly together.

Identify: Liquid

Explain: The particles are able to move somewhat.

Identify: Gas

Explain: The particles can move in all directions.



SCIENCE • GRADE 4

Below Level

Benchmark	Grade-Level Indicator
Physical Sciences: A	Nature of Matter: 2
Physical Sciences: B	Nature of Matter: 4

Assessments

Chemical Changes in Matter

Print pages 41–43 of this PDF for the assessments.

Check Understanding

Shade the circle next to the correct answer.

1. Which statement is an example of chemical change?

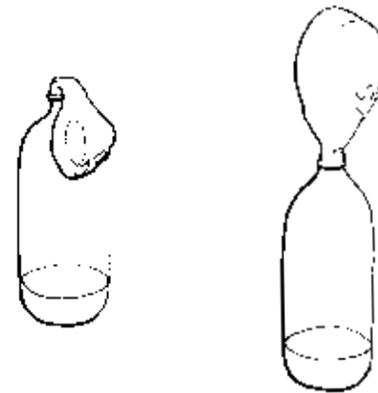
- Ⓐ Salt dissolves in water.
- Ⓑ A piece of iron gets rusty.
- Ⓒ A mirror breaks into pieces.
- Ⓓ Ice melts in a glass of juice.

2. Breaking glass and cutting paper are examples of physical changes.

Which statement describes why these are physical changes?

- Ⓐ There is a change in the color of the substances.
- Ⓑ There is a change in the shape of the substances.
- Ⓒ There is a change in how the substances are used.
- Ⓓ There is a change in the chemical makeup of the substances.

3. Students put vinegar in a bottle. Then they put some baking soda in a balloon. Next, they attached the balloon to the top of the bottle. The baking soda fell into the vinegar. The balloon got bigger.



How do you know that gas was created?

- Ⓐ The balloon got bigger.
- Ⓑ A chemical change occurred.
- Ⓒ A physical change occurred.
- Ⓓ The baking soda fell into the vinegar.

Check Understanding

Write your answers in the boxes.

4. Chemical changes are different than physical changes.

Identify two chemical changes and explain why they are chemical changes. (4 points)

Identify

Identify

Explain

Explain

Assessment Scoring Guidelines

1. Answer B is correct.
2. Answer B is correct.
3. Answer A is correct.
4. Exemplar 4-point responses may include:

Identify: Burning a log

Explain: It is impossible to combine smoke, heat, light, and ash to form a log again

Identify: Photosynthesis

Explain: A new substance (sugar) is created when light, water, and carbon dioxide are combined.

Identify: Digestion

Explain: Heat is released and a new substance is created.



SCIENCE • GRADE 4

On Level

Benchmark	Grade-Level Indicator
Physical Sciences: A	Nature of Matter: 2
Physical Sciences: B	Nature of Matter: 4

Assessments

Chemical Changes in Matter

Print pages 45–47 of this PDF for the assessments.

Check Understanding

Shade the circle next to the correct answer.

1. Cooking an egg and burning a piece of paper are examples of chemical changes.

Which statement describes why these are chemical changes?

- Ⓐ There is a change in how the substances feel.
 - Ⓑ There is a change in the appearance of the substances.
 - Ⓒ There is a change in the chemicals that make up the substances.
 - Ⓓ There is a change in the amount of heat released by each substance.
2. A student conducts an experiment on mixtures and compounds. He adds one spoonful of salt to a glass of water and stirs until the salt disappears. Then he adds one spoonful of baking soda to a glass of vinegar and watches it fizz.
- Why is the baking soda and vinegar a compound?
- Ⓐ The two substances can be separated again.
 - Ⓑ The new substance looks and smells different.
 - Ⓒ The substances did not give off heat when they were combined.
 - Ⓓ The substances combined chemically to form a new substance.

Write your answer in the boxes.

3. Some chemical changes can help us while other chemical changes can cause problems.

Identify one chemical change that causes problems and explain what happens. (2 points)

Identify

Explain

Check Understanding

Write your answers in the boxes.

4. Chemical changes make life possible.

Identify two chemical changes that humans need to live and explain how they work. (4 points)

Identify

Identify

Explain

Explain

Assessment Scoring Guidelines

1. Answer C is correct.
2. Answer D is correct.
3. An exemplar 2-point response may include:

Identify: Oxidation

Explain: Rust forms on iron and flakes away.

Identify: Tarnishing

Explain: Silver becomes black.

4. Exemplar 4-point responses may include:

Identify: Digestion

Explain: Enzymes break down food into chemicals that the body uses for energy.

Identify: Breathing

Explain: Oxygen combines with another chemical in the blood.



SCIENCE • GRADE 4

Above Level

Benchmark	Grade-Level Indicator
Physical Sciences: A	Nature of Matter: 2
Physical Sciences: B	Nature of Matter: 4

Assessments

Chemical Changes in Matter

Print pages 49–51 of this PDF for the assessments.

Check Understanding

Shade the circle next to the correct answer.

1. On the class camping trip, students decided to roast marshmallows. After holding the marshmallows over the fire for a few minutes, they got nice and brown.

What type of change took place during the roasting of the marshmallows?

- Ⓐ chemical, because the fire produced heat
- Ⓑ chemical, because the change cannot be reversed
- Ⓒ physical, because the marshmallows only changed color
- Ⓓ physical, because the marshmallows could still be eaten

2. A student melts an ice cube in a hot pan. He then holds a lid above the pan so that the steam condenses and falls back into the pan as liquid water.

Why is condensation NOT a chemical change?

- Ⓐ The water is no longer a solid.
- Ⓑ The water is not releasing heat.
- Ⓒ The water can easily be changed from gas to liquid.
- Ⓓ The water can easily change into a new substance.

Write your answer in the boxes.

3. Without chemical changes, life could not exist.

Identify one chemical change that occurs in the human body and explain why it is a chemical change. (2 points)

Identify

Explain

Check Understanding

Write your answers in the boxes.

4. When two substances combine chemically, a compound is produced.

Identify two compounds and explain how they are formed. (4 points)

Identify

Identify

Explain

Explain

Assessment Scoring Guidelines

1. Answer B is correct.
2. Answer C is correct.
3. An exemplar 2-point response may include:
 - Identify:** Digestion
 - Explain:** Enzymes break down food into chemicals that the body uses for energy.
 - Identify:** Breathing
 - Explain:** Oxygen combines with another chemical in the blood.
4. Exemplar 4-point responses may include:
 - Identify:** Salt
 - Explain:** The gas chlorine combines with the metal sodium.
 - Identify:** Water
 - Explain:** Two parts hydrogen combine with one part oxygen.



SCIENCE • GRADE 4

Below Level

Benchmark	Grade-Level Indicator
Earth and Space Sciences: D	Earth Systems: 1
Scientific Ways of Knowing: D	Science and Society: 3

Assessments

The Air Around Us

Print pages 53–55 of this PDF for the assessments.

Check Understanding

Shade the circle next to the correct answer.

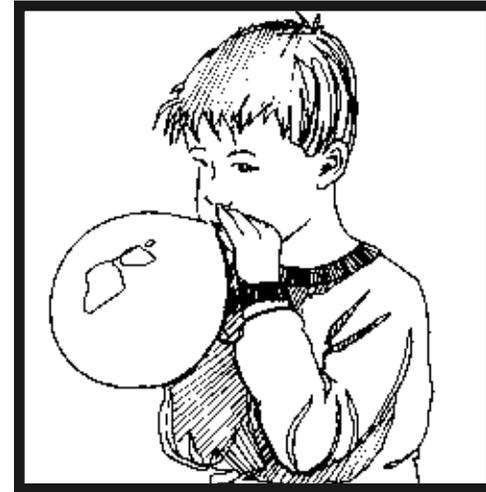
1. Why is carbon dioxide an important gas?

- Ⓐ Plants need it for respiration.
- Ⓑ Most of the air is made of it.
- Ⓒ It helps us measure air pressure.
- Ⓓ It shows which way the wind is blowing.

2. Which tool measures air pressure?

- Ⓐ barometer
- Ⓑ anemometer
- Ⓒ weather vane
- Ⓓ weather station

3. A student blows up two balloons. One of the balloons is big and one is small.



Which statement is true?

- Ⓐ The air in the small balloon is warmer than the air in the big balloon.
- Ⓑ The air in the big balloon is warmer than the air in the small balloon.
- Ⓒ The big balloon and the small balloon contain the same amount of air.
- Ⓓ The air takes up more space in the big balloon than in the small balloon.

Check Understanding

Write your answers in the boxes.

4. Identify two scientists who studied air and explain how their inventions helped others. (4-points)

Identify

Identify

Explain

Explain

Assessment Scoring Guidelines

1. Answer A is correct.
2. Answer A is correct.
3. Answer D is correct.
4. Exemplar 4-point responses may include:

Identify: Evangelista Torricelli

Explain: He invented the barometer, which measures air pressure.

Identify: Thomas Romney Robinson

Explain: He invented the anemometer, which measures wind speed.

Identify: Sarah Whiting

Explain: She set up one of the first weather stations in the United States.



SCIENCE • GRADE 4

On Level

Benchmark	Grade-Level Indicator
Earth and Space Sciences: D	Earth Systems: 1
Scientific Ways of Knowing: D	Science and Society: 3

Assessments

The Air Around Us

Print pages 57–59 of this PDF for the assessments.

Check Understanding

Shade the circle next to the correct answer.

1. Wind is the movement of air.

What causes wind?

- Ⓐ respiration by plants
- Ⓑ change in air pressure
- Ⓒ respiration by animals
- Ⓓ change in gases in the air

2. Sarah Whiting was an American scientist.

What did Sarah Whiting accomplish?

- Ⓐ She invented the first barometer.
- Ⓑ She created the first weather map.
- Ⓒ She started one of the first weather stations.
- Ⓓ She designed the first electronic anemometer.

Write your answers in the boxes.

3. Identify one type of weather found in a low pressure area and explain what happens to cause it. (2 points)

Identify

Explain

Check Understanding

Write your answers in the boxes.

4. Identify two instruments that measure wind and explain how each instruments works. (4 points)

Identify

Identify

Explain

Explain

Assessment Scoring Guidelines

1. Answer B is correct.
2. Answer C is correct.
3. Exemplar 2-point responses may include:

Identify: Clouds

Explain: When warm air rises, it hits cool air and creates clouds.

Identify: Rain

Explain: When warm air rises, it hits cool air. Water vapor condenses to form clouds which releases water as rain.

4. Exemplar 4-point responses may include:

Identify: Weather vane

Explain: An arrow points in the direction that the wind is blowing.

Identify: Anemometer

Explain: The wind speed is based on how fast the four cups spin.



SCIENCE • GRADE 4

Above Level

Benchmark	Grade-Level Indicator
Earth and Space Sciences: D	Earth Systems: 1
Scientific Ways of Knowing: D	Science and Society: 3

Assessments

The Air Around Us

Print pages 61–63 of this PDF for the assessments.

Check Understanding

Shade the circle next to the correct answer.

1. A barometer is a tool used to measure air pressure.

Which is true about air pressure?

- Ⓐ Air pressure does not have a direct effect on the mercury.
- Ⓑ Air pressure changes based on the temperature of the mercury.
- Ⓒ When air pressure increases, the mercury moves up the glass tube.
- Ⓓ When air pressure decreases, the mercury moves up the glass tube.

2. Thomas Romney Robinson invented a tool to measure weather. This instrument had four cups on the top of a pole.

What did it measure?

- Ⓐ wind speed
- Ⓑ air pressure
- Ⓒ wind direction
- Ⓓ air temperature

Write your answers in the boxes.

3. Identify one type of gas in the air and explain why the right balance of gases in the air is important. (2 points)

Identify

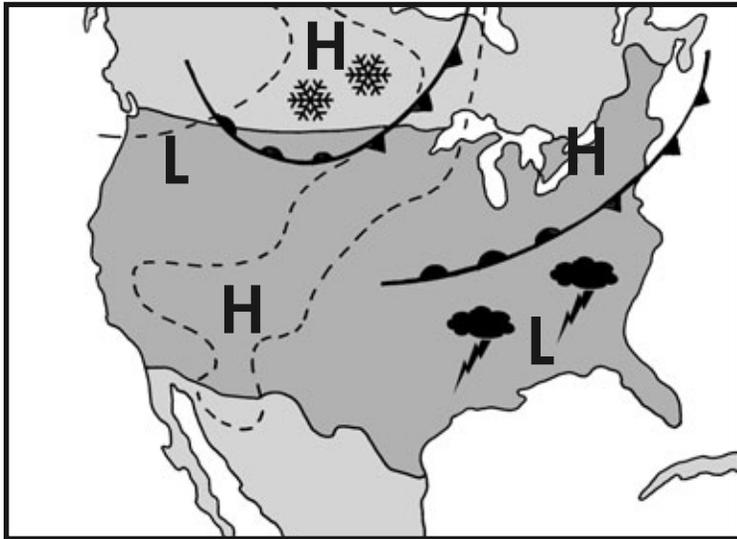
Explain

Check Understanding

Write your answers in the boxes.

4. Weather maps, such as this one, use symbols to show measurements.

Identify the symbols that represent pressure measurements on a weather map. Explain what each means about the weather. (4 points)



Identify

Explain

Identify

Explain

Assessment Scoring Guidelines

1. Answer C is correct.
2. Answer A is correct.
3. Exemplar 2-point responses may include:
Identify: Oxygen, nitrogen, carbon dioxide, or argon
Explain: Animals and plants need different types of gases to survive.
4. Exemplar 4-point responses may include:
Identify: L
Explain: “L” represents a low-pressure area, which usually means bad weather.
Identify: H
Explain: “H” represents a high pressure area, which usually means good weather.



SCIENCE • GRADE 4

Below Level

Benchmark	Grade-Level Indicator
Scientific Inquiry: B	Doing Scientific Inquiry: 2
Earth and Space Sciences: D	Earth Systems: 2, 3

Assessments

Water Is in the Air

Print pages 65–67 of this PDF for the assessments.

Check Understanding

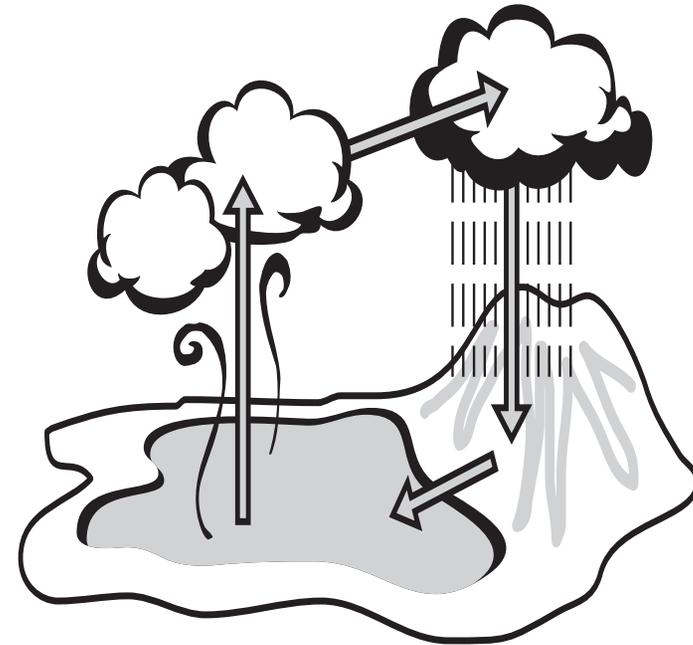
Shade the circle next to the correct answer.

1. The water cycle is made up of five parts.

In which part of the water cycle would you find reservoirs?

- Ⓐ evaporation
 - Ⓑ precipitation
 - Ⓒ condensation
 - Ⓓ runoff and absorption
2. What are clouds made of?
- Ⓐ smoke
 - Ⓑ frozen water
 - Ⓒ drops of water
 - Ⓓ thunder and lightning

3. The following diagram shows the water cycle.



What happens during evaporation?

- Ⓐ Water falls back to Earth.
- Ⓑ Water vapor changes to liquid.
- Ⓒ Water changes to gas and rises.
- Ⓓ Clouds are transported over land.

Check Understanding

Write your answers in the boxes.

4. Identify two types of precipitation that occur when water freezes in a cloud and explain how each forms. (4 points)

Identify

Identify

Explain

Explain

Assessment Scoring Guidelines

1. Answer D is correct.
2. Answer C is correct.
3. Answer C is correct.
4. Exemplar 4-point responses may include:

Identify: Sleet

Explain: Water freezes in a cloud, then melts as it falls through air, then freezes again.

Identify: Hail

Explain: Water freezes in a cloud, then starts to melt but is blown back up into colder air many times.

Identify: Snow

Explain: Water freezes in a cloud and falls to Earth still frozen.



SCIENCE • GRADE 4

On Level

Benchmark	Grade-Level Indicator
Scientific Inquiry: B	Doing Scientific Inquiry: 2
Earth and Space Sciences: D	Earth Systems: 2, 3

Assessments

Water Is in the Air

Print pages 69–71 of this PDF for the assessments.

Check Understanding

Shade the circle next to the correct answer.

1. The water cycle never stops. The same water that you drink has been around since the time of dinosaurs.

Which statement describes the runoff and absorption part of the water cycle?

- Ⓐ Water collects on Earth.
 - Ⓑ Water falls back to Earth.
 - Ⓒ Water changes to a liquid.
 - Ⓓ Water changes to a gas and rises.
2. The following illustration shows how the water cycle works. The water in the bottom of the jar is hot.



Why does the water change from gas to liquid?

- Ⓐ The air cools.
- Ⓑ The air gets warmer.
- Ⓒ There is too much water.
- Ⓓ There is not enough water.

Write your answers in the boxes.

3. Clouds are part of the water cycle. They are formed by tiny water drops packed close together.

Identify the part of the water cycle in which clouds develop and explain what happens when too much water collects. (2 points)

Identify

Explain

Check Understanding

Write your answers in the boxes.

4. Water can exist as a solid, liquid, or gas.

Identify two terms that can describe water in gas form and explain where each might occur. (4 points)

Identify

Identify

Explain

Explain

Assessment Scoring Guidelines

1. Answer A is correct.
2. Answer A is correct.
3. An exemplar 2-point response includes:

Identify: Condensation

Explain: When too much water collects, it falls to Earth as rain, snow, sleet, or hail.

4. An exemplar 4-point responses will include:

Identify: Vapor

Explain: Water vapor exists in the air around us after it has evaporated.

Identify: Steam

Explain: Steam exists when boiling water evaporates.



SCIENCE • GRADE 4

Above Level

Benchmark	Grade-Level Indicator
Scientific Inquiry: B	Doing Scientific Inquiry: 2
Earth and Space Sciences: D	Earth Systems: 2, 3

Assessments

Water Is in the Air

Print pages 73–75 of this PDF for the assessments.

Check Understanding

Shade the circle next to the correct answer.

1. What is necessary for hail to form?
 - Ⓐ The storm must be moving from west to east.
 - Ⓑ There must be a mixture of rain, snow, and sleet.
 - Ⓒ The air temperature must remain at freezing point.
 - Ⓓ There must be warm updrafts and cold downdrafts.

2. The water cycle is made up of five parts.

Which list shows the correct order of these parts in the water cycle?

- Ⓐ evaporation, precipitation, condensation, runoff and absorption, transportation
- Ⓑ evaporation, transportation, condensation, precipitation, runoff and absorption
- Ⓒ precipitation, transportation, runoff and absorption, evaporation, condensation
- Ⓓ precipitation, condensation, transportation, runoff and absorption, evaporation

Write your answers in the boxes.

3. Identify one place water is stored on Earth and explain what will happen to the water next. (2 points)

Identify

Explain

Check Understanding

Write your answers in the boxes.

4. Water exists in many different forms.

Identify two forms of precipitation and explain what conditions must exist for them to occur. (4 points)

Identify

Identify

Explain

Explain

Assessment Scoring Guidelines

1. Answer D is correct.
2. Answer B is correct.
3. Exemplar 2-point responses may include:
 - Identify:** Oceans
 - Explain:** The water will be stored until it evaporates.
 - Identify:** Reservoirs
 - Explain:** The water will be stored until it evaporates (or)
The water will be used for drinking, cooking, and cleaning.
4. An exemplar 4-point responses will include:
 - Identify:** Rain
 - Explain:** Water falls as rain when temperatures are above freezing.
 - Identify:** Snow
 - Explain:** Water falls as snow when it freezes while still in the cloud.
 - Identify:** Sleet
 - Explain:** Water falls as sleet when it freezes, then melts, then freezes again.
 - Identify:** Hail
 - Explain:** Water falls as hail when it freezes then starts to melt but is blown back up into colder air many times.



SCIENCE • GRADE 4

Below Level

Benchmark	Grade-Level Indicator
Earth and Space Sciences: D	Earth Systems: 7
Scientific Inquiry: B	Doing Scientific Inquiry: 2

Assessments

Observing Clouds

Print pages 77–79 of this PDF for the assessments.

Check Understanding

Shade the circle next to the correct answer.

1. What is one way that clouds help plants and animals?

- Ⓐ They provide heat.
- Ⓑ They provide food.
- Ⓒ They provide wind.
- Ⓓ They provide water.

2. Clouds can help us predict the weather.

What kind of weather would you expect if you saw cumulonimbus clouds in the sky?

- Ⓐ snow
- Ⓑ sunshine
- Ⓒ light rain
- Ⓓ a thunderstorm

3. The following picture shows a cumulus cloud.



Clouds are made from what?

- Ⓐ white air
- Ⓑ drops of water
- Ⓒ pieces of cotton
- Ⓓ thunder and lightning

Check Understanding

Write your answers in the boxes.

4. When studying clouds, you should observe what color they are.

Identify two more observations that you should make when looking at clouds in the sky. Explain how these observations can help you keep a cloud journal. (4 points)

Identify

Identify

Explain

Explain

Assessment Scoring Guidelines

1. Answer D is correct.
2. Answer D is correct.
3. Answer B is correct.
4. Exemplar 4-point responses will include:

Identify: Shape

Explain: The shape of the cloud can help you predict weather.

Identify: Location

Explain: The location of the cloud can help you call the cloud by its scientific name.



SCIENCE • GRADE 4

On Level

Benchmark	Grade-Level Indicator
Earth and Space Sciences: D	Earth Systems: 7
Scientific Inquiry: B	Doing Scientific Inquiry: 2

Assessments

Observing Clouds

Print pages 81–83 of this PDF for the assessments.

Check Understanding

Shade the circle next to the correct answer.

1. Observations about clouds help us make predictions about weather.

Which observation describes cirrus clouds?

- Ⓐ Cirrus clouds are flat, layered, and low-lying.
- Ⓑ Cirrus clouds are rounded on top and have flat bases.
- Ⓒ Cirrus clouds are so dense that it is not possible to see the sun.
- Ⓓ Cirrus clouds are wispy and curl in the direction the wind is blowing.

2. The following picture shows the clouds that exist during a thunderstorm.

What type of clouds transform into the clouds pictured when it becomes windy?

- Ⓐ cirrus
- Ⓑ stratus
- Ⓒ cumulus
- Ⓓ nimbostratus



Write your answer in the boxes.

3. A group of friends want to take a hike in the forest. But when they look at the sky, they decide it is going to rain.

Identify one type of cloud that produces rain and explain what the cloud looks like. (2 points)

Identify

Explain

Check Understanding

Write your answers in the boxes.

4. The names of clouds give us clues about what they look like.

Identify two Latin roots that we use to name clouds and explain what each means. (4 points)

Identify

Identify

Explain

Explain

Assessment Scoring Guidelines

1. Answer D is correct.
2. Answer C is correct.
3. Exemplar 2-point responses may include:

Identify: Nimbostratus

Explain: These clouds are thick, gray, and cover the entire sky.

Identify: Cumulonimbus

Explain: These clouds look like towers of puffy clouds on top of each other.

4. Exemplar 4-point responses may include:

Identify: Cumulus

Explain: *Cumulus* means “heap.”

Identify: Nimbus

Explain: *Nimbus* means “rain cloud.”

Identify: Stratum

Explain: *Stratum* means “blanket.”



SCIENCE • GRADE 4

Above Level

Benchmark	Grade-Level Indicator
Earth and Space Sciences: D	Earth Systems: 7
Scientific Inquiry: B	Doing Scientific Inquiry: 2

Assessments

Observing Clouds

Print pages 85–87 of this PDF for the assessments.

Check Understanding

Shade the circle next to the correct answer.

1. The sky is overcast and it has been raining all day. However, the weather forecast predicts blue skies and sun tomorrow.

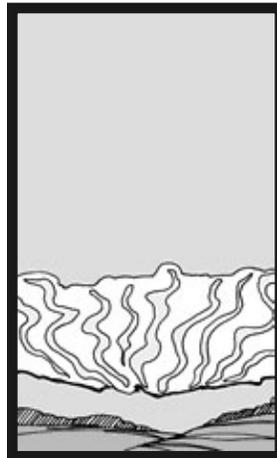
What type of clouds will there likely be tomorrow?

- Ⓐ cirrus
- Ⓑ stratus
- Ⓒ cumulus
- Ⓓ nimbostratus

2. The following picture shows one type of clouds.

Which statement is the best caption for this picture?

- Ⓐ Very low-lying stratus clouds are called fog.
- Ⓑ High level cirrus clouds contain ice crystals.
- Ⓒ A tower of cumulonimbus clouds causes a storm.
- Ⓓ It is impossible to see the sun through nimbostratus clouds.



Write your answer in the boxes.

3. Cumulonimbus clouds and nimbostratus clouds share a Latin root.

Identify the meaning of the Latin root and explain how it describes each type of cloud. (2 points)

Identify

Explain

Check Understanding

Write your answers in the boxes.

4. We know a lot about clouds, but there is still a lot to learn.

Identify two ways to study clouds and explain the advantages of each way. (4 points)

Identify

Identify

Explain

Explain

Assessment Scoring Guidelines

1. Answer C is correct.
2. Answer A is correct.
3. Exemplar 2-point responses may include:

Identify: Rain cloud

Explain: Cumulonimbus clouds produce thunderstorms.
Nimbostratus clouds produce light to moderate rain.

4. Exemplar 4-point responses may include:

Identify: Satellite

Explain: A new satellite called Cloudstat can take measurements inside of clouds, providing scientists with new information.

Identify: Observation

Explain: Observing clouds is inexpensive and easy.
Anyone can observe clouds and keep a cloud journal.



SCIENCE • GRADE 4

Below Level

Benchmark	Grade-Level Indicator
Earth and Space Sciences: D	Earth Systems: 4, 5, 6
Scientific Ways of Knowing: C	Nature of Science: 2

Assessments

Tracking Weather Patterns

Print pages 89–91 of this PDF for the assessments.

Check Understanding

Shade the circle next to the correct answer.

1. Meteorologists use instruments to study the weather.

What does a weather vane measure?

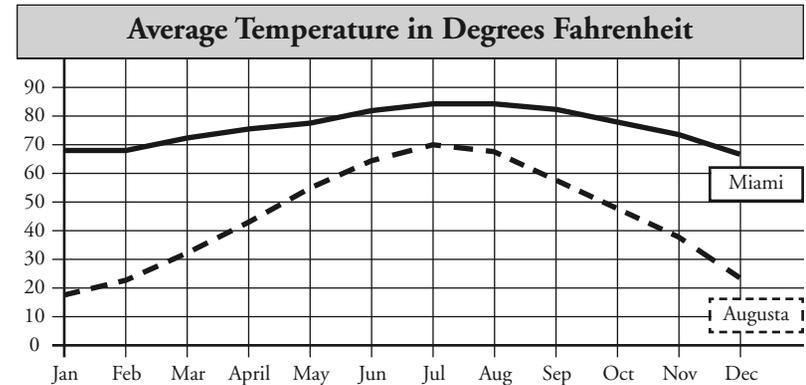
- Ⓐ rainfall
- Ⓑ air pressure
- Ⓒ temperature
- Ⓓ wind direction

2. Students use an anemometer to measure wind speed. They find that the wind is blowing hard. They observe that the sky is cloudy, and it is starting to rain.

Which statement must also be true?

- Ⓐ It is cold outside.
- Ⓑ A tornado is coming.
- Ⓒ The air pressure is low.
- Ⓓ The wind is blowing from the north.

3. The following graph shows the average temperature in Augusta, Maine and Miami, Florida during one year.



Between which months did the amount of precipitation in Miami change the most?

- Ⓐ May and June
- Ⓑ July and August
- Ⓒ January and February
- Ⓓ November and December

Check Understanding

Write your answers in the boxes.

4. Weather maps use symbols that stand for different types of weather.

Identify two symbols found on a weather map and explain what each represents. (4 points)

Identify

Identify

Explain

Explain

Assessment Scoring Guidelines

1. Answer D is correct.
2. Answer C is correct.
3. Answer A is correct.
4. Exemplar 4-point responses may include:

Identify: Cloud

Explain: It is cloudy in that area.

Identify: Sun

Explain: It is sunny in that area.

Identify: Raindrop

Explain: It is rainy in that area.

Identify: Lightning bolt

Explain: It is storming in that area.

Identify: Snowflake

Explain: It is snowing in that area.

Identify: H

Explain: There is high pressure in that area.

Identify: L

Explain: There is low pressure in that area.



SCIENCE • GRADE 4

On Level

Benchmark	Grade-Level Indicator
Earth and Space Sciences: D	Earth Systems: 4, 5, 6
Scientific Ways of Knowing: C	Nature of Science: 2

Assessments

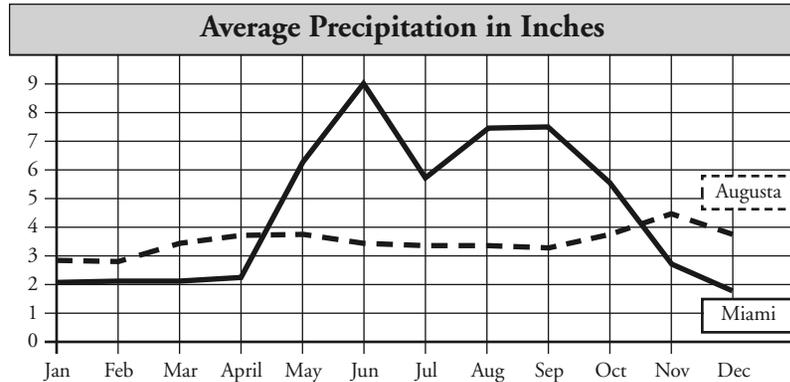
Tracking Weather Patterns

Print pages 93–95 of this PDF for the assessments.

Check Understanding

Shade the circle next to the correct answer.

1. The following map shows average precipitation for Augusta, Maine during one year.



Which instrument was used to measure precipitation?

- A rain gauge C thermometer
 B anemometer D weather vane
2. A student studies the weather every day for two months. She uses a barometer to measure air pressure.

Which is a reasonable observation about air pressure?

- A When the air pressure is low, there is sun.
 B When the air pressure is low, there is rain.
 C When the air pressure is high, there is wind.
 D When the air pressure is high, there is snow.

Write your answer in the boxes.

3. Severe weather can be predicted by tracking weather patterns.

Identify one example of severe weather and explain how to stay safe in this weather. (2 points)

Identify

Explain

Check Understanding

Write your answers in the boxes.

4. Meteorologists track weather and present their data in many ways.

Identify two ways to present data about weather and explain how a meteorologist could use each. (4 points)

Identify

Identify

Explain

Explain

Assessment Scoring Guidelines

1. Answer A is correct.
2. Answer B is correct.
3. An exemplar 2-point response may include:

Identify: Hurricane

Explain: Listen to the weather forecast and evacuate the area.

Identify: Tornado

Explain: Listen for a tornado siren. Go to the basement, storm cellar, or a room with no windows.

4. Exemplar 4-point responses may include:

Identify: Table

Explain: A meteorologist could use a table to show different forms of weather in one place over a period of time.

Identify: Graph

Explain: A meteorologist could use a graph to compare the average weather of two or more places.

Identify: Weather map

Explain: A meteorologist could use a weather map to show people the forecast.



SCIENCE • GRADE 4

Above Level

Benchmark	Grade-Level Indicator
Earth and Space Sciences: D	Earth Systems: 4, 5, 6
Scientific Ways of Knowing: C	Nature of Science: 2

Assessments

Tracking Weather Patterns

Print pages 97–99 of this PDF for the assessments.

Check Understanding

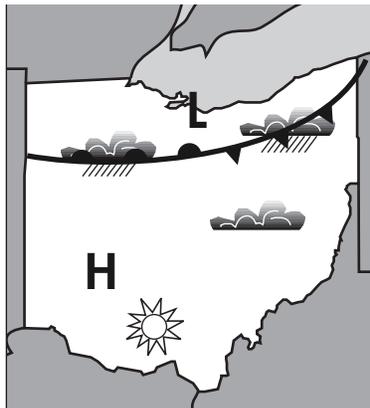
Shade the circle next to the correct answer.

1. Meteorologists use instruments to study the weather.

What does an anemometer measure?

- Ⓐ rainfall
- Ⓑ humidity
- Ⓒ air pressure
- Ⓓ wind speed

2. The following map shows today's weather.



What type of weather will southern Ohio probably experience over the next few days?

- Ⓐ rain from the north
- Ⓑ sun from the south
- Ⓒ clouds from the east
- Ⓓ whatever comes from the west

Write your answer in the boxes.

3. During severe weather it is important to have a safety plan.

Identify one place you could go during a tornado and explain how this can keep you safe. (2 points)

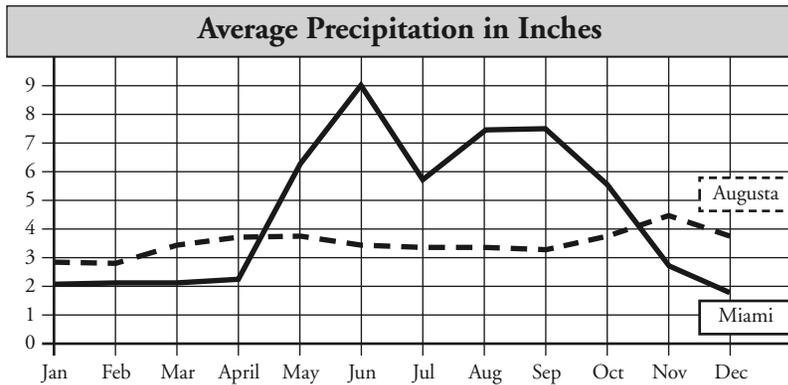
Identify

Explain

Check Understanding

Write your answers in the boxes.

4. The following graph shows the average precipitation during one year in Augusta, Maine and Miami, Florida .



Identify the month that Miami receives the most precipitation and the least precipitation. Then, explain how air pressure affects the amount of precipitation during each month. (4 points)

Identify

Explain

Assessment Scoring Guidelines

1. Answer D is correct.
2. Answer D is correct.
3. An exemplar 2-point response may include:
Identify: Basement
Explain: Staying in the basement will protect you from flying objects.
4. Exemplar 4-point responses may include:
Identify: Most precipitation—June
Explain: The air pressure was lower than at other times of the year, resulting in more precipitation.
Identify: Least precipitation—December
Explain: The air pressure was higher than at other times of the year, resulting in fair weather.



SCIENCE • GRADE 4

Below Level

Benchmark	Grade-Level Indicator
Earth and Space Sciences: B	Processes That Shape Earth: 8, 9, 10
Scientific Ways of Knowing: D	Science and Society: 3

Assessments

Slow Earth-Changing Processes

Print pages 101–103 of this PDF for the assessments.

Check Understanding

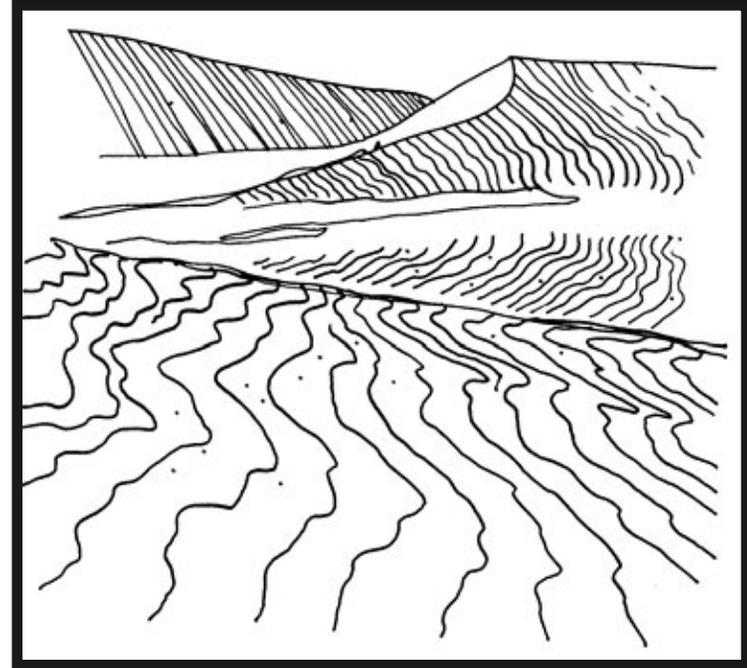
Shade the circle next to the correct answer.

1. Wangari Maathai started a movement in Kenya. She got women to plant millions of trees.

How do these trees help the land?

- Ⓐ They cause erosion of soil.
 - Ⓑ They prevent erosion of soil.
 - Ⓒ They cause mountain building.
 - Ⓓ They prevent mountain building.
2. Which statement describes physical weathering?
- Ⓐ the expansion of ice underground
 - Ⓑ the change of earth materials by chemicals
 - Ⓒ the deposition of sand and soil in a new place
 - Ⓓ the breakdown of large rocks into smaller ones

3. The following picture shows a sand dune.



Which natural force creates sand dunes?

- Ⓐ wind
- Ⓑ water
- Ⓒ gravity
- Ⓓ glaciers

Check Understanding

Write your answers in the boxes.

4. Identify two ways that ice causes physical weathering and explain how. (4 points)

Identify

Identify

Explain

Explain

Assessment Scoring Guidelines

1. Answer B is correct.
2. Answer D is correct.
3. Answer A is correct.
4. Exemplar 4-point responses would include:

Identify: Erosion

Explain: Glaciers erode Earth's crust as they melt, carving out large valleys.

Identify: Expansion

Explain: Water freezes inside the ground, expanding and breaking apart Earth's crust.



SCIENCE • GRADE 4

On Level

Benchmark	Grade-Level Indicator
Earth and Space Sciences: B	Processes That Shape Earth: 8, 9, 10
Scientific Ways of Knowing: D	Science and Society: 3

Assessments

Slow Earth-Changing Processes

Print pages 105–107 of this PDF for the assessments.

Check Understanding

Shade the circle next to the correct answer.

1. A scientist has been studying a site of physical weathering for five years. He has concluded that the river carved into a hill. The hill showed signs of erosion but it was still intact. Now, he can see where one side of the hill has collapsed into the river.

What explains the recent collapse of the hillside?

- Ⓐ gravity
- Ⓑ glaciers
- Ⓒ wind erosion
- Ⓓ chemical weathering

2. Deposition creates new landforms.

Which natural process is an example of deposition?

- Ⓐ iron turning to rust
- Ⓑ plant roots wedging a rock apart
- Ⓒ two large pieces of crust colliding
- Ⓓ glaciers moving a pile of rock and dirt

Write your answer in the boxes.

3. Identify the force that erodes deserts and explain how it creates new landforms. (2 points)

Identify

Explain

Check Understanding

Write your answers in the boxes.

4. Identify two ways that water can erode soil and rocks and explain how each is a slow or rapid process. (4 points)

Identify

Identify

Explain

Explain

Assessment Scoring Guidelines

1. Answer A is correct.
2. Answer D is correct.
3. An exemplar 2-point response would include:

Identify: Wind

Explain: Wind transports the sand and deposits it in piles, which become sand dunes.

4. Exemplar 4-point responses may include:

Identify: Rain

Explain: Rain falling on a cliff can slowly erode the rock.

Identify: River

Explain: A river can slowly carve out the land.

Identify: Flood

Explain: A flood can quickly carry away soil and rocks.



SCIENCE • GRADE 4

Above Level

Benchmark	Grade-Level Indicator
Earth and Space Sciences: B	Processes That Shape Earth: 8, 9, 10
Scientific Ways of Knowing: D	Science and Society: 3

Assessments

Slow Earth-Changing Processes

Print pages 109–111 of this PDF for the assessments.

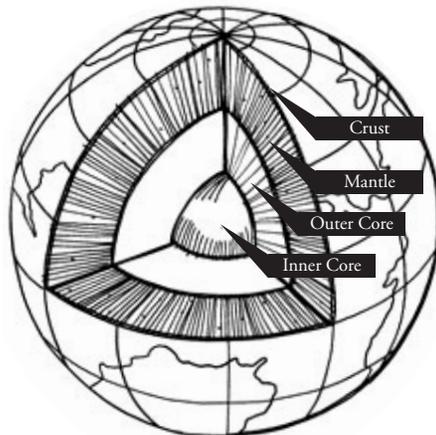
Check Understanding

Shade the circle next to the correct answer.

1. A delta is an example of a land feature formed by a slow process.
How does a delta form?
 - Ⓐ Wind blows sand and deposits it in a pile.
 - Ⓑ A river deposits dirt and rock where it meets the ocean.
 - Ⓒ Water seeps into a crack in a rock, then freezes and expands.
 - Ⓓ Waves on a lake or ocean break down beaches, rocks, and cliffs.
2. The following picture shows the four layers of the Earth.

Where do most of Earth's slow changes occur?

- Ⓐ crust
- Ⓑ mantle
- Ⓒ outer core
- Ⓓ inner core



Write your answer in the boxes.

3. Identify the cause of rapid land erosion in Kenya and explain how Wangari Maathai solved this problem.
(2 points)

Identify

Explain

Check Understanding

Write your answers in the boxes.

4. Identify two ways that pressure causes physical weathering and explain how. (4 points)

Identify

Identify

Explain

Explain

Assessment Scoring Guidelines

1. Answer B is correct.
2. Answer A is correct.
3. An exemplar 2-point response would include:

Identify: Lack of trees

Explain: Wangari Maathai got Kenyan women to plant millions of new trees.

4. Exemplar 4-point responses would include:

Identify: Ice

Explain: Water freezes inside the ground, expanding and putting pressure on Earth's crust until it cracks.

Identify: Plant roots

Explain: Roots grow into cracks in Earth's crust, wedging the rock apart as they grow larger.



SCIENCE • GRADE 4

Below Level

Benchmark	Grade-Level Indicator
Earth and Space Sciences: B	Processes That Shape Earth: 10
Scientific Inquiry: C	Doing Scientific Inquiry: 3

Assessments

Fast Earth-Changing Processes

Print pages 113–115 of this PDF for the assessments.

Check Understanding

Shade the circle next to the correct answer.

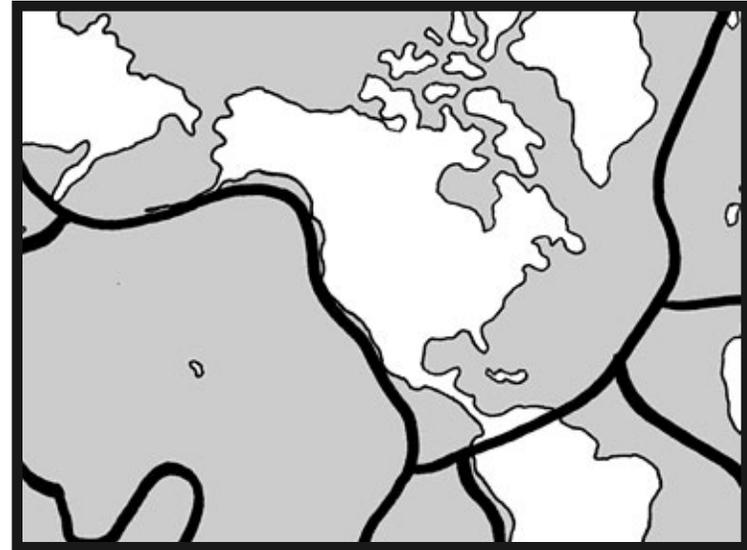
1. A class took a field trip. They were having a good time. Then, an avalanche warning was issued. They evacuated quickly and got home safely.

Where did the class go on the field trip?

- Ⓐ exploring a city
 - Ⓑ hiking in a forest
 - Ⓒ skiing on a mountain
 - Ⓓ swimming in the ocean
2. How does a volcano begin to form?
- Ⓐ Two plates get stuck together.
 - Ⓑ Snow and ice piles up in layers.
 - Ⓒ Loose rocks and dirt move downhill.
 - Ⓓ Loose rocks and dirt move downhill.

Write your answer in the boxes.

3. The following map shows fault lines.



A fault line runs along the west coast of the United States. Which process occurs along fault lines?

- Ⓐ landslide
- Ⓑ avalanche
- Ⓒ forest fire
- Ⓓ earthquake

Check Understanding

Write your answers in the boxes.

4. Sometimes one fast Earth-changing process can trigger another.

Identify two processes caused by other processes and explain how they are connected. (4 points)

Identify

Identify

Explain

Explain

Assessment Scoring Guidelines

1. Answer C is correct.
2. Answer D is correct.
3. Answer D is correct.
4. Exemplar 4-point responses will include:

Identify: Landslide

Explain: A landslide can follow an earthquake, which has already loosened rocks and dirt.

Identify: Tsunami

Explain: An underwater earthquake makes huge waves, which can be dangerous to people on land.



SCIENCE • GRADE 4

On Level

Benchmark	Grade-Level Indicator
Earth and Space Sciences: B	Processes That Shape Earth: 10
Scientific Inquiry: C	Doing Scientific Inquiry: 3

Assessments

Fast Earth-Changing Processes

Print pages 117–119 of this PDF for the assessments.

Check Understanding

Shade the circle next to the correct answer.

1. Some processes that change Earth are slow while others are fast.

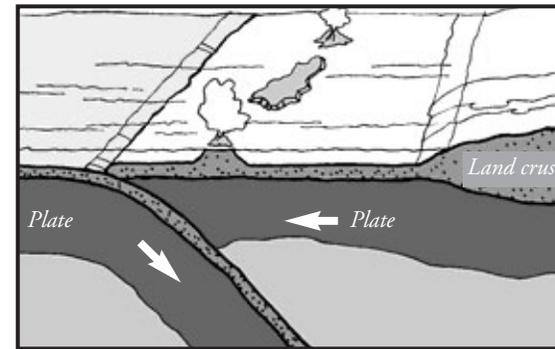
How can shifting plates change Earth quickly?

- Ⓐ They can start forest fires.
 - Ⓑ They can push continents apart.
 - Ⓒ They can produce heat and melt rock.
 - Ⓓ They can cause rocks and mud to slide downhill.
2. Which two fast Earth-changing processes are caused, in part, by gravity?
- Ⓐ earthquakes and tsunamis
 - Ⓑ landslides and avalanches
 - Ⓒ earthquakes and volcanoes
 - Ⓓ landslides and earthquakes

Write your answer in the boxes.

3. The following diagram shows an underwater volcano.

Identify the landform produced by underwater volcanoes and explain how it is created. (2 points)



Identify

Explain

Check Understanding

Write your answers in the boxes.

4. When a camper failed to put out his campfire, a forest fire started. It burned for days before firefighters could extinguish it. This fire caused a lot of damage. However, not all forest fires are bad for the environment.

Identify two ways that forest fires can start naturally and explain two reasons that forest fires can be good for the environment. (4 points)

Identify

Identify

Explain

Explain

Assessment Scoring Guidelines

1. Answer C is correct.
2. Answer B is correct.
3. Exemplar 2-point responses will include:

Identify: Island

Explain: When a volcano erupts under water, melted rock overflows and breaks through to the surface.

4. Exemplar 4-point responses will include:

Identify: Lightning

Identify: Extreme heat

Explain: Forest fires can make room for new plant growth.

Explain: Forest fires can help certain plants make and release seeds.



SCIENCE • GRADE 4

Above Level

Benchmark	Grade-Level Indicator
Earth and Space Sciences: B	Processes That Shape Earth: 10
Scientific Inquiry: C	Doing Scientific Inquiry: 3

Assessments

Fast Earth-Changing Processes

Print pages 121–123 of this PDF for the assessments.

Check Understanding

Shade the circle next to the correct answer.

1. A class listens to the news of a fire that is spreading through a forest in California. The wind is causing the fire to spread quickly, and people who live near the forest are evacuating their homes.

How are forest fires good for the environment?

- Ⓐ They create new homes for animals.
 - Ⓑ They allow new plants and trees to grow.
 - Ⓒ They make room for new buildings to go up.
 - Ⓓ They are caused by lightning or extreme heat.
2. Which of the following fast Earth-changing processes results when an earthquake occurs underwater?
- Ⓐ volcano
 - Ⓑ tsunami
 - Ⓒ landslide
 - Ⓓ avalanche

Write your answer in the boxes.

3. Students are studying how gravity can cause changes to Earth.

Identify one fast Earth-changing process that is caused, in part, by gravity and explain how gravity plays a role. (2 points)

Identify

Explain

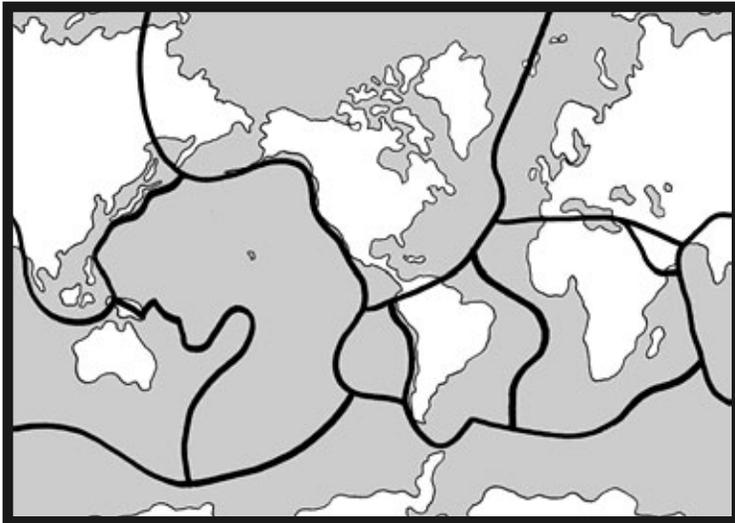
Check Understanding

Write your answers in the boxes.

4. The following map shows Earth's major plates.

Identify two fast Earth-changing processes that occur along subduction zones and explain how each occurs. (4 points)

Earth's Major Plates



Identify

Explain

Identify

Explain

Assessment Scoring Guidelines

1. Answer B is correct.
2. Answer B is correct.
3. Exemplar 2-point responses will include:
 - Identify:** Avalanche
 - Explain:** Gravity causes the layers of snow and ice on a mountain to slide away from each other.
 - Identify:** Landslide
 - Explain:** Gravity causes loosened rocks or mud to slide downhill.
4. Exemplar 4-point responses will include:
 - Identify:** Earthquakes
 - Explain:** Earthquakes occur when two plates get stuck and then move quickly.
 - Identify:** Volcanoes
 - Explain:** Volcanoes occur when one plate moves under another, creating heat, which melts some of the rock.