



**LOCAL DISTRICT SOUTH**

*Successful Students,  
Supporting Schools &  
Strengthening Communities*

**Local District South**

**Ten Day Grade Level Assignment Packet**

**Grade: 5**

**English Language Arts**



This packet contains the pages needed to complete your assignments over the next ten days. You will need the Benchmark Text for Close Reading that goes with Unit 10 called: ***Transforming Matter***.

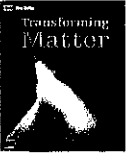
Remember to always **annotate as you are reading**. You should also remember to **reread** any time you are confused or need to remember what you are learning.

When packet pages are assigned they are from the packet of handouts and are numbered using the preexisting numbers from the original Benchmark text pages. They are arranged in order as assigned.

Este paquete contiene las páginas que usted necesita para completar sus tareas en 10 días. Necesitarás el texto de Benchmark Adelante para completar la Lectura detallada de la Unidad numero 10.

Acuerdese de siempre anotar mientras lees el texto y léelo de nuevo para mejorar tu comprensión cuando no entiendes algo y para poder recordar lo que estás aprendiendo.

Las tareas estan numeradas en orden usando las páginas numeradas del texto original de Benchmark Adelante.

Day #	Close Reading Text <b>Transforming Matter</b> 	Packet
1	Pages 2-5	Page 1
2	Pages 6-9	Page 2
3	Page 10 and complete page 11 (Research and Writing Section is Optional)	Page 3
4	Pages 12-19	Page 4 Cursive Handwriting Page
5	Pages 20 and complete page 21 (Research and Writing Section is Optional)	Select one activity from the *Daily Take-Home Activity Calendar to complete.
6	Carefully read all passages in the assessment.	Unit 10 Week 1 Assessment pages 227-231
7	Pages 22-26	Page 5 Cursive Handwriting Page
8	Pages 27-29	Pages 6 and 7
9	Page 30 and complete page 31 (Research and Writing Section is Optional)	Pages 8 and 9 Cursive Handwriting Page
10	Carefully read all passages in the assessment	Unit 10 Week 2 Assessment pages 231-236

\*Do as many activities as you would like from the **Daily Take-Home Calendar**.

# Expand, Combine, or Reduce Sentences

In order to improve their writing, a writer can reduce sentences by cutting out unnecessary words and phrases, expand sentences by adding missing information, or combine two short sentences into one long sentence.

**Reduce:** We drove ~~and I sat in the back seat~~ on curvy mountain roads.

**Expand:** I went to the baseball game **that was the final game of the World Series!**

**Combine:** Traffic was very heavy. We got there before the game started.  
Traffic was very heavy, **but** we got there before the game started.

**Rewrite each sentence or pair of sentences, following the instructions in ( ) to expand, combine, or reduce the sentences.**

1. The bear at the zoo had bristling fur. The bear had glittering eyes. (combine)

\_\_\_\_\_

2. My friend, who is named Mary just like her mother, sketched the elephant. (reduce)

\_\_\_\_\_

3. The zookeeper said not to take flash photos. (expand)

\_\_\_\_\_

4. Nick waved his hands and wiggled his fingers at the bear cub. (reduce)

\_\_\_\_\_

5. The cub just stared. (expand)

\_\_\_\_\_

6. The zookeeper said that the cub was very young. It likes to be near its mother. (combine)

\_\_\_\_\_

# Temporal Words

Temporal words or phrases signal the order of events. They make the timing of events clear.

I'm looking forward to seeing the movie **on Saturday**.  
We'll stop for pizza **after** the movie.  
I read that it took **more than two years** to finish this movie.

**Circle the temporal words or phrase in each sentence.**

1. We bought an unusual kite last week.
  
2. It took us several days to get the knack of flying it.
  
3. After many hours, we were able to fly the kite successfully.
  
4. My sister and I kept the kite in the air for a long time.
  
5. I learned that the Chinese invented kites more than 2,000 years ago!

**Rewrite the sentence by adding a temporal word or phrase to make the timing of events clear.**

6. Dana wanted to go swimming.

\_\_\_\_\_

7. Can you come to my birthday party?

\_\_\_\_\_

# Plurals

feet	bodies	teeth	sketches
people	theories	benches	children

**Write the spelling word that matches each definition.**

1. white, bony parts of the mouth that are used for chewing \_\_\_\_\_
2. people who are young \_\_\_\_\_
3. ideas about how or why something might happen \_\_\_\_\_
4. they come below the ankle and you use them to walk \_\_\_\_\_
5. human beings \_\_\_\_\_

**Write the singular form of the listed spelling word.**

Plural	Singular
bodies	
sketches	
benches	
children	

# Plurals

feet	bodies	teeth	sketches
people	theories	benches	children

**Write the spelling words for the given plural form.**

**oo → ee**

1. \_\_\_\_\_

2. \_\_\_\_\_

**y → ies**

3. \_\_\_\_\_

4. \_\_\_\_\_

**+ es**

5. \_\_\_\_\_

6. \_\_\_\_\_

**+ ren**

7. \_\_\_\_\_

**Write the spelling word that goes with the other words.**

8. persons, human beings,  
\_\_\_\_\_

9. youths, kids,  
\_\_\_\_\_

10. drawings, illustrations,  
\_\_\_\_\_

11. seats, stools,  
\_\_\_\_\_

Name: \_\_\_\_\_ Date \_\_\_\_\_

**Directions:** Trace and write the punctuation marks. Then write the sentences adding the correct punctuation.

! ! ! ? ? ? , , , « » « » « »

When did John Dalton  
discover the atom?

"In 1803," Grandma said.

That was an important  
scientific breakthrough!

Name: \_\_\_\_\_

## Unit 10: Transforming Matter

# Daily Take-Home Activity Calendar

Check off each activity as you complete it.



	Monday	Tuesday	Wednesday	Thursday	Friday
<b>Week 1</b>	<p><b>John Dalton: Father of the Atomic Theory</b> pp. 4-5</p> <ul style="list-style-type: none"> <li>Read aloud the selection together, alternating paragraphs.</li> <li>Point out the word <b>assiduity</b> in paragraph 1.</li> <li>Ask your child to look for clues as to what the term means in the text and take turns using the term in a sentence.</li> </ul>	<p><b>Matter Is Everywhere!</b> pp. 6-7</p> <ul style="list-style-type: none"> <li>Read the first two pages of the selection together.</li> <li>Then work together to brainstorm a list of the many examples of gases, liquids, and solids in your home.</li> </ul>	<p><b>Matter Is Everywhere!</b> pp. 8-9</p> <ul style="list-style-type: none"> <li>Finish reading the selection together.</li> <li>Then get a piece of paper and complete the "Investigate Physical Changes in Matter" experiment on page 8.</li> </ul>	<p><b>Matter Is Everywhere!</b> pp. 6-9</p> <ul style="list-style-type: none"> <li>Examine the time line and discuss how our understanding of the atom has changed, and continues to change, over time.</li> <li>Ask: <i>How does our understanding of atoms continue to grow?</i></li> </ul>	<p><b>Balloon Ride</b> p. 10</p> <ul style="list-style-type: none"> <li>Invite your child to read about the selection.</li> <li>Then find as many irregular plurals in the text as you can.</li> </ul>
<b>Week 2</b>	<p><b>Investigate: Changes in Matter</b> pp. 12-13</p> <ul style="list-style-type: none"> <li>Read aloud the first two pages of the selection together.</li> <li>Then make a list of all of the physical changes you have made in the last two hours.</li> </ul>	<p><b>Investigate: Changes in Matter</b> pp. 14-15</p> <ul style="list-style-type: none"> <li>Read aloud the next two pages of the selection together.</li> <li>Then observe a physical change of state by melting an ice cube.</li> <li>Ask: <i>How did the ice cube melt?</i></li> </ul>	<p><b>Investigate: Changes in Matter</b> pp. 16-17</p> <ul style="list-style-type: none"> <li>Read aloud the next two pages of the selection together.</li> <li>Then look in your refrigerator and find as many mixtures and solutions as you can.</li> </ul>	<p><b>Investigate: Changes in Matter</b> pp. 18-19</p> <ul style="list-style-type: none"> <li>Finish reading the selection together.</li> <li>Then observe a chemical change by following the experiment and making Gobleck together.</li> </ul>	<p><b>My Dad the Street Chef</b> p. 20</p> <ul style="list-style-type: none"> <li>Invite your child to read about the selection.</li> <li>Then make your child's favorite recipe together. After all, cooking is chemistry!</li> </ul>
<b>Week 3</b>	<p><b>Marie M. Daly: Biochemistry Pioneer</b> pp. 22-23</p> <ul style="list-style-type: none"> <li>Read aloud the first two pages of the selection together, alternating paragraphs.</li> <li>Then make a list of some of the chemical reactions that occur in the human body.</li> </ul>	<p><b>Marie M. Daly: Biochemistry Pioneer</b> pp. 24-25</p> <ul style="list-style-type: none"> <li>Read aloud the next two pages of the selection together.</li> <li>Ask your child to explain how energy from the sun finds its way into the human body.</li> </ul>	<p><b>Marie M. Daly: Biochemistry Pioneer</b> pp. 26-27</p> <ul style="list-style-type: none"> <li>Read aloud the next two pages of the selection together.</li> <li>Make a list of the foods you and your child ate today, then make a list of which enzymes your body made to digest those foods.</li> </ul>	<p><b>Marie M. Daly: Biochemistry Pioneer</b> pp. 28-29</p> <ul style="list-style-type: none"> <li>Finish reading the selection together. Discuss the importance of Daly's research.</li> <li>Ask: <i>How are chemistry (the study of matter) and biology (the study of life) related?</i></li> </ul>	<p><b>Marie M. Daly: Biochemistry Pioneer</b> pp. 22-29</p> <ul style="list-style-type: none"> <li>Read more about cholesterol and heart-healthy diets.</li> <li>Then work together to plan a meal that is delicious and low in cholesterol.</li> </ul>



Nombre: \_\_\_\_\_

## Unidad 10: Transforming Matter

# Calendario de actividades diarias para la casa

Marque cada actividad a medida que la complete.



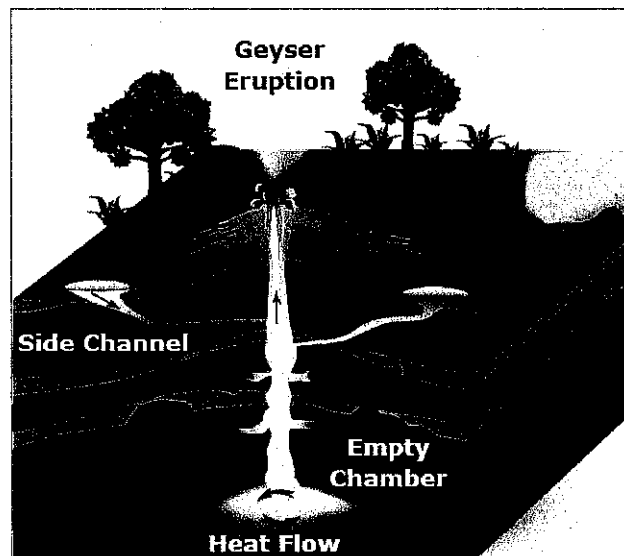
	Lunes	Martes	Miércoles	Jueves	Viernes
<b>Semana 1</b>	<p><b>John Dalton: Father of the Atomic Theory</b> págs. 4–5</p> <ul style="list-style-type: none"> <li>Lean juntos en voz alta el texto, alternando los párrafos.</li> <li>Señale la palabra <i>assiduity</i> (diligencia) en el párrafo 1.</li> <li>Pida a su niño/a que busque pistas sobre lo que significa el término en el texto y túrnense para usarlo en una oración.</li> </ul>	<p><b>Matter Is Everywhere!</b> págs. 6–7</p> <ul style="list-style-type: none"> <li>Lean juntos (o invite a su niño/a a leer) las primeras dos páginas del texto.</li> <li>Luego, trabajen juntos para pensar en una lista de los muchos ejemplos de gases, líquidos y sólidos que hay en casa.</li> </ul>	<p><b>Matter Is Everywhere!</b> págs. 8–9</p> <ul style="list-style-type: none"> <li>Terminen de leer el texto juntos (o invite a su niño/a a leerlo) en voz alta.</li> <li>Luego, busque un pedazo de papel y hagan el experimento “Investigate Physical Changes in Matter” (“Investigar cambios físicos en la materia”) de la página 8.</li> </ul>	<p><b>Matter Is Everywhere!</b> págs. 6–9</p> <ul style="list-style-type: none"> <li>Observen la línea temporal y comenten cómo nuestra comprensión de los átomos ha cambiado y continúa cambiando con el tiempo.</li> <li>Pregunte: <i>¿Cómo sigue creciendo nuestra comprensión de los átomos?</i></li> </ul>	<p><b>Balloon Ride</b> pág. 10</p> <ul style="list-style-type: none"> <li>Invite a su niño/a a que lea en voz alta el texto.</li> <li>Luego, busquen tantos plurales irregulares como puedan en el texto.</li> </ul>
<b>Semana 2</b>	<p><b>Investigate: Changes in Matter</b> págs. 12–13</p> <ul style="list-style-type: none"> <li>Lean juntos (o invite a su niño/a a leer) en voz alta las primeras dos páginas del texto.</li> <li>Luego, hagan una lista de todos los cambios físicos que han hecho en las últimas dos horas.</li> </ul>	<p><b>Investigate: Changes in Matter</b> págs. 14–15</p> <ul style="list-style-type: none"> <li>Lean juntos (o invite a su niño/a a leer) en voz alta las siguientes dos páginas del texto.</li> <li>Luego, observen un cambio físico de estado derritiendo un cubito de hielo.</li> <li>Pregunte: <i>¿Cómo se derrite el cubito de hielo?</i></li> </ul>	<p><b>Investigate: Changes in Matter</b> págs. 16–17</p> <ul style="list-style-type: none"> <li>Lean juntos (o invite a su niño/a a leer) en voz alta las siguientes dos páginas del texto.</li> <li>Luego, miren en el refrigerador y busquen tantas mezclas y disoluciones como puedan.</li> </ul>	<p><b>Investigate: Changes in Matter</b> págs. 18–19</p> <ul style="list-style-type: none"> <li>Terminen de leer el texto juntos (o invite a su niño/a a leerlo) en voz alta.</li> <li>Luego, observen un cambio químico realizando el experimento y haciendo Oobleck juntos.</li> </ul>	<p><b>My Dad the Street Chef</b> pág. 20</p> <ul style="list-style-type: none"> <li>Invite a su niño/a a que lea en voz alta el texto.</li> <li>Luego, hagan juntos la receta favorita de su niño/a. Después de todo, ¡la cocina es química!</li> </ul>
<b>Semana 3</b>	<p><b>Marie M. Daly: Biochemistry Pioneer</b> págs. 22–23</p> <ul style="list-style-type: none"> <li>Lean juntos (o invite a su niño/a a leer) en voz alta las primeras dos páginas del texto, alternando los párrafos.</li> <li>Luego, hagan una lista de algunas de las reacciones químicas que ocurren en el cuerpo humano.</li> </ul>	<p><b>Marie M. Daly: Biochemistry Pioneer</b> págs. 24–25</p> <ul style="list-style-type: none"> <li>Lean juntos (o invite a su niño/a a leer) en voz alta las siguientes dos páginas del texto.</li> <li>Pida a su niño/a que explique cómo la energía del sol llega al cuerpo humano.</li> </ul>	<p><b>Marie M. Daly: Biochemistry Pioneer</b> págs. 26–27</p> <ul style="list-style-type: none"> <li>Lean juntos (o invite a su niño/a a leer) en voz alta las siguientes dos páginas del texto.</li> <li>Hagan una lista de los alimentos que usted y su niño/a comieron hoy. Luego, hagan una lista de las enzimas que produjeron sus cuerpos para digerir esos alimentos.</li> </ul>	<p><b>Marie M. Daly: Biochemistry Pioneer</b> págs. 28–29</p> <ul style="list-style-type: none"> <li>Terminen de leer juntos el texto. Comenten la importancia de las investigaciones de Daly.</li> <li>Pregunte: <i>¿De qué manera se relacionan la química (el estudio de la materia) y la biología (el estudio de la vida)?</i></li> </ul>	<p><b>Marie M. Daly: Biochemistry Pioneer</b> págs. 22–29</p> <ul style="list-style-type: none"> <li>Lean más sobre el colesterol y las dietas saludables para el corazón.</li> <li>Luego, trabajen juntos para planificar una comida deliciosa y baja en colesterol.</li> </ul>

Name \_\_\_\_\_ Date \_\_\_\_\_

Read the passage. Then answer the questions.

## A Natural Spectacle

- 1 On September 3, 2014, at about 11:00 o'clock at night, a Yellowstone Park ranger heard an unusual sound. She and other rangers ran to investigate. They discovered Steamboat Geyser chugging like a giant locomotive, spewing white clouds into the air. The sound was so loud they could not hear themselves talk.
- 2 Among nature's most amazing shows, geysers are dramatic examples of matter changing form before our eyes. They begin deep in the earth with water that far exceeds the boiling point. This water rises and mixes with cooler water from underground springs. As it rises, steam forms in the underground column. Openings in Earth, called vents, allow this steam-forced water to explode out of the ground. The eruption stops when the water reservoir is depleted. Cistern Spring, located near Steamboat Geyser, drains completely during a major eruption. The spring refills within a few days.



Steamboat is a cone-type geyser. Just below the ground is a narrow pipe of rock. The small opening acts like a nozzle on a garden hose, forcing the steam and water in a jet to a great height.

continued

- 3 Steamboat is the world's tallest active geyser and its major eruptions shoot steam and mineral-rich water nearly 400 feet into the Wyoming sky. Eruptions have been as short as three minutes and as long as 40 minutes. They are followed by powerful jets of steam that can last for 48 hours. The geyser has two vents that sit about five meters apart.
- 4 Unlike its more famous sister, Old Faithful, which erupts every 90 minutes without fail, Steamboat's eruptions are wholly unpredictable. In fact, it sat silent from 1911 to 1961. After an eruption on May 23, 2005, the geyser went more than eight years before another eruption. In contrast, between March, 2018, and October, 2019, Steamboat erupted 71 times! No one knows when the next eruption will occur.
- 5 "It's a once-in-a-lifetime experience to see Steamboat erupt," a Yellowstone ranger explains. "It is spectacular."

1. Which paragraph does the diagram **most** directly illustrate?
  - A paragraph 1
  - B paragraph 2
  - C paragraph 3
  - D paragraph 4
  
2. This question has two parts. First, answer Part A. Then answer Part B

**Part A** What is the main idea of this passage?

- A Eruptions of Steamboat Geyser are dramatic and irregular.
- B Rangers in Yellowstone Park watch Steamboat Geyser for eruptions.
- C The steam that sprays from a geyser looks like a white cloud.
- D Geysers are among nature’s best shows, but they do not happen very often.

**Part B** Which sentence **best** supports the main idea in Part A?

- A “On September 3, 2014, at about 11:00 o’clock at night, a Yellowstone Park ranger heard an unusual sound.”
  - B “Unlike its more famous sister, Old Faithful, which erupts every 90 minutes without fail, Steamboat’s eruptions are wholly unpredictable.”
  - C “They begin deep in the earth with water that far exceeds the boiling point.”
  - D “Steamboat is the world’s tallest active geyser and its major eruptions shoot steam and mineral-rich water nearly 400 feet into the Wyoming sky.”
- 
3. Choose the correct word to complete the sentence below.

Visitors are lucky to see a geyser erupt at least once in their \_\_\_\_\_.

- A lifes
- B life’s
- C lives
- D live’s

continued 

4. How does the cool water from underground springs help create a geyser?
- A It sprays from the vent with great force.
  - B It rises from the deepest part of the earth.
  - C It drains completely during a major eruption.
  - D It mixes with very hot water to create steam.
5. Based on the diagram and the text, select **one** of the words or phrases to complete each of the sentences below. Write each word or phrase in the blanks provided.

a narrow pipe	the sun	vent
an empty chamber	boiling water	garden hose
a cistern	deep in the earth	nozzle

- (A) Water from underground springs seeps into \_\_\_\_\_.
- (B) Heat energy from \_\_\_\_\_ heats the water to the boiling point. (C) As cooler water mixes with the hot water, pressure builds and builds until the geyser erupts through a \_\_\_\_\_.
6. Choose the correct word to complete the sentence below. In Wyoming, the \_\_\_\_ filled with clouds of steam and dust.
- A skies
  - B skyes
  - C skys
  - D skis

7. Why does the author include a reference to Old Faithful?
- A to explain how Steamboat Geyser and Old Faithful are alike
  - B to suggest that large geysers are located all over the world
  - C to show that some geysers erupt on a schedule and some do not
  - D to describe a cone geyser that erupts only once every 50 years



# Prepositions

A preposition shows the relationship between the noun or pronoun and another word in the sentence. The relationship may show **what, when, where, how, or how long**. Some common prepositions are **above, about, across, after, around, at, before, between, by, down, for, in, into, on, to, toward, under, up, at, and with**.

We saw a pair **of** horses running **around** a fenced-in field.

We watched them **for** a few minutes.

**After** lunch, we'll go back **with** treats.

**For each sentence, circle the preposition and underline the noun phrase.**

1. Martha took us into the living room.
2. She told us about her new kitten.
3. The kitten, named Jasper, was curled up under a table.
4. Tail flicking, Jasper meowed at us.

**Complete each sentence with a preposition that describes the relationship named in ( ).**

5. We will have Field Day \_\_\_\_\_ the park the last day of school. (where)
6. All the classes will go to High Ridge Park \_\_\_\_\_ bus. (how)
7. We'll arrive \_\_\_\_\_ 11 a.m. and 11:15. (when)
8. We'll cook out and have races \_\_\_\_\_ three hours. (how long)

Name: \_\_\_\_\_ Date \_\_\_\_\_

**Directions:** Trace and write the sentences. The last two sentences do not have a middle line.

Dalton created the atomic  
theory in 1803.

He explained the 3 states of  
matter.

A mixture is 2 or more types  
of matter combined.



# Subject-Verb Agreement

The subject and verb of a sentence must agree. A singular subject takes a singular verb. A plural subject takes a plural verb.

**Incorrect:** He are a good dancer.

**Correct:** He is a good dancer.

**Incorrect:** A bird and a squirrel lives in that big tree.

**Correct:** A bird and a squirrel live in that big tree.

**Complete each sentence. Write the verb in ( ) that agrees with the subject of the sentence.**

1. The people in my neighborhood \_\_\_\_\_ a community garden.

(have, has)

2. Ms. Ortiz \_\_\_\_\_ the work in the garden.

(organize, organizes)

3. However, many folks \_\_\_\_\_ in its care.

(share, shares)

4. In the spring, several neighbors \_\_\_\_\_ a variety of seeds.

(buy, buys)

5. This year, they \_\_\_\_\_ to plant both vegetables and flowers.

(has decided, have decided)

6. I \_\_\_\_\_ tomato seeds.

(am planting, are planting)

7. Bob and Margo \_\_\_\_\_ pumpkins!

(is growing, are growing)

8. The garden \_\_\_\_\_ a great way to bring people together.

(have been, has been)

# Science Roots

inseparable	mechanized	physiotherapy	mechanism
recycling	chemist	mechanic	

**Write the spelling word that best completes each sentence.**

1. The best friends were \_\_\_\_\_.
2. The \_\_\_\_\_ is working on the brakes of our car.
3. I put the newspaper into the \_\_\_\_\_ bin.
4. My mom did \_\_\_\_\_ after she injured her knee.
5. I want to become a \_\_\_\_\_ so I can study how substances react.
6. The lock's \_\_\_\_\_ malfunctioned and we couldn't open the door.
7. The door was \_\_\_\_\_ so that it would recognize a person's fingerprint.

**Fill in the boxes for the spelling word *chemist*.**

<b>meaning</b>	<b>sentence</b>
<b>other types of scientists</b>	<b>related words</b>

**chemist**

noun with suffix **-istry**:

word with a prefix:

# Science Roots

inseparable	mechanized	physiotherapy	mechanism
recycling	chemist	mechanic	

**Write the spelling words for the given science root.**

**Spelling words with *mech***

1. \_\_\_\_\_ 2. \_\_\_\_\_  
3. \_\_\_\_\_

**Spelling word with *physio***

4. \_\_\_\_\_

**Spelling word with *chem***

5. \_\_\_\_\_

**Spelling word with *cycl***

6. \_\_\_\_\_

**Spelling word with *se***

7. \_\_\_\_\_

**Write the spelling word that matches each definition.**

8. someone who fixes machines

\_\_\_\_\_

9. impossible to separate

\_\_\_\_\_

10. reusing

\_\_\_\_\_

11. treatment for injured muscles or joints

\_\_\_\_\_

## Commas to Set Off Words

When writing dialogue, quotation marks show the speaker's exact words. If the speaker is named first, place a comma after the speaker's tag before the opening quotation mark. If the speaker is named after the quotation, place a comma inside the final quotation mark. In dialogue, a comma is also used to set off a name in direct address, introductory words such as **yes** and **no**, and tag questions.

Ginny said, "Ernesto, let's get lunch, okay?"  
"Sure, but I have to take this book to the library first," Ernesto answered.

**Rewrite each sentence by adding the punctuation or element named in the ( ) and any necessary commas.**

1. Noah asked What time do we have to be at the meeting? (quotation marks)

\_\_\_\_\_

2. Ramona said, "We should be there by noon." (direct address)

\_\_\_\_\_

3. Noah asked Should we leave in an hour? (quotation marks)

\_\_\_\_\_

4. "I'll go put my stuff in my backpack," Ramona answered. (introductory word)

\_\_\_\_\_

5. "Ann will be at the meeting?" Ramona asked. (tag question)

\_\_\_\_\_

6. "She said she couldn't make it," said Noah. (introductory word)

\_\_\_\_\_

Name: \_\_\_\_\_ Date \_\_\_\_\_

**Directions:** Trace and write the sentences on the lines.

Dr. Mary Daly was a  
groundbreaking scientist.

She made key  
discoveries about how food  
affects our health.

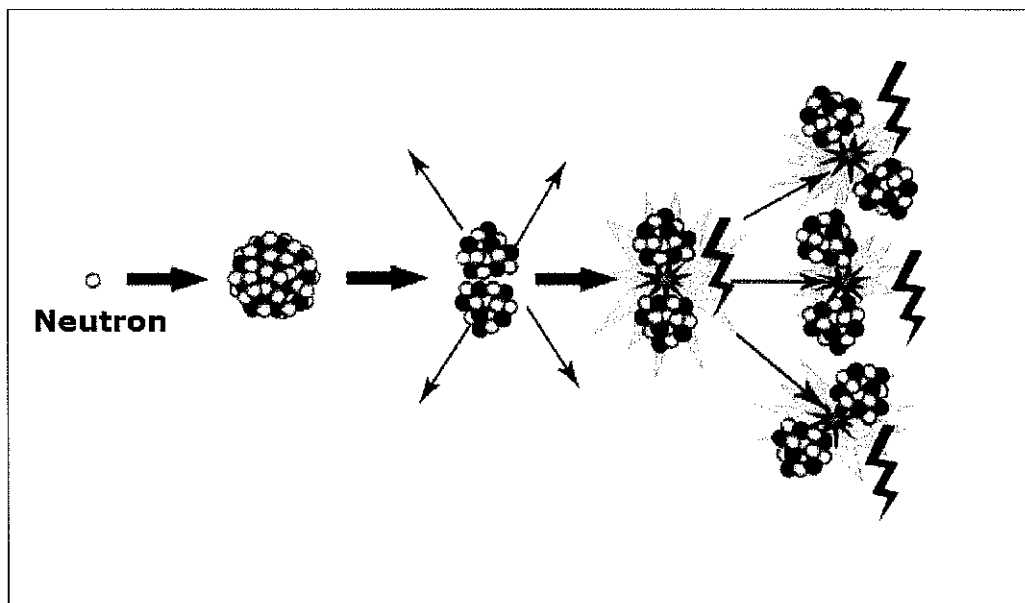
Daly was the 1st African  
American woman to earn a  
Ph.D. in Chemistry.

# Unit 10 • Week 2 Assessment

Read the passage about a discovery that changed the world.  
Then answer the questions.

## Meitner's Nuclear Fission

- 1 It's not easy to understand the splitting of atoms, but we have Lise Meitner to thank for first explaining it. This Austrian-born chemist first published the proof of it in 1938. She and a colleague named the process "nuclear fission." This is the process used in nuclear power plants to produce electricity.
- 2 Nuclear fission happens when the nucleus of an atom splits into smaller parts. The resulting parts are not the same element as the original atom. Not all atoms have a structure that will go through fission; uranium is one of the few. After a neutron hits a uranium atom and splits it, the freed neutrons hit other atoms and cause them to split. This happens again and again and again. The chain reaction gets bigger and bigger.



- 3 When nuclear fission happens, it releases an enormous amount of energy. In fact, nuclear fission releases millions of times the amount of energy contained in a similar mass of a fuel, such as gasoline. Unfortunately, the products of nuclear fission are radioactive, and therefore dangerous, and they remain this way for a very long time. However, nuclear energy is a valuable source of electricity, and many people consider it clean.
- 4 Meitner became a doctor of chemistry in 1901 and worked in Berlin with other scientists for many years. She fled Germany in 1938 to escape from the Nazis and continued her work in Sweden. There, with chemist Otto Hahn, she performed further tests, proving that the mechanics of nuclear fission really worked.
- 5 As a Jewish woman, Meitner overcame tremendous prejudice and continued her work against great odds. Otto Hahn was awarded the Nobel Prize for Chemistry in 1944 for the work he and Meitner did as a team, but she was not included in the award. Today, historians consider this omission a huge mistake.
- 6 Even though Meitner did not get the recognition she originally deserved, she was later praised when she came to the United States in 1946. People understood her huge contribution to chemistry. She retired to England in 1960 and spent her declining years there. In 1992, the heaviest known element in the universe was named Meitnerium in her honor. Because her publication explaining nuclear fission changed the world, many consider Lise Meitner the most important female scientist of the twentieth century.

1. Select the **two** most important ideas from paragraphs 2 and 3. Place a check mark in the box beside each idea you select.

<input type="checkbox"/>	Splitting uranium atoms produces huge amounts of energy.
<input type="checkbox"/>	No one understands why some atoms go through fission.
<input type="checkbox"/>	Everyone agrees that nuclear fission is perfectly safe.
<input type="checkbox"/>	Atoms are the smallest particles we know of.
<input type="checkbox"/>	The chain reaction in nuclear fission repeats and gets bigger and bigger.
<input type="checkbox"/>	Radioactivity does not last very long.

2. Read the sentence from paragraph 2.

Not all atoms have a structure that will go through fission; uranium is one of the few.

In the word structure, the root **struct** means \_\_\_\_

- A bend.
  - B build.
  - C move.
  - D lean.
3. Look at the diagram. What ideas from the passage do the parts of the diagram represent? Write the letter of each answer in the correct box in the chart.

Part	What the Part Represents
arrow	
lightning bolt	
cluster of circles	

Possible Answers:

- A a chemical reaction
- B a dangerous element
- C a gallon of gasoline
- D a release of energy
- E a single neutron
- F a uranium atom

continued 



4. Read this sentence from paragraph 5.

Today, historians consider this omission a huge mistake.

What does omission mean in this context?

- A someone who is left out
  - B someone who is added later
  - C a person who is treated badly
  - D an award for great accomplishment
5. Which sentence in the passage does the diagram most directly illustrate?
- A "The resulting parts are not the same element as the original atom."
  - B "This happens again and again and again."
  - C "In fact, nuclear fission releases millions of times the amount of energy contained in a similar mass of a fuel, such as gasoline."
  - D "Unfortunately, the products of nuclear fission are radioactive."
6. What is the meaning of the root in the word mechanics in paragraph 4?
- A move
  - B leader
  - C invent
  - D machine
7. Read this detail from paragraph 3.

Unfortunately, the products of nuclear fission are radioactive.

Which phrase from paragraph 3 helps you understand the meaning of radioactive?

- A "a similar mass"
- B "fuel such as gasoline"
- C "therefore dangerous"
- D "source of electricity"

8. Which statement best describes the relationship among neutrons, atoms, and fission in the passage?
- A Uranium neutrons and split atoms combine to make fission.
  - B Fission is the result of atoms splitting uranium neutrons.
  - C When neutrons hit uranium atoms, nuclear fission occurs.
  - D When an atom fissions with a neutron, uranium is made.

9. This question has two parts. First, answer Part A. Then answer Part B.

**Part A** Which sentence states the main idea about Lise Meitner in paragraphs 4–6?

- A Meitner’s huge contributions to chemistry were overlooked by some and honored by others.
- B Meitner’s life was full of hardship, but she overcame it by moving to the United States.
- C Meitner’s invention of nuclear energy has changed the way the world uses electricity.
- D Meitner’s Nobel Prize shocked the world because she was a Jewish woman.

**Part B** Which detail from the passage **best** supports the answer to Part A?

- A “Meitner became a doctor of chemistry in 1901 and worked in Berlin with other scientists for many years.”
- B “She fled Germany in 1938 to escape the Nazis and continued her work in Sweden.”
- C “Otto Hahn was awarded the Nobel Prize for Chemistry in 1944 for the work he and Meitner did as a team.”
- D “Even though Meitner did not get the recognition she originally deserved, she was later praised when she came to the United States in 1946.”

continued 

**10.** This question has two parts. First, answer Part A. Then answer Part B.

**Part A** How does the scientific community think of Meitner today?

- A** They believe she is still the victim of prejudice.
- B** They consider her work unnecessary because it is dangerous.
- C** They consider her one of the most important chemists in history.
- D** They believe that she stole Hahn's work and claimed it as her own.

**Part B** Which detail from the passage best supports the answer to Part A?

- A** Meitner retired to England and spent her last years there.
- B** Meitner and a colleague named the process "nuclear fission."
- C** Meitner worked in Berlin with other scientists for many years.
- D** The heaviest element in the universe was named in her honor.

