5th Grade

2nd Packet

March 30, 2020-

April 19, 2020

***Complete entire packet**

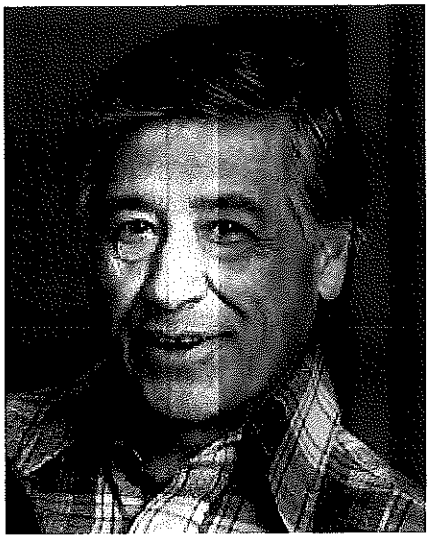
***Read 20-35 minutes**

***If available work on Iready**

Student's Name:_____

Teacher's Name:_____

Objective sight words (labor leader, non-violent methods, migrant, philosophies, immigrants, voting registration, pesticides, chemicals, strikes, protest, boycott); concepts (migrant workers and importance of working rights, non-violent means to achieve worker rights, St. Francis and Gandhi influence, Great Depression)



Vocabulary

labor leader	**pesticides**
non-violent methods	**chemicals**
migrant	**strikes**
philosophies	**protest**
immigrants	**boycott**
voting registration	

Cesar Chavez
"Si, Se Puede" ("Yes, it can be done")

By: Sue Peterson

Cesar Estrada Chavez (1927-1993) was a Mexican-American labor leader who used non-violent methods to fight for the rights of migrant farm workers in the southwestern United States. Migrant workers often move from farm to farm or from town to town to find work. It is usually difficult work and does not pay a high wage. Chavez was influenced greatly by the peaceful philosophies of St. Francis of Assisi and Mohandas Gandhi.

Chavez was born in Arizona. When he was ten-years-old, his parents lost the family farm because of the Great Depression. They were forced to become migrant workers themselves. Chavez worked part-time in the farm fields with his family in Arizona and later in California, when his family lived there. After graduating from 8th grade, Chavez worked full-time to help support his family.

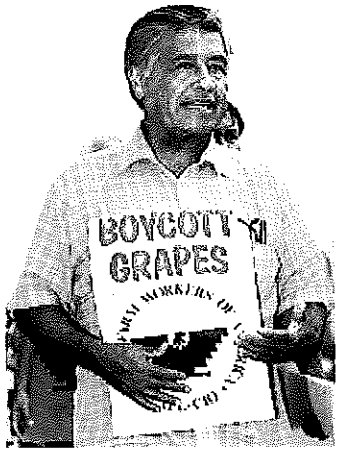
He served in the U.S. Navy during WWII, married Helen Fabela in 1948, and eventually helped raise a family of eight children. Chavez and his wife helped teach Mexican immigrants to read and helped them with voting registration.

Chavez was concerned over the health and working conditions of the migrant population. He did not like the use of pesticides, the name of the chemicals used to kill bugs on the crops. He knew that pesticides could make human beings sick. He organized a group of people to help work for the rights of farm workers. They worked on many goals like increasing the wages for the workers, improving their working conditions, and improving the safety for the farm workers.

Chavez helped organize strikes, whereby the workers chose to stop working to protest some important issues related to work. For example, the migrant workers went on strike to protest the poor wages, poor working conditions, and lack of safety on their jobs. They refused to work until

something changed regarding their salary and these working conditions. The public, that is consumers like you, sometimes chooses to support the strike by not buying certain products or not buying from a certain store, etc. This is called a boycott. Boycotts put pressure on the people who make decisions regarding those who are protesting and striking.

Chavez went on many hunger strikes, too, which is another type of strike to prove a point and draw attention to what his concerns were. In a hunger strike, you basically do not eat until the demands are met. Chavez was able to use the hunger strikes to move legislators to change the laws to improve the lives of farm workers. Because of Chavez's actions, he was jailed many times. Despite this, he continued his goal of helping to fight for the migrant worker.



Chavez, with aid from Dolores Huerta and Gilbert Padilla, started a union called the National Farm Workers Association (NFWA) to help fight for social justice. He organized a national boycott of lettuce and grapes.

The name NFWA was changed to the United Farm Workers (UFW) in 1974. In 1978, some of the demands for better wages and working conditions were met, so the boycott for the lettuce and grapes was lifted.

Throughout his life, Chavez's motto was "Si, se puede". This meant, "Yes, it can be done". Chavez proved that it could be done. His work for fair treatment and better pay for migrant workers helped make the lives of millions of people better.

After a lifetime of working to help these people, Chavez died in 1993. He received the Presidential Medal of Freedom after his death. Chavez's children and grandchildren continue in his footsteps to help fight for the rights for migrant workers.

Practice

Word Search. Find the words from the text.

D	P	E	S	T	I	C	I	D	E	S	Q
R	E	C	I	R	O	B	H	O	W	I	L
G	A	H	B	O	W	O	R	K	U	S	I
I	U	E	C	B	D	Y	K	F	Y	M	E
G	E	M	M	A	H	C	W	V	V	L	K
I	D	I	E	L	J	O	O	L	J	A	W
Z	X	C	Z	X	T	T	P	L	C	E	U
V	F	A	U	U	I	T	X	I	S	E	Q
Y	N	L	Y	N	L	O	T	V	Y	M	J
E	M	S	G	U	R	I	G	H	T	S	J
E	I	G	D	W	U	J	M	K	C	E	C
M	L	T	N	A	R	G	I	M	U	U	Y

WORK
LABOR
BOYCOTT
VOTING
RIGHTS
MIGRANT
PESTICIDES
CHEMICALS

Multiple-Choice Questions (Put an X in front of the correct answers.)

1. What are **3** reasons that there were migrant farm worker "strikes" mentioned in the text?
   - ☐ a. to protest poor wages
   - ☐ b. to protest working conditions
   - ☐ c. to protest safety conditions
   - ☐ d. to be able to go on vacation

2. What is the name of the union that Chavez started?
   - ☐ a. The Migrant Association
   - ☐ b. The National Farm Workers Association
   - ☐ c. Farmers All United
   - ☐ d. All for One

3. The union name changed to _____ in 1974.
   - ☐ a. Si, Se Puede
   - ☐ b. United Farm Workers
   - ☐ c. Workers All
   - ☐ d. Farming for All

Definitions (Write the meaning of each word as it is used in the text.)

1. migrant

2. boycott

3. pesticides

Extended Response (Answer in complete sentences.)

1. What were some of Chavez's non-violent methods used to fight for the rights of farm workers? Were these successful? If so, how?

_____

_____

_____

_____

_____

_____

_____.

2. What did Chavez and his wife Helen do to help Mexican immigrants regarding literacy (i.e., the ability to read and write)?

3. What were some of the concerns regarding farm work? How did Chavez's motto play a role in his action toward changing the working conditions for the migrant farmer?

Answer Sheet

Answers for Matching, Multiple-Choice Questions, and Extended Response

Caesar Chavez

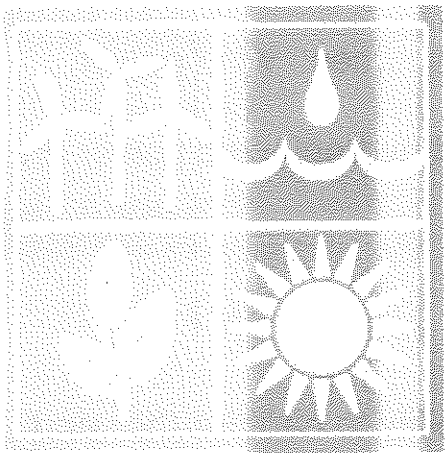
Multiple-Choice Questions

1. **a,b,c**
2. **b**
3. **b**

Extended Response (Accept reasonable answers.)

1. **He organized a group of people to work for farmers' rights. He also organized strikes and boycotts like the lettuce and grape boycotts. Another thing he did was to organize a union. All of these actions were successful and led to better working conditions and increased wages for the migrant workers.**
2. **Chavez and his wife helped teach reading and helped with voter registration.**
3. **There were concerns over working conditions, safety, and salary. Chavez played a role in helping change the conditions for the migrant worker. In fact, he helped millions of people. His children and grandchildren continue the fight for the rights of the migrant worker.**

Objective sight words (alternative energy sources, renewable, toxins, propel, wind turbines, switched, generators, consistent, efficiently, by-products); concepts (alternative sources: what, where, why, when, and how)



Vocabulary

alternative energy sources	**switched**
renewable	**generators**
toxins	**consistent**
propel	**efficiently**
wind turbines	**by-products**

Alternative Energy Sources Wind, Solar, Geothermal, and Hydroelectric Power

By: Sue Peterson

There are many reasons to use alternative energy sources.

One reason is to reduce pollutants and greenhouse gases.

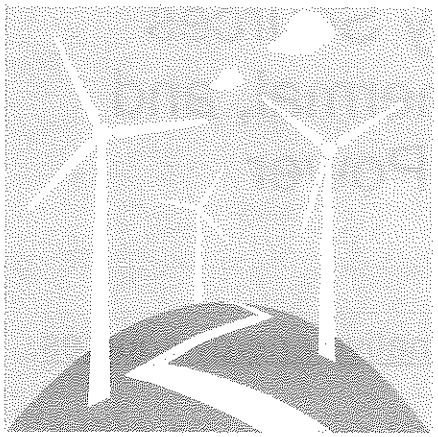
Alternative or renewable energy sources help to reduce the amount of toxins that are a result of traditional energy use.

These alternative energy sources help protect against the

harmful by-products of energy use and help to preserve many of the natural resources that we currently use as energy sources.

There are many alternative energy sources: wind power, solar power, geothermal power, and hydroelectric power are some examples.

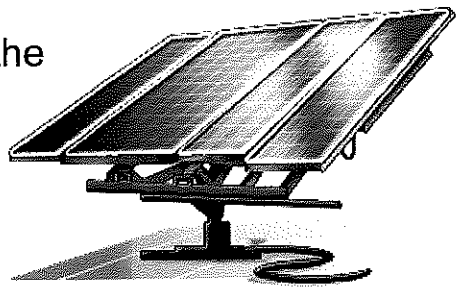
Wind Power. Wind power is the ability to capture the wind in a way to propel the blades of wind turbines. When the



blades rotate, this movement is switched into electrical current with the help of an electrical generator. In older windmills, wind energy turned mechanical machinery to do the physical work like crushing grain to make bread or pumping water to get water. Wind towers are built on wind farms, and usually there are several towers built together. In 2005, the worldwide use of wind-powered generators was

less than 1% of all of the electricity use combined. There are several advantages of this energy source: there is no pollution, it never runs out, farming and grazing can still take place on the same land as the wind turbines, and wind farms can be built anywhere. One disadvantage is that you need a consistent wind to get enough power. If the wind speed decreases, less electricity is produced. Large wind farms can also have a negative visual effect for people who live nearby.

Solar Power. Solar energy is used for heating, cooking, making electricity, and even taking salt out of saltwater so the water can be drinkable and used for additional purposes that do not need the salt. Solar power uses sunlight that hits the solar thermal panels to convert the sunlight to heat either air or water. Other methods of using solar power include simply opening up blinds or shades and letting the sunlight pass into the room or using some type of mirror to



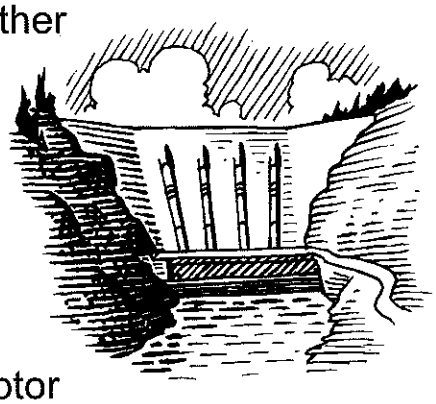
heat water and produce steam. One advantage of solar power is that it is renewable. As long as there is sunlight, you will be able to harness the power from it. There is also no pollution and it can be used efficiently to heat and light things. You can see the benefits of solar energy in heating swimming pools, spas, and water tanks in many cities across the country.

Geothermal Energy. Geothermal means "earth heat". This energy captures the heat energy under the Earth. Hot rocks under the ground help to heat water to produce steam. If holes are dug in this area of the ground, then the steam shoots up and is purified and used to drive turbines, which in turn gives power to electric generators. The

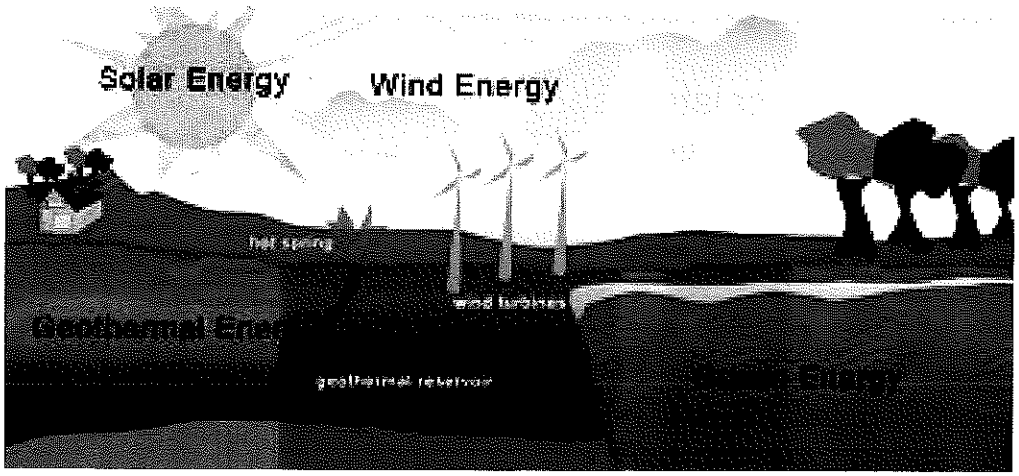
advantages of this type of energy is that there are no harmful by-products, it is self-sufficient once the geothermal plant is

built, and the plants are generally small so there is no negative visual effect on the area surrounding the plant.

Hydroelectric Energy. The power that comes from the potential energy of water that is dammed up supplies energy to a water turbine and generator. Another example of this energy is to make use of tidal power. Today, electric generators can be powered by hydro power that can run backwards as a motor to pump water for later use. An advantage is that you can control the use of the energy by controlling the water. You can also generate water all the time as there are no outside forces that prevent this from happening. Furthermore, there is no pollution in using this type of energy. In fact, you can reuse the water that is used for hydroelectric power. The disadvantages are that dams are expensive to build and maintain. There also needs to be a powerful enough supply of water in the area to produce energy.



In Conclusion. In your lifetime, there will be more advances made in the field of energy. Your generation will need to value the natural resources that human life needs on this earth. You will need to be part of the ongoing and individual application of alternative energy sources so the Earth stays healthy and our resources stay renewed.



Practice

Language Work

A. Write the words.

toxins _____

wind turbines _____

switched _____

generators _____

by-products _____

B. Use each word in a sentence. Underline the word used.

renewable _____

_____

propel _____

_____

consistent _____

_____

efficiently _____

_____

C. Phonics work. The word "efficiently" ends in the suffix "ly". When "ly" is added to the adjective "efficient", the new word "efficiently" becomes an adverb. Write **one word** that ends in the suffix "ly" that when added to an adjective becomes an adverb. (Be careful. Not all words that end in "ly" are adverbs. For example, the suffix "ly" can also be added to a noun to form an adjective (e.g., ghost + ly = ghostly.)

_____

D. Word Search. Find the alternative energy sources in the word search: ~~wind~~, solar, geothermal, and hydroelectric.

J C Y G R E N E A T
W I J E X T B O X T
E R D S X E T Y E V
R T Y F S R J G K F
D C V Z B X A W U C
N E T T X O A L D M
I L X C E D Z R O W
W E V W K U X J J S
Z O I C D A O W Z K
Z R A G H I K G G U
D D Z P R C K N G I
B Y A V U M N Z K L
G H H K Y K A S U A
G E O T H E R M A L
H U D R L N S R K T

Multiple-Choice Questions (Put an X in front of the correct answer.)

1. What are **some examples** of alternative energy sources?
   - ☐ a. wind power
   - ☐ b. solar power
   - ☐ c. geothermal power
   - ☐ d. hydroelectric power
   - ☐ e. all of the above

2. Which type of power means "earth heat"?
   - ☐ a. coal
   - ☐ b. minerals
   - ☐ c. geothermal
   - ☐ d. hydroelectric

Definitions (Write the meaning of each word as it is used in the text.)

1. toxins

2. propel

3. switched

Extended Response (Answer in complete sentences.)

1. What is **one** reason cited in the text to use alternative energy sources?

2. Reread the last paragraph of the text. What does the author encourage the readers to do to keep the earth healthy and to renew resources?

3. Fill in the chart with at least **one advantage** and **one disadvantage for each alternative energy source**:

	Advantages	Disadvantages
Wind		
Solar Power		
Geothermal		
Hydroelectric		

Answer Sheet

Answers for Matching, Multiple-Choice Questions, and Extended Response

Alternative Energy Sources

Multiple-Choice Questions

1. **e**
2. **c**

Extended Response (Accept reasonable answers.)

1. **Using alternative energy sources helps to reduce pollutants and greenhouse gases. (Mention at least one reason.)**
2. **The author tells the readers that they need to value the natural resources that we need on Earth. They need to use alternative energy sources so the Earth's resources are protected.**
3. **See text for advantages and disadvantages of each energy source so the chart can be completed accurately.**

Objective sight words (traditional, parables, allegories, sacred, spirituality, philosophical, personification, inanimate, theories, rationales, possessed, incredible); concepts (myths, parables, allegories, personification, unicorns)

Vocabulary

traditional	**personification**
parables	**inanimate**
allegories	**theories**
sacred	**rationales**
spirituality	**possessed**
philosophical	**incredible**

Understanding the Mystery of Myths

Unicorn, a Mythical Creature

By: Sue Peterson

Susan knew that her language arts teacher encouraged the students to become better writers by keeping a journal of stories. Mr. Christiansen would assign topics every night, but once in awhile there would be a *free choice* writing and the students could write about any topic of their choice. When Mr. Christiansen announced that Wednesday's topic would be *free choice,* Susan was delighted. She knew just what to write about. She wanted to write about unicorns.

Susan knew unicorns were just make-believe, but she wanted to understand more about how the unicorn creature came about. Susan decided that she needed to do more research first before writing her journal entry.

There was study time at the end of the day and Susan asked if she could go to the computer lab, since all of her other assignments were completed. Mr. Christiansen smiled. He always liked to see students with their work completed and he always liked to see students like Susan excited about a new topic to write about.

Susan walked to the computer lab and found a computer that was not being used. It was in the far corner of the lab, so this spot would be a little quieter for her. First, she decided to read about myths. She googled the word *myth,* and began reading:

A myth is a traditional story of historical events that serve to tell the world about a practice, belief or a happening. Myths can be called parables or allegories.

The main characters in myths are usually gods, supernatural heroes, and humans. Some myths were seen as sacred and linked to religion or spirituality by rulers or priests.

When a myth is told, it is usually seen as true for that society. However, some societies classify their myths as those that are "true stories" and those that are "false stories or fables".

There are also creation myths which took place in an age when the world did not have human beings, and these myths then talk about how the world and its inhabitants were first formed.

Some myths are allegories, which mean they stand for something else. For example, in some of the Greek myths, you have creatures like Apollo who represents fire, and Poseidon who represents water, and so on.

In other myths, the allegories represent philosophical or spiritual concepts. For example, you have Athena who represents wise judgment.

Some people think that myths resulted from the personification of inanimate objects and forces. That would mean that the things that are not real take on real-life characteristics. For example, fire and air would be real, etc. Some people think that myths were created to explain rituals, which are repeated acts like baptism or marriage.

"Wow, that's interesting," Susan said to herself. "I think I will read a little bit about unicorns now and the different theories or rationales behind this creature. Then, I should be ready to write my journal entry."

Susan googled the word *unicorn.* She read about unicorns, of which mostly she knew already. *Unicorns are mythical creatures that look like horses with a horn coming out of their foreheads. Unicorns are a beautiful animal, usually described as having great intelligence and a gentle wisdom that humans may not understand. Often the unicorn is a creature of divinity, pure of heart and spirit that may be possessed of incredible powers of both creation and healing.*

Susan looked at the clock. There was time for her to start writing her mythical story for the journal assignment before the dismissal bell. This is what Susan wrote:

The Unicorn, a Mythical Creature

Once upon a time, in a land far, far away there lived a unicorn which was often seen galloping atop a tall cliff overlooking the sparkling creek below. Everyone knew that when the moon was full, the unicorn would grace the mountain with its beauty.

The bell rang. Susan grabbed her journal and walked back to class to tell Mr. Christiansen that she made lots of progress. She couldn't wait to finish writing the story and to read it to the class tomorrow.

"Good night, Susan!" Mr. Christiansen shouted above the noise in the hallway.

"Good night, Mr. Christiansen, see you tomorrow!" Susan smiled and waved.

Practice

Language Work

A. Write the words.

allegory _____

sacred _____

spirituality _____

philosophical _____

possessed _____

B. Use each word in a sentence. Underline the word used.

traditional _____

_____

parables _____

_____

personification _____

_____

inanimate _____

_____

theories _____

_____

rationales _____

_____

Incredible _____

_____

C. Phonics work. The words "traditional" and "philosophical" end with the suffix "al" that means "of", "like", "having the nature of". The word "tradition" and "philosophy" are nouns, and when the suffix "al" is added to the noun, the word becomes an adjective. The suffix can also be added to a verb, and in this case the new word becomes a noun to mean "the act of" like in the word "refusal", meaning "the act of refusing". Write down **two** words that end in the suffix "al": one that is an adjective and one that is a noun. Circle the suffix and write what the new word means.

1. "al" added to a noun to make an adjective:

   _____

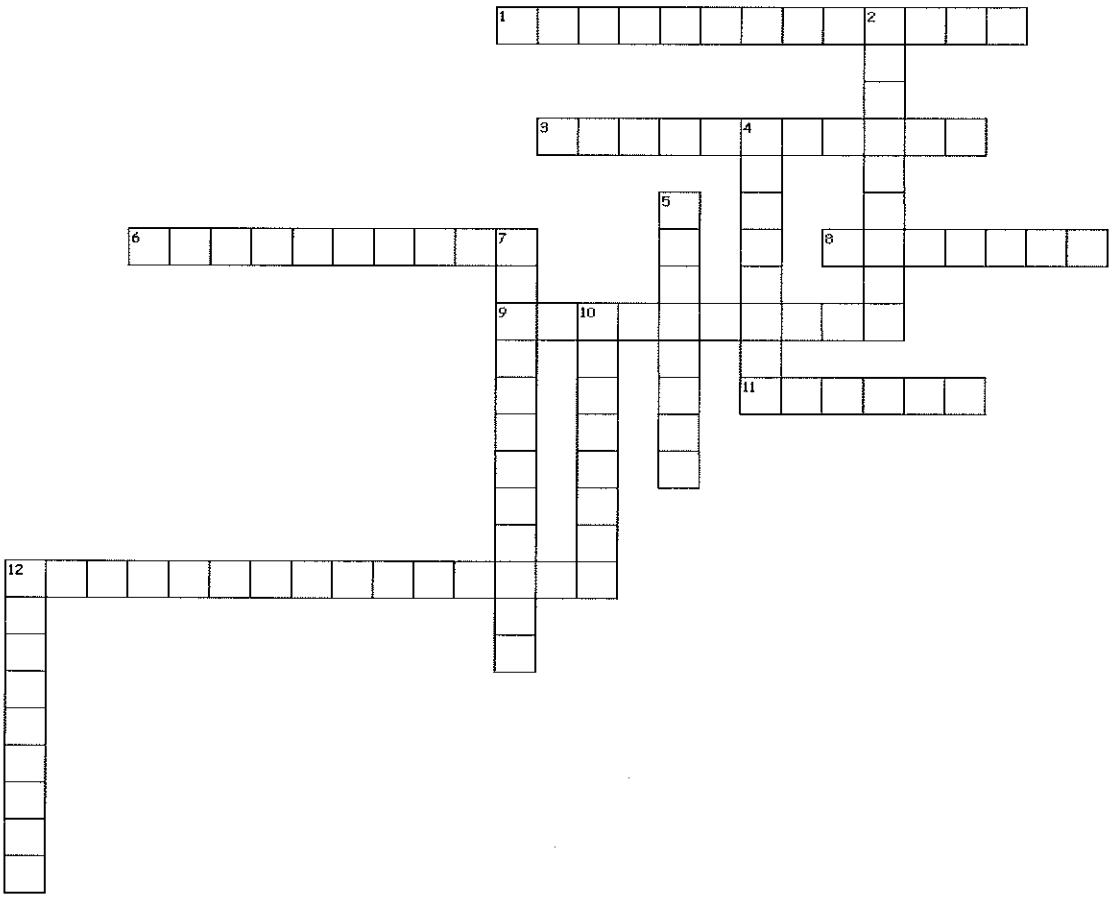
   _____

2. "al" added to a verb to make a noun:

   _____

   _____

D. Crossword Puzzle. Solve the word clues that use the vocabulary in the text to talk about the mystery of myths. **(Hint: You will use all of the words in the vocabulary box plus the word "creation". 2 plural words from the vocabulary box will be used in the singular form.)**



Across

1. wise; calm; reasonable
6. the fundamental reason
9. hard to believe; unbelievable
12. giving inanimate objects life
3. handed down by generations
8. story with a meaning
11. holy

Down

2. not living
5. a parable
10. making something that is new
4. explanations based on reasoning
7. devotion to spiritual things
12. owned

Multiple-Choice Questions (Put an X in front of the correct answer.)

1. What is the **main** reason Susan was so happy about the writing assignment?
   - ☐ a. She could go to the computer lab.
   - ☐ b. It was a free choice assignment.
   - ☐ c. She would have homework.
   - ☐ d. She wanted to please her teacher.

2. Name **two** reasons why Mr. Christiansen smiled.
   - ☐ a. Susan had her work completed.
   - ☐ b. Susan helped other students finish their work.
   - ☐ c. Susan was excited about the writing topic "free choice".
   - ☐ d. It was the end of the day!

3. According to the story, myths can be called _____ and _____.
   - ☐ a. parables
   - ☐ b. allegories
   - ☐ c. creation
   - ☐ d. theories

Definitions (Write the meaning of each word as it is used in the text.)

1. traditional

2. possessed

3. incredible

Extended Response (Answer in complete sentences.)

1. According to Susan's research, who or what are most often the main characters in myths?

2. Why are myths, a traditional story-type, passed on from generation to generation? How are myths **usually** passed on?

Answer Sheet

Answers for Matching, Phonics, Multiple-Choice Questions, and Extended Response

Understanding the Mystery of Myths (*A Unicorn, a Mythical Creature*)

Crossword Puzzle

Across 1. philosophical; 3. traditional; 6. rationales; 8. parable; 9. incredible; 11. sacred; 12. personification

Down 2. inanimate; 4. theories; 5. allegory; 7. spirituality; 10. creation; 12. possessed

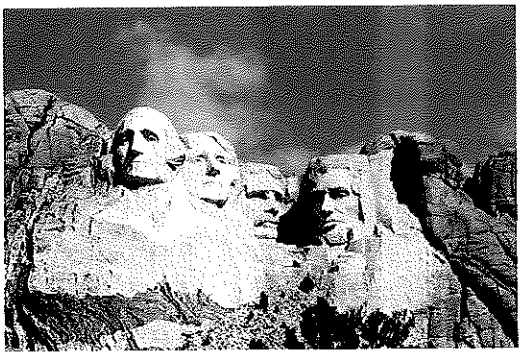
Multiple-Choice Questions

1. **b**
2. **a,c**
3. **a,b**

Extended Response (Accept reasonable answers.)

1. **The main characters in myths are usually gods, supernatural heroes, and humans.**
2. **Myths are usually passed on verbally from generation to generation as an oral history. They tell about historical events.**

Objective sight words (matching funds, commission, dedicated, expansion, symbolizes, preservation, promote, Panama Canal, merge, marvel); concepts (Mount Rushmore)



Vocabulary

matching funds	preservation
commission	promote
dedicated	Panama Canal
expansion	merge
symbolizes	marvel

Mount Rushmore
Birth, Expansion, Preservation, and Development

By: Sue Peterson

Mount Rushmore known as "The Presidents' Mountain" is located in the Black Hills of South Dakota. Doane Robinson thought of the idea to have a stoned carved monument as one way to attract people from all over the country to come to his state.

Robinson met with Gutzon Borglum, the sculptor who worked on Stone Mountain in Georgia. Borglum selected the location for Mount Rushmore and Robinson worked to get funding for this project.

Congress agreed to matching funds of $250,000 for this project and created the Mount Rushmore National Memorial Commission. The monument was completed and dedicated in 1941.

Facts about Mount Rushmore

- The four presidents carved in the mountain are George Washington, Thomas Jefferson, Theodore Roosevelt, and Abraham Lincoln.
- Gutzon Borglum chose these four presidents because he felt they represented the first 150 years of American history.
- Washington as first president represents the **BIRTH** of our country.
- Jefferson stands for the **EXPANSION** of the nation as he is credited with the Louisiana Purchase in 1803.
- Lincoln symbolizes the **PRESERVATION** of the nation in leading the nation through the challenging Civil War.
- Theodore Roosevelt represents the **DEVELOPMENT** of our country. He helped promote the construction of the Panama Canal.
- It took 14 years to complete Mount Rushmore.
- Nearly 400 workers helped create this memorial.

- The sculpture cost $989,992.32 to build.
- Mount Rushmore is 5,725 feet tall.

The Black Hills in South Dakota is home to many creatures like bison, elk, pronghorn and bighorn sheep, coyotes, mountain lions, bobcats, and others. This is a land where mountains meet the plains and merge two very different ecosystems, leading to a blend of diverse habitats and animals.

Many thousands of people visit South Dakota each year and stop to visit Mount Rushmore to see this attraction.

We salute Robinson for his creative idea and Borglum for his creative skill in making Mount Rushmore possible for all of us to enjoy and marvel, not only at this great artistry carved in a stone mountain, but for what it stands for... American History is shown through the examples of four great men who were once President of the United States.

Practice

Multiple-Choice Questions (Put an X in front of the correct answer.)

1. What is another name for Mount Rushmore?
   - ☐ a. The Tall Mountain
   - ☐ b. The Symbolic Mountain
   - ☐ c. The Presidents' Mountain
   - ☐ d. The Robinson Mountain

2. Which **two** men are credited for designing and building this monument?
   - ☐ a. Jefferson
   - ☐ b. Robinson
   - ☐ c. Roosevelt
   - ☐ d. Borglum

3. What does the text say that Mount Rushmore symbolizes?
   - ☐ a. a stone carving
   - ☐ b. a tourist attraction
   - ☐ c. 4 great men who were Presidents of the U.S.
   - ☐ d. an ecosystem

Definitions (Write the meaning of each word as it is used in the text.)

1. commissioned

2. dedicated

3. preservation

Extended Response (Answer in complete sentences.)

1. Why did the author select the title of this story to include the words "birth", "expansion", "preservation", and "development" in regard to Mount Rushmore?

_____

_____

_____

_____

_____.

2. What are **3** important facts about Mount Rushmore?

1. _____

_____

2. _____

_____

3. _____

_____

3. How does the author organize the information in the story?

_____

_____

_____

_____

_____.

Answer Sheet

Answers for Matching, Phonics, Multiple-Choice Questions, and Extended Response

Mount Rushmore (Birth, Expansion, Preservation, Development)

Multiple-Choice Questions

1. **c**
2. **b, d**
3. **c**

Extended Response (Accept reasonable answers.)

1. **These four words each stand for one of the Presidents who is carved on the mountain.**
2. **The student writes any 3 facts about Mount Rushmore.**
3. **The author uses cause and effect, chronological order, and description in writing the text.**

Objective sight words (tectonic plates, terrifying, anxiety-ridden, panic, equipped, imperative, aftershocks, subsided, horrified, urgent, reassemble, disorder, winding, treacherous); (natural disasters, Richter Scale, reactions)

Vocabulary

tectonic plates	subsided
terrifying	horrified
anxiety-ridden	urgent
panic	reassemble
equipped	disorder
imperative	winding
aftershocks	treacherous

Earthquakes and Tsunamis

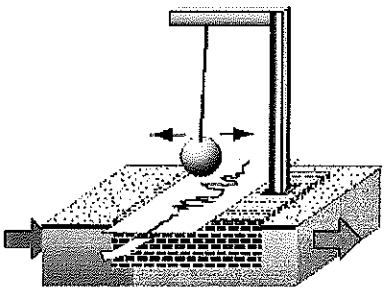
By: Sue Peterson

Earthquakes are the sudden shock of the earth's surface that result in the earth shaking and rolling. They can be felt over large geographical areas for brief moments of time. This is a natural way for the earth to release stress. Did you know that more than a million earthquakes shock the world each year? Let's look at what causes this unpredictable phenomenon.

There are nearly 20 tectonic plates that are along the earth's surface that continuously move past each other. When these plates stretch or squeeze, huge rocks form at their edges and the rocks shift causing an earthquake. You can visualize an earthquake by holding a pencil horizontally in the air and applying force to both ends by pushing down on them. Eventually, the pencil will break somewhere

between the two pencil ends to release the stress placed on it. This is exactly how the earth's crust reacts to produce an earthquake. The plates move and put forces on each other so the earth's crust breaks for this stress to be released in the form of energy. This energy then moves at a terrifying rate through the earth as an earthquake.

A seismograph is an instrument used to record the strength of the earthquake. It also measures how long the earthquake occurs. Other significant terms to know concerning the topic of earthquakes include the "epicenter" which is the point on the earth's surface above the source of the earthquake; "seismic waves" which is the energy created by the quake that causes building, structures, and the earth to move horizontally; and the Richter Scale, a measurement of an earthquake's intensity.



The points on the Richter Scale correspond to the amount of shaking of the earth (ten times the amount of shaking and 33 times the amount of energy). It has been reported that the energy released by a large earthquake may be equal to 10,000 times the energy of the first atomic bomb and cause anxiety-ridden victims to panic. Following is a chart that shows the types of earthquakes and the rating of each on the Richter Scale:

Richter Scale	
4	Minor Earthquake
5	Moderate Earthquake
6	Strong Earthquake
7	Major Earthquake
8	Great Earthquake

If you live in a region of the world that has been known to have a history of earthquakes, it is advised that you assemble a well-equipped safety and emergency kit. It is also imperative to have an established disaster plan so everyone remains safe. During an actual earthquake, it is advisable to get under a sturdy piece of furniture where nothing can fall on you and to stay clear of glass windows and larger objects. If you are outdoors, you need to stay far away of buildings, trees, and power lines. If you are in a car, it is important to drive to a safe area and stay in the car until the trembles stop.

There may be aftershocks, movements after the earthquake. Check for personal injuries and damage to your home when all movement has subsided. Depending on the strength of the earthquake, you may be horrified and need someone for reassurance. It is urgent that you remain calm. You may be able to reassemble some of the items that were tossed about and repair the disorder that has occurred during this disaster at a later time.

Tsunamis are formed by the displacement of water, either a landslide, volcanic eruption or by the slippage of the earth's plates, rock about 15-200 kilometers (50,000-650,000 feet) deep that carry the continents and seas of the earth on an underground ocean of hot, semi-solid material. Tsunamis are large ocean waves that flow straight avoiding any winding and circular turns like most every day waves.

Tsunamis travel up to 965 kph (600 mph), thus capable of causing severe damage with their treacherous speed alone. They travel the fastest in deeper water, yet hit near the shoreline at 48-64 kph (30-40 mph).

Practice

Language Work

A. Write the words.

terrifying _____

anxiety-ridden _____

imperative _____

reassemble _____

horrified _____

B. Use each word in a sentence. Underline the word used.

panic _____

_____

_____.

equipped _____

_____

_____.

treacherous _____

_____

_____.

subsided _____

_____

_____.

disorder _____

_____

_____.

C. Phonics work. The word "winding" has the base word "wind" that can be pronounced with either a short "i" or a long "i" sound, depending on the meaning of the word. Find the word "winding" in the text. Copy the sentence and indicate if it is a short "i" or a long "i" sound. How do you know? Then, write the definition of the word in context.

Copy the sentence: _____

_____

_____.

Explain if it is short "i" or long "i". How do you know?

_____

_____

_____.

What does this word mean in context? _____

_____

_____.

Multiple-Choice Questions (Put an X in front of the correct answer.)

1. In paragraph two, why does the author use an example of holding a pencil?
   - ☐ a. to experience an earthquake
   - ☐ b. to visualize an earthquake
   - ☐ c. to experience a tsunami
   - ☐ d. to visualize a tsunami

2. What number on the Richter Scale is given to a **strong** earthquake?
   - ☐ a. 4
   - ☐ b. 5
   - ☐ c. 6
   - ☐ d. 7

3. According to the text, what is the **most important** thing you should do during and after an earthquake?
   - ☐ a. repair disorder
   - ☐ b. reassemble items
   - ☐ c. panic
   - ☐ d. remain calm

Extended Response (Answer in complete sentences.)

1. Explain why earthquakes occur.

_____

_____

_____

2. Explain the purpose of the Richter Scale. What do the numbers mean?

3. Compare and contrast earthquakes and tsunamis. Explain at least one likeness and one difference.

Answer Sheet

Answers for Matching, Multiple-Choice Questions, and Extended Response

Earthquakes and Tsunamis

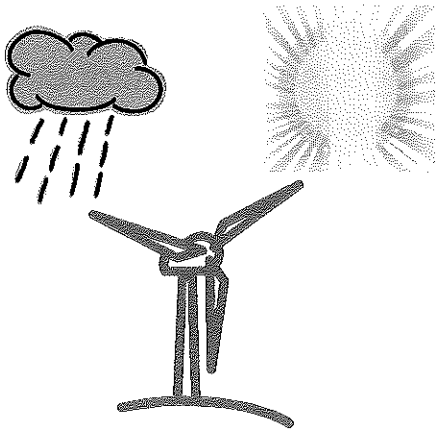
Multiple-Choice Questions

1. **b**
2. **c**
3. **d**

Extended Response (Accept reasonable answers.)

1. **The earth's tectonic plates stretch and squeeze, rocks form at their edges, and these shift to cause the earthquake.**
2. **The purpose of the Richter Scale is to measure the earthquake's intensity. The ratings show the type of earthquake from minor to great.**
3. **The student compares and contrasts an earthquake and a tsunami, giving one likeness and one difference.**

Objective sight words (consumption, terrain, integral, orbit, originated, contemporary, remote); concepts (sustainable, renewable, photovoltaics, gasification)



Vocabulary	
consumption	originated
terrain	contemporary
integral	remote
orbit	

Sustainable Energy Sources

By: Sue Peterson

What are sustainable energy sources? Sustainable energy sources are often regarded as including all renewable sources (naturally replenished) such as sunlight, wind, rain, and geothermal heat. Included in this definition is electricity and heat generated from solar, wind, ocean, hydropower, biomass (energy from plants), geothermal (energy from inside the earth), and biofuels and hydrogen derived from renewable resources. These resources usually also include technologies that improve energy efficiency. Fossil fuels are not considered sustainable energy sources because human consumption of fossil fuels creates a decrease in this type of fuel, not a constant or continual growth.

Solar Energy. The Latin word for sun is "solar" and thus solar energy is a powerful source of energy coming from the

sun. For billions of years, the sun has produced energy. It is estimated that the sunlight that shines on the Earth for one hour is capable of meeting the energy demands of the whole world for an entire year! Can you imagine that?

Solar energy can be converted into other forms of energy, most commonly heat and electricity. John Herschel, a British astronomer in the 1830s, used a solar collector box to cook his food while on an African expedition exploring differing terrain. Today, people use solar energy as an integral part of their lives and for all sorts of things ranging from heating water in homes to space heating in buildings, from drying farm products to generating electrical energy, and even heating their swimming pools!

Photovoltaics is the process of using solar energy directly to make electricity using specific devices. Electricity can also be produced indirectly from steam generators which use solar thermal collectors in heating a working fluid. How does solar energy actually work? The sun's light is harnessed by passive solar systems for heating or cooling buildings, flat plate solar collectors, and solar concentrator power systems. The sun's heat is used to create steam, which then turns a turbine to produce electricity.

The drawbacks to solar energy are the large area required for collection and the manner in which it comes to the surface of the earth.

Wind. Wind is classified as sustainable because wind will continually be produced as long as there is the sun shining on the Earth in orbit. Wind is caused by the uneven heating of the earth's surface by the sun. Today, wind energy is used to generate electricity.

The modern use of wind turbines originated in the 17th century when the Dutch used wind power to recover

hundreds of thousands of acres of land by draining the Rhine River Delta. For the next 300 years, this design was used to pump water, grind grain, and to saw wood. Now, through advances in the fields of aerodynamics and composite materials, modern electric power generating turbines was invented. These machines vary in size from as small as one meter to a hundred meters in rotor diameter, and from 100-1000 kilowatts in power output.

Wind energy cost is determined by the cost of installing the wind turbine and the amount of energy produced. The use of wind-generated electricity is growing around the world.

Biomass. Organic material which has stored sunlight in the form of chemical energy is considered biomass. This type of fuel includes wood, wood waste, straw, manure, sugar cane, and additional byproducts from a variety of agricultural processes.

By undergoing the process of photosynthesis, the chlorophyll in plants with the help of the energy of the sun converts the carbon dioxide from both the water and air from the ground into carbohydrates (complex compounds composed of carbon, hydrogen, and oxygen). When these carbohydrates are burned, they change back into carbon dioxide and water to release the sun's energy.

In addition to the typical process of burning, biomass can be changed into liquid fuels or cooked in a process called "gasification" to make combustible gases. Scientists are exploring which crops in these contemporary times are best suited for energy generation. More efficient and cleaner ways to use biomass are also being studied.

Hydropower. Hydropower is a clean, renewable energy source which converts kinetic energy from water (acting as

potential energy that is stored) into electricity by turning a turbine.

The amount of available energy in water is determined by the flow of the water and the fall of the water. This is one of the oldest sources of harnessing a source of energy by humans. In fact, water wheels were used over 2000 years ago.

Electrical power can be generated from the oceans in the forms of tidal power, wave power, ocean thermal conversion, ocean currents, ocean winds, and salinity gradients.

Most of these have a disadvantage. Specific to note are the river-based hydroelectric dams that have been known to upset the natural wildlife of the region. Tidal-based hydroelectric plants can cause widespread wildlife problems as the time span between low and high tides is disrupted, and boats are left stranded in low tides.

Geothermal Energy. Geothermal energy, heat from the earth, is used as an efficient heat source in small applications like greenhouses. This heat energy can be found almost anywhere from the dirt in our own backyards to remote wells in countries like Indonesia.

In most cases, mineral water is heated from the earth. Using geothermal energy is affordable, sustainable, and a good choice for the environment.

Practice

Language Work

A. Write the words.

consumption _____

integral _____

sustainable _____

renewable _____

photovoltaics _____

gasification _____

B. Use each word in a sentence. Underline the word used.

terrain _____

_____

_____.

orbit _____

_____

_____.

contemporary _____

_____

_____.

remote _____

_____

_____.

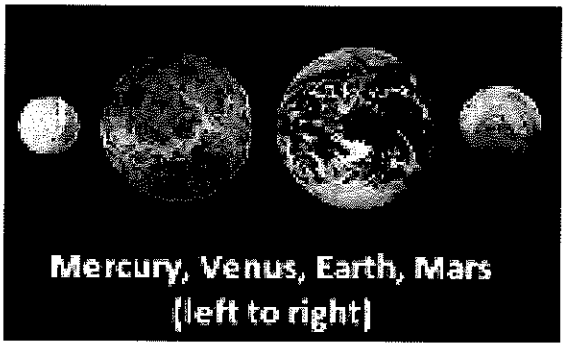
originated _____

_____

_____.

C. Phonics work. What does the Latin root "terr" mean in the beginning of the word "terrain" found in the text, and in other words like terrestrial, territory and terrace?

_____.



Mercury, Venus, and Mars are **terrestrial** planets because they are closest to the Earth in density and composition.

D. Puzzle. Unscramble the different forms of sustainable energy to spell a sentence about this energy.

GIHNSTUL
12 2 27 20 33

NWID
6 30

NIAR
32 8 26

GERLOHTAME
28 17 13 4

CONAE
22 16 5 23

POROEHYRWD
34 25 19 11

SIMBOSA
9 1 18

BOEFUSLI
14 29 10 3

NYRGDEOH
21 15 24 31 7

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 1 14 19 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 .

Multiple-Choice Questions (Put an X in front of the correct answer.)

1. What causes wind?
   - ☐ a. The sudden change in temperature during the day.
   - ☐ b. The clouds moving in circles in the atmosphere.
   - ☐ c. The uneven heating of the earth's surface by the sun.
   - ☐ d. All of the above.

2. According to the text, solar energy is used for all of these reasons **except** _____.
   - ☐ a. heat for homes
   - ☐ b. space heating in buildings
   - ☐ c. drying of farm products
   - ☐ d. heating saunas
   - ☐ e. heating swimming pools

3. According to the text, biomass includes _____.
   - ☐ a. wood and wood waste
   - ☐ b. straw, sugar cane and manure
   - ☐ d. lake, stream and river water
   - ☐ e. byproducts from agriculture

Extended Response (Answer in complete sentences.)

1. Select **one** form of sustainable energy described in the text. Write a summary of this type of energy. Include a definition and the advantages/disadvantages.

_____

_____

_____

_____

_____

_____

_____

_____

_____.

2. Why is sustainable energy so important?

3. Look up the word "sustainable" in a dictionary. What types of things are sustainable besides energy? Explain your answer.

Answer Sheet

Answers for Matching, Multiple-Choice Questions, and Extended Response

Sustainable Energy Sources

Phonics work

The Latin root "terr" means earth.

Puzzle

sunlight, wind, rain, geothermal, ocean, hydropower, biomass, biofuels, hydrogen

Sustainable sources supply ongoing energy.

Multiple-Choice Questions

1. d
2. d
3. a,b,e

Extended Response (Accept reasonable answers.)

1. **The student selects one form of sustainable energy, summarizes this type of energy (including a definition, and advantages and disadvantages).**
2. **Sustainable energy is important to maintain as there is always a constant source of energy available which can be tapped when needed.**
3. **The student researches the word "sustainable" and then writes other things besides forms of energy that are sustainable.**

Objective sight words (pulses, intermittent, isotopes, chronicle, methane, tectonic plates, volcanism, configurations, land-locked, erratic); concepts (geological evidence and specific terminology related to landforms as a result of the ice age: moraine, drumlin, boulder, till, esker, fjord, kettle lake, cirque, horn, etc.)

Vocabulary

pulses	**tectonic plates**
intermittent	**volcanism**
isotopes	**configurations**
chronicle	**land-locked**
methane	**erratic**

The Ice Age

By: Sue Peterson

What is an ice age? An ice age is a time period when the temperature of the Earth's surface and atmosphere is greatly reduced so that there is a presence or expansion of continental ice sheets, polar ice sheets and alpine glaciers in the southern and northern hemispheres. Within this time period, individual pulses of cold climate are considered "glacial periods" and warm intermittent periods are called "interglacial periods". Using the definition of glacial and interglacial periods, geologists classify the present condition of the world as an ice age that began 2.6 million years ago because the Greenland and Antarctic ice sheets still exist.

What is the basis of an ice age? There are three main types of evidence to consider. These include geological, chemical and

paleontological. Geological evidence includes rocks, glacial moraines, drumlins, valley cutting, and the deposits of sediments. The chemical evidence looks at the variations in the ratios of isotopes in fossils found in sediments, sedimentary rocks and ocean sediment cores. Paleontological evidence looks at the changes in the geographical distribution of fossils. During cold time periods, organisms spread into lower latitudes and organisms that preferred warmer climates became extinct. These types of evidence have shown there were glacial periods over the past few million years.

What is the history of ice ages? There have been five major ice ages that chronicle the Earth's past: Huronian (over 2 million years ago), Cryogenian (about 850-630 million years ago), Andean-Saharan (about 460-420 million years ago), Karoo (360-260 million years ago), and the Quaternary Ice ages (the current ice age starting about 2.58 million years ago).

What happens during glacial time periods? The climate is cooler and dryer over most of the Earth. Large land and sea ice masses extend outward from the poles. Mountain glaciers extend to lower elevations due to a lower snow line. Sea levels drop because large volumes of water above sea level are removed from the ice caps. Ocean circulation patterns are also disrupted.

What theories are there to explain the ice ages? There are many theories behind the ice ages.

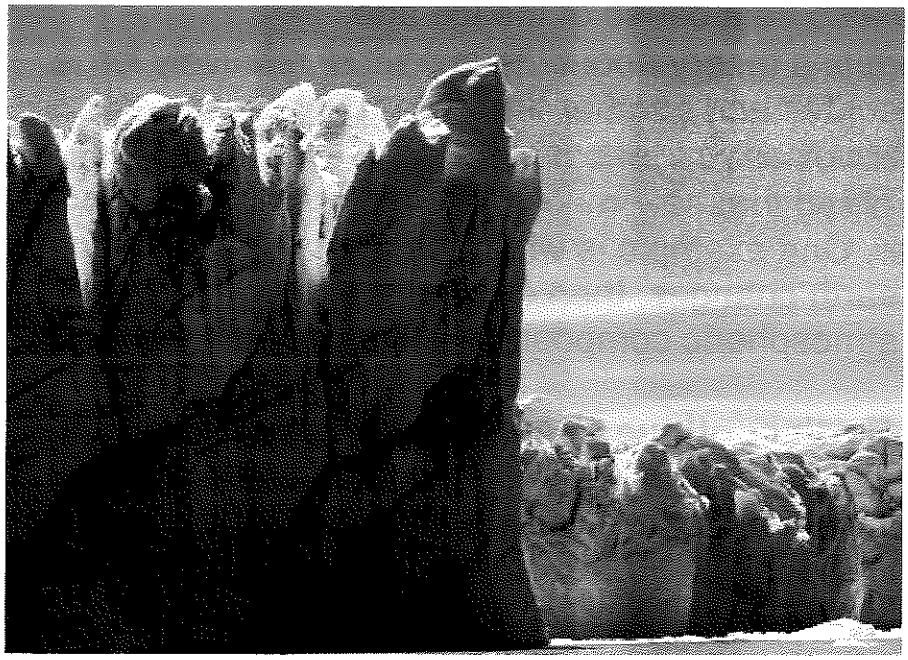
- One theory is that the increase of ice and snow causes the earth to reflect more of the sun's energy and absorb less energy. When air temperatures decrease, ice and snow fields grow.
- Another theory hypothesizes that an ice-free Arctic Ocean leads to increased snowfall at high latitudes.
- Yet, another theory surrounds the concentrations of carbon dioxide and methane.

- An additional theory deals with the changes in the Earth's orbit around the sun and possibly the Sun's orbit around the galaxy.
- Some scientists have noted that the motion of the tectonic plates has resulted in changes in the relative location and amount of continental and oceanic crust on the Earth's surface, which in turn affects wind and ocean currents which may also be a cause of the ice age.
- There is a theory about the impact of relatively large meteorites and another theory that volcanism, eruptions of super volcanoes, was a cause.
- It is noted that several of these factors may influence each other. One example is when the atmospheric composition of the earth changes, then climate is altered. This can change the atmospheric composition which repeats the cycle.

Will the Earth continue to experience glacial periods? There are two known configurations of the continents (in existence today) that either block or reduce the warm water from the equator to the poles. For example, the continent of Antarctica sits on top of a pole and the polar Arctic Ocean is almost land-locked. These physical conditions lead geologists to believe that the Earth will continue to experience glacial periods in the near future.

What are some of the effects of the most recent glacial period? The effects of the last glacial period are seen today. The moving ice impacted the landscape of Canada, Greenland, northern Eurasia and Antarctica. Typical features of erratic boulders, till, drumlins, eskers, fjords, kettle lakes, moraines, cirques, horns, etc. were left behind. The heavy weight of the ice deformed the Earth's crust and mantle. Global sea levels dropped over 330 feet (100 meters) to expose continental shelves in some areas. This caused land bridges to be formed between land masses and allowed animals to migrate. This type of rapidly

changing land has been thought to have caused the Baltic and Scandinavian regions, as well as much of the North American coastlines.



Practice

Language Work

A. Write the words.

volcanism _____

configurations _____

isotopes _____

tectonic plates _____

methane _____

B. Use each word in a sentence. Underline the word used.

pulses _____

_____

intermittent _____

_____

chronicle _____

_____

land-locked _____

_____

erratic _____

_____

_____

C. Phonics work. The vocabulary word "chronicle" is spelled with the Greek root "chron". What does "chron" mean in these words: chronicle, chronic, chronological, synchronize?

_____

_____

Multiple-Choice Questions (Put an X in front of the correct answer.)

1. Which type of evidence for ice ages is described as "changes in the geographical distribution of fossils"?
   - ☐ a. geological
   - ☐ b. chemical
   - ☐ c. paleontological
   - ☐ d. all of the above

2. The present ice age period is called which "period"?
   - ☐ a. Huronian
   - ☐ b. Cryogenian
   - ☐ c. Andrea-Saharan
   - ☐ d. Karoo
   - ☐ e. Quaternary

Extended Response (Answer in complete sentences.)

1. Explain the difference between glacial and interglacial time periods in relation to the Ice Ages.

2. There are many theories of Ice Ages described in the text. Select **one** that you think is highly probable and explain this theory. Why do you think it is possible?

3. Pick **three** physical features that have been formed by glaciers. Define each and explain where a real-life example is in the world today.

Answer Sheet

Answers for Matching, Multiple-Choice Questions, and Extended Response

The Ice Age

Phonics Work

"Chron" means "time".

Multiple-Choice Questions

1. **c**
2. **e**

Extended Response (Accept reasonable answers.)

1. **The student explains the difference between glacial and interglacial time periods in relation to the Ice Ages.**
2. **The student selects one theory provided in the text to explain about the Ice Ages.**
3. **The student picks 3 physical features formed by glaciers (mentioned in the text) to explain. They give real-life examples of each.**

math Antics
Exercises

Name: _____

Date: _____

Points, Lines and Planes

1 Fill in the blank.

This is a _____

2 Fill in the blank.

This is a _____ _____

3 Fill in the blank.

This is a _____

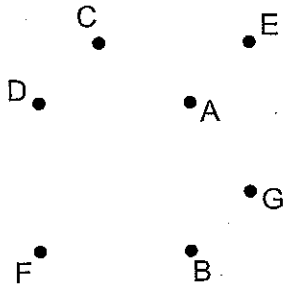
4 Draw a ray and label it AB.

5 Draw a line segment and label it CD.

6 Draw a line and label it EF.

7 Draw line segments from:

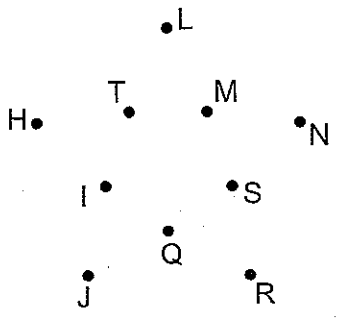
Point A to Point B
Point E to Point C
Point G to Point B
Point F to Point B
Point A to Point E
Point D to Point F
Point C to Point D
Point D to Point A
Point E to Point G



How many dimensions does this object have? _____

8 Draw line segments from:

Point H to Point I
Point I to Point J
Point L to Point M
Point M to Point N
Point Q to Point R
Point R to Point S
Point H to Point T
Point T to Point L
Point J to Point Q
Point S to Point N



How many dimensions does this object have? _____

math Antics Worksheets

Name: _____

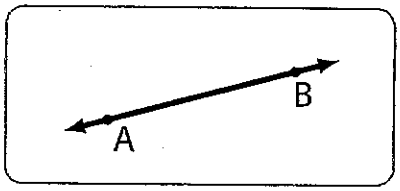
Date: _____

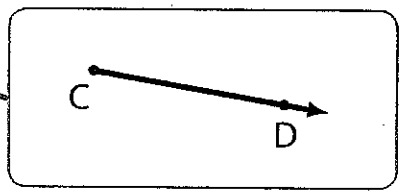
Basic Elements of Geometry

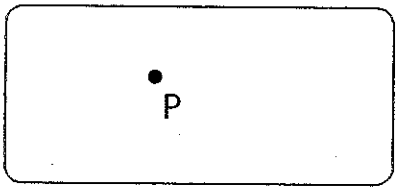
PLP 1

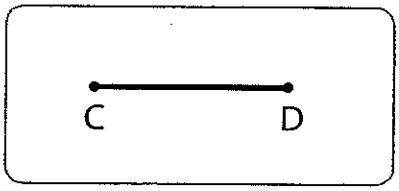
Instructions: Match each basic element of geometry with the correct picture.

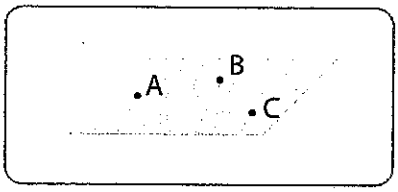
1. $\overrightarrow{CD}$
2. Line AB
3. Ray AB
4. $\overline{CD}$
5. Point P
6. Line Segment AB
7. Plane ABC
8. $\overleftrightarrow{CD}$

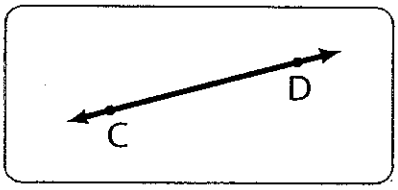


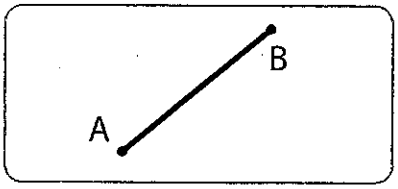


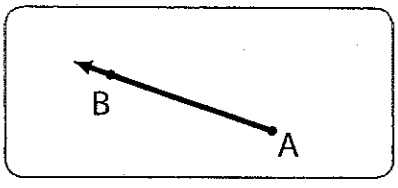












math Antics Worksheets

Name: _____

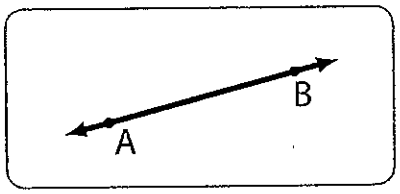
Date: _____

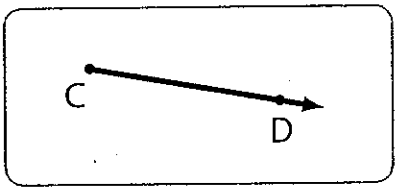
Basic Elements of Geometry (alternate)

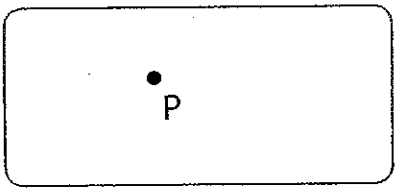
PLP 1

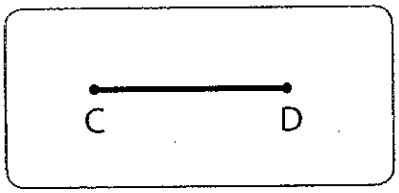
Instructions: Match each basic element of geometry with the correct picture by writing the number in the right box.

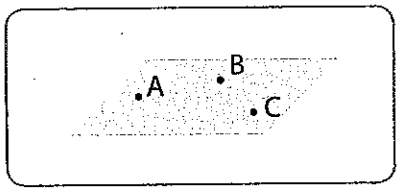
1. $\overrightarrow{CD}$ [ ]
2. Line AB [1]
3. Ray AB [ ]
4. $\overline{CD}$ [ ]
5. Point P [ ]
6. Line Segment AB [ ]
7. Plane ABC [ ]
8. $\overleftrightarrow{CD}$ [ ]

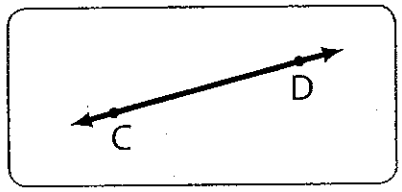


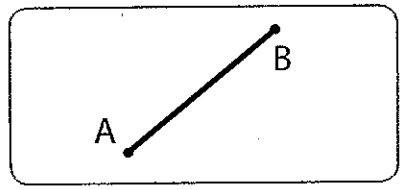


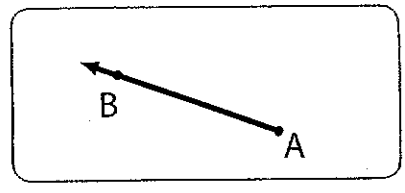












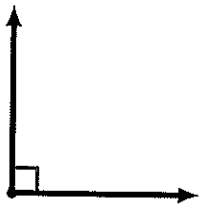
math Antics
Exercises

Name: _____

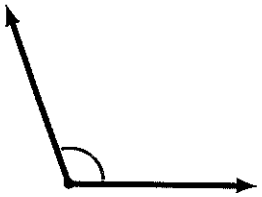
Date: _____

Angle Basics

1. What kind of angle is this? _____



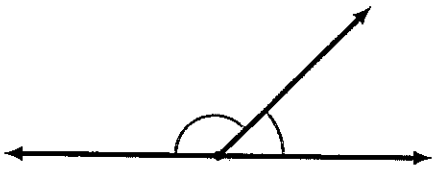
2. What kind of angle is this? _____



3. What kind of angle is this? _____

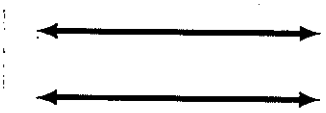
4. What kind of angle is this? _____

5. This diagram shows:



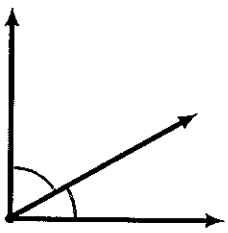
- ☐ **Parallel Lines**
- ☐ **Perpendicular Lines**
- ☐ **Supplementary Angles**
- ☐ **Complementary Angles**

6. This diagram shows:



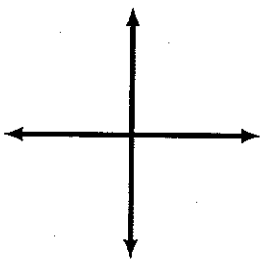
- ☐ **Parallel Lines**
- ☐ **Perpendicular Lines**
- ☐ **Supplementary Angles**
- ☐ **Complementary Angles**

7. This diagram shows:



- ☐ **Parallel Lines**
- ☐ **Perpendicular Lines**
- ☐ **Supplementary Angles**
- ☐ **Complementary Angles**

8. This diagram shows:



- ☐ **Parallel Lines**
- ☐ **Perpendicular Lines**
- ☐ **Supplementary Angles**
- ☐ **Complementary Angles**

math Antics Worksheets

Name: _____

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Types of Angles

AB 1

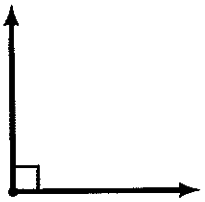
Instructions: For each angle, mark the box that matches its type.

1.

- [x] Acute
- [ ] Right
- [ ] Obtuse
- [ ] Straight

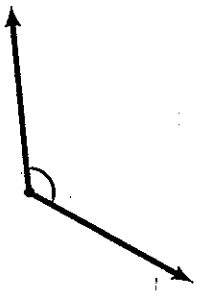
2.

- [ ] Acute
- [ ] Right
- [ ] Obtuse
- [ ] Straight



3.

- [ ] Acute
- [ ] Right
- [ ] Obtuse
- [ ] Straight

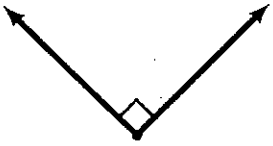


4.

- [ ] Acute
- [ ] Right
- [ ] Obtuse
- [ ] Straight

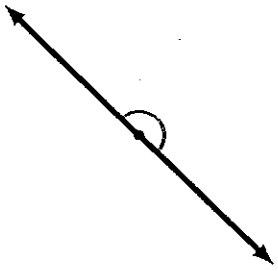
5.

- [ ] Acute
- [ ] Right
- [ ] Obtuse
- [ ] Straight



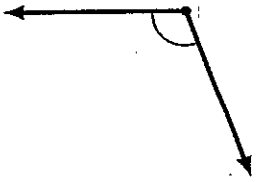
6.

- [ ] Acute
- [ ] Right
- [ ] Obtuse
- [ ] Straight



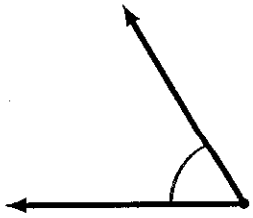
7.

- [ ] Acute
- [ ] Right
- [ ] Obtuse
- [ ] Straight



8.

- [ ] Acute
- [ ] Right
- [ ] Obtuse
- [ ] Straight



Math Antics Worksheets

Name: _____

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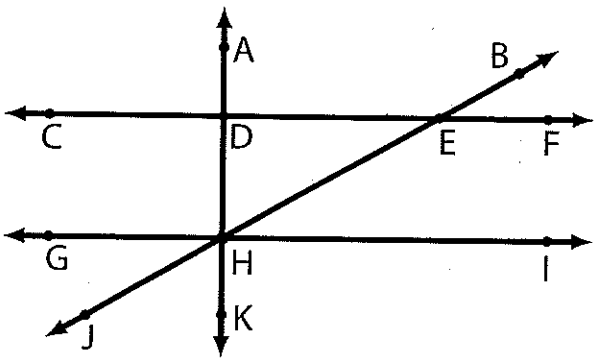
Identifying Geometric Elements

AB 2

Instructions: Use this 2-dimensional diagram to answer the questions below. Circle 'true' or 'false'. (Note: Angles that appear to be 90 degrees are exactly 90 degrees. There are no 'trick angles'.)



1. $\overleftrightarrow{CF}$ and $\overleftrightarrow{GI}$ are parallel lines. ..... True ..... False
2. ∠EHI is an acute angle. ..... True ..... False
3. ∠ADE is an acute angle. ..... True ..... False
4. $\overleftrightarrow{KA}$ and $\overleftrightarrow{JB}$ are perpendicular. ..... True ..... False
5. ∠DEB is an obtuse angle. ..... True ..... False
6. ∠ADE is a right angle. ..... True ..... False
7. ∠GHE is a right angle. ..... True ..... False
8. ∠JHG and ∠JHK are complementry. ..... True ..... False
9. ∠BEF and ∠FEH are supplementary. ..... True ..... False
10. ∠DHI is a right angle. ..... True ..... False
11. ∠GHJ and ∠KHI are supplementary. ..... True ..... False
12. $\overleftrightarrow{KA}$ and $\overleftrightarrow{CF}$ are perpendicular. ..... True ..... False
13. Points D, E and H form a plane. ..... True ..... False
14. Points C, D and E form a plane. ..... True ..... False

math Antics
Exercises

Name: _____

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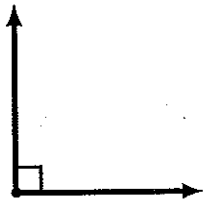
Angles and Degrees

1 What is the size of this angle in degrees?

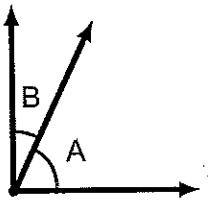


_____

2 What is the size of this angle in degrees?

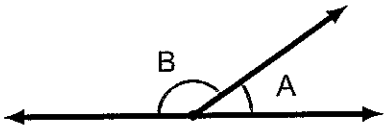
_____

3 Find the unknown angle.



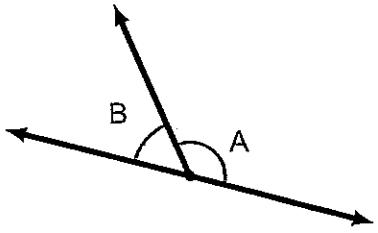
∠A and ∠B are complementary angles.
If ∠A is 65 degrees, how big is ∠B ?

4 Find the unknown angle.



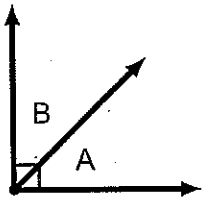
∠A and ∠B are supplementary angles.
If ∠A is 35 degrees, how big is ∠B ?

5 Find the unknown angle.



If ∠A is 128 degrees, how big is ∠B ?

6 Find the unknown angle.



If ∠A is the same size as ∠B ,
how big is ∠A ?

math Antics®
Worksheets

Name: _____

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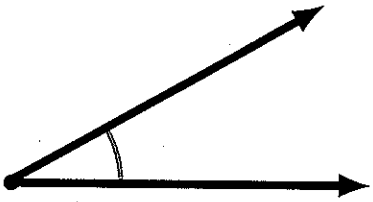
Measuring Angles

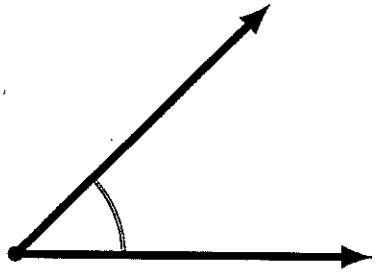
AAD 1

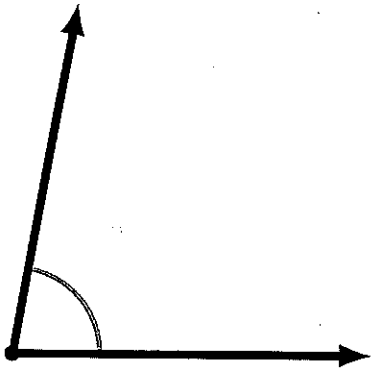
Instructions: Use a protractor to measure how many degrees each angle is. If you don't have a protractor, then just estimate and see how close you got.

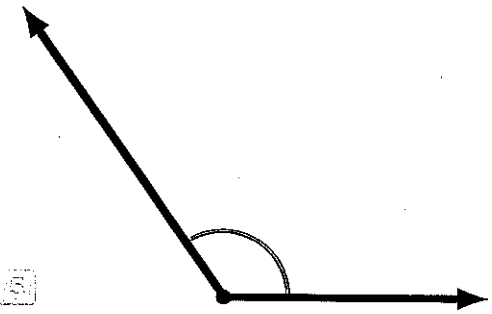
1. 

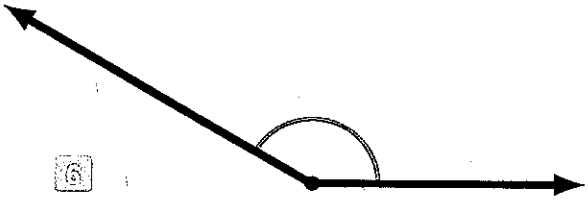
15°

2. 

3. 

4. 

5. 

6. 

math Antics®
Worksheets

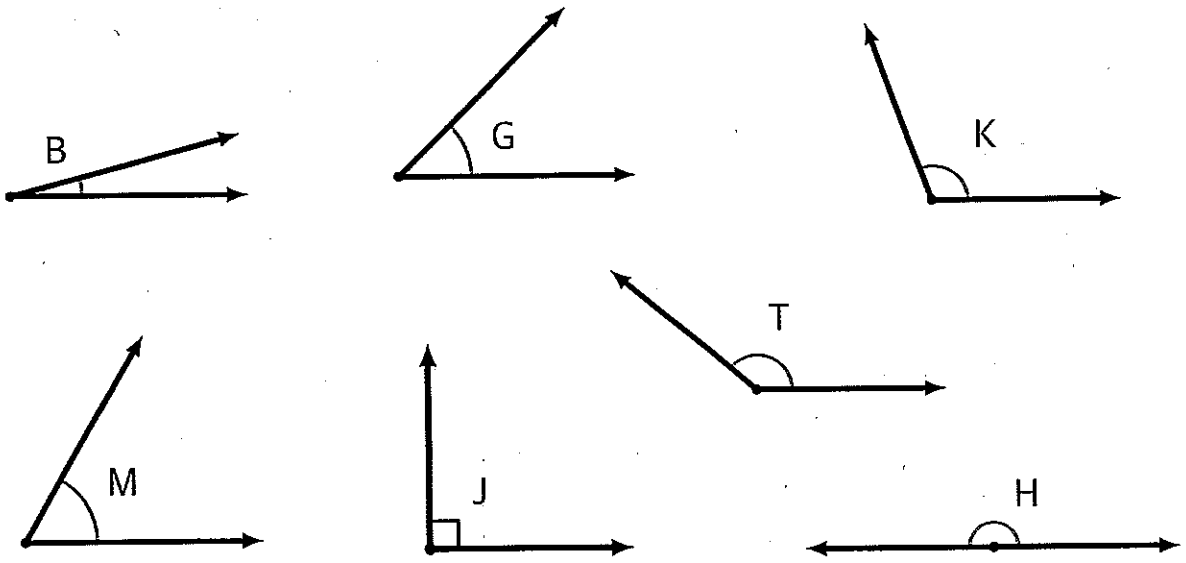
Name: _____

Date: _____

Comparing Angles

AAD 2

Instructions: Use the greater-than '>' and less-than '<' signs to compare these angles. (If you have trouble comparing the angles visually, you can use a protractor to measure them.)



1. ∠B < ∠G
2. ∠J ◯ ∠G
3. ∠M ◯ ∠B
4. ∠T ◯ ∠H
5. ∠J ◯ ∠K
6. ∠J ◯ ∠H
7. ∠T ◯ ∠M
8. ∠K ◯ ∠G
9. ∠G ◯ ∠M
10. ∠T ◯ ∠K

math Antics Worksheets

Name: _____

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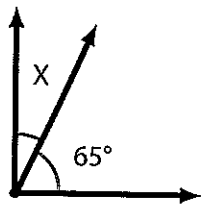
Finding an Unknown Angle

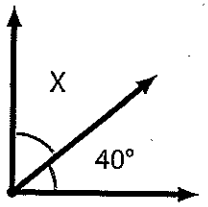
AAD 3

Instructions: For each set of complementary or supplementary angles, find the unknown angle (X).

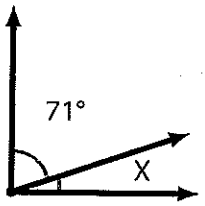
1. 

m∠X = 25°

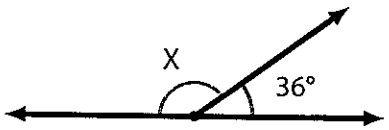
$$\begin{array}{r} {}^{8}\not{9}\not{0} \\ -\ 65 \\ \hline 25 \end{array}$$

2. 

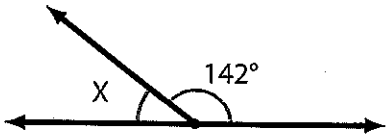
m∠X = _____

3. 

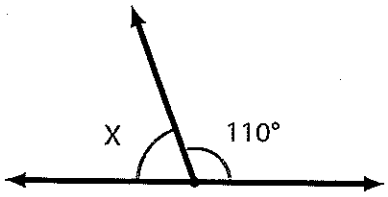
m∠X = _____

4. 

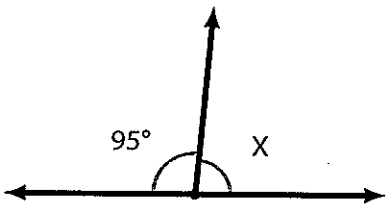
m∠X = _____

5. 

m∠X = _____

6. 

m∠X = _____

7. 

m∠X = _____

math Antics
Worksheets

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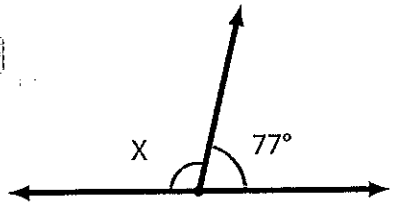
Finding an Unknown Angle - Set 2

AAD 4

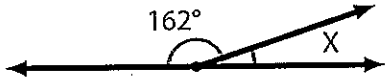
Instructions: For each set of complementary or supplementary angles, find the unknown angle (X).

1.



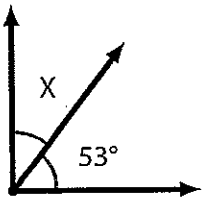
m∠X = _____

2.



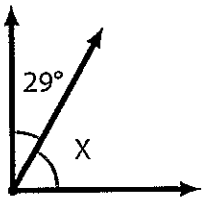
m∠X = _____

3.



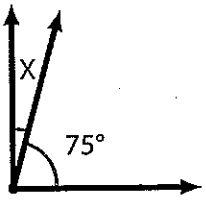
m∠X = _____

4.



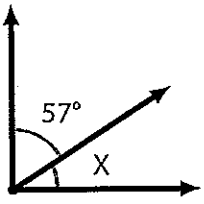
m∠X = _____

5.



m∠X = _____

6.



m∠X = _____

math Antics
Worksheets

Name: _____

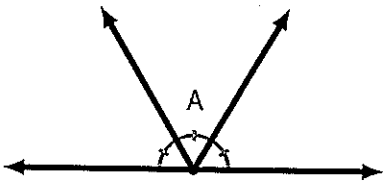
Date: _____

Finding an Unknown Angle - Set 3

AAD 5

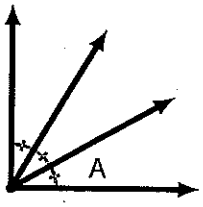
Instructions: Find the unknown angle (A). These problems are a little more tricky, so if you have trouble, ask someone for help or check the answer key to see the solutions.

1. This supplementary angle is divided into three **equal** parts.

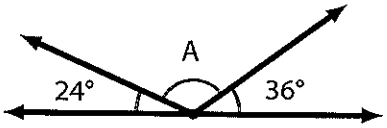


m∠A = _____

2. This complementary angle is divided into three **equal** parts.

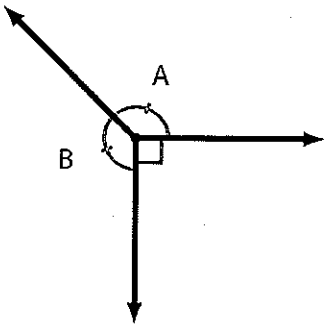


m∠A = _____

3. 

m∠A = _____

4. m∠A = m∠B



m∠A = _____

math Antics
Exercises

Name: _____

Date: _____

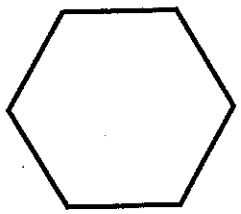
Polygons

In this exercise set, you get to play a game of:

Polygon or **NOT** a **Polygon**

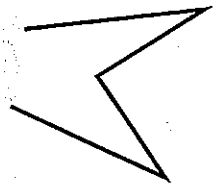
Look at each object and mark the correct box.

1



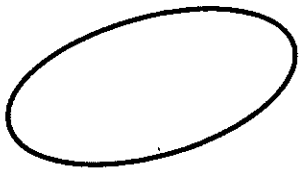
☐ Polygon ☐ NOT a Polygon

2



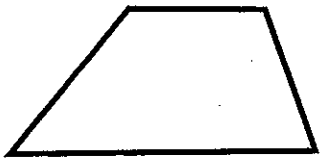
☐ Polygon ☐ NOT a Polygon

3



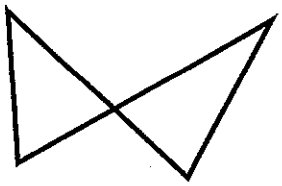
☐ Polygon ☐ NOT a Polygon

4



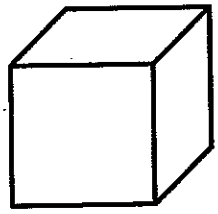
☐ Polygon ☐ NOT a Polygon

5



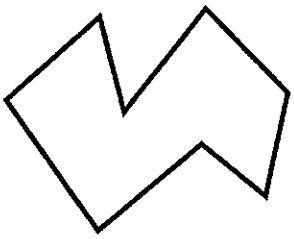
☐ Polygon ☐ NOT a Polygon

6



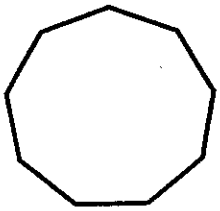
☐ Polygon ☐ NOT a Polygon

7



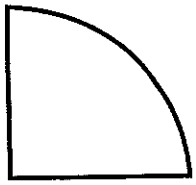
☐ Polygon ☐ NOT a Polygon

8



☐ Polygon ☐ NOT a Polygon

9



☐ Polygon ☐ NOT a Polygon

math Antics®
Worksheets

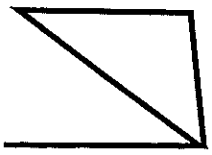
Name: _____

Date: _____

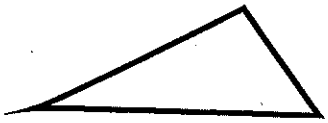
Identifying Polygons

Instructions: Tell if each of these objects is a polygon. Mark 'yes' if the object is a polygon. Mark 'no' if it is not.

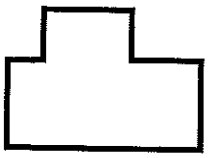
1. ☐ Yes ☒ No



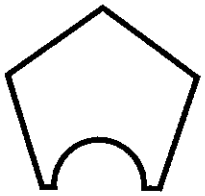
2. ☐ Yes ☐ No



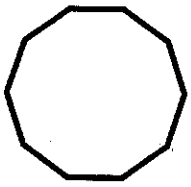
3. ☐ Yes ☐ No



4. ☐ Yes ☐ No

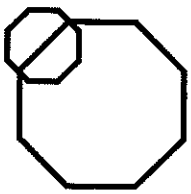


5. ☐ Yes ☐ No

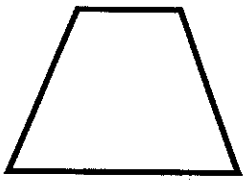


6. ☐ Yes ☐ No

7. ☐ Yes ☐ No

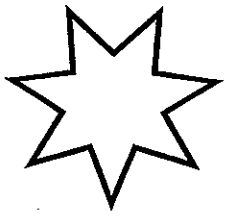


8. ☐ Yes ☐ No



9. ☐ Yes ☐ No

10. ☐ Yes ☐ No



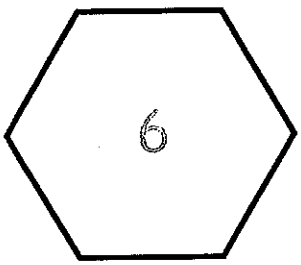
math Antics®
Worksheets

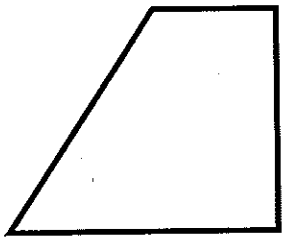
Name: _____

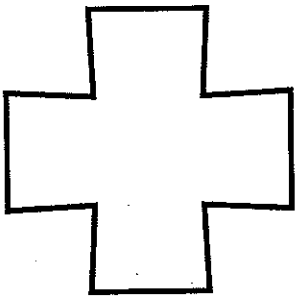
Date: _____

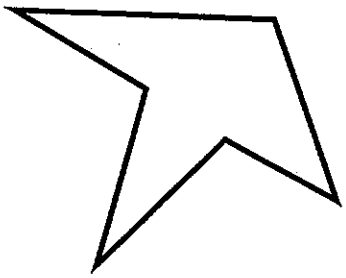
Polygon Sides

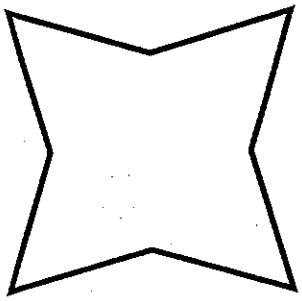
Instructions: Count how many sides each of these polygons has and write the total inside the polygon.

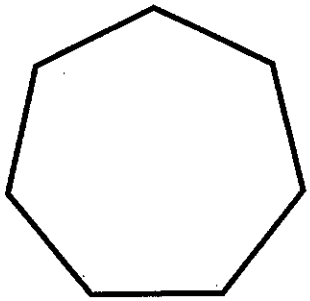
1. 

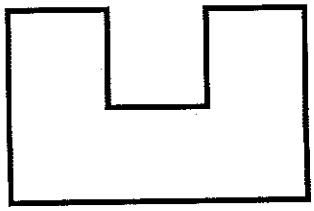
2. 

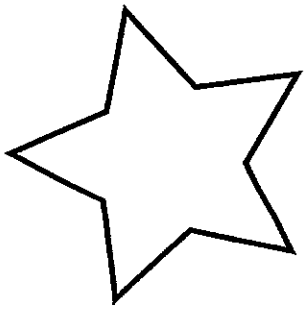
3. 

4. 

5. 

6. 

7. 

8. 

math Antics
Worksheets

Name: _____

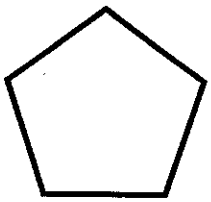
Date: _____

Polygon Names

Instructions: For each polygon, mark the box that matches its name.

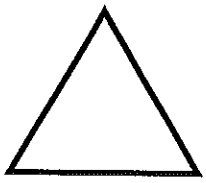
1.

- ☐ Hexagon
- ☐ Triangle
- ☒ Pentagon
- ☐ Quadrilateral



2.

- ☐ Pentagon
- ☐ Triangle
- ☐ Octagon
- ☐ Hexagon

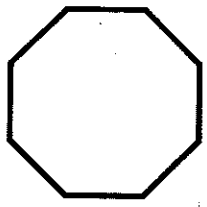


3.

- ☐ Quadrilateral
- ☐ Triangle
- ☐ Pentagon
- ☐ Octagon

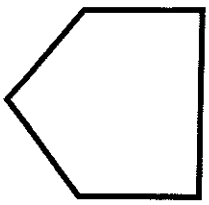
4.

- ☐ Hexagon
- ☐ Octagon
- ☐ Triangle
- ☐ Quadrilateral



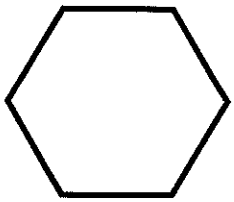
5.

- ☐ Triangle
- ☐ Hexagon
- ☐ Quadrilateral
- ☐ Pentagon



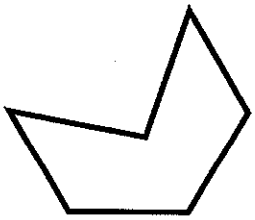
6.

- ☐ Hexagon
- ☐ Pentagon
- ☐ Octagon
- ☐ Triangle



7.

- ☐ Quadrilateral
- ☐ Triangle
- ☐ Hexagon
- ☐ Pentagon



8.

- ☐ Pentagon
- ☐ Quadrilateral
- ☐ Triangle
- ☐ Octagon

math Antics
Exercises

Name: _____

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Quadrilaterals

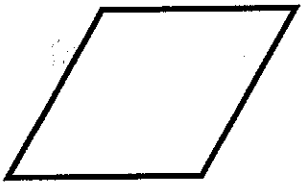
1. What do we call a quadrilateral that has **two** pairs of parallel sides?

_____

2. What do we call a quadrilateral that has only **one** pair of parallel sides?

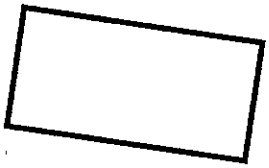
_____

3. This parallelogram has 4 equal sides, but not 4 equal angles. What is its name?



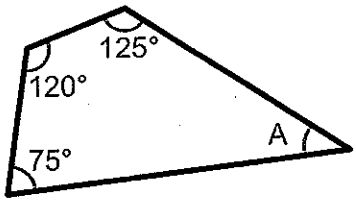
_____

4. This parallelogram has 4 equal angles, but not 4 equal sides. What is its name?

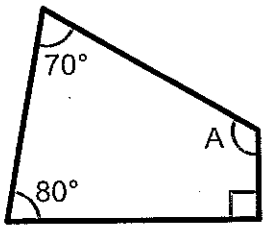


_____

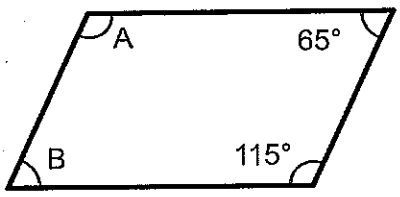
5. Find the unknown angle A.



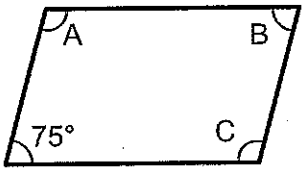
6. Find the unknown angle A.



7. Find the unknown angles A and B, in this parallelogram.



8. Find angle A in this parallelogram.



math Antics
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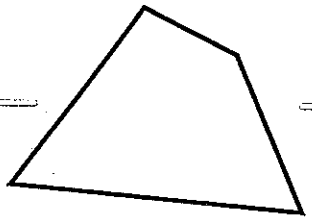
Quadrilaterals Chart

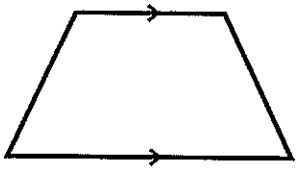
QUAD 1

Instructions: Complete this quadrilaterals chart by filling in the blanks next to each number. The small arrow symbols on the edges of the quadrilaterals show you pairs of parallel sides.



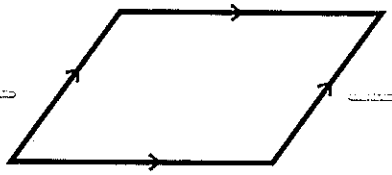
No Parallel Sides

1 _____



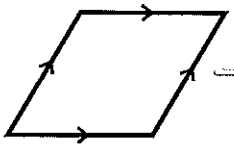
One Pair of Parallel Sides

2 _____



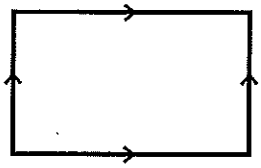
Two Pairs of Parallel Sides

3 _____



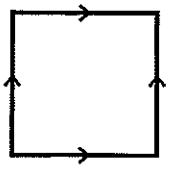
Equal Sides

4 _____



Equal Angles

5 _____



Equal Sides AND Angles

6 _____

math Antics Worksheets

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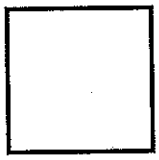
Classifying Quadrilaterals

QUAD 2

Instructions: For these quadrilateral, check each box that applies. There may be multiple right answers because more than one term may apply to each quadrilateral. For example, a square is also technically a parallelogram.

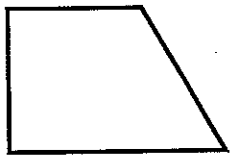
1

- [x] Square
- [x] Quadrilateral
- [ ] Trapezoid
- [x] Parallelogram



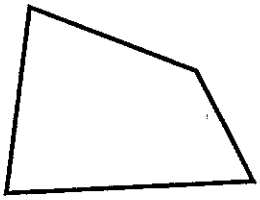
2

- [ ] Triangle
- [ ] Trapezoid
- [ ] Rhombus
- [ ] Quadrilateral



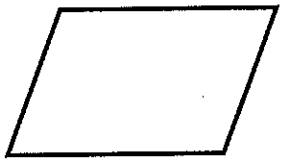
3

- [ ] Parallelogram
- [ ] Trapezoid
- [ ] Rectangle
- [ ] Quadrilateral



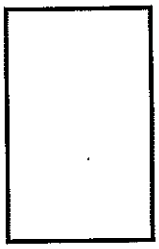
4

- [ ] Rectangle
- [ ] Quadrilateral
- [ ] Rhombus
- [ ] Parallelogram



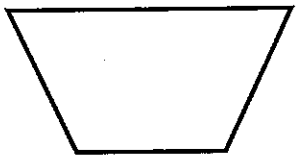
5

- [ ] Parallelogram
- [ ] Rhombus
- [ ] Square
- [ ] Rectangle



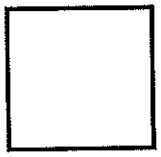
6

- [ ] Trapezoid
- [ ] Quadrilateral
- [ ] Rhombus
- [ ] Parallelogram



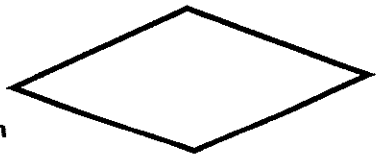
7

- [ ] Square
- [ ] Rhombus
- [ ] Rectangle
- [ ] Parallelogram



8

- [ ] Trapezoid
- [ ] Rhombus
- [ ] Parallelogram
- [ ] Square



math Antics
Worksheets

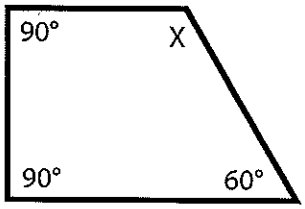
Name: _____

Date: _____

Finding an Unknown Angle

QUAD 3

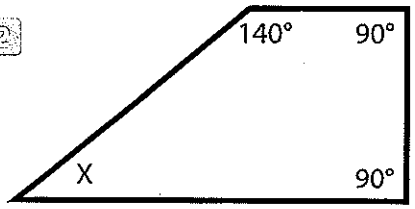
Instructions: For each quadrilateral, find the unknown angle (X). Remember that the four interior angles must add up to a total of 360 degrees.

1. 

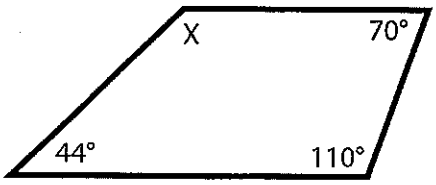
m∠X = 120°

90
90
+ 60
240

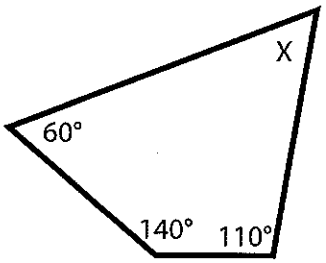
360
- 240
120

2. 

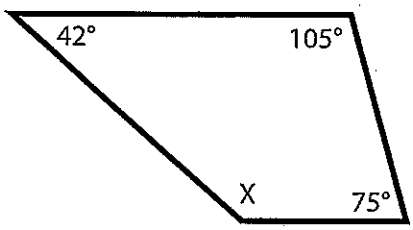
m∠X = _____

3. 

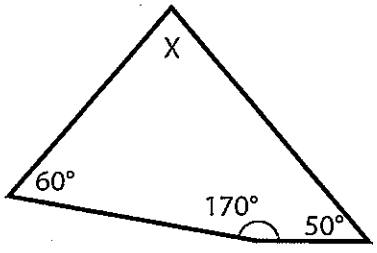
m∠X = _____

4. 

m∠X = _____

5. 

m∠X = _____

6. 

m∠X = _____

math Antics Worksheets

Name: _____

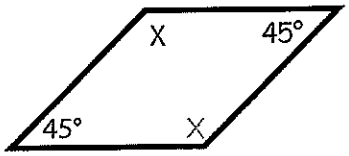
Date: _____

Finding an Unknown Angle in a Parallelogram

QUAD 4

Instructions: For each parallelogram, find the unknown angle (X). Remember that the opposite angles in a parallelogram are equal, and that all four angles must add to a total of 360 degrees.

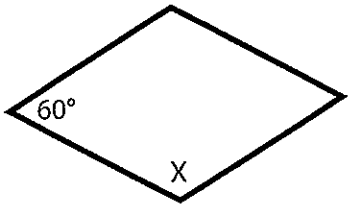
1



m∠X = 135°

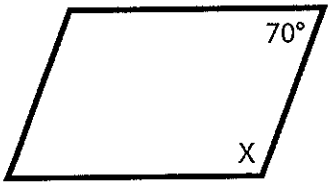
$$\begin{array}{r} {\scriptstyle 1}\\ 45\\ +\ 45\\ \hline 90 \end{array} \qquad \begin{array}{r} {\scriptstyle 2\ 1}\\ 360\\ -\ 90\\ \hline 270 \end{array} \qquad \begin{array}{r} 135\\ 2\overline{)270} \end{array}$$

2



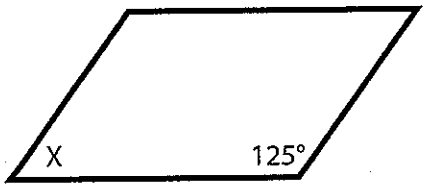
m∠X = _____

3



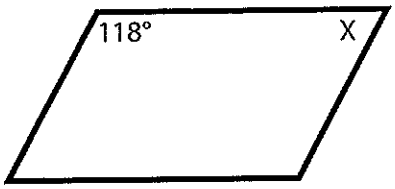
m∠X = _____

4



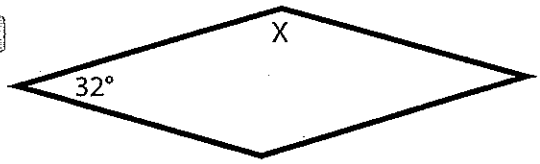
m∠X = _____

5



m∠X = _____

6



m∠X = _____

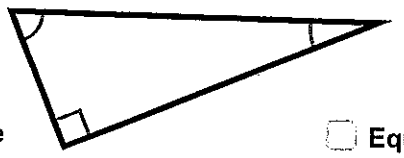
math Antics
Exercises

Name:

Date:

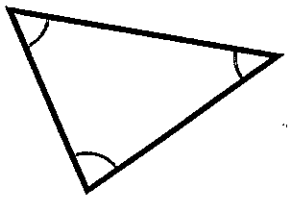
Triangles

1 Classify this triangle. Check any that apply.



- ☐ Acute
- ☐ Right
- ☐ Obtuse
- ☐ Equilateral
- ☐ Isosceles
- ☐ Scalene

2 Classify this triangle. Check any that apply.

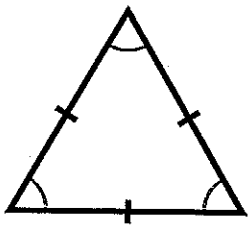


- ☐ Acute
- ☐ Right
- ☐ Obtuse
- ☐ Equilateral
- ☐ Isosceles
- ☐ Scalene

3 Classify this triangle. Check any that apply. (the marked sides are the same length)

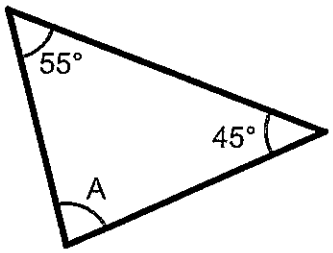
- ☐ Acute
- ☐ Right
- ☐ Obtuse
- ☐ Equilateral
- ☐ Isosceles
- ☐ Scalene

4 Classify this triangle. Check any that apply. (the marked sides are the same length)

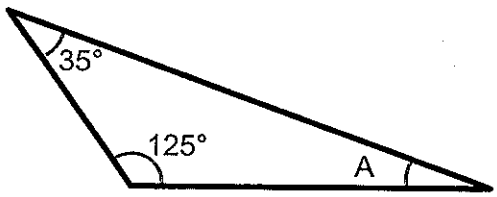


- ☐ Acute
- ☐ Right
- ☐ Obtuse
- ☐ Equilateral
- ☐ Isosceles
- ☐ Scalene

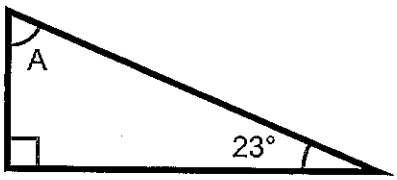
5 Find the unknown angle.



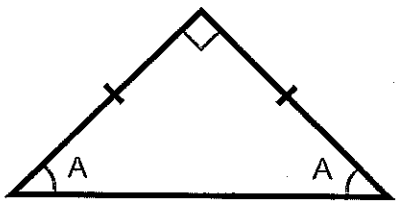
6 Find the unknown angle.



7 Find the unknown angle.



8 Find the unknown angle.



math Antics Worksheets

Name: _____

Date: _____

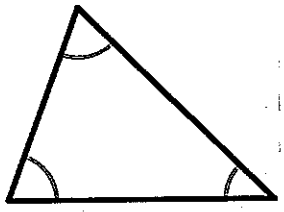
Classifying Triangles (by Angles)

TRI 1

Instructions: For each triangle, mark the box that matches its type when classifying by angles.

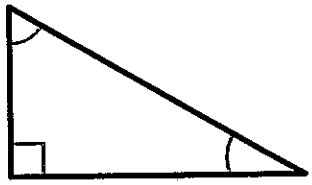
1

- [x] Acute
- [ ] Right
- [ ] Obtuse



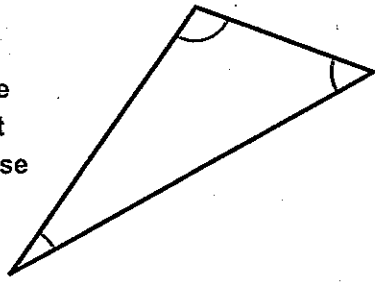
2

- [ ] Acute
- [ ] Right
- [ ] Obtuse



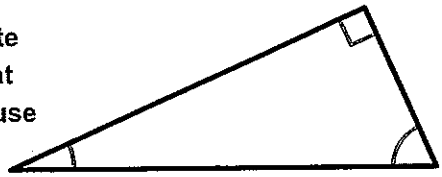
3

- [ ] Acute
- [ ] Right
- [ ] Obtuse



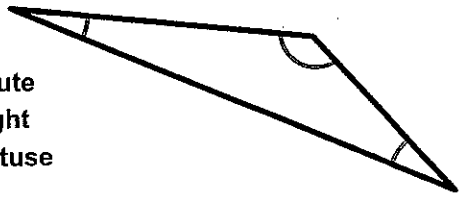
4

- [ ] Acute
- [ ] Right
- [ ] Obtuse



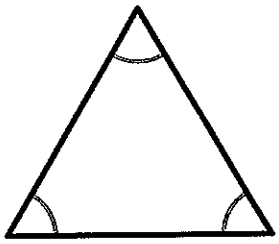
5

- [ ] Acute
- [ ] Right
- [ ] Obtuse



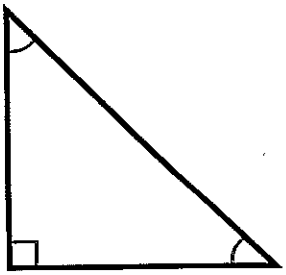
6

- [ ] Acute
- [ ] Right
- [ ] Obtuse



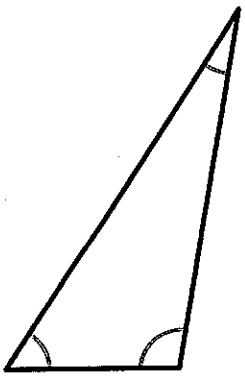
7

- [ ] Acute
- [ ] Right
- [ ] Obtuse



8

- [ ] Acute
- [ ] Right
- [ ] Obtuse



math Antics Worksheets

Name: _____

Date: _____

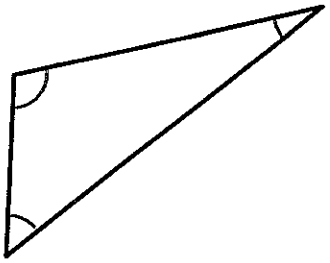
Classifying Triangles (by Sides)

TRI 2

Instructions: For each triangle, mark the box that matches its type when classifying by sides. The marks on the sides of the triangles show when two sides are "congruent" or the same length.

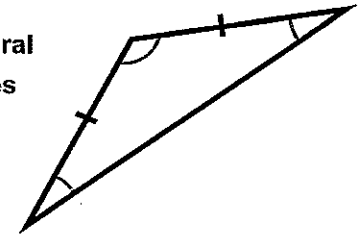
1.

- ☐ Equilateral
- ☐ Isosceles
- ☒ Scalene



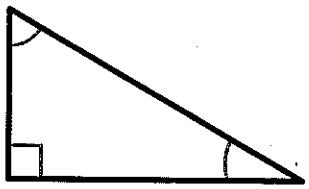
2.

- ☐ Equilateral
- ☐ Isosceles
- ☐ Scalene



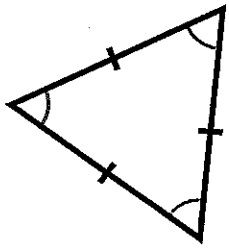
3.

- ☐ Equilateral
- ☐ Isosceles
- ☐ Scalene



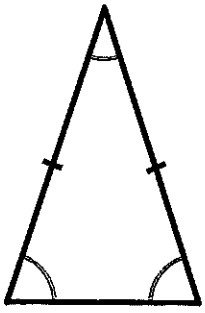
4.

- ☐ Equilateral
- ☐ Isosceles
- ☐ Scalene



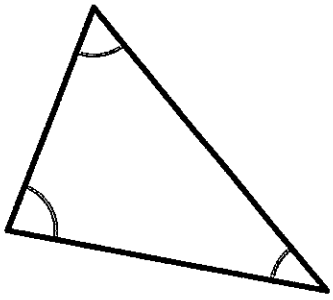
5.

- ☐ Equilateral
- ☐ Isosceles
- ☐ Scalene



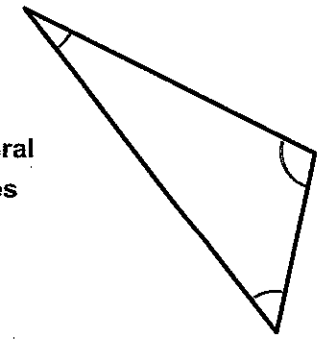
6.

- ☐ Equilateral
- ☐ Isosceles
- ☐ Scalene



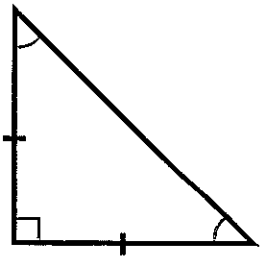
7.

- ☐ Equilateral
- ☐ Isosceles
- ☐ Scalene



8.

- ☐ Equilateral
- ☐ Isosceles
- ☐ Scalene



math Antics Worksheets

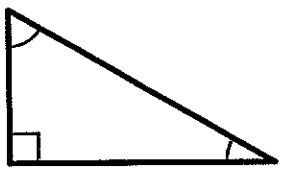
Name: _____

Date: _____

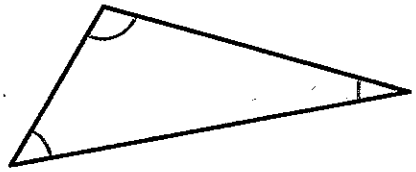
Classifying Triangles (by both Angle and Sides)

TRI 3

Instructions: For each triangle, mark the box from each catagory that matches its type. The marks on the sides of the triangles show when two sides are "congruent" or the same length.

1. 

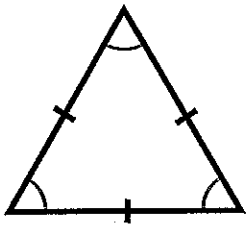
- [ ] Acute
- [x] Right
- [ ] Obtuse
- [ ] Equilateral
- [ ] Isosceles
- [x] Scalene

2. 

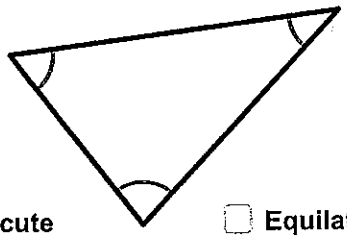
- [ ] Acute
- [ ] Right
- [ ] Obtuse
- [ ] Equilateral
- [ ] Isosceles
- [ ] Scalene

3. 

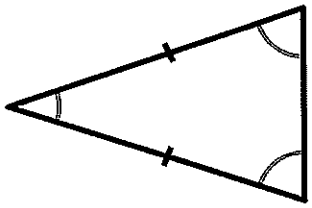
- [ ] Acute
- [ ] Right
- [ ] Obtuse
- [ ] Equilateral
- [ ] Isosceles
- [ ] Scalene

4. 

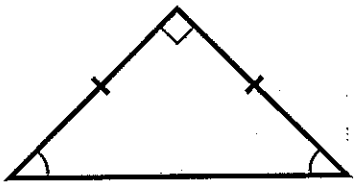
- [ ] Acute
- [ ] Right
- [ ] Obtuse
- [ ] Equilateral
- [ ] Isosceles
- [ ] Scalene

5. 

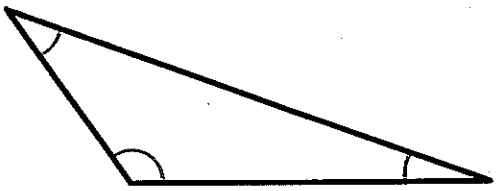
- [ ] Acute
- [ ] Right
- [ ] Obtuse
- [ ] Equilateral
- [ ] Isosceles
- [ ] Scalene

6. 

- [ ] Acute
- [ ] Right
- [ ] Obtuse
- [ ] Equilateral
- [ ] Isosceles
- [ ] Scalene

7. 

- [ ] Acute
- [ ] Right
- [ ] Obtuse
- [ ] Equilateral
- [ ] Isosceles
- [ ] Scalene

8. 

- [ ] Acute
- [ ] Right
- [ ] Obtuse
- [ ] Equilateral
- [ ] Isosceles
- [ ] Scalene

math Antics
Worksheets

Name: _____

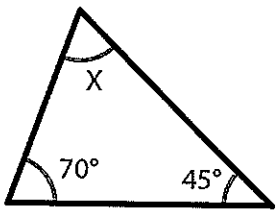
Date: _____

Finding an Unknown Angle

TRI 4

Instructions: For each triangle, find the unknown angle (X). Remember that for each triangle, the three interior angles must add up to 180 degrees.

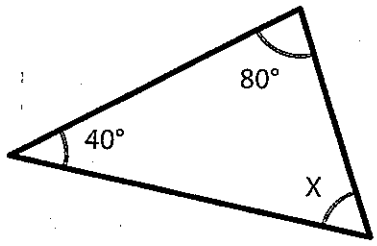
1



m∠X = 65°

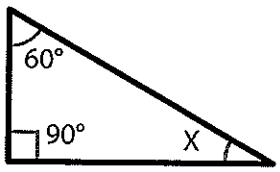
$$\begin{array}{r} 70 \\ +\ 45 \\ \hline 115 \end{array} \qquad \begin{array}{r} {}^{7}\cancel{1}{}^{1}\cancel{8}0 \\ -\ 115 \\ \hline 65 \end{array}$$

2



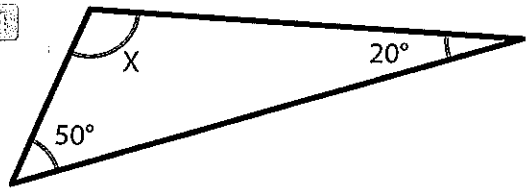
m∠X = _____

3



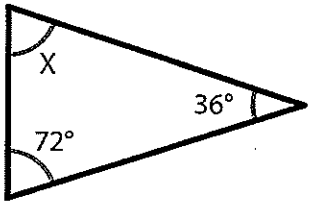
m∠X = _____

4



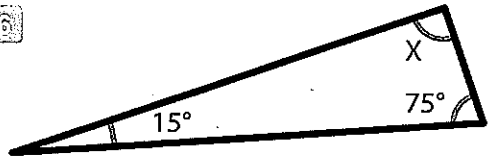
m∠X = _____

5



m∠X = _____

6



m∠X = _____

math Antics
Worksheets

Name: _____

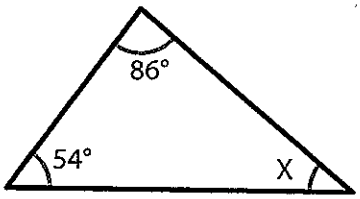
Date: _____

Finding an Unknown Angle - Set 2

TRI 5

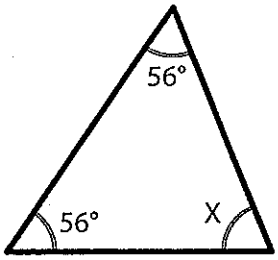
Instructions: For each triangle, find the unknown angle (X). Remember that for each triangle, the three interior angles must add up to 180 degrees.

1



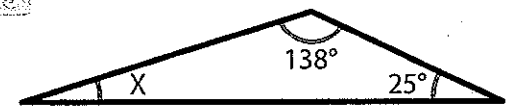
m∠X = _____

2



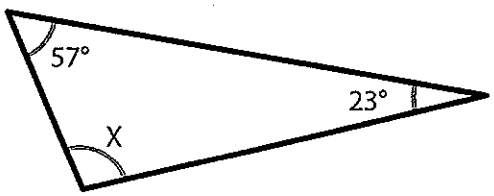
m∠X = _____

3



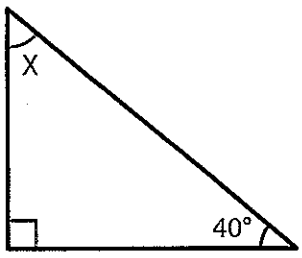
m∠X = _____

4



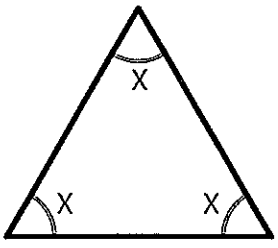
m∠X = _____

5



m∠X = _____

6 **An equilateral triangle always has three equal angles. What is their measure?**



m∠X = _____