Webster County Schools

95 CLARK AVENUE – EUPORA, MS 39744

Office of Curriculum

662-258-5551, Extension 15

packets@websterountyschools.org

6th Grade

Packet 3

May 4, 2020

Lesson 15 Part 1: Introduction

Analyzing the Structure of a Poem

MS CCRS RL.6.5: Analyze how a particular sentence . . . or stanza fits into the overall structure of a text and contributes to the development of the theme.

Theme: *Capturing Memories*

A poem is a little like a photograph. It captures an important moment or expresses a strong feeling. To get the most out of a poem, it helps to know that poems have a special **structure**, or type of organization. Structure can refer to how the lines or ideas of a poem are organized. Each line and stanza has its place. You need to put together the meaning of all of the individual lines to find the **theme**, or message, that the poem is trying to convey.

Read the the poem below, paying close attention to its meaning and structure.

A boat beneath a sunny sky,
Lingering onward dreamily
In an evening of July—

Children three that nestle near,
Eager eye and willing ear,
Pleased a simple tale to hear—

Long has paled that sunny sky:
Echoes fade and memories die:
Autumn frosts have slain July.

How is the poem organized? What is the poem's message?

The poet organizes the poem into stanzas of three lines. Think about what each stanza means. Then compare your ideas with those in the chart.

Stanza	Main Idea
1	A boat drifts peacefully as night draws near on a warm July day.
2	Children gather happily to enjoy a story.
3	Cold autumn weather has destroyed summer fun.

Each line of a poem contributes to the overall theme of the poem. Look again at the main ideas in the chart. Taken together, they convey the message that the speaker has fond, pleasant memories of summer and misses the fun and peacefulness of July.

Read the poem below in which the speaker talks about things he likes.

Genre: **Lyric Poem**

Motto *by Langston Hughes*

I play it cool
and dig all jive.
That's the reason
I stay alive.

My motto,
As I live and learn,
is:
Dig And Be Dug
In Return.

Explore how to answer this question: *"What do you notice about the structure, or organization, of this poem?"*

Poems are often organized into stanzas. A **stanza** is a group of lines that form a unit in a poem. Like a paragraph, each stanza has its own main idea. Taken together, these main ideas develop the poem's theme.

Complete the chart below by filling in the main idea for the poem's second stanza. Then explain a theme of this poem.

Stanza	Main Idea	Theme
1	Being relaxed and getting along with people is the key to life.	
2		

With a partner, take turns rereading the poem aloud. Then discuss how the poem's structure contributes to the poem's theme.

Read the poem below. Use the Close Reading and the Hint to help you answer the question.

Close Reading

Each stanza conveys a different feeling. **Underline** at least two details in each stanza that help create those feelings.

Genre: Lyric Poem

The Heart of a Woman

by Georgia Douglas Johnson

The heart of a woman goes forth with the dawn,
As a lone bird, soft winging, so restlessly on,
Afar o'er life's turrets and vales does it roam
In the wake of those echoes the heart calls home.

The heart of a woman falls back with the night,
And enters some alien cage in its plight,
And tries to forget it has dreamed of the stars
While it breaks, breaks, breaks on the sheltering bars.

Hint

Reread the first stanza. What message do the first and second lines of the stanza suggest?

Circle the correct answer.

Which of the following best describes a theme, or central message, of the poem?

A The heart of a woman is strong and can never be broken.

B The heart of a woman is restless and often feels trapped.

C The heart of a woman is happy and free to dream of the stars.

D The heart of a woman is dark and dreary like the night sky.

Show Your Thinking

Look at the answer you chose above. What words in that answer choice helped you know that it is the correct answer?

In a small group, list the words and phrases the poet uses to describe "the heart of a woman." Then discuss how the poem's structure helps support the theme.

Read the poem below. Use the Study Buddy and the Close Reading to guide your reading.

Genre: **Lyric Poem**

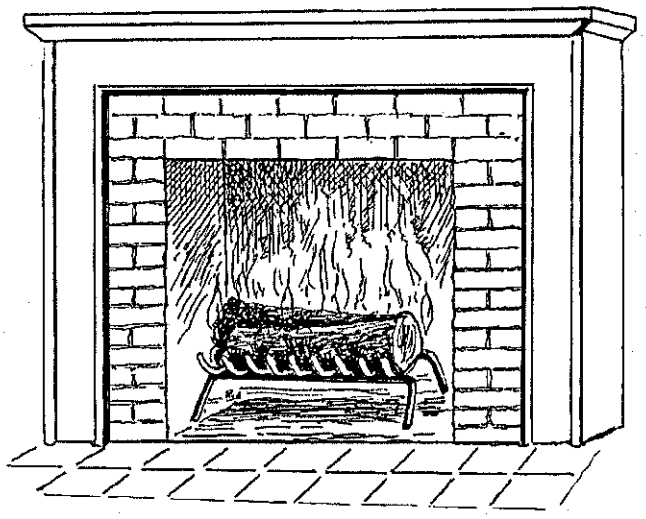
The speaker mentions the passage of time, which may be a clue about the poem's theme. I'll look for words in each stanza that relate to time and may contribute to the theme.

I Sit by the Fire and Think

by J. R. R. Tolkien

I sit beside the fire and think of all that I have seen,
of meadow-flowers and butterflies in summers that have been;
Of yellow leaves and gossamer in autumns that there were,
with morning mist and silver sun and wind upon my hair.
I sit beside the fire and think of how the world will be
when winter comes without a spring that I shall ever see.

For still there are so many things that I have never seen:
in every wood in every spring there is a different green.
I sit beside the fire and think of people long ago,
and people who will see a world that I shall never know.
But all the while I sit and think of times there were before,
I listen for returning feet and voices at the door.



Close Reading

The speaker repeats the phrase "I sit beside the fire and think of" in the first stanza. **Underline** words in the first stanza that explain what time frames the speaker is thinking about.

The speaker begins the second stanza with thoughts about the future. **Circle** the phrase that shows how the speaker feels about the future at the beginning of this stanza.

Hints

Which choice describes the speaker's thoughts in the opening and closing lines of the first stanza?

Which sentence in the second stanza best describes the speaker's thought process from the start of the poem to the end?

What does the speaker think about in the last two lines of the poem?

Use the Hints on this page to help you answer the questions.

1 Which best describes the first stanza?

A The speaker looks back on past events with sadness and deep regret.

B The speaker looks ahead to future events with excitement.

C The speaker thinks about the past and wonders about the future.

D The speaker thinks about all he has to do in the months ahead.

2 How does the idea of time contribute to the poem's structure?

A The speaker thinks about the past and then the future, and at the end he returns to the present.

B The speaker first thinks about what will happen in the future, wonders about the present, and then the past.

C The speaker thinks about the present autumn, then wonders what winter without spring would be like.

D The speaker recalls sitting by the fire during his youth, and remembers the sound of feet and voices.

3 State the theme of the poem. Give at least one example of a sentence from the poem that develops the poem's theme.

Read the ballad. Then answer the questions that follow.

Brennan on the Moor

a traditional Irish ballad

It's of a famous highwayman a story I will tell;
His name was Willy Brennan, in Ireland he did dwell;
And on the Kilworth mountains he commenced his wild career,
Where many a wealthy gentleman before him shook with fear.

Brennan on the Moor, Brennan on the Moor,
Bold and undaunted stood young Brennan on the Moor. . . .

One day, on the highway, as Willy he sat down,
He met the Mayor of Cashel a mile outside the town;
The Mayor, he knew his features—"I think, young man," said he,
"Your name is Willy Brennan—you must come along with me."

Brennan on the Moor, Brennan on the Moor,
Bold and undaunted stood young Brennan on the Moor.

As Brennan's wife had gone to town provisions for to buy,
When she saw her Willy, she began to weep and cry;
He says, "Give me that tenpenny." As soon as Willy spoke,
She handed him a blunderbuss, from underneath her cloak.

Brennan on the Moor, Brennan on the Moor,
Bold and undaunted stood young Brennan on the Moor.

Then with his loaded blunderbuss—the truth I will unfold—
He made the Mayor tremble, and robbed him of his gold;
One hundred pounds were offered for his apprehension there,
And he, with his horse and saddle, to the mountain did repair.

Brennan on the Moor, Brennan on the Moor,
Bold and undaunted stood young Brennan on the Moor.

Then Brennan being an outlaw, upon the mountain high,
With cavalry and infantry to take him they did try;
He laughed at them with scorn, until at length, it's said;
By a false-hearted woman he basely was betrayed.

Brennan on the Moor. Brennan on the Moor.
Bold and undaunted stood young Brennan on the Moor. . . .

So they were taken prisoners, in irons they were bound,
And conveyed to Clonmel Jail, strong walls did them surround;
They were tried and found guilty—the Judge made this reply:
"For robbing on the king's highway, you're both condemned to die."

Brennan on the Moor, Brennan on the Moor,
Bold and undaunted stood young Brennan on the Moor.

When Brennan heard his sentence, he made this reply;
"I own that I did rob the rich, and did the poor supply;
In all the deeds that I have done I took no life away;
The Lord have mercy on my soul against the judgment day."

Brennan on the Moor, Brennan on the Moor,
Bold and undaunted stood young Brennan on the Moor. . . .

Answer the following questions.

1 Which of the following **best** describes the poem's organization?

A stanzas of two lines in which the end words of each line rhyme

B stanzas of four lines throughout with every other end word rhyming

C a pattern of two-, four-, and six-line stanzas with a changing rhyme scheme

D alternating stanzas of four lines and two lines with a consistent rhyme scheme

2 Which **best** describes a purpose of the four-line stanzas in the poem?

A Each adds a new theme to the poem's meaning.

B Each advances the story's plot.

C Each marks a new time and place in the chronology.

D Each repeats the same phrase about the main character.

E Each shows another aspect of the character's personality.

F Each describes an episode in chronological order.

3 The structure of the poem uses lines of consistently similar length. Which **best** describes a reason this text feature is used in the poem?

A It shows all events in the poem are equally important.

B It makes it easier for the poet to find rhyming end words.

C It allows the poet to create a steady rhythm throughout.

D It makes the sometimes difficult phrasing easier to read.

4 This question has two parts. Answer Part A, and then answer Part B.

Part A

What effect does the repetition of the lines "Brennan on the Moor, Brennan on the Moor / Bold and undaunted stood young Brennan on the Moor" have on the meaning of the poem?

A It reminds the reader that Brennan is a bad guy.

B It reminds the reader that Brennan is brave.

C It reminds the reader that Brennan is from the Moor.

D It reminds the reader that Brennan is young.

Part B

Which line from the poem creates the meaning in the answer of Part A?

A "It's of a famous highwayman a story I will tell;"

B "He made the Mayor tremble, and robbed him of his gold;"

C "Then Brennan being an outlaw, upon the mountain high,"

D "In all the deeds that I have done I took no life away;"

Self Check *Go back and see what you can check off on the Self Check on page 128.*

COMMONLIT

Name: _____ Class: _____

Growing Down

By Shel Silverstein
2011

Sheldon Allan "Shel" Silverstein (1930-1999) was an American poet, cartoonist, screenwriter, and author of children's books. His books have sold over 20 million copies. In the following poem, a speaker tells an adult that he should try "growing down" rather than growing up. As you read, take notes on what it means to grow up and to "grow down".

Mix a grunt and a grumble, a sneer and a frown,
And what do you have? Why old Mr. Brown,
The crabbiest man in our whole darn town.
We all called him Grow-Up Brown:
For years each girl and boy and pup
Heard "Grow up, grow up, grow up."
He'd say, "Why don't you be polite?
Why must you shout and fuss and fight?
Why can't you keep dirt off your clothes?
Why can't you remember to wipe your nose?
Why must you always make such noise?
Why don't you go pick up your toys?
Why do you hate to wash your hands?
Why are your shoes all filled with sand?
Why must you shout when I'm lying down?
Why don't you grow up?" grumped Grow-Up Brown.

One day we said to Grow-Up Brown,
"Hey, why don't you try growing down?
Why don't you crawl on your knees?
Why don't you try climbing trees?
Why don't you bang on a tin-can drum?
Why don't you chew some bubble gum?
Why don't you play kick-the-can?
Why don't you not wash your hands?
Why don't you join the baseball team?
Why don't you yell and jump and scream?
Why don't you try skipping stones?
Why don't you eat ice cream cones?
Why don't you cry when you feel sad?
Why don't you cuddle with your dad?
Why don't you have weenie roasts?
Why don't you believe in ghosts?
Why don't you have pillow fights?
Why don't you sleep with your teddy at night?
Why don't you swing from monkey bars?
Why don't you wish on falling stars?
Why don't you run in three-legged races?
Why don't you make weirdie faces?
Why don't you smile, Grow-Up Brown?
Why don't you try growing down?"
Then Grow-Up Brown, he scrunched and frowned
And scratched his head and walked around,
And finally he said with a helpless sound,
"Maybe I will try growing down."

So Grow-Up Brown began to sing
And started doing silly things:
He started making weirdie faces
And came in first in three-legged races.
All day he swung from monkey bars,
All night he'd lie and count the stars.
He tooted horns, he banged on drums,
He spent twenty bucks on chewing gum,
He went to all the weenie roasts
And once he thought he saw a ghost.
He got to be great at pillow fights
And went to sleep with his teddy at night.
He flew a kite, he kicked a can,
He rubbed some dirt upon his hands.
He drew some pictures, threw some stones,
Ate forty-seven ice cream cones.
He got some sand between his toes,
Got a loose tooth and a bloody nose.
He got a dog, they rolled in mud.
He imitated Elmer Fudd.[1]
He climbed a roof (though no one asked),
He broke his wrist — he wore a cast.
He rolled down hills, he climbed up trees,
He scuffed his elbows, skinned his knees,
He tried to join the baseball team;
When they said no, he spit and screamed.
He cried when he was feeling sad
And went and cuddled with his dad.
He wore a hat that didn't fit,
He learned just how far he could spit,
He learned to wrestle and get tickled,
Sucked his thumb, he belched and giggled.
He got his trousers torn and stained,
He ran out barefoot in the rain,
Shouting to all the folks in town,
"It's much more fun, this growin' down."

1. a fictional cartoon character

Discussion Questions

Directions: Brainstorm your answers to the following questions in the space provided. Be prepared to share your original ideas in a class discussion.

1. What are some activities that your parents take part in that the speaker would consider an example of "growing down?"

2. What do you think it would be like if adults started acting like children? Would this be good or bad? Why?

3. In the context of the poem, why should we value our youth? What does Mr. Brown experience when he acts how the speaker suggests? Cite evidence from this text, your own experience, and other literature, art, or history in your answer.

4. In the context of the poem, how can we achieve happiness? Why do you think acting like a child brings Mr. Brown joy? Have you taken part in any of the activities listed by the speaker? How did they make you feel?

Text-Dependent Questions

Directions: For the following questions, choose the best answer or respond in complete sentences.

1. PART A: Which of the following best describes the theme of the poem? [RL.2]
   A. Children's innocence allows them to better appreciate the small joys of life.
   B. While it may be less fun to grow up, eventually all children need to.
   C. Children don't have the worries or cares that adults do.
   D. Adults are unable to understand the joy that children get from life.

2. PART B: Which detail from the poem best supports the answer to Part A? [RL.1]
   A. "Mix a grunt and a grumble, a sneer and a frown, / And what do you have? Why old Mr. Brown" (Lines 1-2)
   B. "'Why must you shout when I'm lying down? / Why don't you grow up?' grumped Grow-Up Brown." (Lines 15-16)
   C. "When they said no, he spit and screamed. / He cried when he was feeling sad" (Lines 70-71)
   D. "It's much more fun, this growin' down." (Line 80)

3. What does it mean when the speaker suggests Mr. Brown "try growing down" in line 18? [RL.4]
   A. to be nicer
   B. to act younger
   C. to stop aging
   D. to be less responsible

4. Which statement best describes the main difference between the speaker and Mr. Brown? [RL.3]
   A. The speaker is a child who embraces life, while Mr. Brown is an adult who originally doesn't.
   B. The speaker is a happy child who enjoys life, while Mr. Brown is an unhappy child.
   C. The speaker is an adult who embraces life, while Mr. Brown is an unhappy adult who has no fun.
   D. The speaker is a child trying to grow up, while Mr. Brown is trying to "grow down."

5. How does stanza 3 contribute to the overall theme of the poem? [RL.5]

Name _____

log, logue word

Root

apology – *n.* a statement saying you are sorry about something; an expression of regret for having done or said something wrong. *Kristina gave me an apology for the way she acted at the party.*

dialogue – *n.* the things that are said by the characters in a story, movie, or play. *Find two examples of figurative language in the dialogue in the story.*

epilogue – *n.* a final section or speech after the main part of a book, play, or musical composition. *The epilogue explained what happened to the main character after the novel's conclusion.*

eulogy – *n.* a speech that praises or honors someone who has died. *The priest delivered the eulogy at the funeral.*

monologue – *n.* a long speech given by a character in a story, movie, or play, or by a performer. *Angela was nervous because her part in the play included a monologue.*

mono-, uni- one

Prefix

monopoly – *n.* complete control of the entire supply of goods or of a service in a certain area or market; complete ownership or control of something. *Mrs. Becker has a monopoly on special occasion cakes in our city.*

monotonous – *n.* something that is boring because it is always the same. *She read the book in a monotonous voice, and I felt myself nodding off.*

monogamy – *n.* the state or practice of being married or partnered to only one person at a time. *Many birds practice monogamy.*

unison – *n.* a process in which something is done or achieved together at the same time. *Teachers and parents worked in unison to beautify the school yard.*

universal – *n.* done or experienced by everyone; existing or available for everyone; existing or true at all times or in all places. *A forward head nod is the universal human sign for yes.*

Name _____

A. Understand Words

Directions: Write the vocabulary word for each definition below.

_____ 1. a long speech given by a character in a story, movie, or play, or by a performer

_____ 2. a speech that praises or honors someone who has died

_____ 3. a statement saying you are sorry about something; an expression of regret

_____ 4. the things that are said by the characters in a story, movie, or play

_____ 5. a final section or speech after the main part of a book, play, or musical composition

_____ 6. a process in which something is done or achieved together at the same time

_____ 7. done or experienced by everyone; existing or available for everyone

_____ 8. something that is boring because it is always the same

_____ 9. a complete control of the entire supply of goods or of a service in a certain area or market

_____ 10. the state or practice of being married or partnered to only one person at a time

B. Rewrite Definitions

Directions: Reread the definitions and sentence examples for each word. Then, write your own definition for each word that contains *no more than five* words **and** uses the root or prefix meaning as part of the definition. An example is done for you.

11. apology: express regret with words

12. dialogue: _____

13. epilogue: _____

14. eulogy: _____

15. monologue: _____

16. monopoly: _____

17. monotonous: _____

18. monogamy: _____

19. unison: _____

20. universal: _____

Name _____

A. Crossword Puzzle

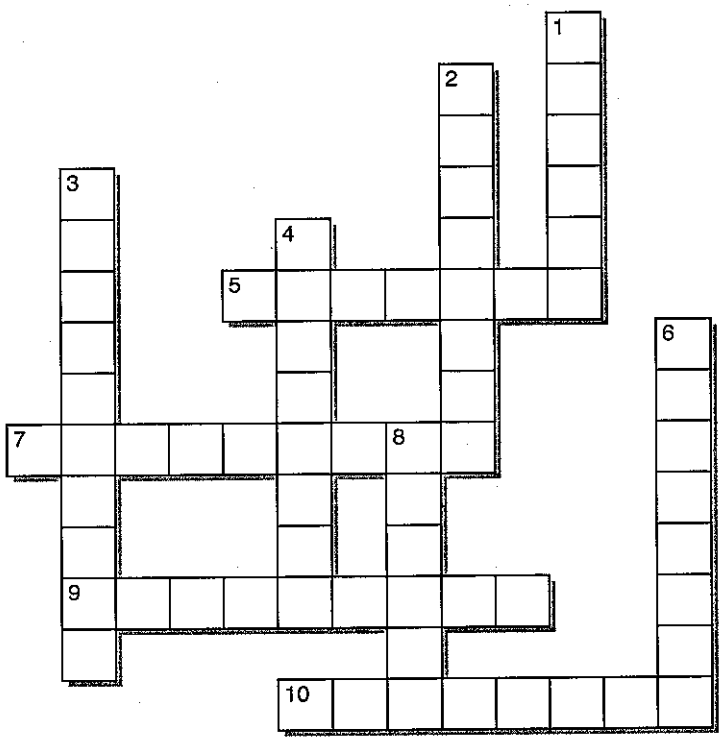
Directions: Read the abbreviated definitions and complete the puzzle.

Across

5. sorry
7. long speech by a character
9. experienced by everyone
10. complete control

Down

1. speech that praises someone who has died
2. said by characters
3. boring
4. final section
6. partnered with one person
8. done together



B. Which Word Does Not Belong?

Directions: Choose the word that is not related to the vocabulary word given.

11. apology	a. sorry	b. revenge	c. remorse	d. regret
12. dialogue	a. talk	b. setting	c. script	d. words
13. epilogue	a. postscript	b. end	c. introduction	d. afterword
14. eulogy	a. praise	b. funeral	c. excite	d. tribute
15. monologue	a. sermon	b. speech	c. lecture	d. humor

C. Synonyms or Antonyms?

Directions: Read the words and decide if they are synonyms or antonyms.

16. monopoly/distribution	a. synonyms	b. antonyms
17. monotonous/invigorating	a. synonyms	b. antonyms
18. monogamy/polygamy	a. synonyms	b. antonyms
19. unison/synchronous	a. synonyms	b. antonyms
20. universal/global	a. synonyms	b. antonyms

Name _____

A. Fill in the Blanks

Directions: Read each sentence and choose the word that best fits the sentence.

apology
dialogue
epilogue
eulogy
monologues
monopoly
monotonous
monogamy
unison
universal

1. I owe you an _____ for packing the wrong type of sandwich in your lunch.
2. The automated voice on the phone was so _____ that Brittney fell asleep before the part she needed to hear!
3. The actors need to run through the _____ a few more times to make sure everything is ready for tonight's performance.
4. A book is sometimes preceded by a prologue and followed by an _____.
5. Shakespeare's plays are famous for having numerous _____ in them.
6. There seemed to be a _____ on soap in Vienna; we could only find one brand for hand soap, dish soap and laundry detergent!
7. The _____ given at Sam's funeral was absolutely beautiful.
8. Humans are one of only a few species who believe in _____.
9. Death is the most _____ experience possible, and it is also the most personal.
10. When the bell rings, you are to turn your papers over in _____.

B. True or False

Directions: Read each statement. If the bold word is used properly in the sentence, circle the **T** for **True**. If the bold word is used incorrectly in the sentence, circle the **F** for **False**.

T **F** 11. The cheerleaders couldn't stop **apologizing** to the players for how well they played.

T **F** 12. The play's **dialogue** closely resembled some of Shakespeare's.

T **F** 13. The end of the book contained an **epilogue** and a sneak peek of the sequel.

T **F** 14. The pastor delivered a **eulogy**, speaking especially about the nice weather we've had.

T **F** 15. The chocolate birthday cake was so **monologue** that Jake wasn't sure he could eat it all.

T **F** 16. Susan's **monogamy** in the middle of the play was about her college days.

T **F** 17. Jennie enjoyed her **monopoly** on neighborhood babysitting.

T **F** 18. The author's voice was so **monotonous** that I left in the middle of the reading.

T **F** 19. After he lost an eye in a childhood illness, Kyle became **unison**.

T **F** 20. Do humans understand their **universal** significance as well as their individual significance?

Name _____

A. Fill in the Blanks

Directions: Change the form of the vocabulary words below to fill in the table.

	noun	verb	adjective	adverb
1	apology			
2	eulogy		X	X
3	monopoly		X	X
4	monogamy	X		
5		X	monotonous	

B. Analogies

Directions: Fill in the blanks to complete the analogies.

6. mute :: silence
   conversation :: _____
7. beginning :: prologue
   end :: _____
8. not together :: sporadic
   together :: _____
9. one :: _____
   more than one :: dialogue
10. individual experience :: local
    shared experience :: _____

C. Adding Prefixes

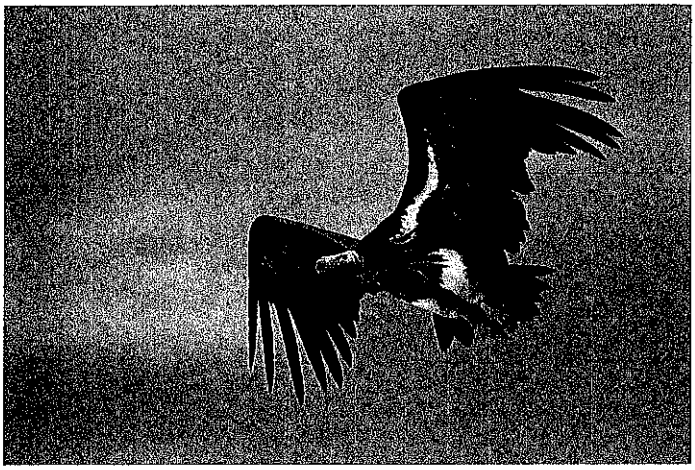
Directions: Change the prefix for each number-related word below to **uni-** or **mono-**.

11. bicycle _____
12. dioxide _____
13. quadrilateral _____
14. bicellular _____
15. diagram _____
16. ditheism _____
17. disyllabic _____
18. dichromatic _____
19. bivalve _____
20. bigamy _____

Name: _____

Valuable Vultures

by Guy Belleranti



What do you think of when you hear the word "vulture"? Many people think vultures are icky because they eat the remains of other animals. While it's true that most vultures are scavengers that eat carrion (dead animals), this is actually a really good thing! By eating carrion, vultures help prevent the spread of disease into our soil and water. This makes vultures very valuable!

Biologists divide vultures into two groups – Old World and New World. Old World vultures live in Africa, Asia, and Europe. New World vultures live North, Central, and South America. There are no vultures in Australia or Antarctica. Old World and New World vultures are not close relatives. Still, they do have things in common:

- Many, have bald or lightly feathered heads. This helps keep their heads clean when they consume the meat of other animals.
- They have sharp, hooked beaks for ripping meat apart.
- Their strong stomach acids kill bacteria that would make most animals sick.

Also, both Old World and New World vultures have large wings and can glide without flapping them. This helps them save energy when they're searching for food. This is especially important for large, heavy vultures like South America's Andean condor, North America's extremely endangered California condor, and Asia's Himalayan vulture.

Vultures hunt during the day, when most other animal scavengers are sleeping. Old World vultures often glide over open areas like grasslands and deserts. Great eyesight helps them spot dead animals. Many New World vultures live in rain forests where plants make the ground difficult to see. Three species, the turkey vulture and the greater and lesser yellow-

headed vultures, use their great sense of smell to find food. This is unusual, since most birds can barely smell at all.

Vultures must eat fast, or risk losing food to larger vultures. They store most of their meal in a throat pouch (or crop) for eating at another time. In order to find their next meal, vultures will often watch other vultures and follow the one who's found something to eat.

Not all vultures rely solely on scavenging to get their food. For example, some Old World vultures use their tough, eagle-like feet and sharp beaks to hunt and kill prey, as well as eating carrion. You might be surprised to learn that one Old World vulture, the palm-nut vulture, is primarily vegetarian. While it does eat meat, it prefers the fruit of oil palms. It has a feathered head, and when it does eat meat, it's usually small live animals, not carrion.

Now you know that vultures aren't just valuable, there's quite a variety of them!

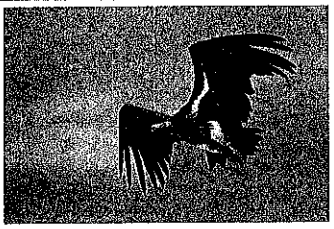
About the Author

Guy Belleranti is an author of fiction, poetry, articles, puzzles, and humor for children and adults. He also works as a docent at the Reid Park Zoo in Tucson, Arizona. The information in this article comes from his experiences teaching children about the wild animals at the zoo.

Name: _____

Valuable Vultures

by Guy Belleranti



1. Based on the information you read in the article, why are you more likely to spot vultures feeding in a group rather than eating alone?

   a. Vultures must work together to attack and kill their prey.
   b. Vultures flock to wherever another vulture has already found food.
   c. Vultures eat together to protect each other from being attacked by predators.
   d. Vultures feed in groups so they can attract a mate.

2. In the article, you learned about Old World vultures and New World vultures.

   Below are descriptions of several species of vultures. On the line next to each description, write **OW** if it is an Old World vulture being described or **NW** if it is a New World vulture being described.

   _____ The palm-nut vulture inhabits forests and grasslands in Africa.

   _____ The turkey vulture is commonly seen across the Americas and into Canada.

   _____ The king vulture resides in Central and South America.

   _____ You can find the white-rumped vulture in India, Pakistan, Bangladesh, and Nepal.

3. What advantage do vultures have over other scavengers in searching for food?

   a. Vultures have better hearing than other scavengers.
   b. Vultures are more aggressive than other scavengers.
   c. Vultures search for food during the day, while others scavengers are asleep.
   d. Vultures are faster than other scavengers.

4. Which of the vulture's five senses is most unusual and why?

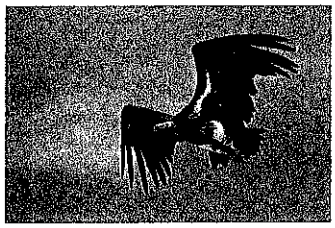
   _____

   _____

Name: _____

Valuable Vultures

by Guy Belleranti



The scrambled words below are vocabulary words from the article. Unscramble each word and write it on the line. Be sure each word is spelled correctly.

1. _____ v e s a g c r n s e
hint: animals that eat dead or decaying matter

2. _____ e i e n a v a g r t
hint: eating only plants

3. _____ g e d r n e a n d e
hint: at risk of becoming extinct

4. _____ i l b g t s o i s o
hint: scientists that study living things

5. _____ a t v r i y e
hint: a wide array; diversity

6. _____ s c m u e n o
hint: ingest; eat or drink

7. _____ c i b r e a t a
hint: single-celled organisms that can cause disease

8. _____ p f i p a l g n
hint: moving wings up and down in order to fly

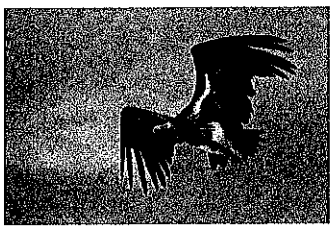
9. _____ r e t p n v e
hint: keep something from happening

10. _____ s g d s a r s l n a
hint: large open areas covered with grass

Name: _____

Valuable Vultures

by Guy Belleranti



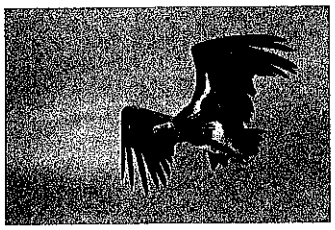
In the article, "Valuable Vultures," you learned that even though many people think vultures are gross because they eat dead animals, they are actually helpful to their environment.

Think of another animal that has a bad reputation (people don't like that animal very much). On the lines below, explain why that animal is actually valuable to its surroundings.

ANSWER KEY

Valuable Vultures

by Guy Belleranti



1. Based on the information you read in the article, why are you more likely to spot vultures feeding in a group rather than eating alone? b

   a. Vultures must work together to attack and kill their prey.
   b. Vultures flock to wherever another vulture has already found food.
   c. Vultures eat together to protect each other from being attacked by predators.
   d. Vultures feed in groups so they can attract a mate.

2. In the article, you learned about Old World vultures and New World vultures.

   Below are descriptions of several species of vultures. On the line next to each description, write **OW** if it is an Old World vulture being described or **NW** if it is a New World vulture description.

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   a. Vultures have better hearing than other scavengers.
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   c. Vultures search for food during the day, while others scavengers are asleep.
   d. Vultures are faster than other scavengers.

4. Which of the vulture's five senses is most unusual and why?

   Vultures have a great sense of smell. This is unusual because most birds can hardly smell at all.

ANSWER KEY

Valuable Vultures

by Guy Belleranti

The scrambled words below are vocabulary words from the article. Unscramble each word and write it on the line. Be sure each word is spelled correctly.

1. **scavengers** — v e s a g c r n s e
   hint: animals that eat dead or decaying matter

2. **vegetarian** — e i e n a v a g r t
   hint: eating only plants

3. **endangered** — g e d r n e a n d e
   hint: at risk of becoming extinct

4. **biologists** — i l b g t s o i s o
   hint: scientists that study living things

5. **variety** — a t v r i y e
   hint: a wide array; diversity

6. **consume** — s c m u e n o
   hint: ingest; eat or drink

7. **bacteria** — c i b r e a t a
   hint: single-celled organisms that can cause disease

8. **flapping** — p f i p a l g n
   hint: moving wings up and down in order to fly

9. **prevent** — r e t p n v e
   hint: keep something from happening

10. **grasslands** — s g d s a r s l n a
    hint: large open areas covered with grass

COMMONLIT

Name: _____ Class: _____

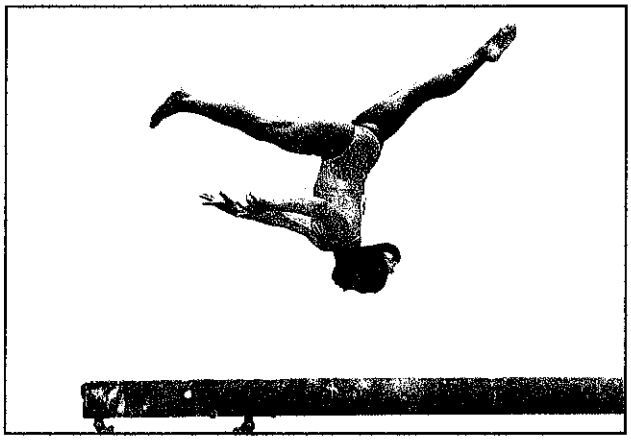
Simone Biles

This gymnast lets her power and personality shine.

By Marty Kaminsky
2016

Simone Biles is an American gymnast who competed in the 2016 Summer Olympics. In this informational text, Marty Kaminsky discusses Biles' life and success in gymnastics. As you read, take notes on how Biles became an Olympic gymnast.

[1] The crowd stirs as 16-year-old gymnast Simone Biles mounts the balance beam at the 2013 World Artistic Gymnastics Championships in Belgium.



"Simone Biles" by Courtesy of iStock/mustafahacalaki and iStock/ KrizzDaPaul is used with permission.

The beam is 4 feet high, 16 feet 5 inches long, and only 4 inches wide. Walking across its surface would be a challenge for most people, but Simone must do far more than that to earn a gold medal. During her 90-second performance, Simone must leap high in the air, spin completely around on one foot, and execute handsprings[1] and flips without falling off the beam or landing awkwardly.

To start her routine, the 4-foot-8-inch athlete pirouettes[2] on one foot two and a half times, then pulls off a flawless split leap. The audience gasps with each move, but Simone is calm as she dances on the beam. She completes her routine with a full twisting double back.[3] After flying high through the air, Simone lands on her feet, and the crowd roars.

The judges are impressed, too, rewarding Simone with her first All-Around[4] title.

Making Her Mark

[5] Since then, Simone has taken the gymnastics world by storm. She is the first female to win three straight All-Around World Championships, earning a total of 14 medals, 10 of them gold.

At the 2016 Olympics in Rio de Janeiro, Brazil, Simone added five medals to her total: golds in team, individual all-around, vault, and floor exercise, and bronze on beam.

1. a jump through the air onto one's hands, followed by springing over onto one's feet
2. a spin
3. a jump from a backwards position into a back flip in a stretched out position with a full 360 degree rotation that occurs during the flip, followed by a second back flip
4. "all-around" refers to a gymnast who competes in every gymnast event

Talent at a Young Age

Life was not always easy for Simone. Her birth mother was unable to care for her children. Simone's grandparents, Ron and Nellie Biles, adopted Simone and her younger sister, Adria. Their new dad and mom moved the girls from Ohio to their home in Texas.

Simone loved to climb their five-foot-high mailbox and somersault to the ground. On a field trip with her daycare class, six-year-old Simone was introduced to her sport at Bannon's Gymnastix. In no time flat,[5] she started copying the gymnasts, drawing the attention of the instructors.

"I loved the idea of flipping around, and the center saw something in me, so they sent home a letter to my parents encouraging me to join," Simone explains. "Right from the start, I was fearless and willing to try anything and everything."

[10] Simone advanced quickly. At age seven, she began performing competitively. In 2011, she placed first on vault and balance beam at the American Classic. Her debut[6] as an international gymnast was in March 2013 at a World Cup event.

Bubbly and Genuine

Simone is known for her power and upbeat personality. She often plays to the crowd, flashing a big smile as she performs in the floor exercise.

In order to master the variety of skills needed to excel[7] at the four events in her sport, Simone trains five to six hours a day, year-round.

Simone's coach, Aimee Boorman, appreciates her hard work and personality. "Simone is bubbly. She loves to laugh, is genuine and real. When she wins and is given flowers on the medal podium, she searches out the shyest child in the crowd and gives her the flowers."

How does Simone handle the pressures of life as an athlete? "It is important to embrace the moment," she says. "Remember to have as much fun as you can, but keep in mind, win or lose, you still have your whole life ahead. You can achieve anything that you put your mind to."

5. a phrase meaning "very quickly"
6. a person's first appearance or performance in a role
7. **Excel** ***(verb):*** to pass others in skill

Text-Dependent Questions

Directions: For the following questions, choose the best answer or respond in complete sentences.

1. PART A: Which statement best expresses the central idea of the text?
   - A. Simone Biles' positive attitude has come from her success in gymnastics and relatively easygoing life.
   - B. From a young age, Simone Biles was a natural gymnast and often didn't have to train for competitions.
   - C. Simone Biles' great attitude and commitment to the sport has helped her succeed in gymnastics.
   - D. Competitors are often frightened of Simone Biles because of her skills and serious attitude.

2. PART B: Which TWO details from the text best support the answer to Part A?
   - A. "She completes her routine with a full twisting double back. After flying high through the air, Simone lands on her feet, and the crowd roars." (Paragraph 3)
   - B. "Life was not always easy for Simone. Her birth mother was unable to care for her children." (Paragraph 7)
   - C. "On a field trip with her daycare class, six-year-old Simone was introduced to her sport at Bannon's Gymnastix." (Paragraph 8)
   - D. "'I loved the idea of flipping around, and the center saw something in me, so they sent home a letter to my parents encouraging me to join'" (Paragraph 9)
   - E. "In order to master the variety of skills needed to excel at the four events in her sport, Simone trains five to six hours a day, year-round." (Paragraph 12)
   - F. "'Remember to have as much fun as you can, but keep in mind, win or lose, you still have your whole life ahead. You can achieve anything that you put your mind to.'" (Paragraph 14)

3. Which of the following describes how the author introduces Simone Biles?
   - A. as a talented gymnast who impresses the crowd and judges
   - B. as a committed athlete who works nonstop for what she has
   - C. as a talented gymnast who isn't treated fairly by the judges
   - D. as a serious athlete who values winning over all else

4. How do paragraphs 5-6 contribute to the development of ideas in the text?
   - A. They show how long Simone Biles has been competing in gymnastics.
   - B. They help readers understand how hard Simone Biles has worked.
   - C. They stress that sometimes even Simone Biles doesn't win gold.
   - D. They emphasize Simone Biles' widespread success in gymnastics.

5. Which of the following describes the connection between Biles' training and her success?

Discussion Questions

Directions: Brainstorm your answers to the following questions in the space provided. Be prepared to share your original ideas in a class discussion.

1. In the text, the author describes Simone Biles as committed to gymnastics. What is something that you're committed to? How did you discover your love for this activity? What do you do to improve at it?

2. Simone Biles has won various gold medals at the All-Around World Championships and the 2016 Summer Olympics. What do you think contributed to her success? What traits do you think are the most important to success?

3. Simone Biles loves gymnastics but tries to live in the moment, win or lose. Do you think this is why Biles portrays happiness and seems upbeat to her audience? How can you incorporate this mindset into something you love so that it shows?

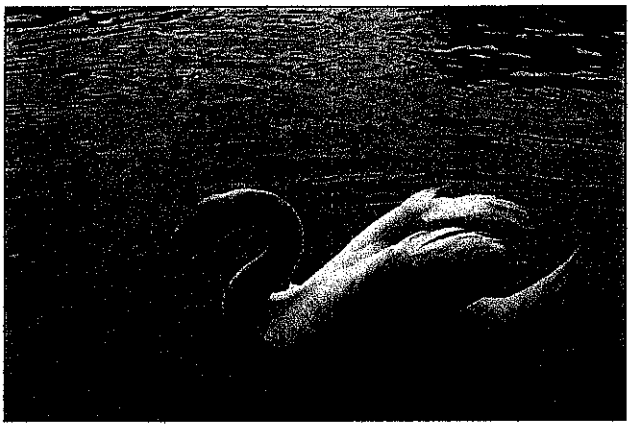
Name: _____ Class: _____

The Third Wish

By Joan Aiken
1974

Joan Delano Aiken (1924-2004) was an English writer who specialized in supernatural fiction and children's alternative history novels. In this short story, a man receives three wishes after saving a swan who turns out to be the King of the Forest. Unfortunately, his wishes do not pan out as he expects them to. As you read, take note of how the characters change throughout this short story.

[1] Once there was a man who was driving in his car at dusk on a spring evening through part of the forest of Savernake.[1] His name was Mr. Peters. The primroses[2] were just beginning but the trees were still bare, and it was cold; the birds had stopped singing an hour ago.



"Swan" by Mark Doliner is licensed under CC BY 2.0

As Mr. Peters entered a straight, empty stretch of road he seemed to hear a faint crying, and a struggling and thrashing,[3] as if somebody was in trouble far away in the trees. He left his car and climbed the mossy bank beside the road. Beyond the bank was an open slope of beech trees leading down to thorn bushes through which he saw the gleam of water. He stood a moment waiting to try and discover where the noise was coming from, and presently heard a rustling and some strange cries in a voice which was almost human — and yet there was something too hoarse about it at one time and too clear and sweet at another. Mr. Peters ran down the hill and as he neared the bushes he saw something white among them which was trying to extricate[4] itself; coming closer he found that it was a swan that had become entangled in the thorns growing on the bank of the canal.

The bird struggled all the more frantically[5] as he approached, looking at him with hate in its yellow eyes, and when he took hold of it to free it, hissed at him, pecked him, and thrashed dangerously with its wings which were powerful enough to break his arm. Nevertheless he managed to release it from the thorns, and carrying it tightly with one arm, holding the snaky head well away with the other hand (for he did not wish his eyes pecked out), he took it to the verge of the canal and dropped it in.

1. a forest located in Wiltshire, England
2. pale yellow flowers
3. violent movement
4. to free from a trap or difficulty
5. **Frantic** ***(adjective):*** feeling or showing a lot of fear and worry through wild, hurried activity

The swan instantly assumed great dignity[6] and sailed out to the middle of the water, where it put itself to rights with much dabbling and preening,[7] smoothing its feathers with little showers of drops. Mr. Peters waited, to make sure that it was all right and had suffered no damage in its struggles. Presently the swan, when it was satisfied with its appearance, floated to the bank once more, and in a moment, instead of the great white bird, there was a little man all in green with a golden crown and long beard, standing by the water. He had fierce glittering eyes and looked by no means friendly.

[5] "Well, Sir," he said threateningly, "I see you are presumptuous[8] enough to know some of the laws of magic. You think that because you have rescued — by pure good fortune — the King of the Forest from a difficulty, you should have some fabulous reward."

"I expect three wishes, no more and no less," answered Mr. Peters looking at him steadily and with composure.[9]

"Three wishes he wants, the clever man! Well, I have yet to hear of the human being who made and good use of his three wishes — they mostly end up worse off than they started. Take your three wishes then — "he flung three dead leaves in the air " — don't blame me if you spend the last wish in undoing the work of the other two."

Mr. Peters caught the leaves and put two of them carefully in his notecase. When he looked up the swan was sailing about in the middle of the water again, flicking the drops angrily down its long neck.

Mr. Peters stood for some minutes reflecting on how he should use his reward. He knew very well that the gift of three magic wishes was one which brought trouble more often than not, and he had no intention of being like the forester who first wished by mistake for a sausage, and then in rage wished it on the end of his wife's nose, and then had to use his last wish in getting it off again.[10] Mr. Peters had most of the things which he wanted and was very content with his life. The only thing that troubled him was that he was a little lonely, and had no companion for his old age. He decided to use his first wish and to keep the other two in case of an emergency. Taking a thorn he pricked his tongue with it, to remind himself not to utter rash[11] wishes aloud. Then holding the third leaf and gazing round him at the dusky[12] undergrowth, the primroses, great beeches and the blue-green water of the canal, he said:

[10] "I wish I had a wife as beautiful as the forest."

A tremendous[13] quacking and splashing broke out on the surface of the water. He thought that it was the swan laughing at him. Taking no notice he made his way through the darkening woods to his car, wrapped himself up in the rug and went to sleep.

When he awoke it was morning and the birds were beginning to call. Coming along the track toward him was the most beautiful creature he had ever seen, with eyes as blue-green as the canal, hair as dusky as the bushes, and skin as white as the feathers of swans.

6. **Dignity** *(noun):* a sense of importance and value; pride; self-respect
7. Dabble means to dip one's hands or feet in water and move them around gently. Preen refers to when a bird straightens and cleans its feathers with its beak.
8. **Presumptuous** *(adjective):* going beyond what is proper; too confident, especially in a way that is rude
9. **Composure** *(noun):* calmness of mind, manner, or appearance
10. a reference to a French literary fairy tale titled "The Ridiculous Wishes" by Charles Perrault
11. **Rash** *(adjective):* doing something quickly and without thinking carefully about the results
12. darkish in color
13. **Tremendous** *(adjective):* very great in amount, size, or degree

"Are you the wife that I wished for?" asked Mr. Peters.

"Yes I am." she replied. "My name is Leita."

[15] She stepped into the car beside him and they drove off to the church on the outskirts of the forest, where they were married. Then he took her to his house in a remote[14] and lovely valley and showed her all his treasures — the bees in their white hives, the Jersey cows, the hyacinths,[15] the silver candlesticks, the blue cups and the luster bowl for putting primroses in. She admired everything, but what pleased her most was the river which ran by the foot of his garden.

"Do swans come up here?" she asked.

"Yes, I have often seen swans there on the river," he told her, and she smiled.

Leita made him a good wife. She was gentle and friendly, busied herself about the house and garden, polished the bowls, milked the cows and mended[16] his socks. But as time went by Mr. Peters began to feel that she was not happy. She seemed restless, wandered much in the garden, and sometimes when he came back from the fields he would find the house empty and she would only return after half an hour or so with no explanation of where she had been. On these occasions she was always especially tender and would put out his slippers to warm and cook his favorite dish — Welsh rarebit[17] with wild strawberries — for supper.

One evening he was returning home along the river path when he saw Leita in front of him, down by the water. A swan had sailed up to the verge[18] and she had her arms round its neck and the swan's head rested against her cheek. She was weeping, and as he came nearer he saw that tears were rolling, too, from the swan's eyes.

[20] "Leita, what is it?" he asked, very troubled.

"This is my sister," she answered. "I can't bear being separated from her."

Now he understood that Leita was really a swan from the forest, and this made him very sad because when a human being marries a bird it always leads to sorrow.

"I could use my second wish to give your sister human shape, so that she could be a companion to you," he suggested.

"No, no," she cried, "I couldn't ask that of her."

[25] "Is it so very hard to be a human being?" asked Mr. Peters sadly.

"Very, very hard," she answered.

"Don't you love me at all, Leita?"

14. **Remote** *(adjective):* far away from the main population; distant or isolated
15. a bulbous plant of the lily family
16. **Mend** *(verb):* to fix or repair
17. a dish of melted cheese and various other ingredients, served over toast
18. a British English term for a narrow strip of grass bordering a pathway

"Yes, I do, I do love you," she said, and there were tears in her eyes again. "But I miss the old life in the forest, the cool grass and the mist rising off the river at sunrise and the feel of the water sliding over my feathers as my sister and I drifted along the stream."

"Then shall I use my second wish to turn you back into a swan again?" he asked, and his tongue pricked to remind him of the old King's words, and his heart swelled with grief inside him.

[30] "Who would darn[19] your socks and cook your meals and see to the hens?"

"I'd do it myself as I did before I married you," he said, trying to sound cheerful.

She shook her head. "No, I could not be as unkind to you as that. I am partly a swan, but I am also partly a human being now. I will stay with you."

Poor Mr. Peters was very distressed on his wife's account and did his best to make her life happier, taking her for drives in the car, finding beautiful music for her to listen to on the radio, buying clothes for her and even suggesting a trip round the world. But she said no to that; she would prefer to stay in their own house near the river.

He noticed that she spent more and more time baking wonderful cakes — jam puffs, petits fours, éclairs, meringues. One day he saw her take a basketful down to the river and he guessed that she was giving them to her sister.

[35] He built a seat for her by the river, and the two sisters spent hours together there, communicating in some wordless manner. For a time he thought that all would be well, but then he saw how thin and pale she was growing.

One night when he had been late doing the accounts he came up to the bed and found her weeping in her sleep and calling:

"Rhea! Rhea! I can't understand what you say! Oh, wait for me, take me with you!"

Then he knew that it was hopeless and she would never be happy as a human. He stooped down and kissed her goodbye, then took another leaf from his notecase, blew it out of the window, and used up his second wish.

Next moment instead of Leita there was a sleeping swan lying across the bed with its head under its wing. He carried it out of the house and down to the brink of the river, and then he said "Leita! Leita!" to waken her, and gently put her into the water. She gazed round her in astonishment for a moment, and then came up to him and rested her head lightly against his hand; next instant she was flying away over the trees toward the heart of the forest.

[40] He heard a harsh laugh behind him, and turning round saw the old King looking at him with a malicious[20] expression.

19. to fix an article of clothing
20. **Malicious** ***(adjective):*** having or showing a desire to cause harm

"Well, my friend! You don't seem to have managed so wonderfully with your first two wishes, do you? What will you do with the last? Turn yourself into a swan? Or turn Leita back into a girl?"

"I shall do neither," said Mr. Peters calmly. "Human beings and swans are better in their own shapes."

But for all that he looked sadly over toward the forest where Leita had flown, and walked slowly back to his empty house.

Next day he saw two swans swimming at the bottom of the garden, and one of them wore the gold chain he had given Leita after their marriage; she came up and rubbed her head against his hand.

[45] Mr. Peters and his two swans came to be well known in that part of the country; people used to say that he talked to the swans and they understood him as well as his neighbors. Many people were a little frightened of him. There was a story that once when thieves tried to break into his house they were set upon by two huge white birds which carried them off bodily and dropped them in the river.

As Mr. Peters grew old everyone wondered at his contentment. Even when he was bent with rheumatism[21] he would not think of moving to a drier spot, but went slowly about his work, milking the cows and collecting the honey and eggs, with the two swans always somewhere close at hand.

Sometimes people who knew his story would say to him:

"Mr. Peters, why don't you wish for another wife?"

"Not likely," he would answer serenely. "Two wishes were enough for me, I reckon. I've learned that even if your wishes are granted they don't always better you. I'll stay faithful to Leita."

[50] One autumn night, passers-by along the road heard the mournful[22] sound of two swans singing. All night the song went on, sweet and harsh, sharp and clear. In the morning Mr. Peters was found peacefully dead in his bed with a smile of great happiness on his face. In between his hands, which lay clasped on his breast, were a withered leaf and white feather.

21. "Rheumatism" is any disease marked by inflammation and pain in the joints, muscles, or connecting tissue.
22. **Mournful** ***(adjective):*** expressing sadness, regret, or grief

Text-Dependent Questions

Directions: For the following questions, choose the best answer or respond in complete sentences.

1. PART A: Which statement identifies the theme of the short story?
   A. Love can be powerful but is often brief.
   B. While wishes may appear appealing, they often come with consequences.
   C. Nature is an imposing force that is not meant to be altered.
   D. Love cannot be wished or willed, but must occur naturally.

2. PART B: Which detail from the text best supports the answer to Part A?
   A. "Taking a thorn he pricked his tongue with it, to remind himself not to utter rash wishes aloud." (Paragraph 9)
   B. "She was gentle and friendly, busied herself about the house and garden, polished the bowls, milked the cows and mended his socks. But as time went by Mr. Peters began to feel that she was not happy." (Paragraph 18)
   C. "Now he understood that Leita was really a swan from the forest, and this made him very sad because when a human being marries a bird it always leads to sorrow." (Paragraph 22)
   D. "'Two wishes were enough for me, I reckon. I've learned that even if your wishes are granted they don't always better you. I'll stay faithful to Leita.'" (Paragraph 49)

3. PART A: What is the meaning of "contentment" in paragraph 46?
   A. State of happiness
   B. State of misery
   C. One's lack of companionship
   D. One's strength

4. PART B: Which section from the text best supports the answer to Part A?
   A. "Even when he was bent with rheumatism he would not think of moving to a drier spot..."(Paragraph 46)
   B. "'Mr. Peters, why don't you wish for another wife?'" (Paragraph 48)
   C. "One autumn night, passers-by along the road heard the mournful sound of two swans singing." (Paragraph 50)
   D. "In the morning Mr. Peters was found peacefully dead in his bed with a smile of great happiness on his face." (Paragraph 50)

5. PART A: How does Leita's character change throughout the story?
   A. While Leita begins the story loving Mr. Peters, her love eventually fades.
   B. Leita resents Mr. Peters from the beginning, and is relieved when she becomes a swan again.
   C. Leita goes from enjoying her life with Mr. Peters, to missing her life as a swan.
   D. Leita wants to be a human from the beginning, and is upset when Mr. Peters goes against her wishes and returns her to her original form.

6. PART B: Which section from the text best supports the answer to Part A?

   A. "'Yes, I do, I do love you,' she said, and there were tears in her eyes again. 'But I miss the old life in the forest,'" (Paragraph 28)

   B. "She shook her head. 'No, I could not be as unkind to you as that. I am partly a swan, but I am also partly a human being now. I will stay with you.'" (Paragraph 32)

   C. "One day he saw her take a basketful down to the river and he guessed that she was giving them to her sister." (Paragraph 34)

   D. "She gazed round her in astonishment for a moment, and then came up to him and rested her head lightly against his hand" (Paragraph 39)

7. How does paragraph 7 contribute to the development of ideas in the text?

Discussion Questions

Directions: Brainstorm your answers to the following questions in the space provided. Be prepared to share your original ideas in a class discussion.

1. In your opinion, should Mr. Peters have used his last wish? If so, what do you think he should have wished for?

2. In your opinion, did Mr. Peters make the right choice when he returned Leita to her swan form? Why or why not?

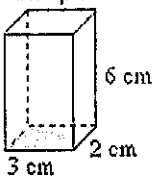
3. In the context of the story, how are we changed by love? How did Mr. Peters's love for Leita influence the decisions he made throughout the story? Cite evidence from this text, your own experience, and other literature, art, or history in your answer.

4. What is the relationship between humans and nature? How does Mr. Peter's relationship with nature change throughout the story?

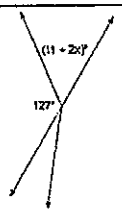
Name: Weekly Math Review – Q4:1 Teacher:

Monday

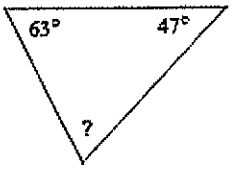
What is the surface area of this prism?



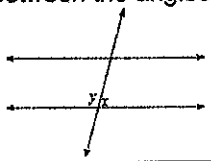
Find the value of x.



Find the missing angle.



Identify the relationship between the angles.

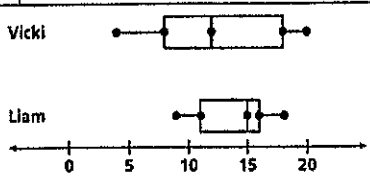


Which measure of central tendency is a better measurement of what a typical house in Smallville would cost?

Home	home #1	home #2	home #3	home #4	home #5	home #6	home #7
Cost	$110,000	$115,000	$545,000	$98,000	$113,000	$115,000	$119,000

In a factory, a manager tests 250 products and finds defects in 7 of them. How many defects are likely going to be in a 10,000 unit order?

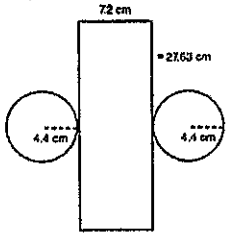
Quiz scores of Vicki and Liam are shown. Who probably has the higher quiz average? Who has more consistent performances on quizzes?



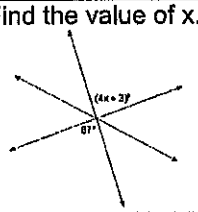
A local craft store is selling different kinds of craft paint for $2, $3, $2, $15, and $2. When placing an ad in the local paper, which measure of central tendency should it use to advertise?

Tuesday

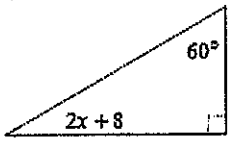
What is the volume of the shape this net makes?



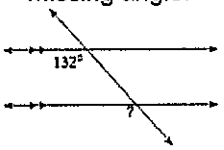
Find the value of x.



Find the value of x.



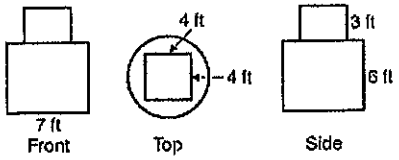
Find the measure of the missing angle.



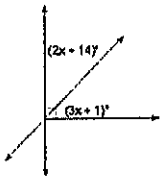
Becky surveyed the 32 shoppers who spent the most time and money at her boutique last month. Will this result in a representative sample?

Wednesday

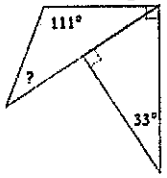
What is the volume of the composite figure with the dimensions shown in the three views? Round to the nearest tenth.



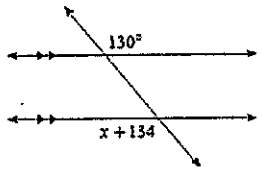
Find the value of x.



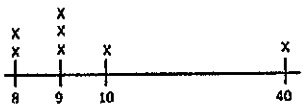
Find the missing angle.



Solve for the value of x.



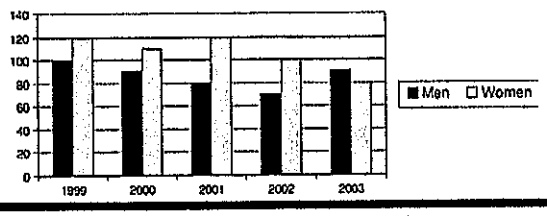
Mean < or = or > Median



Dr. Jon planned to reward his class with candy because everyone made an A on the test. He surveyed every 4th student that entered the class to find out which candy he should buy. Which type of sample did he use?

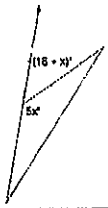
The chart below shows the average cost that each gender spends on their senior prom at the local high school.

A. Approximately what was the biggest difference in spending between men and women?
B. Between what two years did the biggest change happen for men's spending?
C. What year had the smallest difference in spending?

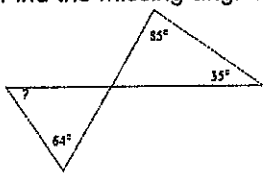


Thursday

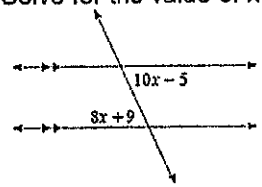
Find the value of x.



Find the missing angle.



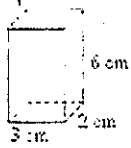
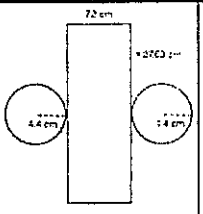
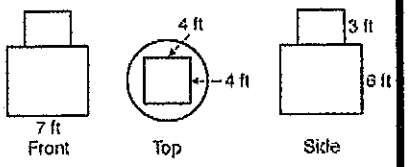
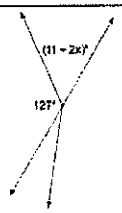
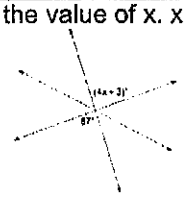
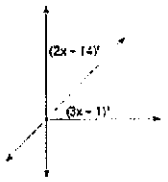
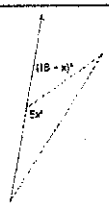
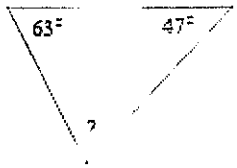
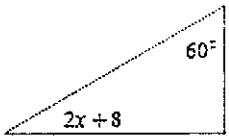
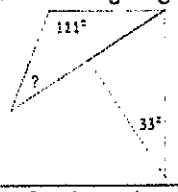
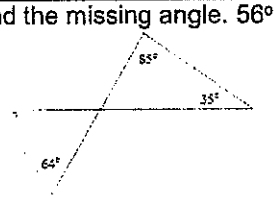
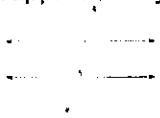
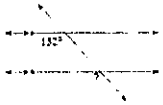
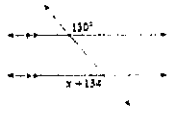
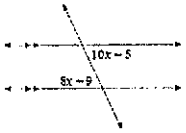
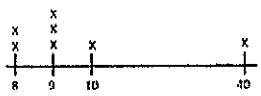
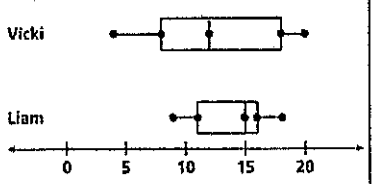
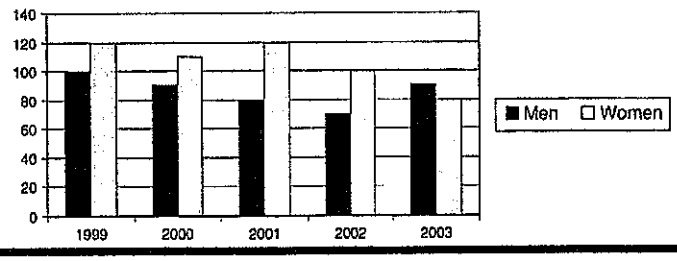
Solve for the value of x.



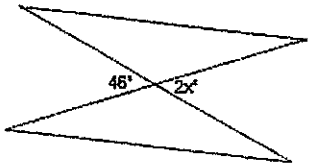
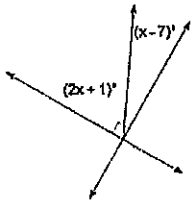
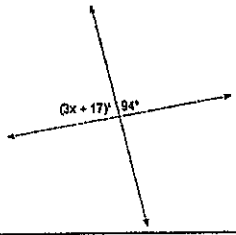
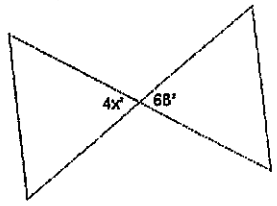
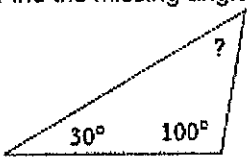
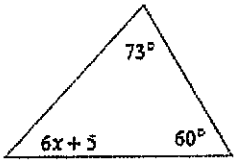
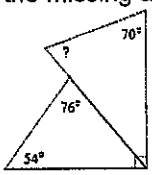
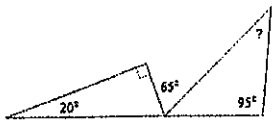
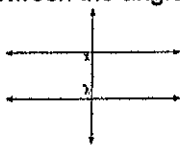
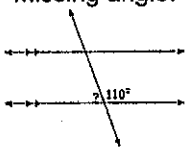
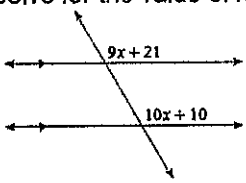
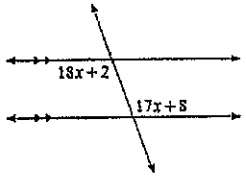
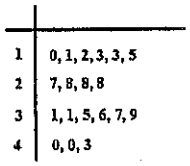
So far Janet has 87, 92, 75 and 83 for her test grades. What is the highest her average could get with one more test?

Hug Middle School has 640 students. Bill surveys a random sample of 35 students and finds that 14 of them have pet cats. Predict how many students at the school are likely to have cats.

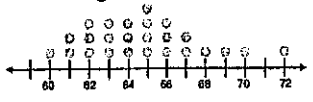
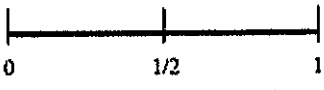
Answer Key - Weekly Math Review – Q4:1

Monday	Tuesday	Wednesday	Thursday
What is the surface area of this prism? $72m^2$ 	What is the volume of the shape this net makes? $437.9cm^3$ 	What is the volume of the composite figure with the dimensions shown in the three views? Round to the nearest tenth. 278.9 ft^3 	
Find the value of x. x = 21 	Find the value of x. x = 21 	Find the value of x. x = 15 	Find the value of x. x = 27 
Find the missing angle. 70° 	Find the value of x. x = 11 	Find the missing angle. 36° 	Find the missing angle. 56° 
Identify the relationship between the angles. Supplementary 	Find the measure of the missing angle. 132° 	Solve for the value of x. x = – 4 	Solve for the value of x. x = 7 
Which measure of central tendency is a better measurement of what a typical house in Smallville would cost? Median <table><tr><td>Home</td><td>home #1</td><td>home #2</td><td>home #3</td><td>home #4</td><td>home #5</td><td>home #6</td><td>home #7</td></tr><tr><td>Cost</td><td>$110,000</td><td>$115,000</td><td>$545,000</td><td>$98,000</td><td>$113,000</td><td>$115,000</td><td>$119,000</td></tr></table>		Mean < or = or > Median 	So far Janet has 87, 92, 75 and 83 for her test grades. What is the highest her average could get with one more test? 87.4
In a factory, a manager tests 250 products and finds defects in 7 of them. How many defects are likely going to be in a 10,000 unit order? 280	Becky surveyed the 32 shoppers who spent the most time and money at her boutique last month. Will this result in a representative sample? No	Dr. Jon planned to reward his class with candy because everyone made an A on the test. He surveyed every 4th student that entered the class to find out which candy he should buy. Which type of sample did he use? Systematic	Hug Middle School has 640 students. Bill surveys a random sample of 35 students and finds that 14 of them have pet cats. Predict how many students at the school are likely to have cats. 256
Quiz scores of Vicki and Liam are shown. Who probably has the higher quiz average? Liam Who has more consistent performances on quizzes? Liam 		The chart below shows the average cost that each gender spends on their senior prom at the local high school. A. Approximately what was the biggest difference in spending between men and women? $40 B. Between what two years did the biggest change happen for men's spending? 2002-2003 C. What year had the smallest difference in spending? 2003 	
A local craft store is selling different kinds of craft paint for $2, $3, $2, $15, and $2. When placing an ad in the local paper, which measure of central tendency should it use to advertise? Median			

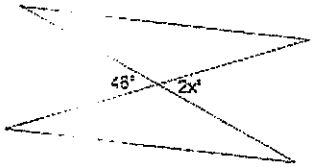
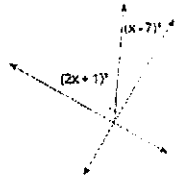
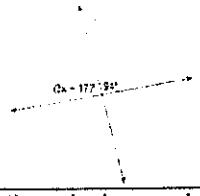
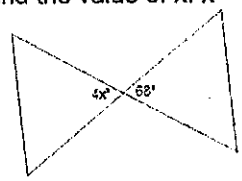
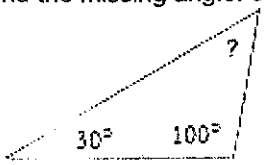
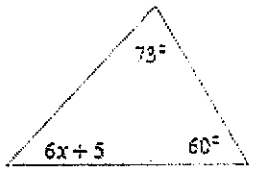
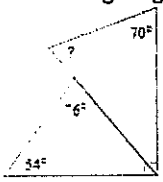
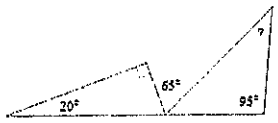
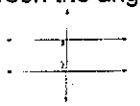
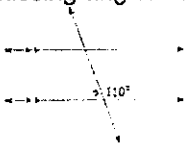
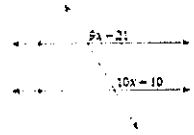
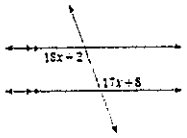
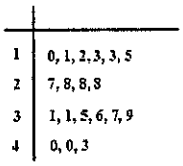
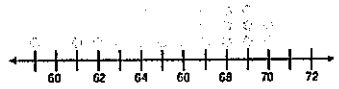
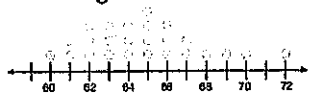
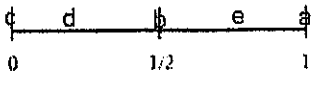
Name: Weekly Math Review – Q4:2 Teacher:

Monday	Tuesday	Wednesday	Thursday
Find the value of x. 	Find the value of x. 	Find the value of x. 	Find the value of x. 
Find the missing angle. 	Find the value of x. 	Find the missing angle. 	Find the missing angle. 
Identify the relationship between the angles. 	Find the measure of the missing angle. 	Solve for the value of x. 	Solve for the value of x. 
Jon's test grades are 67, 75, 73 and 69. What does he need to make on his next test to have a 73 average?	Is the mean or the median greater for the stem and leaf plot? 	What does a worker at the local pharmacy typically make according to this chart below?	

title	cashier	cashier	stockperson	stockperson	technician	pharmacist
hourly wages	$8.25	$7.50	$8.50	$7.80	$14.50	$55.00

Jon polled the first 743 people who bought his new product at his store. Will this likely result in a biased sample?	Jim wants to conduct a survey to learn the favorite hobbies of students in his school. Which would be the best sample? A) His friends who are on the wrestling team B) His cousins who are students in the school C) Every 25th student who enters the school in the morning D) The students in his weight training class		Out of the 80 customers surveyed, 65 of them liked the IPhone the most. If 500 people were given the same survey, predict how many would prefer an Iphone?
Refer to the diagrams to the far right: A. Whose class had the higher mean? B. If Mr. Kim's shortest student switched with Mrs. Moore's tallest, would A still be true?	Refer to the diagrams to the right: A. Whose class had the highest mode? B. Which class has the smaller inner quartile range?	Mr. Kim's student's heights in inches. 	Mrs. Moore's student's heights in inches 
Mrs. Smalls takes up $\frac{3}{10}$ of the white board. If a student spits a spit ball at her, what is the probability that it does NOT hit her, but lands on the white board?	NEWS REPORT: There is a 0.45 chance of rain. Which is most true? A) It is unlikely that it will rain tomorrow B) It is neither likely nor unlikely that it will rain tomorrow	Order from least to most likely: a. The event is certain to happen. b. The event is just as likely to happen as not to happen. c. The event has no chance. d. The event could happen. e. The event is likely to happen.	Which will probably happen when you roll a die 300 times? A) 1 or 2 rolls about 50 times. B) 1 or 2 rolls exactly 50 times. C) An even number rolls about 150 times. D) An even number rolls exactly 150 times.
Chick-fil-a prints out a free sandwich coupon receipt every 7 receipts. What is the probability of not getting a coupon receipt?	The theoretical probability of spinning red is 3/8. If someone spins the spinner a total of 50 times, how many times could they expect to land on red?	From the problem above, place the letters on the probability line: 	Experimental or Theoretical probability? Steven flips a coin several times to see how often heads occurs.

Answer Key - Weekly Math Review – Q4:2

Monday	Tuesday	Wednesday	Thursday
Find the value of x. x = 23 	Find the value of x. x = 32 	Find the value of x. x = 23 	Find the value of x. x = 17 
Find the missing angle. 50° 	Find the value of x. x = 7 	Find the missing angle. 70° 	Find the missing angle. 40° 
Identify the relationship between the angles.  Same Side Interior	Find the measure of the missing angle. 70° 	Solve for the value of x. x = 11 	Solve for the value of x. x = 6 
Jon's test grades are 67, 75, 73 and 69. What does he need to make on his next test to have a 73 average? 81	Is the mean or the median greater for the stem and leaf plot? 	What does a worker at the local pharmacy typically make according to this chart below? $8.25 - $8.50					
		title	cashier	cashier	stockperson	stockperson	technician	pharmacist
		hourly wages	$8.25	$7.50	$8.50	$7.50	$14.50	$55.00
Jon polled the first 743 people who bought his new product at his store. Will this likely result in a biased sample? No	Jim wants to conduct a survey to learn the favorite hobbies of students in his school. Which would be the <u>best</u> sample? A) His friends who are on the wrestling team B) His cousins who are students in the school C) Every 25th student who enters the school in the morning D) The students in his weight training class		Out of the 80 customers surveyed, 65 of them liked the iPhone the most. If 500 people were given the same survey, predict how many would prefer an iPhone? 406
Refer to the diagrams to the far right: A. Whose class had the higher mean? Kim B. If Mr. Kim's shortest student switched with Mrs. Moore's tallest, would A still be true? Yes	Refer to the diagrams to the right: A. Whose class had the highest mode? Kim B. Which class has the smaller inner quartile range? Kim	Mr. Kim's student's heights in inches. 	Mrs. Moore's student's heights in inches 
Mrs. Smalls takes up $\frac{3}{10}$ of the white board. If a student spits a spit ball at her, what is the probability that it does NOT hit her, but lands on the white board? $\frac{7}{10}$	NEWS REPORT: There is a 0.45 chance of rain. Which is most true? A) It is unlikely that it will rain tomorrow B) It is neither likely nor unlikely that it will rain tomorrow	Order from least to most likely: a. The event is certain to happen. b. The event is just as likely to happen as not to happen. c. The event has no chance. d. The event could happen. e. The event is likely to happen. C, D, B, E, A	Which will probably happen when you roll a die 300 times? A) 1 or 2 rolls about 50 times. B) 1 or 2 rolls exactly 50 times. C) An even number rolls about 150 times. D) An even number rolls exactly 150 times.
Chick-fil-a prints out a free sandwich coupon receipt every 7 receipts. What is the probability of not getting a coupon receipt? $\frac{6}{7}$	The theoretical probability of spinning red is 3/8. If someone spins the spinner a total of 50 times, how many times could they expect to land on red? 19 times	From the problem above, place the letters on the probability line: 	Experimental or Theoretical probability? Steven flips a coin several times to see how often heads occurs.

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

Questar

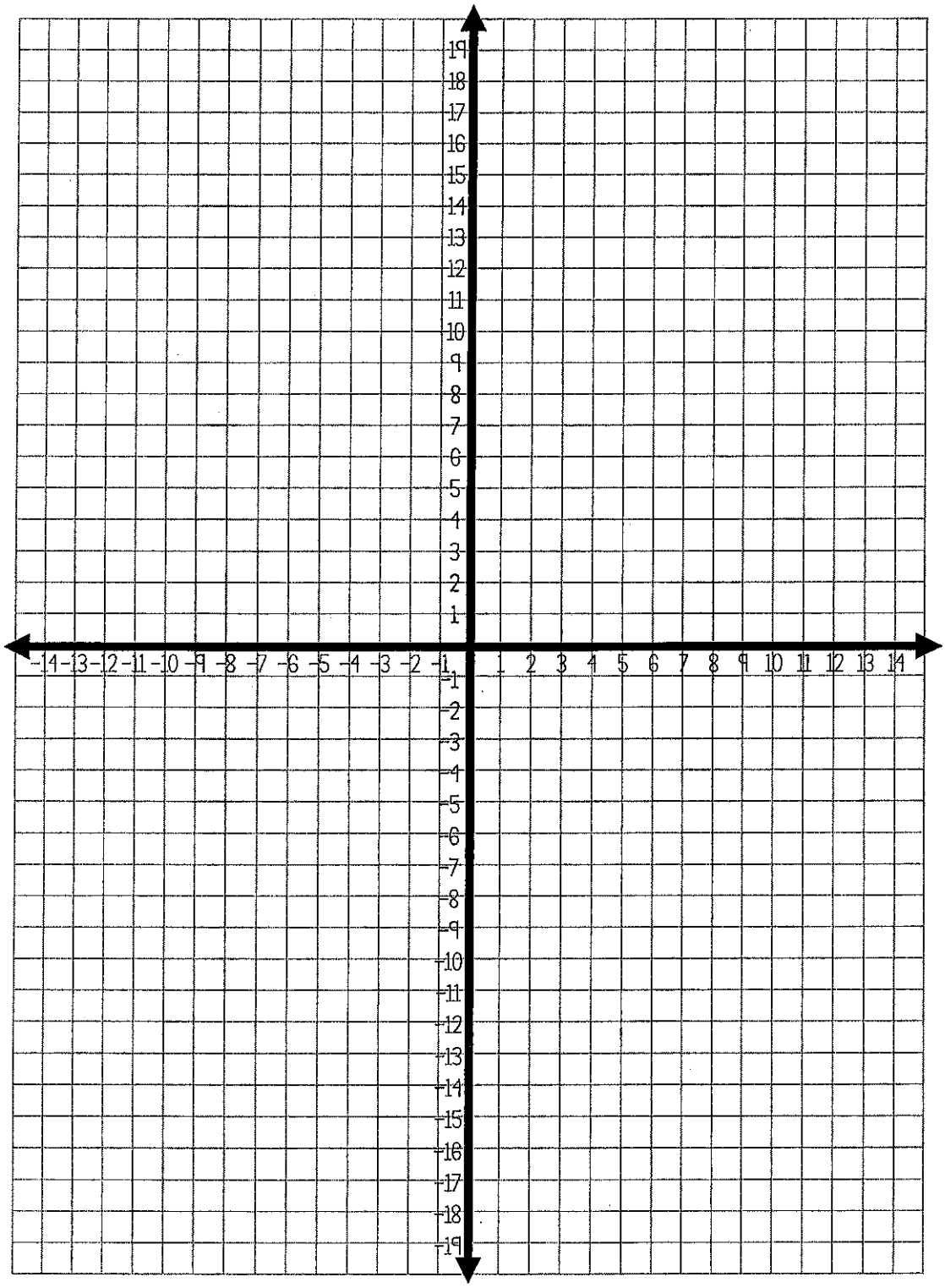
Grade 6 Reference Sheet

1 inch = 2.54 centimeters	1 kilometer = 0.62 miles	1 cup = 8 fluid ounces
1 meter = 39.37 inches	1 pound = 16 ounces	1 pint = 2 cups
1 mile = 5280 feet	1 pound = 0.454 kilograms	1 quart = 2 pints
1 mile = 1760 yards	1 kilogram = 2.2 pounds	1 gallon = 4 quarts
1 mile = 1.609 kilometers	1 ton = 2000 pounds	1 gallon = 3.785 liters
		1 liter = 1000 cubic centimeters
		1 liter = 0.264 gallons

Area (A)	
Triangle	$A = \frac{1}{2}bh$
Volume (V)	
Right Rectangular Prism	$V = lwh$ $V = bh$

QAI00000

6th Grade Coordinate Grid



Name: Week 1 Date: _____

SPIRAL BELLRINGER: WEEK 27

MONDAY

1 Determine if the two expressions are equivalent and if so name the property that is being used.

$(3 \times 6) \times 9$ and $3 \times (6 \times 9)$

_____

2 Beyonce performed 2 nights in NYC. The first night she made $546,388.96 in ticket sales. The second night she made $614,944.88. how much did Beyonce make in all over both nights?

$_____

3

$$\begin{array}{r} 8.304 \\ \times\ 5.67 \\ \hline \end{array}$$

TUESDAY

1 Mike bought a box of 12 golf balls for $18. Solve the equation $12x = \$18$ to find the price for each golf ball.

$_____

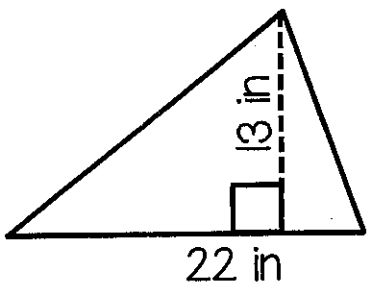
2 Use the Distributive Property to simplify the expression. Then identify the coefficient.

$3(2y - 7)$

_____

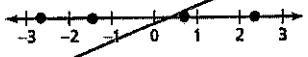
coefficient: _____

3 Find the area.



_____

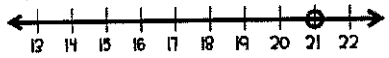
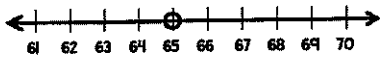
WEEK 25

MONDAY	1.) 38	2.) $F > 800$	3.) $X + 14 = 23$
TUESDAY	1.) 229 TEENS	2.) (12, -2) OR (-2, -2) OR (5, 5) OR (5, -9)	3.) 21
WEDNESDAY	1.) C	2.) 27.59 IN^2	3.) 11 YEARS OLD
THURSDAY	1.) 	2.) $X \geq 21$	3.) YES: ASSOCIATIVE PROPERTY

WEEK 26

MONDAY	1.) ☑ 0.3 x 42 ☑ $\frac{3}{10}$ x 42 ☐ 0.03 x 42 ☑ 3 x 42	2.) $X < 800$	3.) 260 SQ CM
TUESDAY	1.) ☑ 4($0.50) + 3($2.25) ☐ 7($0.50 + $2.25) ☑ $8.75 ☐ $19.25	2.) 8	3.) 27
WEDNESDAY	1.) $1.50	2.) $(Y + 5) - 3$	3.) $Y = 11X$
THURSDAY	1.) $2X + 10Y + 9$	2.) 867 SEATS	3.) $T = Y - 8$

Spiral Bellringer WEEK 27 Answers

MONDAY	1.) YES: ASSOCIATIVE PROPERTY	2.) $1,161,333.84	3.) 47.08368
TUESDAY	1.) $1.50	2.) $6Y - 21$ COEFFICIENT: 6	3.) 143 SQ IN
WEDNESDAY	1.) $\frac{\text{Part } 4}{\text{Whole } 10} = \frac{40}{100}$ %	2.) 120 CUBIC IN	3.) 
THURSDAY	1.) 5 FOR $49.99	2.) 26 MB PER SECOND	3.) $P < 65$ 

6th Grade
Bellringer Answers
for Week 27

Week 1

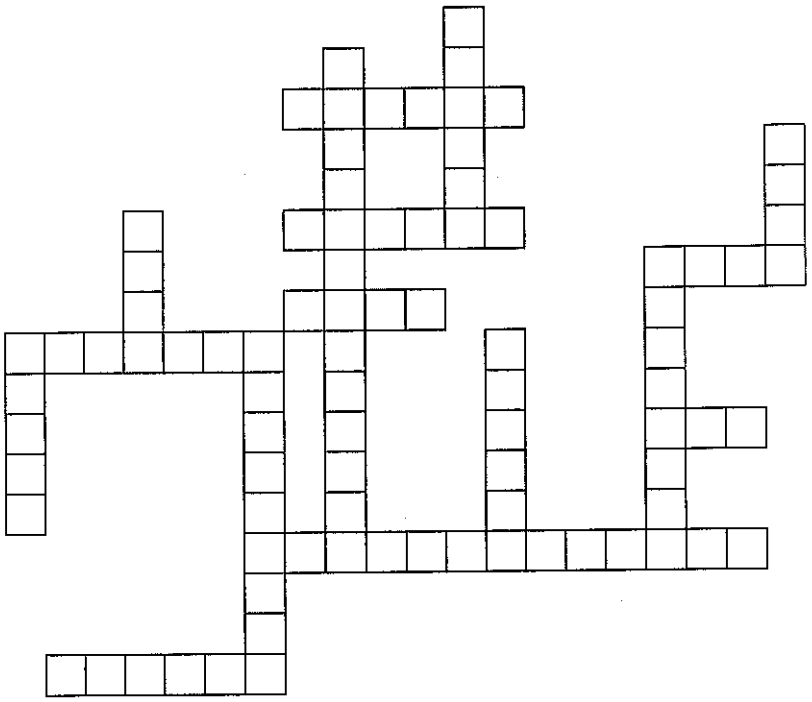
Name _____ Class _____ Date _____

8F: Vocabulary Review Puzzle

For use with the Chapter Review

Study Skill Get plenty of rest before a major quiz or test. If you're well rested, you may be able to concentrate better and retain more of what you hear or see in class.

Below is a list of words grouped by number of letters. Fit each word into the puzzle grid. Use each word only once.



3 letters	4 letters	5 letters	6 letters	7 letters
net	area	prism	height	pyramid
	cone		sphere	
	edge		square	
	face		vertex	
			volume	

8 letters	9 letters	13 letters
cylinder	decompose	parallelogram
		perpendicular

6

Week 1

Answers

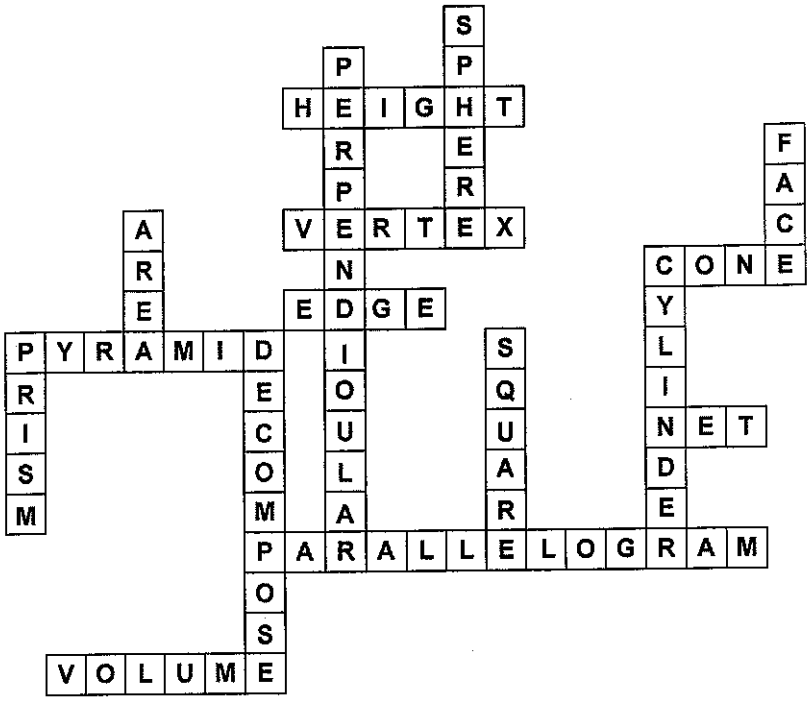
Name _____ Class _____ Date _____

8F: Vocabulary Review Puzzle

For use with the Chapter Review

Study Skill Get plenty of rest before a major quiz or test. If you're well rested, you may be able to concentrate better and retain more of what you hear or see in class.

Below is a list of words grouped by number of letters. Fit each word into the puzzle grid. Use each word only once.



3 letters	4 letters	5 letters	6 letters	7 letters
net	area	prism	height	pyramid
	cone		sphere	
	edge		square	
	face		vertex	
			volume	

8 letters	9 letters	13 letters
cylinder	decompose	parallelogram
		perpendicular

Week 1

Multiplying Decimals Practice

Name _____ Date _____

Solve each problem. Show all work.

1). 6×0.25	2). 36×1.6
3). 2.56×1.2	4). 3.36×4
5). 954.6×0.5	6). 27.2×5.2
7). Ali bought 6 pens for $0.76 each. How much did she pay in total?	8). A recipe calls for 1.5 cups of flour for one cake. How much flour would you need to make 4 cakes?

Week 1 Answers

Multiplying Decimals Practice

Name _____ Date _____

Solve each problem. Show all work.

1). 6×0.25 1.5	2). 36×1.6 57.6
3). 2.56×1.2 3.072	4). 3.36×4 13.44
5). 954.6×0.5 477.3	6). 27.2×5.2 141.44
7). Ali bought 6 pens for $0.76 each. How much did she pay in total? $4.56	8). A recipe calls for 1.5 cups of flour for one cake. How much flour would you need to make 4 cakes? 6 cups

Dividing Decimals Practice

Name _____ Date _____

Solve each problem. Show all work.

1). $6 \div 0.25$	2). $36 \div 1.6$
3). $2.56 \div 2$	4). $3.36 \div 4$
5). $954.6 \div 5$	6). $27 \div 12$
7). Jack used 6 gallons of gas to drive 138.3 miles. How many miles did he travel per gallon?	8). Ike ran a total of 15.75 miles over 5 days. How many miles did he run per day?

Week 1 Answers

Dividing Decimals Practice

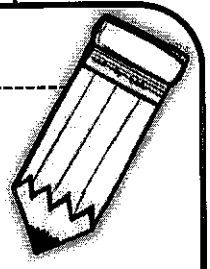
Name _____ Date _____

Solve each problem. Show all work.

1). $6 \div 0.25$ 24	2). $36 \div 1.6$ 22.5
3). $2.56 \div 2$ 1.28	4). $3.36 \div 4$ 0.84
5). $954.6 \div 5$ 190.92	6). $27 \div 12$ 2.25
7). Jack used 6 gallons of gas to drive 138.3 miles. How many miles did he travel per gallon? 23.05	8). Ike ran a total of 15.75 miles over 5 days. How many miles did he run per day? 3.15

Week 1

Name _____ Date _____



Exponents

Big Idea: I can write and evaluate numbers with whole number exponents.

1) Write the expression using exponents.

$12 \times 12 \times 12 \times 12$

_____

2) Write the expression using exponents.

$5 \times 5 \times 5 + 3 \times 3 \times 3 \times 3$

_____

3) Write the expression using exponents.

$8 \times 8 \times 8 \times 8 \times 8$

_____

4) Write the expression using exponents.

$7 \times 7 + 2 \times 2 \times 2$

_____

5) Solve.

5^3

_____

6) Solve.

10^2

_____

7) Evaluate:

$2^3 + 6^3$

_____

8) Evaluate:

$3^3 + 5^2$

_____

9) Explain why 4^4 is not the same as 4×4. Use words, numbers and/or drawings in your explanation.

_____

_____

_____

_____

_____

10) Consuelo won the lottery. He can receive $100,000 or $3 on day 1, $9 on day 2, $27 on day 3... etc for 30 days. Which option will give Consuelo the most money?

_____

Explain:

_____

_____

3

Name **Answer Key** Date

Exponents

Big Idea: I can write and evaluate numbers with whole number exponents.

1) Write the expression using exponents.

12 x 12 x 12 x 12

12^4

2) Write the expression using exponents.

5 x 5 x 5 + 3 x 3 x 3 x 3

$5^3 + 3^4$

3) Write the expression using exponents.

8 x 8 x 8 x 8 x 8

8^5

4) Write the expression using exponents.

7 x 7 + 2 x 2 x 2

$7^2 + 2^3$

5) Solve.

5^3

$5 \times 5 \times 5 = 125$

6) Solve.

10^2

$10 \times 10 = 100$

7) Evaluate:

$2^3 + 6^3$

224

8) Evaluate:

$3^3 + 5^2$

52

9) Explain why 4^4 is not the same as 4 x 4. Use words, numbers and/or drawings in your explanation.

$4 \times 4 = 16$

$4^4 = 4 \times 4 \times 4 \times 4 = 256$

10) Consuelo won the lottery. He can receive $100,000 or $3 on day 1, $9 on day 2, $27 on day 3... etc for 30 days. Which option will give Consuelo the most money?

Option 2

Explain:

$3^{30} = 2.06 \times 10^{14}$

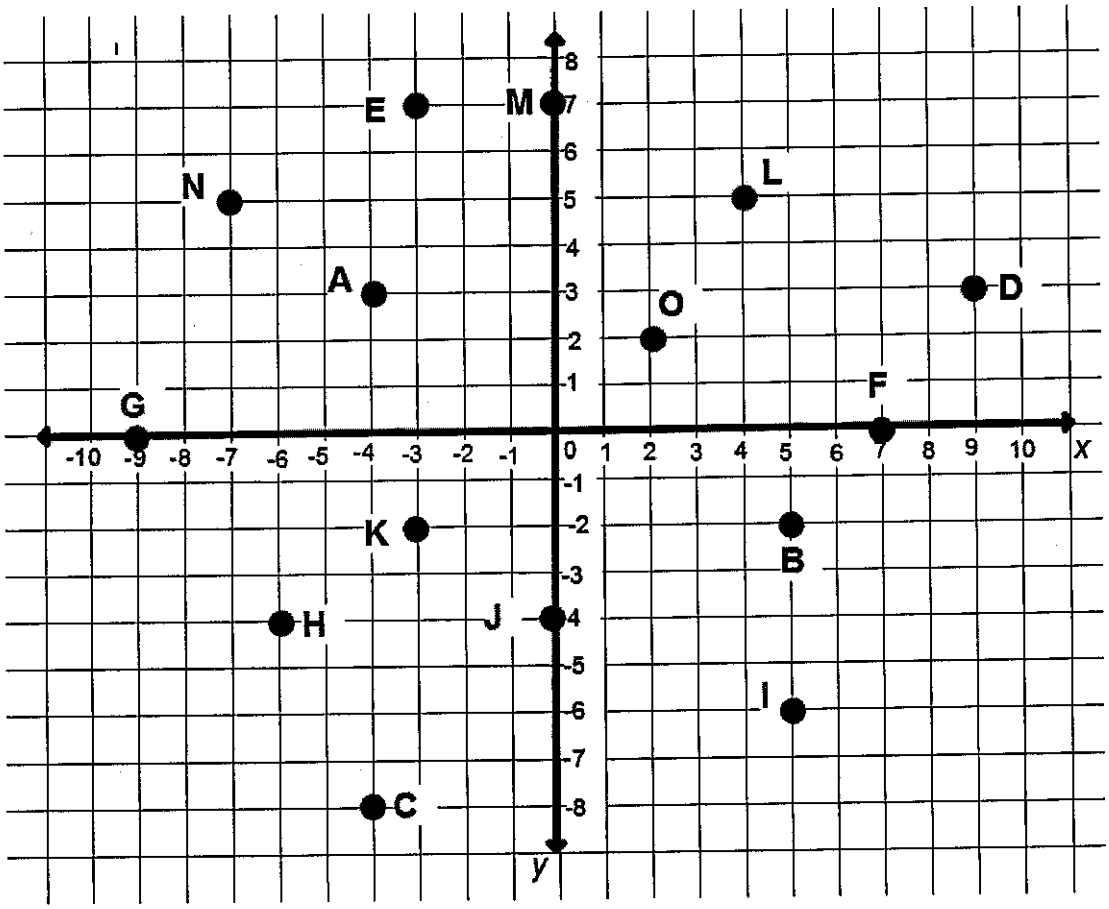
approx 206,000,000,000,000

Week 2

Coordinate Graphing Quadrants and Reading Ordered Pairs Practice

Name _____ Date _____

Name the ordered pair for each point and identify the quadrant the point is in.



A _____ B _____ C _____

D _____ E _____ F _____

G _____ H _____ I _____

J _____ K _____ L _____

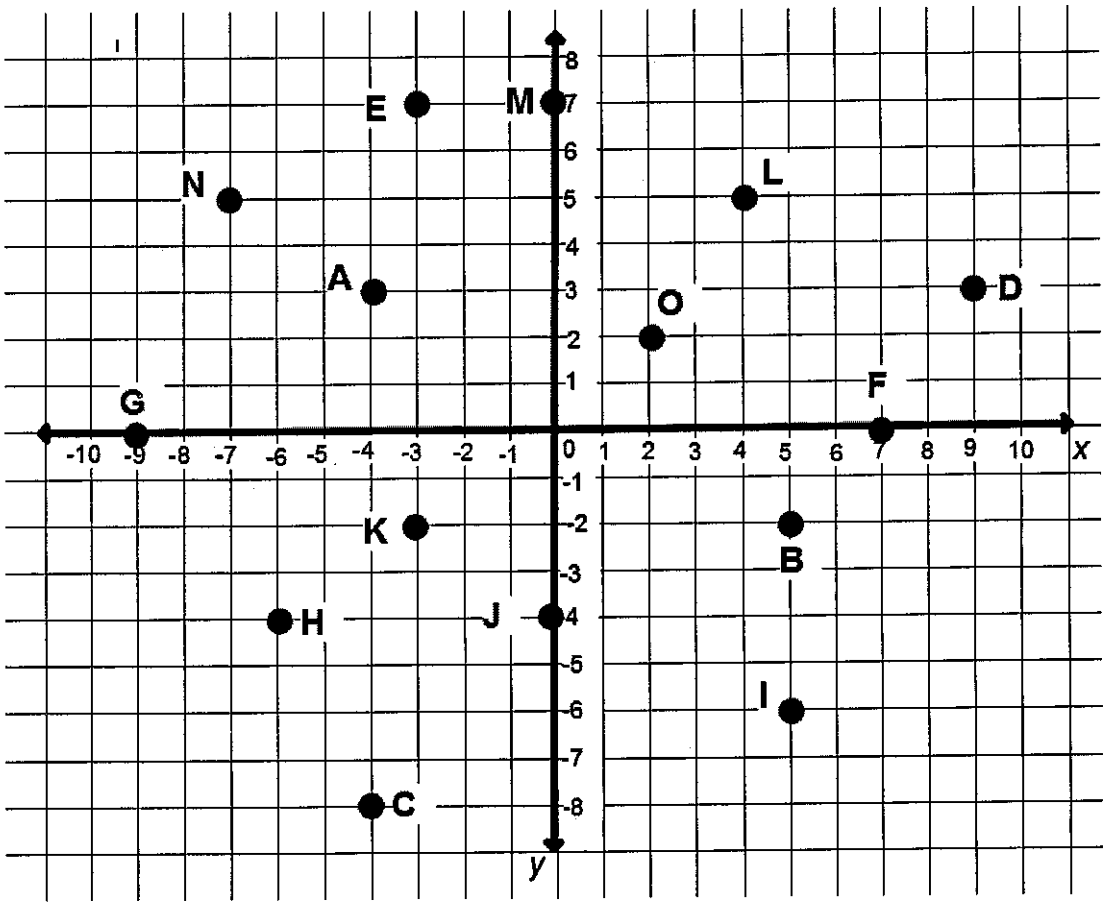
M _____ N _____ O _____

Week 2 Answers

Coordinate Graphing Quadrants and Reading Ordered Pairs Practice Answer Key

Name _____ Date _____

Name the ordered pair for each point and identify the quadrant the point is in.



A (-4, 3) Q II

B (5, -2) Q IV

C (-4, -8) Q III

D (9, 3) Q I

E (-3, 7) Q II

F (7, 0) x axis

G (-9, 0) x axis

H (-6, -4) Q III

I (5, -6) Q IV

J (0, -4) y axis

K (-3, -2) Q III

L (4, 5) Q I

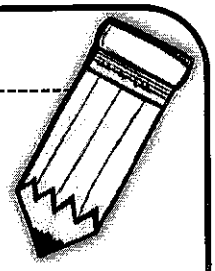
M (0, 7) y axis

N (-7, 5) Q II

O (2, 2) Q I

Week 2

Name _____ Date _____



Identifying Patterns

Big Idea: I can identify and write rules describing patterns from tables.

1) What is the relationship between the x-values and the y-values?

X	Y
1	2
2	4
3	6

_____

2) What is the relationship between the x-values and the y-values?

X	Y
8	4
10	5
12	6

_____

3) What is the relationship between the x-values and the y-values?

X	Y
1	1
2	4
3	9

_____

4) What is the relationship between the x-values and the y-values?

X	Y
3	4.5
4	5.5
5	6.5

_____

5) Write an equation to represent the pattern in the table.

X	Y
1	3
2	6
3	9

_____

6) Write an equation to represent the pattern in the table.

X	Y
1	-2
2	-1
3	0

_____

7) Write an equation to represent the pattern in the table.

X	Y
8	9
9	10
10	11

_____

8) Write an equation to represent the pattern in the table.

X	Y
7	9
10	12
12	14

_____

Name Answer Key Date Week 2 Answers

Identifying Patterns

Big Idea: I can identify and write rules describing patterns from tables.

1) What is the relationship between the x-values and the y-values?

X	Y
1	2
2	4
3	6

times 2

2) What is the relationship between the x-values and the y-values?

X	Y
8	4
10	5
12	6

divided by 2

3) What is the relationship between the x-values and the y-values?

X	Y
1	1
2	4
3	9

squared

4) What is the relationship between the x-values and the y-values?

X	Y
3	4.5
4	5.5
5	6.5

plus 1.5

5) Write an equation to represent the pattern in the table.

X	Y
1	3
2	6
3	9

$y = 3x$

6) Write an equation to represent the pattern in the table.

X	Y
1	-2
2	-1
3	0

$y = x - 3$

7) Write an equation to represent the pattern in the table.

X	Y
8	9
9	10
10	11

$y = x + 1$

8) Write an equation to represent the pattern in the table.

X	Y
7	9
10	12
12	14

$y = x + 2$

Week 2

Distance Between Points Coloring Page

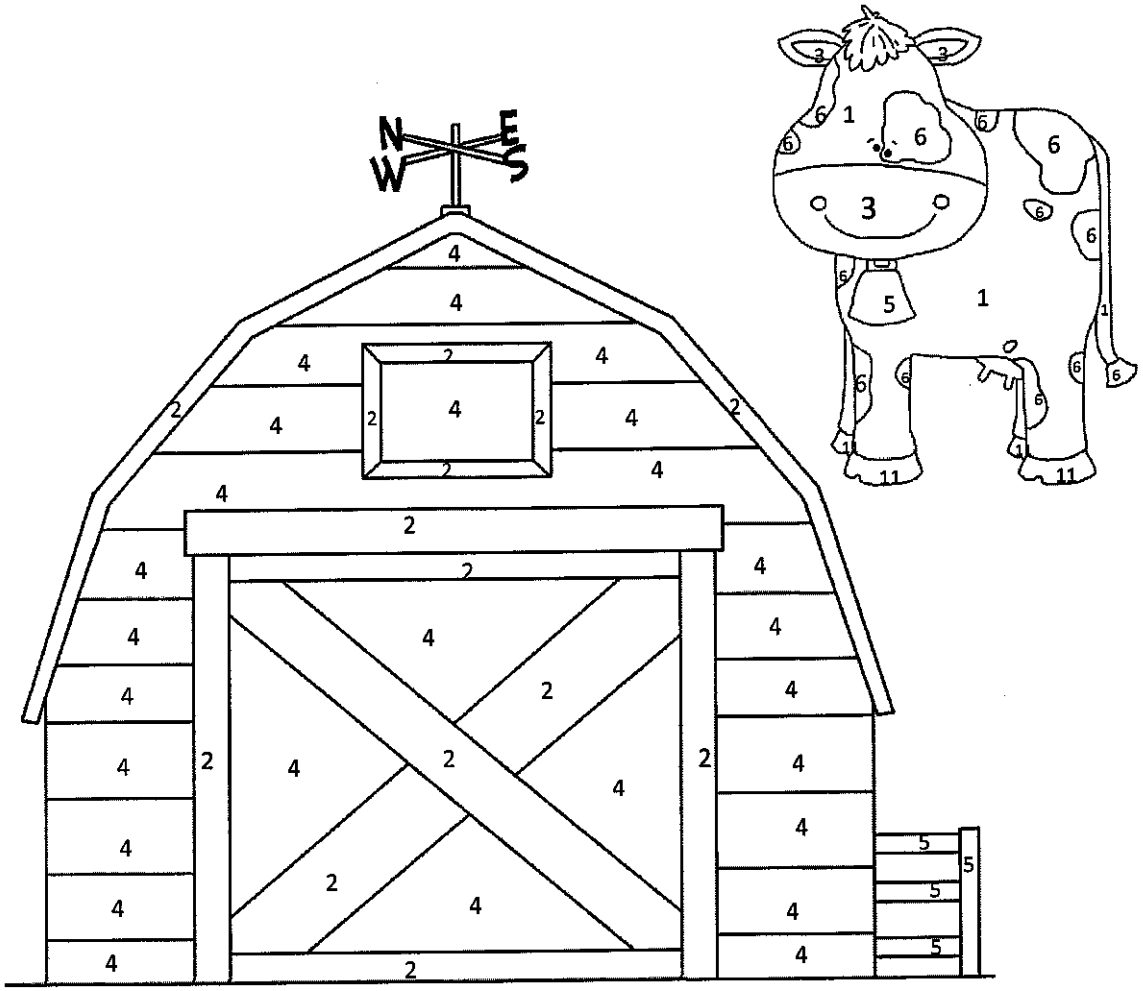
Name_____Date _____

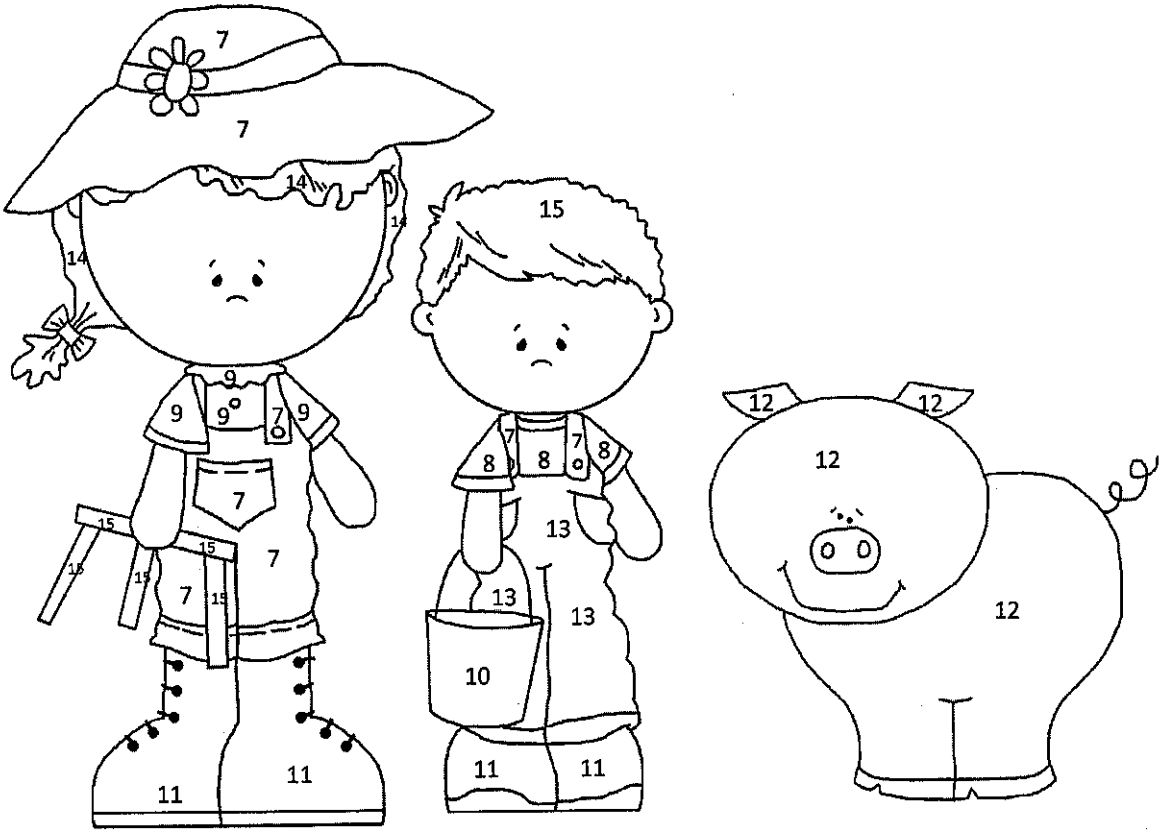
Find the distance between the points. Show your work in the box. Look for the answer on the bottom of the page. Find the problem number on the coloring page and color the section the color given.

1. (-3, 2) and (-3, 5)	2. (7, 6.5) and (8.5, 6.5)	3. (-6, 8) and (-6, 20)
4. (-4, 12) and (-4, 8)	5. (-8.5, 1.5) and (-6, 1.5)	6. (-13, -6) and (-7, -6)
7. (10, -5) and (3, -5)	8. (12.5, 6) and (12.5, 10)	9. (10, 12) and (-3, 12)
10. (4.5, 7) and (9.5, 7)	11. (6, 12.5) and (6, 14)	12. (-8, -6) and (-8, 6)
13. (0, -4) and (0, 3)	14. (-6.5, 4) and (-9, 4)	15. (12, -6) and (15, -6)

Black 1.5	White 6	Brown 3
Pink 12	Red 4	Yellow 2.5
Blue 7	Green 13	Gray 5

Week 2





Week 2 Answers

Answer Key

Distance Between Points Coloring Page

1. (-3, 2) and (-3, 5) 3	2. (7, 6.5) and (8.5, 6.5) 1.5	3. (-6, 8) and (-6, 20) 12
4. (-4, 12) and (-4, 8) 4	5. (-8.5, 1.5) and (-6, 1.5) 2.5	6. (-13, -6) and (-7, -6) 6
7. (10, -5) and (3, -5) 7	8. (12.5, 6) and (12.5, 10) 4	9. (10, 12) and (-3, 12) 13
10. (4.5, 7) and (9.5, 7) 5	11. (6, 12.5) and (6, 14) 1.5	12. (-8, -6) and (-8, 6) 12
13. (0, -4) and (0, 3) 7	14. (-6.5, 4) and (-9, 4) 2.5	15. (12, -6) and (15, -6) 3

Week 2

The Coordinate Plane Reflections Practice

Name _____ Date _____

1. Write the ordered pairs when (-2, 5) is reflected across the x axis and the y.

   _____ _____

2. Write the ordered pairs when (0, 7) is reflected across the x axis and the y.

   _____ _____

3. Write the ordered pairs when (1, 4) is reflected across the x axis and the y.

   _____ _____

4. Write the ordered pairs when (-3.5, 8.5) is reflected across the x axis and the y.

   _____ _____

5. Write the ordered pairs when (1.25, -7) is reflected across the x axis and the y.

   _____ _____

6. Across which axis do you reflect (3, 4) to get (3, -4)? _____

7. Across which axis do you reflect (9,- 2) to get (-9, -2)? _____

8. Across which axis do you reflect (4, 0) to get (4, 0)? _____

9. Adam draws a reflection of the point (-5, -6). He gets the point (5, -6). Across which axis did he reflect the point? How do you know?

   _____

   _____

10. Stephen reflects the point (1, 7) across the x-axis. What are the coordinates of the reflected point? How did you get your answer?

    _____

    _____

Week 2
Answers

The Coordinate Plane Reflections Practice Answer Key

Name _____ Date _____

1. Write the ordered pairs when (-2, 5) is reflected across the x axis and the y.
   _____(-2,-5)____ ____(2,5)_____

2. Write the ordered pairs when (0, 7) is reflected across the x axis and the y.
   ____(0,-7)_____ __(0,7)_____

3. Write the ordered pairs when (1, 4) is reflected across the x axis and the y.
   ___(1,-4)_____ ___(-1,4)_____

4. Write the ordered pairs when (-3.5, 8.5) is reflected across the x axis and the y.
   ____(-3.5,-8.5)_____ ___(3.5, 8.5)_____

5. Write the ordered pairs when (1.25, -7) is reflected across the x axis and the y.
   _____(1.25, 7)___ _____(-1.25, -7)_____

6. Across which axis do you reflect (3, 4) to get (3, -4)? _____x axis_____

7. Across which axis do you reflect (9,- 2) to get (-9, -2)? ____y axis_____

8. Across which axis do you reflect (4, 0) to get (4, 0)? _____x axis_____

9. Adam draws a reflection of the point (-5, -6). He gets the point (5, -6). Across which axis did he reflect the point? How do you know?
   y axis- x value becomes opposite

10. Stephen reflects the point (1, 7) across the x-axis. What are the coordinates of the reflected point? How did you get your answer?

(1,-7) x axis makes the y value opposite

6th Grade Math

SKILL REVIEW

Equivalent Expressions

Key Concepts:

- Another word for equivalent is equal.
- Equivalent expressions are the result of using one of the properties of mathematics or simplifying an expression.
- For example:
  - 5 + 2 = 7 ; where 5 + 2 and 7 are each expressions that are equivalent.
  - 4(2 + 3) = 8 + 4(3) ; where 4(2 + 3) and 8 + 4(3) are equivalent.

How I feel about this concept:

☐ I Completely Get It ☐ I'm Struggling

☐ I've Almost Got It ☐ I'm Lost

I still don't understand:

Practice:

1) Write an expression that is equivalent to : 2(3 + 4).

2) Write an expression that is equivalent to : 20 ÷ 5.

3) Write an expression that is equivalent to : 100.

4) Write two different expressions that are equivalent to : 25.

5) Correct one side of the equation so the expressions are equal.
$5(2 + 2) = 10 + 2$

6) Correct one side of the equation so the expressions are equal.
$8 + 2 \cdot 3 = 30$

7) Correct one side of the equation so the expressions are equal.
$1 + 0.5 = 1 + 1\frac{1}{2}$

8) Correct one side of the equation so the expressions are equal.
$10 - x = x - 10$

Equivalent Expressions

Directions: Read each problem carefully.

1) Write an expression that is equivalent to : $2(x + 3)$.

2) Write an expression that is equivalent to : $26 \div 4$.

3) Write an expression that is equivalent to : $16x$.

4) Write two different expressions that are equivalent to : 200.

5) Write two different equations that are equivalent to : $20x$.

6) Correct one side of the equation so the expressions are equal.

$$8 \cdot 2x = 15x$$

7) Correct one side of the equation so the expressions are equal.

$$140 = 2(10 + 40)$$

8) Correct one side of the equation so the expressions are equal.

$$10 \div x = x \div 10$$

9) Correct one side of the equation so the expressions are equal.

$$3x \cdot 1 = 5x - 2x$$

10) Correct one side of the equation so the expressions are equal.

$$4(2x - 3) = 2(4x + 6)$$

Order of Operations

Key Concepts:

- **Grouping Symbols:** All grouping symbols should be eliminated first.
- **Exponents:** Simplify any exponents.
- **Multiplication or Division:** Simplify multiplication and division (whichever comes first) from left to right through the expression.
- **Addition or Subtraction:** Simplify addition and subtraction (whichever comes first) from left to right through the expression.

How I feel about this concept:

☐ I Completely Get It ☐ I'm Struggling

☐ I've Almost Got It ☐ I'm Lost

I still don't understand:

Practice:

Simplify each expression using the order of operations.

1) $7 + 9 \cdot 2^2$

2) $8 \div 4 \cdot 2 + 5$

3) $4^2 + (2 + 3 + 7) \cdot 5$

4) $10 - 20 \div 5 + 2$

5) $2(3) + (8 \cdot 4)$

6) $5 + 12 \div 3 + 8$

7) $3 \cdot (2 + 5) - 2$

8) $3^2 \cdot (7 + 1) \cdot 2$

EXTRA PRACTICE

Order of Operations

Directions: Simplify each expression using the order of operations.

1) $(25 + 5) \cdot 3 - 13$

2) $22 + 6 \cdot 4 - 4$

3) $18 + 36 \div 4$

4) $6 + 16 \div 2 \cdot 2$

5) $20 + 6 - 4 \div 2$

6) $50 - 20 \div 2 + 5$

8) $7 + (2^3 + 1 - 5)$

9) $2 + (5 \cdot 4) - 7 + 2$

10) $3 + (5 + 6) - 2^3$

11) $10 + (9 \cdot 6) + 4 \div 2$

12) $2^2 + 5 \cdot (3 \cdot 7) - 2$

13) $37 - 2 \cdot (2 + 8)$

Writing Equations

Key Words:

Addition Key Words
Plus, Total, Increased by, Combined, Add, Sum, More than, In All...

Subtraction Key Words
Subtract, Take away, Decreased by, Minus, Fewer, Less than, Difference...

Multiplication Key Words
Times, Double, Triple, Product, Of, Multiplied by, Twice, Multiple...

Division Key Words
Quotient of, Per, Divided by, Half, Divided into, Split...

Parenthesis Key Words
The quantity of,
The sum of,
The difference of...

Equal Sign Key Words
Is, Equals, Is equal to...

How I feel about this concept:

- ☐ I Completely Get It
- ☐ I'm Struggling
- ☐ I've Almost Got It
- ☐ I'm Lost

I still don't understand:

Practice:

Write an equation for each situation.

1) The difference of three times a number and three is fourteen.

2) Eight minus the sum of a number and four is thirteen.

3) Six minus the sum of a number and three equals nineteen.

4) Ten less than the product of a number and five is thirty.

5) Four less than a number cubed is twenty.

6) Twice the sum of three and a number is equal to seventy.

7) The quotient of a number and two, squared, is four.

8) The sum of twice a number and two, multiplied by four equals fifty.

Writing Equations

Directions: Write each equation.

1) One fourth of the difference of a number and sixteen is eighty.

2) One half of the difference of twice a number and two equals four and a half.

3) The sum of a number and three, divided by nine is eight.

4) Fifty times a number cubed is two hundred.

5) The quotient of three times a number and six is twelve.

6) Seven more than half a number is equal to three less than the number.

7) The sum of half a number and two equals eight.

8) Seven more than the quotient of a number and two is one hundred.

9) The difference of a number and three, divided by two is equal to six.

10) The sum of eight and a number is equal to the number squared.

11) The sum of three consecutive numbers is eighty two.

12) Allie sold half of her bracelets. She bought two more and now has fourteen. Write an equation that can be used to determine how many bracelets she began with.

13) Bijan had $x in the bank. He withdrew $104. Now he has $42.

Two-Variable Relationships

Key Concepts:

One variable depends on the other :

- When checking out at a store, how much you spend *depends on* how much you bought.
- When traveling, how fast you get to your destination *depends on* how fast you drive.

Two variable relationships involve one quantity depending on the other.

For example : In the equation x + 5 = y, y depends on x. Why? The sum of a number and 5 depends on that number.

How I feel about this concept:

☐ I Completely Get It ☐ I'm Struggling

☐ I've Almost Got It ☐ I'm Lost

I still don't understand:

Practice:

1) Complete the table using the equation $y = 2 + x$.

x	y
1	
2	
3	
4	

2) Complete the table using the equation $y = 2x$.

x	y
1	
2	
3	
4	

3) One pack (p) of socks is $2. Let x represent the total you spent on socks and p represent the number of packs of socks you purchased. Write an equation that can be solved to find out how many pairs of socks you purchased.

4) Write an equation that represents the relationship between x and y in the table.

x	y
11	6
12	7
13	8
14	9

Two-Variable Relationships

1) The table shows the relationship between the age of a tree in weeks, w, and the height of the tree in inches, h.

Write an equation to represent this relationship.

_____

w	h
1	8
2	16
3	24
4	32

2) Using the table in question #1, predict the height of the tree when it is 10 weeks old.

_____ inches

3) Explain how you found your answer to #2.

_____

_____

_____

_____

4) The table represents the relationships $y = 4x$. Complete the missing parts of the table.

x	1	3		9
y	4		20	

5) Using the table in question #4, find the value of y if $x = 25$.

$y =$ _____

6) Explain how you found your answer to #5.

_____

_____

_____

_____

7) Describe a real world situation that can be modeled by the equation & table in #4.

_____

_____

_____

_____

Graphing Inequalities

Key Concepts:

"The dot" :

- Open dots : < and >
- Closed dots : ≤ and ≥

The arrow :

← Pointing left : ≤ and <

→ Pointing right : ≥ and >

How I feel about this concept:

☐ I Completely Get It ☐ I'm Struggling

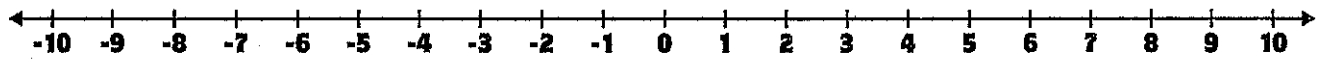
☐ I've Almost Got It ☐ I'm Lost

I still don't understand:

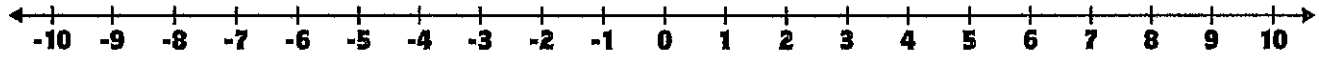
Practice:

Graph each inequality on the number line.

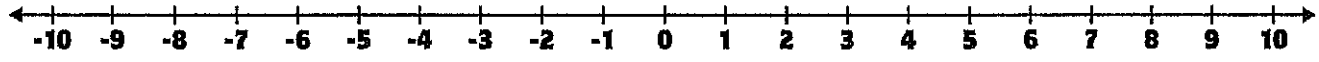
1) $x < -8$



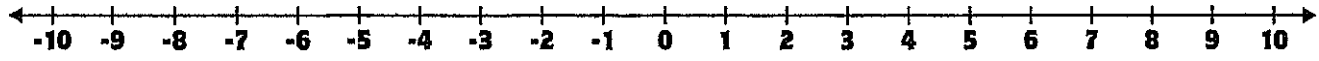
2) $x \geq 6$



3) $x > -1.5$



4) $x \geq 1$

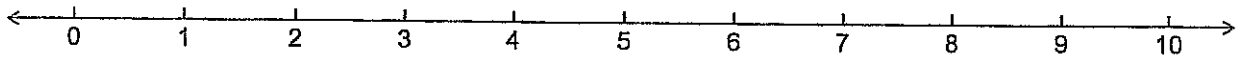


EXTRA PRACTICE

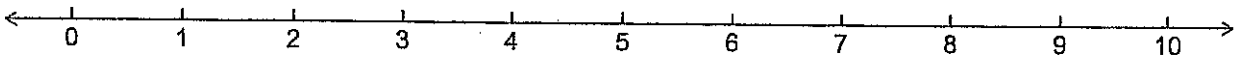
Graphing Inequalities

Directions: Graph each inequality.

1) $x \geq 10$



2) $x \leq 8$



3) Explain how you decided to graph the inequality above. _____

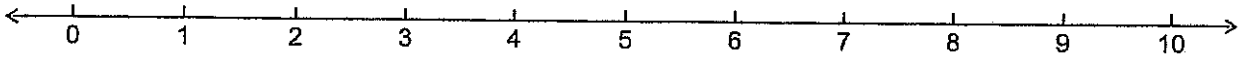
_____

_____

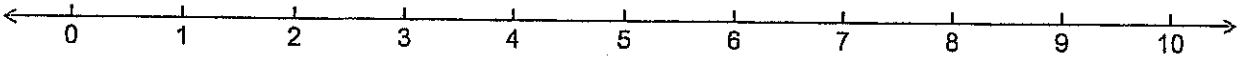
_____

_____

4) $x > 0$



5) $x < 5.5$



6) Explain how you decided to graph the inequality above. _____

_____

_____

_____

_____

Solving Inequalities

Key Concepts:

Inverse Operations:

The inverse of addition is _____

The inverse of subtraction is _____

The inverse of multiplication is _____

The inverse of division is _____

You can be absolutely sure you have 100% of your inequalities solved correctly if you take the time to check your answers.

How I feel about this concept:

☐ I Completely Get It ☐ I'm Struggling

☐ I've Almost Got It ☐ I'm Lost

I still don't understand:

Practice:

Solve for x.

1) $7x < 21$

2) $2 + x \geq 6$

3) $x - 12 > 4$

4) $x - 25 > 30$

5) $x - 5 \leq 4$

6) $10x \geq 40$

Is the given number a possible solution to the inequality?

7) $x \div 5 \leq 20$; 150

8) $x \div 2 < 10$; 25

EXTRA PRACTICE

Solving Inequalities

Directions: Solve each inequality.

1) Solve for x : $x \div 2 > 24$

Show your check.

2) Solve for x : $x - 25 \leq 4$

Show your check.

3) Is the given number a possible solution for the inequality? $x + 2 < 45$; 50

4) Solve for x : $x + 13 \geq 14$

Show your check.

5) Solve for x : $5x < 40$

Show your check.

6) Is the given number a possible solution for the inequality? $9x > 72$; 10

7) Solve for x : $x + 3 \leq 50$

Show your check.

8) Solve for x : $x \div 5 \geq 30$

Show your check.

Writing Inequalities

Key Concepts:

"The dot" :

- o Open dots : < and >
- • Closed dots : ≤ and ≥

The arrow :

← Pointing left : ≤ and <

→ Pointing right : ≥ and >

Key Words :

> greater than, more than, bigger than, over...	**<** less than, fewer than, under, smaller than...
≥ at least, a minimum of, greater than or equal to, no less than...	**≤** at most, a maximum of, less than or equal to, no more than...

How I feel about this concept:

☐ I Completely Get It ☐ I'm Struggling

☐ I've Almost Got It ☐ I'm Lost

I still don't understand:

Practice:

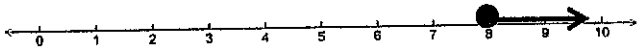
1) A number is no more than fourteen.

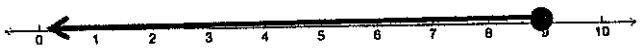
2) A number is at most eight.

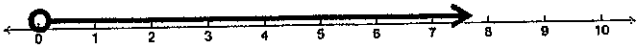
3) Mike wants to earn least ten dollars.

4) The number of kids on each team is smaller than nine.

5) 

6) 

7) 

8) 

Writing Inequalities

Directions: Write each inequality.

1) A number is a minimum of 100.

2) A number is fewer than zero.

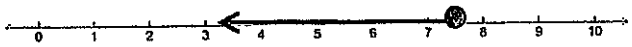
3) A number is over fifty.

4) Kyle has less than $40 in the bank.

5) Allen ran a maximum of 15 miles this week.

6) Alisha ate at least two pieces of pizza.

7) There are over 840 students in school.

8) 

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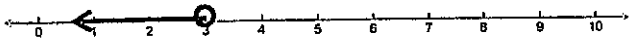
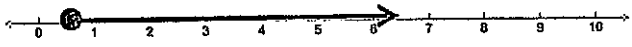
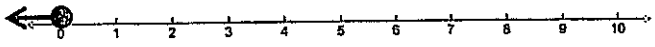
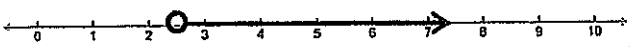
10) 

11) 

12) 

13) 

14) 

Solving Equations

Key Concepts:

Inverse Operations:

The inverse of addition is _____

The inverse of subtraction is _____

The inverse of multiplication is _____

The inverse of division is _____

You can be absolutely sure you have 100% of your equations solved correctly if you take the time to check your answers.

How I feel about this concept:

☐ I Completely Get It ☐ I'm Struggling

☐ I've Almost Got It ☐ I'm Lost

I still don't understand:

Practice:

Solve each equation.

1) $7x = 49$

2) $2 + x = 26$

3) $x - 8 = 4$

4) $23 + x = 30$

5) $x - 75 = 4$

6) $x \div 2 = 8$

Is the given number a solution to the equation?

7) $x \div 5 = 40$; $x = 8$

8) $15x = 45$; $x = 3$

Solving Equations

Directions: Solve each equation. Show your work.

1) Solve for x : $x \div 12 = 24$

Show your check.

2) Solve for x : $x - 20 = 4$

Show your check.

3) Is the given number a solution to the equation? $x + 12 = 15$; $x = 27$

4) Mrs. Jacobs purchased 10.2 ounces of candy for her class. Each student gets 0.85 ounces. Write and solve an equation to determine how many students are in Mrs. Jacobs' class.

Show your check.

5) Hilda can run one mile in 7.5 minutes. Write and solve an equation to determine how far she can run in 67.5 minutes.

Show your check.

6) Is the given number a solution to the equation? $9x = 72$; $x = 8$

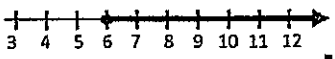
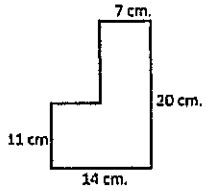
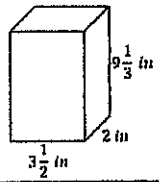
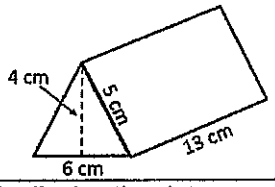
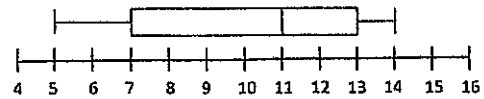
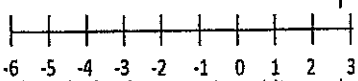
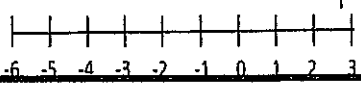
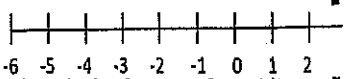
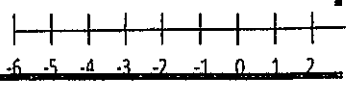
7) Kiara has $450 in the bank. After buying groceries she has $398.72 left in her account. Write and solve an equation to determine how much she spent at the grocery store.

Show your check.

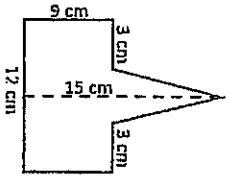
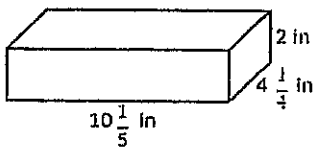
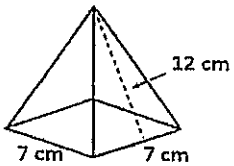
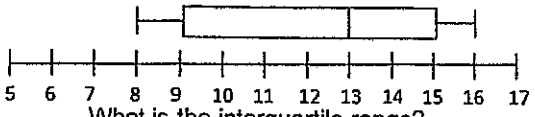
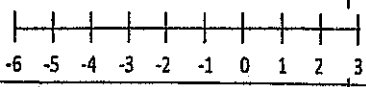
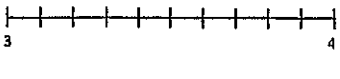
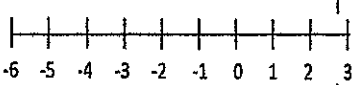
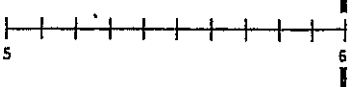
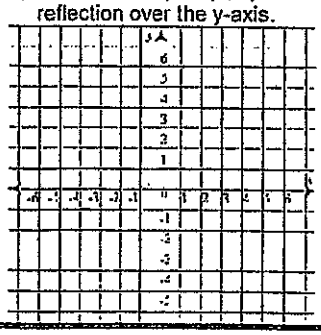
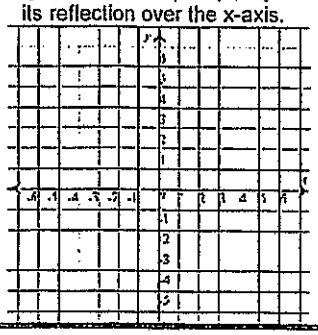
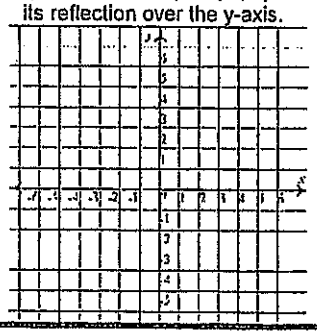
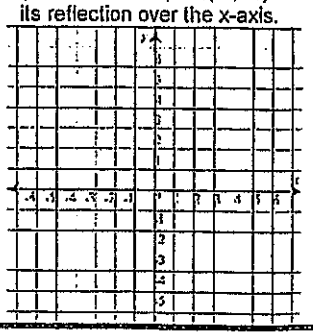
8) Solve for x : $x \div 1.5 = 30$

Show your check.

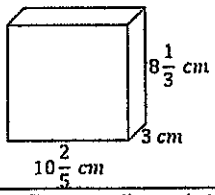
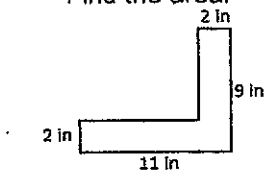
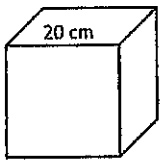
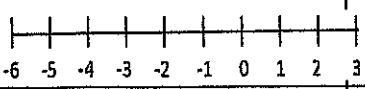
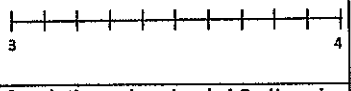
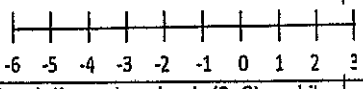
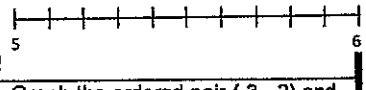
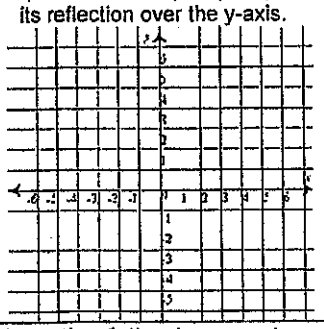
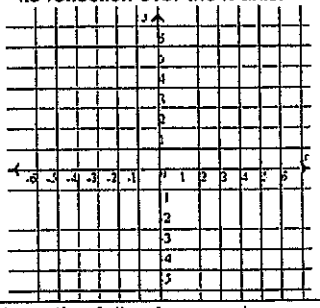
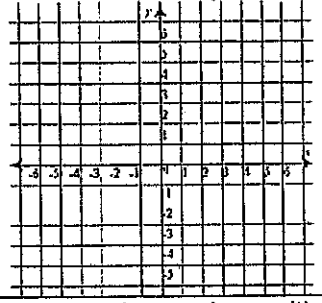
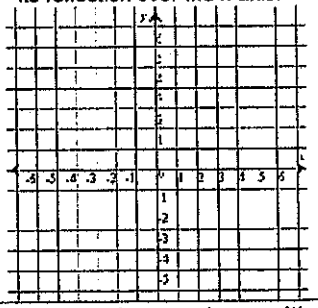
Name: Weekly Math Review – Q4:1 Teacher:

Monday	Tuesday	Wednesday	Thursday
Solve. $7{,}390.7 - 0.874$ $843.48 + 2{,}894.2$	Find the quotient. $\frac{5}{7} \div \frac{7}{10} =$	Solve. 3.9×9.87 $3.141 \div 0.45$	Find the quotient. $\frac{2}{9} \div \frac{4}{15} =$
Fill in the blank. 3,450 mL = _____ L	84 is what percent of 105?	Mitchel ate 45 hotdogs in 3 minutes at the annual hot dog eating contest. What is Mitchel's unit rate?	Joe read 140 pages of his 300-page book. What percent of the book has he read?
What is the value of $6x^2 + 4x + 8$, when $x = 7$?	Evaluate the expression. $(4+6)\times6\div3-1\times3$	Andrea deposited 138 dollars into her bank account. Write an expression representing Andrea's bank account.	Write an equivalent expression for $24x + 16$
List 3 values that would make this inequality true. $y + 7 > 18$ _____, _____, _____	Solve for r $80 = 10r$	Kathy swims at least 6 laps every day. Write an inequality to show how long Kathy swims each day.	Write the inequality this number line represents. 
A 1-day movie rental at Red Box costs $1.39. For each additional day there is a fee of $0.50. How much will it cost to rent a movie for 7 days?	Find the area.  	Find the rule. Solve for n. X | Y 3 | 30 4 | 40 6 | n 7 | 70 Rule:	There are two squares. One has a side length of 12 inches and the other has a side length of 14 inches. What is the total area of both squares?
Find the Volume.  	Find the surface area.  	Luis's cedar chest measures 4 feet long, 2 feet wide, and 2 ¼ feet high. What is the volume of the chest?	A rectangular chair cushion measures 14 inches long, 12 inches wide, and 3 inches high. How many square inches of fabric would you need to cover the cushion?
Draw a line plot to correctly display the data. 1, 1, 1, 1, 3, 3, 4, 4, 4, 8, 12 Mean = Median = Mode = Range =		Find the mean absolute deviation of the set of data. 8, 7, 4, 6, 6	Andrea's math test scores were 76, 88, 82, 94, and 88. Find the mean.
Use the box-and-whisker plot to answer the question below.  What is the interquartile range?		Rewrite this non-statistical question as a statistical question. How much money does my teacher make?	Find the mean absolute deviation of the set of data. 2, 4, 5, 5, 3
Determine if each example is positive or negative. Earned 25 dollars 20 feet below sea level 4 degrees below zero	Write the integer that best represents 23 degrees below zero.	Graph the integer 2 and its opposite on the number line.  Graph the integer 4 and its opposite on the number line.  	Graph the integer 6 and its opposite on the number line.  Graph the integer 0 and its opposite on the number line. 

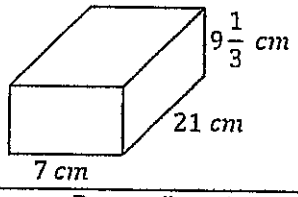
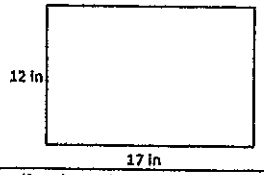
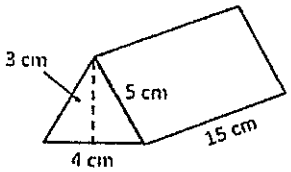
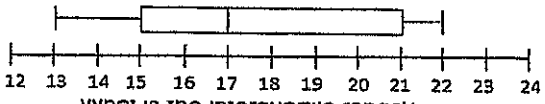
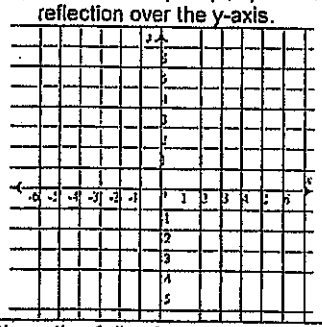
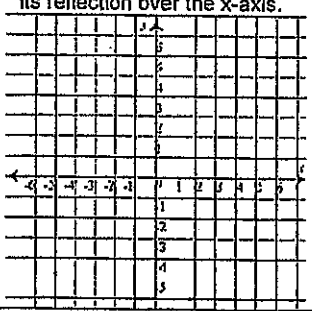
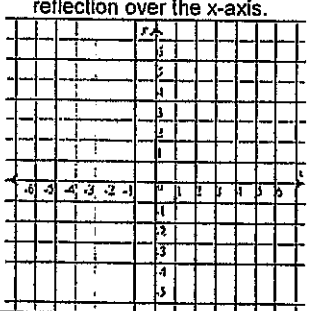
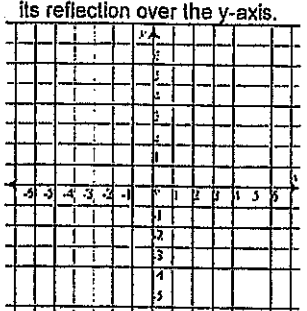
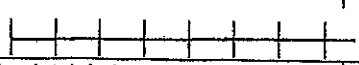
Name: Weekly Math Review – Q4:2 Teacher:

Monday	Tuesday	Wednesday	Thursday
Solve. $94.2 - 3.89$ $4{,}390.2 + 57.304$	Find the quotient. $\frac{4}{7} \div \frac{1}{5} =$	Solve. 7.02×0.85 $53.76 \div 2.1$	Find the quotient. $\frac{10}{11} \div \frac{8}{9} =$
Fill in the blank. 55 dm = _____ m	What is 88% of 50?	Jared made 4 bird houses in 3 days. How many days will Jared work to make 20 bird houses?	Maria's math test had 25 questions. She got 84% correct. How many problems did she get wrong?
What is the value of $8^3 + 5x$, when x = 12?	Evaluate the expression. $12 + (8 \times (4 + 3) + 2) - 6$	Solve for z $z + 17 = 38$	Write an equivalent expression for $8y + 12 + 2y + 8$
List 3 values that would make this inequality true. $180 > 15y$ _____, _____, _____	Find the area. 	Find the rule. Solve for n. X: 23, 25, 28, 32 Y: 16, 18, n, 25 Rule:	Jocelyn is going to put wood floors down in her living room. The room is 24 feet long and 15 feet wide. How many square feet of wood does Jocelyn need?
Find the Volume. 	Find the surface area. 	The post office is now calculating the volume of packages to determine the shipping cost. If a box measures 8 ½ inches long, 5 ¼ inches wide, and 7 inches high, what is its volume?	Angie is wrapping a present for her best friend. The box is 16 inches long, 12 inches wide, and 3 inches high. How many square inches of wrapping paper does Angie need for her present?
Draw a line plot to correctly display the data. 4, 5, 6, 9, 13, 14, 14, 14, 15 Mean = Median = Mode = Range = What is the best measure of center?		Find the mean absolute deviation of the set of data. 9, 12, 3, 5, 8	Jorge bowled 5 games. He scored 131, 110, 128, 105, and 120. What is the mean of Jorge's scores?
Use the box-and-whisker plot to answer the question below.  What is the interquartile range?		Rewrite this non-statistical question as a statistical question. How old is my mother?	Find the mean absolute deviation of the set of data. 4, 5, 8, 8, 10
Graph the integer -3 and its opposite on the number line. 	Place the number 3.4 on the number line. 	Graph the integer 4 and its opposite on the number line. 	Place the number 5.7 on the number line. 
Graph the ordered pair (3, 5) and its reflection over the y-axis. 	Graph the ordered pair (5, -2) and its reflection over the x-axis. 	Graph the ordered pair (-1, 3) and its reflection over the y-axis. 	Graph the ordered pair (-5, -3) and its reflection over the x-axis. 

Name: Weekly Math Review – Q4:3 Teacher:

Monday	Tuesday	Wednesday	Thursday
Solve. 3,390.02 – 67.008 394.029 + 5.38	Find the quotient. $\frac{3}{10} \div \frac{5}{6} =$	Solve. 89.1 x 0.47 4.5724 ÷ 0.07	Find the quotient. $\frac{8}{10} \div \frac{1}{4} =$
Fill in the blank. 8 km = _____ m	What is 32% of 92?	It takes Ivanna 3 minutes to complete 2 problems on her math homework. How long will it take Ivanna to complete 12 problems?	Emma is practicing a back handspring in gymnastics class. She does it perfectly 8 out of 12 times. What percentage were perfect?
What is the value of $7x - 2x + 3$, when $x = 5$?	Evaluate the expression. $(65 + (\frac{1}{5} \times 5) + 6) \div 9$	Solve for h $32h = 288$	List 3 values that would make this inequality true. $42 \leq 24 + y$ _____, _____, _____
Find the Volume.  	Find the area.  	Find the surface area.  	A cell phone measures 10 cm high, 6 cm long, and 2 cm wide. What is the volume of the cell phone?
Draw a line plot to correctly display the data. 9, 3, 4, 4, 4, 3, 2, 2, 20, 20 Mean = Median = Mode = Range = What is the best measure of center?		Find the mean absolute deviation of the set of data. 3, 8, 10, 12, 15	Each night Emily gets math problems for homework. This week she got 12 problems on Monday, 18 on Tuesday, 15, on Wednesday, 24 on Thursday, and 30 on Friday. What is the mean?
Draw a box-and-whisker plot to represent the data below. 7, 8, 10, 13, 14, 17, 22, 22, 24		Rewrite this non-statistical question as a statistical question. How many minutes do I exercise each day?	Find the mean absolute deviation of the set of data. 1, 4, 7, 8, 10
Graph the integer -2 and its opposite on the number line.  	Place the number 3.1 on the number line.  	Graph the integer 0 and its opposite on the number line.  	Place the number 5.9 on the number line. 
Graph the ordered pair (0, -4) and its reflection over the y-axis. 	Graph the ordered pair (-3, 1) and its reflection over the x-axis. 	Graph the ordered pair (3, 2) and its reflection over the y-axis. 	Graph the ordered pair (-3, -2) and its reflection over the x-axis. 
Place the following numbers on the number line. -2.75, -0.35, 1.4, 2.82 	Place the following numbers on the number line. -2.42, -0.8, 0.33, 1.23 	Compare the numbers with >, <, =. 7.3 _____ 3.9 - 3 _____ - 1	Compare the numbers with >, <, =. $\frac{1}{9}$ _____ - 4 - 0.43 _____ - 2.3

Name: Weekly Math Review – Q4:4 Teacher:

Monday	Tuesday	Wednesday	Thursday
Solve. 382.04 – 6.3 49.038 + 4.97	Find the quotient. $\frac{5}{6} \div \frac{3}{4} =$	Solve. 83.49 x 1.48 437.968 ÷ 2.8	Find the quotient. $5 \div \frac{2}{5} =$
Fill in the blank. 4 m = _____ km	16 is what percent of 25?	Katie runs 4 miles in 24 minutes. How many miles can she run in 30 minutes?	Out of 30 problems on a test, Jose got 4 wrong. What percentage did Jose get correct?
What is the value of 4(3x + 5), when x = 11?	Evaluate the expression. $4^5 \div 2 + (3.5 \times 4)$	Solve for y 25 = y - 11	List 3 values that would make this inequality true. 9n ≥ 117 _____, _____, _____
Find the Volume.  	Find the area of the shaded region.  	Find the surface area.  	Hailey is going to paint a wall in her bedroom. The bottom part of the wall is a rectangle (16ft x 18ft), and the top part is a triangle (8 ft high x 18ft long). What is the total area of the wall?
Draw a line plot to correctly display the data. 3, 3, 5, 5, 5, 7, 7, 8, 15, 15 Mean = Median = Mode = Range = What is the best measure of center?		Find the mean absolute deviation of the set of data. 2, 3, 5, 7, 9	To get ready for the big community bake sale, a baker is baking cookies. For his first batch, he makes 48 cookies, second 78 cookies, third 54 cookies, and fourth 68 cookies. What is the mean?
Use the box-and-whisker plot to answer the question below.  What is the interquartile range?		Rewrite this non-statistical question as a statistical question. What did I score on my math test?	Find the mean absolute deviation of the set of data. 6, 6, 8, 10, 10
Graph the ordered pair (0, 0) and its reflection over the y-axis. 	Graph the ordered pair (-2, 6) and its reflection over the x-axis. 	Graph the ordered pair (5, 5) and its reflection over the x-axis. 	Graph the ordered pair (-5, -5) and its reflection over the y-axis. 
Place the following numbers on the number line. -1.25, 0.1, 2.9, -2.6 	Place the following numbers on the number line. -3, -0.75, 0.42, -2.1 	Compare the numbers with >, <, =. - 6 _____ 1 - 4 _____ - 3	Compare the numbers with >, <, =. $-\frac{1}{2}$ _____ - 0.75 5.2 _____ -9.9
If point A is located at (-6, 3) on a coordinate plane, and point B is located at (-6, 0), what is the distance between the two points?	If point A is located at (2, -3), and there are 10 points between A and B, what could be the possible coordinates for point B?	On a coordinate plane, a triangle is located at (3, 4), and a square is located at (10, 4). What is the distance between the square and triangle?	Jonathan places a star on a coordinate plane at (-2, -7). He wants to place another star across the y-axis, 5 points away. Where will Jonathan place the other star?

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MAP SKILLS BOOT CAMP Name: Date:

LESSON 9

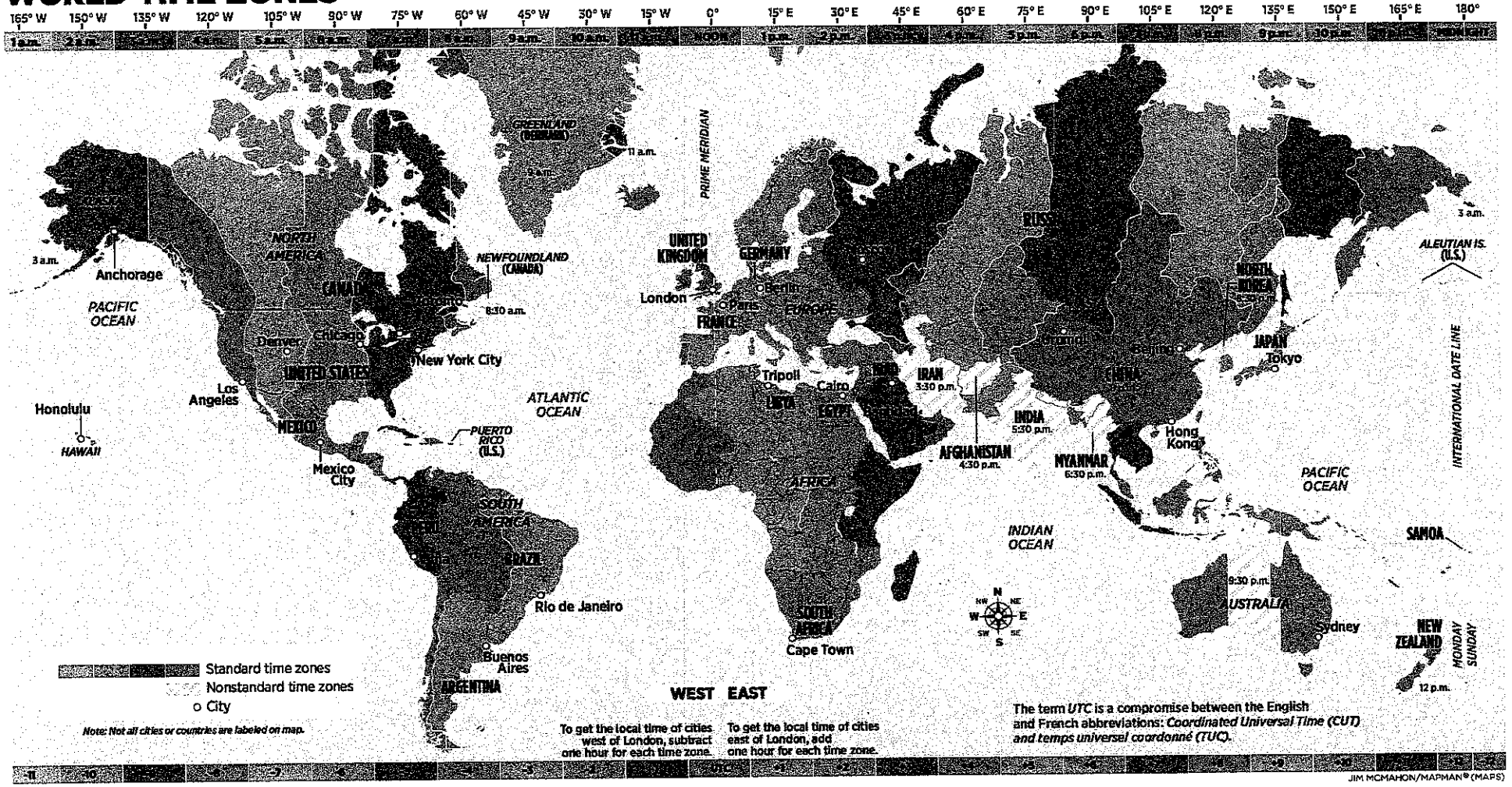
Time Zones

The world has been using time zones since the late 19th century. Back then, railroads were starting to make long-distance travel easier, but differing local times led to confusion for passengers and operators.

To solve the problem, officials created a worldwide system of 24 standard **time zones** in 1884—one for each hour of the day. They designated the prime meridian (0° longitude) as the starting

(continued on next page) →

WORLD TIME ZONES



LESSON 9

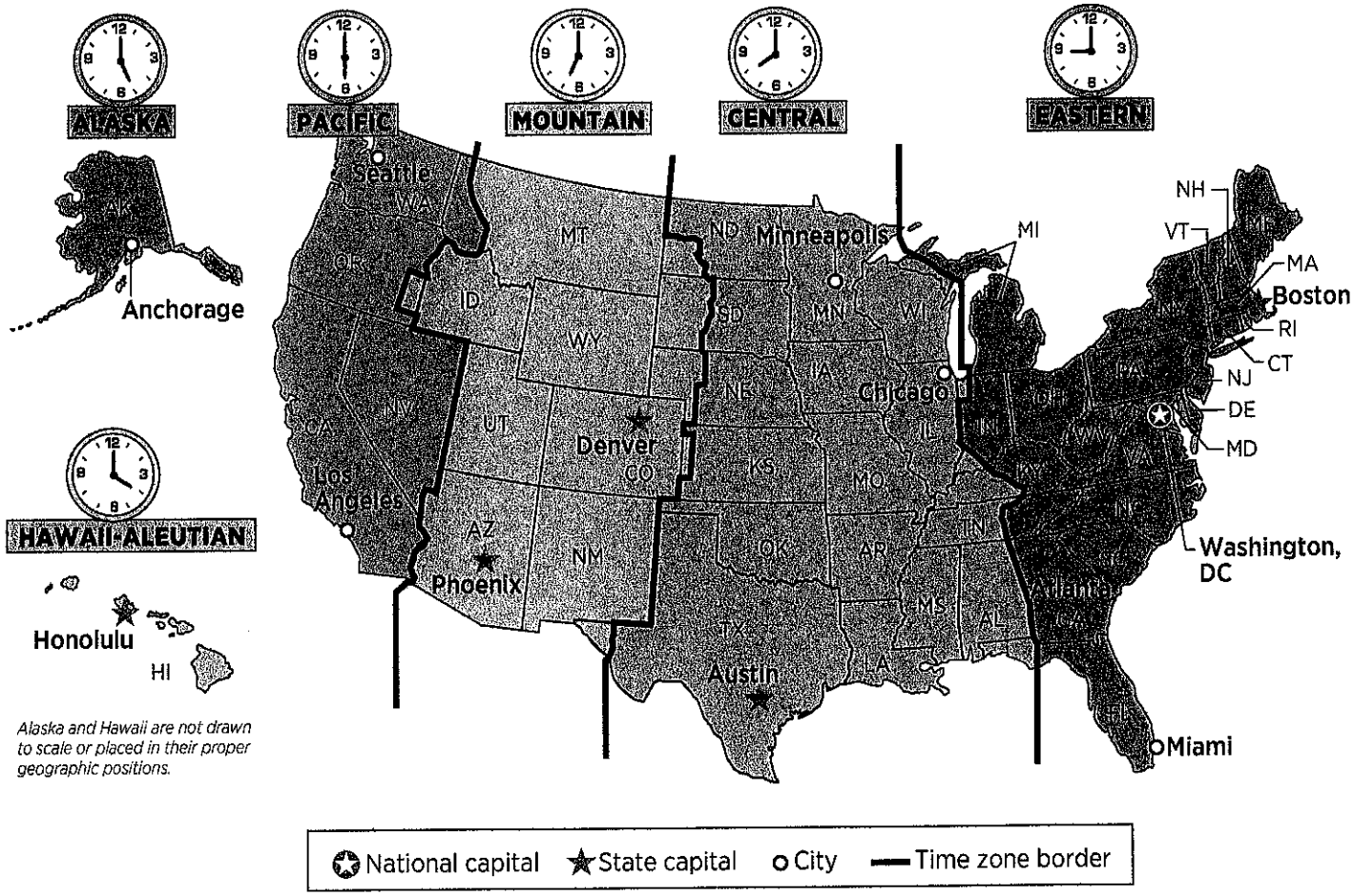
Time Zones

point for the zones. That imaginary line runs through Greenwich—a part of London, England. The time at the prime meridian is known as Coordinated Universal Time (UTC).

The map on p. 1 shows the world's 24 standard time zones. The top bar displays the time in each zone when it is noon in London. The bottom bar shows how many hours to add or subtract from UTC to calculate the time for that zone. The day changes when you cross the international date line (180° longitude).

The map below shows U.S. time zones. Of the world's 24 standard time zones, the U.S. spans six. The boundaries don't always follow straight longitude lines, however. Some zigzag so communities that are close to each other can be in the same time zone, for example, or to allow for the presence of a mountain range or other natural division.

U.S. TIME ZONES



NOTE: Both maps reflect standard time, not daylight saving time (DST). In the U.S., Hawaii and most of Arizona do not observe DST.

LESSON 9

Time Zones

Use Your Skills

Use the maps on p. 1 and p. 2 to answer the questions.

1. When it is noon in London in the United Kingdom, what time is it in New York City in the U.S.?

   _____

2. One of the world's biggest countries has only one time zone. Which country is it? _____

3. When it is noon in Boston, Massachusetts, what time is it in Denver, Colorado? _____

4. Most of Kansas is in which time zone?

   _____

5. Mexico City is in the same time zone as which labeled city in the U.S.? _____

6. The international date line runs mainly along which meridian (line of longitude)?

   _____

7. If you were to fly from Austin, Texas, to Chicago, Illinois, then on to Minneapolis, Minnesota, how many times would you have to adjust your watch?

   _____

8. If you turn your watch from 3:45 p.m. to 8:45 p.m. after a flight, in which direction did you travel?

   _____

9. If the president of the U.S. is making an important speech at 6 p.m. in Washington, D.C., what time would people in Anchorage, Alaska, tune in to watch it live? _____

10. Your friend lives in Tokyo, Japan. She wants you to call her on Wednesday at 8 a.m. Tokyo time. You live in Chicago. What day and time will it be in Chicago when you call your friend?

    _____

Consider This

What kinds of problems might arise if the entire world were to go by the same time—for example, if it were noon everywhere at once?

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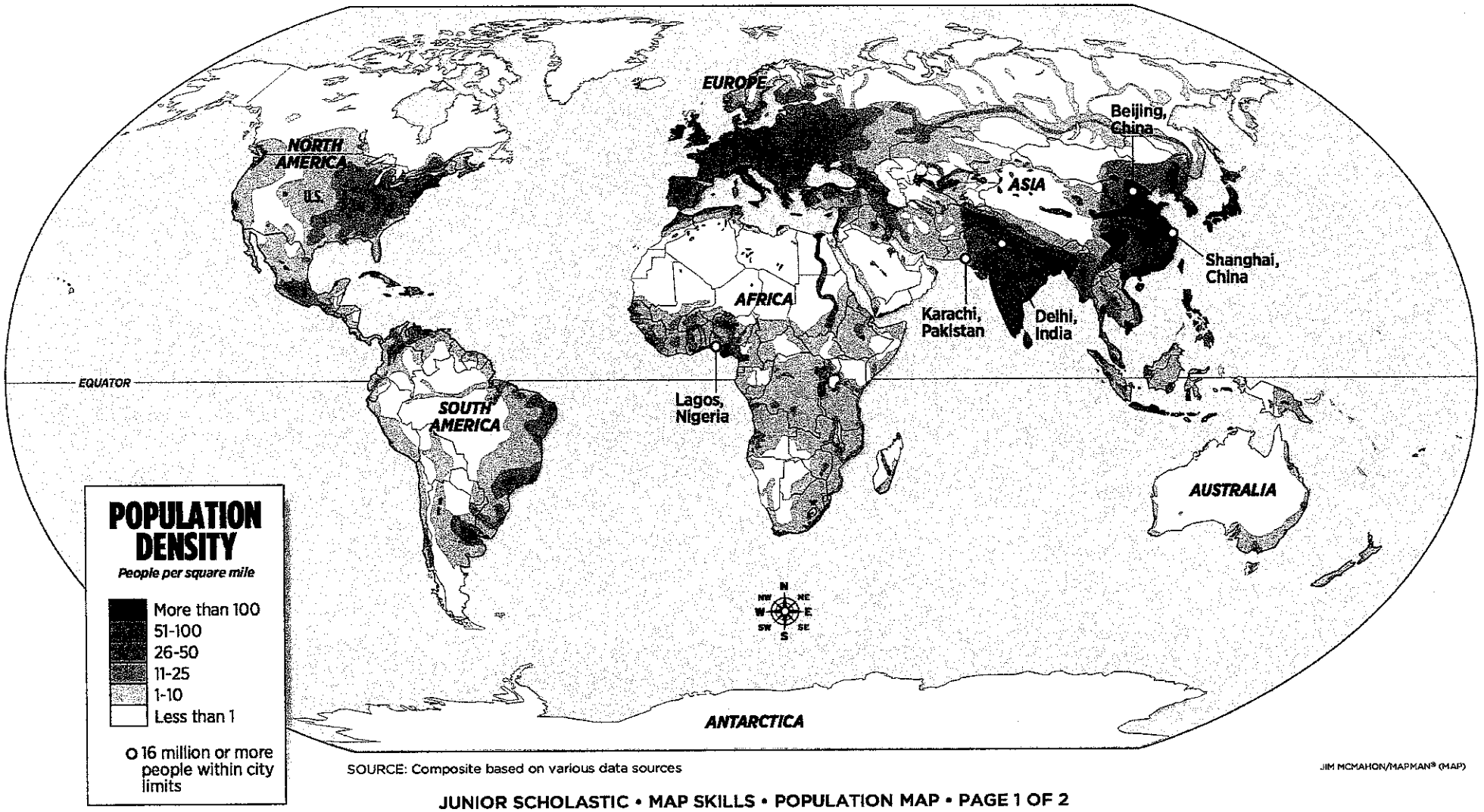
MAP SKILLS BOOT CAMP Name: Date:

LESSON 8

Population Map

According to recent data, there are an estimated 7.3 billion people in the world. Some regions are more densely populated than others, however. This **population map** shows two types of information about the world's inhabitants.

- **Population density:** *Population density* is the average number of people per square mile in a particular area. This map uses color-coding to show variations in population density worldwide. To calculate a (continued on next page) ⟶



SOURCE: Composite based on various data sources

JIM MCMAHON/MAPMAN® (MAP)

LESSON 8

Population Map

region's population density, divide its population (number of people) by its area (number of square miles).

- **Cities of 16 million or more:** The map on p. 1 shows the location of cities that have 16 million or more people living within official city limits. That means people living in a given city's suburbs were not included in the population count.

The 10 most-populous nations in the world are:

1. China	1.4 billion
2. India	1.3 billion
3. U.S.	324 million
4. Indonesia	258 million
5. Brazil	206 million
6. Pakistan	202 million
7. Nigeria	186 million
8. Bangladesh	156 million
9. Russia	142 million
10. Japan	127 million

SOURCE: The World Factbook (CIA); July 2016 estimates

Use Your Skills

Use the map on p. 1 and the chart above to answer the questions.

1. The darkest color represents how many people per square mile?

2. Which continent (not counting Antarctica) averages the fewest people per square mile?

3. In which part of that landmass are most of the people located?

4. How many people live in the city of Lagos, Nigeria? How can you tell?

5. Which continent is more densely populated, Africa or Europe?

6. How many continents have at least one city with 16 million or more people?

7. Which region of the United States has fewer people per square mile, the Northeast or the Southwest?

8. The world's two most-populous countries are on which continent?

9. The world's most-populous country has how many cities highlighted on the map?

10. In terms of this map, what do northern North America and southern South America have in common?

Consider This

The world's total land area is about 197 million square miles and its total population is 7.3 billion. What is the world's population density, and under which range in the map's key does it fall?

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Map Skills Boot Camp Answer Key

Here are the answers for all the Map Skills Boot Camp skills sheets.

LESSON 1: GLOBES AND HEMISPHERES

1. equator (0°)
2. prime meridian (0°) and 180° line
3. South America and Africa (It also passes through Asia, but that isn't shown on these globes.)
4. Europe and Africa
5. Eastern Hemisphere
6. Arctic Ocean
7. Australia (It is entirely in the Southern and Eastern hemispheres.)
8. prime meridian (0°) and 180° line (They also meet at the South Pole.)
9. North America and Europe (It doesn't show on this map, but a small portion of Asia extends south of the equator.)
10. north

Consider This: No. The poles are the farthest points north and south it is possible to go on a globe. From the North Pole, any direction you travel in is moving south; from the South Pole, any direction you travel in is moving north.

LESSON 2: LATITUDE AND LONGITUDE

1. equator
2. prime meridian
3. lines of longitude, also called meridians
4. lines of latitude, also called parallels
5. 90 degrees south (90°S)
6. North Pole
7. about 15°W
8. about 55°S
9. Asia
10. South America

Consider This: Answers will vary.

LESSON 3: DIRECTION AND DISTANCE

1. Idaho and Wyoming
2. North Dakota and South Dakota
3. northwest
4. about 350 miles
5. southeast (from Santa Fe to Austin)
6. about 600 miles
7. about 950 kilometers
8. Little Rock, Arkansas (about 325 miles), and Jackson, Mississippi (about 330 miles)
9. Richmond to Albany: northeast; Albany to Madison: west (slightly southwest)
10. Richmond to Albany: about 400 miles; Albany to Madison: almost 800 miles

Consider This: Answers may vary, but, essentially, in order to show Alaska and Hawaii in their correct locations and relative sizes, the map would have to be much bigger. Alaska is the largest state and Hawaii is one of the smallest (47th in land area), but in their inset boxes they're pictured almost the same, so the same scale can't be used to measure distance.

LESSON 4: POLITICAL MAP

1. Belgium
2. $40,000 to $54,999
3. eight (Austria, Denmark, Finland, France, Germany, Netherlands, Sweden, United Kingdom)
4. Portugal and Spain
5. one (Ireland)
6. Romania and Bulgaria
7. $10,000 to $24,999
8. Croatia and Cyprus
9. Zagreb (Croatia) and Nicosia (Cyprus)
10. Luxembourg; it is the only E.U. member that is color-coded (dark green) for the "$70,000 and up" category.

Consider This: Answers will vary. *Example:* The poorer nations may need more help building their economies (creating jobs, new business opportunities, etc.); the wealthier countries may resent having to help provide for the needs of the poorer countries.

LESSON 5: PHYSICAL MAP

1. red
2. over 10,000 feet above sea level
3. Kabul (Afghanistan's capital)
4. Mazar-e-Sharif (It is at 1,000 to 4,999 feet above sea level, compared with Kandahar's 500 to 999 feet.)
5. Amu Darya River
6. 1,000 to 4,999 feet above sea level (yellow)
7. 500 to 999 feet above sea level (light green)
8. Wakhan Corridor
9. Tajikistan, China, and Pakistan
10. southwest (flowing from the highest land in the center of the country into a lower-level lake on the Afghanistan-Iran border)

Consider This: Enemy and terrorist groups have been able to evade U.S. and allied forces by hiding in the mountainous terrain of central and eastern Afghanistan. They also have been able to cross into Pakistan; U.S. troops can't follow them into another country's territory. Those and other difficulties contribute to making the fighting in Afghanistan the longest-running conflict in U.S. history.

LESSON 6: SCALE MAPS

1. large-scale map
2. small-scale map
3. small-scale map
4. large-scale map
5. Cuba, Jamaica, Haiti, and the Dominican Republic (The Cayman Islands and Puerto Rico are territories of the U.K. and the U.S., respectively.)
6. North America
7. about 400 miles
8. about 300 miles (between Kingston and Port-au-Prince)
9. small-scale map (The distance between tick marks on the small-scale map is 100 miles. On the large-scale map, the distance between tick marks is 50 miles.)
10. large-scale map (The capital is Santo Domingo; its coordinates are approximately 18°N, 70°W.)

Consider This: Answers will vary.

LESSON 7: CLIMATE MAP

1. 10 to 80 inches (light to heavy)
2. South America
3. Antarctica (average annual rainfall of less than 10 inches in all but a few small spots)
4. South America (part of the Amazon tropical rainforest)
5. more than 80 inches average annual rainfall
6. very wet—almost solidly shaded to indicate an average annual rainfall of more than 80 inches (very heavy)
7. an average of less than 10 inches (very light)
8. light to heavy (10 to 80 inches average annual rainfall)
9. northern Africa, because that's the location of a large expanse of land that gets an average annual rainfall of less than 10 inches (very light)
10. Answers will vary, but may include the observation that the tan color suggests sand or dry soil, as in a desert, and

Map Skills Boot Camp Answer Key, cont'd.

the dark purple looks like wet spots. If the colors were reversed, the map could still be read, but probably less effectively without the visual cues suggesting dryness and wetness.

Consider This: At either extreme, weather conditions would make it difficult to grow crops. Very dry areas could also pose problems for getting enough drinking water. Heavy rainfall presents risks of flood damage to homes and other property. (Other answers are acceptable.)

LESSON 8: POPULATION MAP

1. more than 100 people per square mile
2. Australia
3. along the eastern and southeastern coasts
4. 16 million or more; Lagos is indicated by the symbol (a circle) that, according to the map key, represents a city with 16 million or more people
5. Europe
6. two (Africa has one, Asia has the other four)
7. the Southwest
8. Asia (China and India)
9. two (Beijing and Shanghai in China)
10. Both are sparsely populated—less than one person per square mile.

Consider This: 37 people per square mile (7,300,000,000 ÷ 197,000,000 = 37.06 = 37); the 26-to-50 range

LESSON 9: TIME ZONES

1. 7 a.m.
2. China
3. 10 a.m.
4. Central
5. Chicago (Illinois)
6. 180°
7. none (They're all in the same time zone.)
8. eastward
9. 2 p.m.
10. Tuesday at 5 p.m.

Consider This: Answers will vary.

LESSON 10: POLAR MAPS

1. three (Pacific Ocean, Atlantic Ocean, Indian Ocean)
2. Canada (Ellesmere Island) and Denmark (Greenland)
3. South America
4. about 750 miles
5. about 2,800 miles
6. 150°W and 30°E
7. south
8. north
9. Antarctic Peninsula
10. North Pole (90°N) and South Pole (90°S)

Consider This: Answers will vary.

LESSON 11: HISTORICAL MAP

1. seven *(see map key)*
2. France
3. 1960 (Senegal, Mauritania, Mali, Côte d'Ivoire, Burkina Faso, Togo, Benin, Niger, Chad, Cameroon, Central African Republic, Gabon, Republic of the Congo, Madagascar)
4. *oldest:* Ethiopia, founded 1000 B.C.; *youngest:* South Sudan, independent in 2011
5. Great Britain
6. 84 (1994 *[see first footnote]* minus 1910)
7. Liberia
8. Spain
9. São Tomé & Príncipe, Angola, and Mozambique
10. Namibia (from South Africa), South Sudan (from Sudan), and Eritrea (from Ethiopia). Each is marked by gray stripes, which indicate a non-European power *(see map key)*.

Consider This: Possible answers include that boundaries drawn without regard for the people living in a place could have split longtime alliances or forced people with no common interests—or, worse, with a long history of antagonism—to have to work together as a nation. It may also have unevenly dispersed natural resources. Other answers acceptable.

LESSON 12: COMPARING MAP TYPES

1. political map
2. hardwood forest
3. eastern Australia and the island state of Tasmania
4. Queensland, New South Wales, and Tasmania
5. about 1,600 miles (between Darwin and Adelaide)
6. Tasmania (the west side of the island)
7. Darwin (the Northern Territory)
8. 10 to 60 inches average annual rainfall, light to heavy (for Canberra)
9. largely dry and mountainous; all three (*from the political map:* mountainous, with several deserts; *from the physical map:* very little forest land—only the northern and southern parts have forest; *from the climate map:* the middle of the state is very dry—less than 10 inches average annual rainfall)
10. Murray River; political map (The physical and climate maps also show that a river forms part of the boundary, but the political map is the only one that names the states and the river.)

Consider This: Answers will vary. Some possibilities include economic map (showing per capita GDP by state/territory), time zone map (Australia has three time zones), historical map, population map, and small- and large-scale maps (*example:* small-scale for the state of New South Wales; large-scale for the Australian Capital Territory and the city of Canberra).

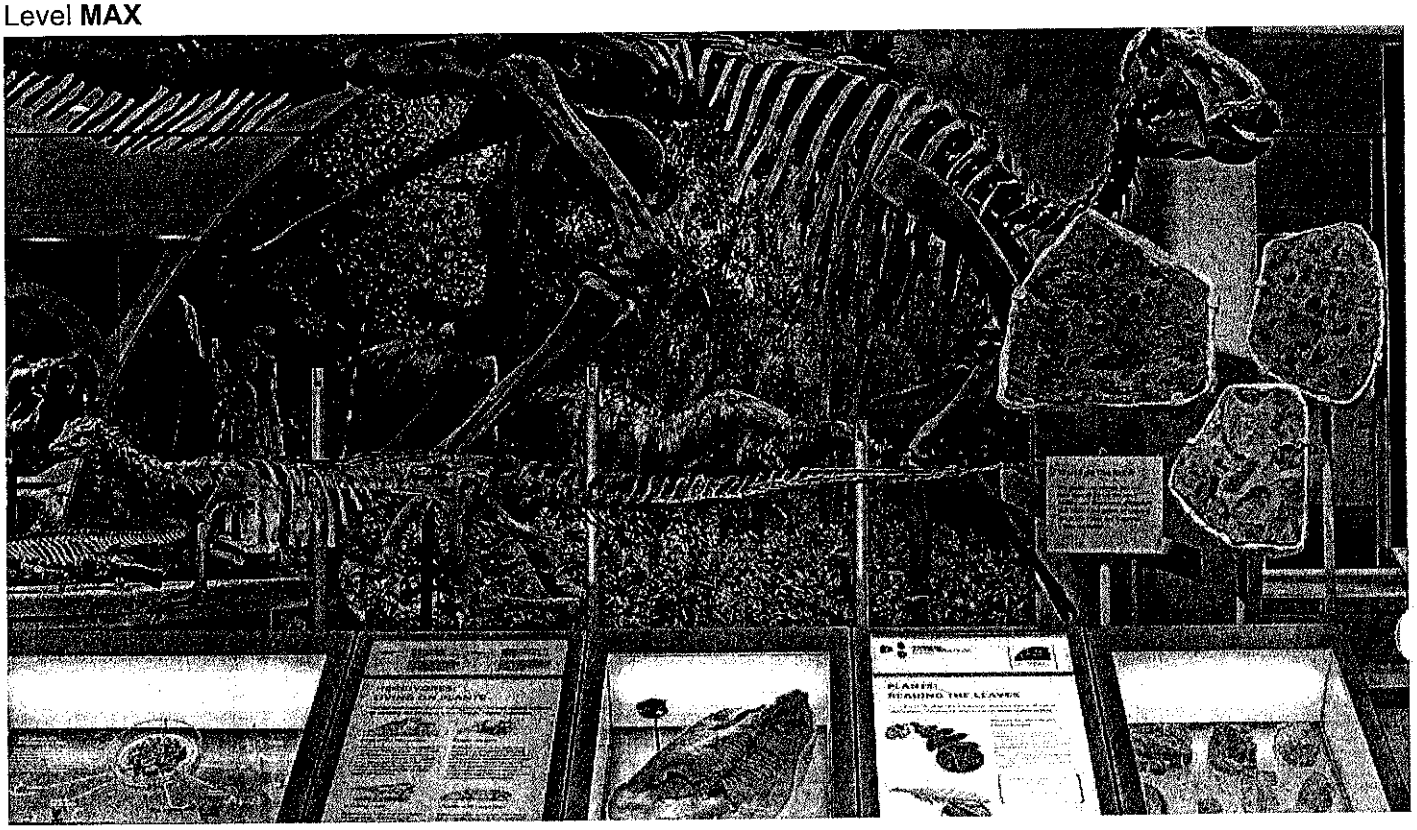
LESSON 13: MAP PROJECTIONS

1. Earth is round. When a curved surface is reproduced on a flat surface, direction, distance, shape, and area become distorted.
2. Peters
3. Winkel tripel
4. Mercator
5. In the Winkel tripel projection, only the lines that cross in the center are straight. In the other two projections (Mercator and Peters), all lines of latitude and longitude are straight.
6. Peters
7. Mercator
8. On a Mercator map, sizes are distorted, with the distortion increasing as you move farther from the equator, and Greenland is far to the north.
9. Africa is about 14 times as large as Greenland. *(See the chart on p. 1.)* Africa's area is 11.7 million square miles; Greenland's is only 0.8 million square miles.
10. Mercator; latitude and longitude lines are straight, corresponding with compass points, and landmass shapes are accurate.

Consider This: Answers may include that Earth is round, so any attempt to represent it on a flat surface creates distortions, which are most evident at the poles. The North Pole is in the Arctic Ocean, so the northern distortion is not as obvious as that of Antarctica, the landmass that surrounds the South Pole.

Drawing on science to illustrate dinosaurs

By Joy Lanzendorfer, Washington Post on 06.10.19
Word Count **506**
Level **MAX**



One of Julius Csotonyi's murals can be seen in the new "Deep Time" exhibit at the National Museum of Natural History. Photo: Dayna Smith/The Washington Post

Most people know what a Tyrannosaurus rex looked like. Its snarling teeth, slashing tail and tiny arms make it one of the most recognizable dinosaurs that roamed the planet. Yet if it weren't for paleoartists, the T. rex would be just another fossilized skeleton in museums.

Paleoartists specialize in using scientific data to make images or models of long-extinct animals. In the process, they take the prehistoric world out of the abstract and bring it to life for the rest of us.

Julius Csotonyi is a paleoartist. His art has been used in science papers, on coins, postage stamps and murals. In addition to his artistic skills, he has advanced degrees in microbiology and ecology. His background in science is very important to his job.

It "helps me understand how animals in their environment interact and how to accurately restore prehistoric ecosystems," says Csotonyi. His name is pronounced chit-a-nee.

Paleoart usually starts with a fossil. If the actual dinosaur fossil is unavailable, artists can use a 3-D rotatable digital model or photographs. Paleoartists then work with the scientists to learn details about the dinosaur's diet, behaviors and environment. From there, the artists build the image in

stages. First, they might settle on the overall shape of the animal, then work outward from the skeleton, adding muscles, soft tissue and finally distinctive features such as skin, horns or crests.

Of course, dinosaurs are still mysterious and largely unknown. Paleoartists' challenge is to fill in the missing pieces as realistically as possible. To do this, they use a combination of direct evidence — what's known for sure — and indirect evidence from known environments.

Jennifer Hall, whose work has been in Scientific American magazine and on the History Channel, looks for clues in similar living animals. For example, birdlike dinosaurs might have had bright colors like modern-day birds. But if a dinosaur was frequently hunted, then "you probably want something that you would see in our modern prey animals," she says. "Whether it's mule deer, which are more sandy in color and blend into the dry landscape, or zebras, which have stripes to blend in with the vertical savanna."

Today we're learning more about dinosaurs than ever before. Previously unknown species are being discovered regularly. We're also learning more about what they looked like. Fossilized feathers have been found in rock and amber. Electron microscopy is revealing patterns found on the dinosaur's skin. In some cases, it's even possible to know what colors they were.

The paleoartist's job is to render these discoveries in a way that sparks the imagination. Sometimes that means using a bit of artistic flair — and even a dash of fun.

"I always think back to when I was visiting a particular aquarium, and there was a fish that was blue, and its lips were blue with pink polka-dots," Csotonyi said. "It was real and it looked so ridiculous. It makes me feel OK to come up with an outlandish idea every once in a while, because these things do exist in nature."

Quiz

1 Which sentence from the article would be MOST important to include in a summary of the article?

(A) Yet if it weren't for paleoartists, the T. rex would be just another fossilized skeleton in museums.

(B) Paleoartists specialize in using scientific data to make images or models of long-extinct animals.

(C) Paleoartists' challenge is to fill in the missing pieces as realistically as possible.

(D) Sometimes that means using a bit of artistic flair — and even a dash of fun.

2 Read the following sentence from the article.

First, they might settle on the overall shape of the animal, then work outward from the skeleton, adding muscles, soft tissue and finally distinctive features such as skin, horns or crests.

How does this detail develop the article's central idea?

(A) by highlighting the importance of technology to paleoart

(B) by explaining how paleoart has changed over tine

(C) by showing how paleoartists use environmental information in their designs

(D) by describing how paleoartists create images of extinct animals

3 What is the author's MAIN purpose for including information about modern prey?

(A) to highlight how living animals are used by paleoartists to inform their work

(B) to explain why paleoartists think some extinct animals were brightly colored

(C) to describe why paleoartists need to make their designs fun and interesting

(D) to show how paleoartists use technology to improve their images and designs

4 Read the selection from the article.

In addition to his artistic skills, he has a doctorate in microbiology and a master's degree in ecology. He considers his scientific background crucial to his job.

It "helps me understand how animals in their environment interact and how to accurately restore prehistoric ecosystems," says Csotonyi (pronounced chit-a-nee).

Why did the author include this selection?

(A) to show the connection between paleoart and human history

(B) to explain the processes that paleoartists use to create images of extinct animals

(C) to explain how paleoart helps us better understand modern-day animals

(D) to highlight the relationship between paleoart and science

Understanding the science of animal classification

By ThoughtCo.com, adapted by Newsela staff on 10.15.19
Word Count **965**
Level **1030L**

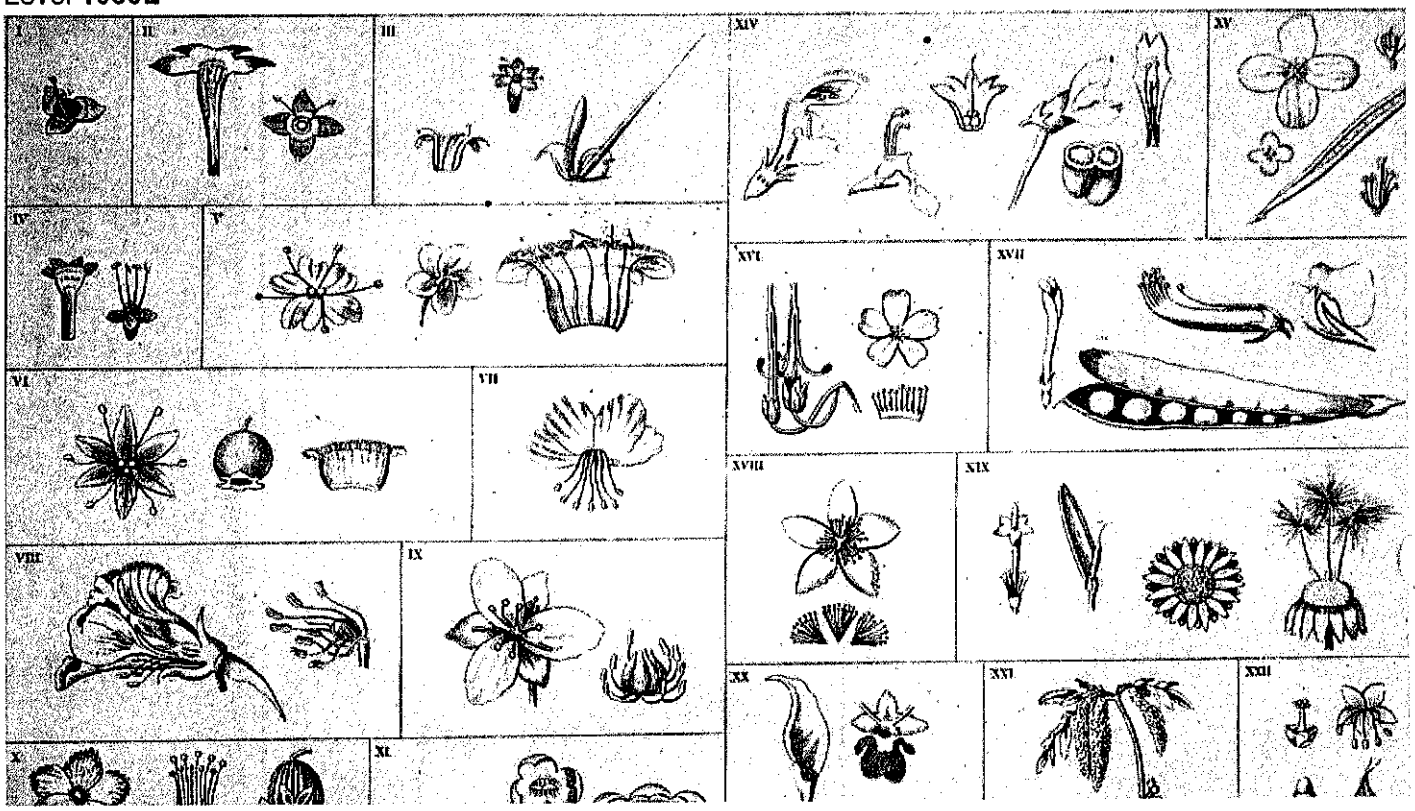


Image 1. An engraving depicting the Linnaean classification of plants into 24 orders from Simeon Shaw's "Nature Displayed," which was published in 1823 in London, England. Photo by: Universal History Archive/Universal Images Group via Getty Images

For centuries, the practice of naming and classifying living organisms into groups has been a key part of the study of nature. The Greek philosopher Aristotle (384 B.C.–322 B.C.) developed the first known method of classifying organisms. He grouped them according to whether they traveled by air, land or water. A number of other naturalists followed with their own classification systems. Today, the Swedish botanist Carolus (Carl) Linnaeus (1707-1778) is considered to be the pioneer of modern taxonomy. Taxonomy is the science of classifying organisms.

In his book "Systema Naturae," first published in 1735, Linnaeus introduced a clever way to classify and name organisms. This system, now referred to as Linnaean taxonomy, has been used to varying extents ever since.

About Linnaean Taxonomy

Linnaean taxonomy categorizes organisms into a hierarchy, a family tree of relatedness. Linnaean taxonomy today includes eight ranks: domain, kingdom, phylum, class, order, family, genus and

species.

Groups at the top of the hierarchy – domain, kingdom, phylum and class – are more broad in definition and contain a greater number of organisms. The more specific groups that are lower in the hierarchy – families, genera and species – have fewer. Genera is the plural of genus.

With each group of organisms assigned to a domain, kingdom, phylum, class, family, genus and species, they can be uniquely characterized. Their membership in a group tells us about the traits they share with other members of the group. It also tells us about traits that make them unique.

Many scientists and textbooks still use the Linnaean classification system to some extent today, but it is no longer the only method for grouping and characterizing organisms.

To best understand the science of classification, it will help to first clarify a few basic terms. Classification is the systematic grouping and naming of organisms based on shared structural similarities, functional similarities or evolutionary history. Taxonomy is the science of classifying organisms. Systematics is the study of the diversity of life and the relationships between organisms.

Types Of Classification Systems

Phenetics is a method of classifying organisms that is based on their overall similarity in physical characteristics and other observable traits. Phenetics does not take phylogeny – evolutionary history of the group – into account.

Cladistics determines relationships between organisms based on their evolutionary history. In order to evaluate evolutionary history, this classification method uses three kinds of analysis: genetic, biochemical and morphological. Genetic analysis includes analysis of the DNA. Biochemical analysts study the substances living things are made of and the chemical reactions they involve. Morphological analysis takes into account such identifying factors as size, shape, color, etc. Cladistics is also called phylogenetics or phylogenetic systematics.

In general, Linnaean taxonomy relies on phenetics. Yet the similar physical characteristics studied in phenetics are often the product of shared evolutionary history. Linnaean taxonomy, therefore, can indeed reflect the evolutionary background of a group of organisms.

Biological Classification

Biological classification changes often. As our knowledge of organisms expands, we gain a better understanding of the similarities and differences among them. In turn, those similarities and differences shape how we assign animals to the various groups, or taxa. Taxa refers to a group of organisms that has been classified.

Factors That Shaped High-Order Taxonomy

In the 16th century, the microscope was invented. It revealed a minute world filled with countless new organisms that had previously escaped classification because they were too tiny to see with the naked eye.

Throughout the 20th century, there have been rapid advances in understanding evolution and genetics. These advances continue to reshape our understanding of how organisms relate to one

another. New understandings can change previous classifications. As a result, science is constantly reorganizing the branches and leaves of the tree of life.

The history of taxonomy stretches back to the 4th century B.C. This was the time of Aristotle and the natural philosophers, who were the first scientists. Since the first classification systems emerged, scientists have wrestled with the task of how to organize life into various groups.

Let us examine how the highest-level taxa have changed throughout history. The three highest-level taxa are domain, kingdom and phylum.

Classification Systems Based On Phenetics

Two Kingdoms - Aristotle

Aristotle was among the first to document the division of life forms into animals (animalia) and plants (plantae). He introduced his two-kingdom classification system in the 4th century B.C.

Three Kingdoms - Ernst Haeckel

The three kingdom system was introduced by Ernst Haeckel in 1894. To the long-established two kingdom system, Haeckel added the kingdom Protista, which included two phyla: one for single-celled eukaryotes and one for bacteria, which are prokaryotes. All life is composed of either eukaryotic cells, which have a nucleus, or prokaryotic cells, which do not.

Four Kingdoms - Herbert Copeland

Herbert Copeland added the kingdom Bacteria in 1956. This reflected the growing understanding that bacteria – single-celled prokaryotes – were very different from single-celled eukaryotes. In making this change, Copeland elevated Haeckel's two Protista phyla to the level of kingdom.

Five Kingdoms - Robert Whittaker

Robert Whittaker's 1959 classification added a fifth kingdom, Fungi, to Copeland's four. Fungi include single and multi-cellular osmotrophic eukaryotes. Osmotrophic describes life forms that absorb nutrients by osmosis.

Classification Systems Based On Cladistics/Phylogeny

Six Kingdoms - Carl Woese

In 1977, Carl Woese extended Whittaker's Five Kingdoms, replacing the kingdom of Bacteria with two kingdoms, Eubacteria and Archaebacteria. Eubacteria and Archaebacteria differ from each other in many complex ways. The differences were revealed by molecular genetic analysis.

Three Domains - Carl Woese

In 1990, Carl Woese put forth a classification plan that greatly overhauled previous classification plans. The three-domain system he proposed is based on studies in molecular biology and it resulted in the placement of organisms into three domains: bacteria, archaea and eukarya.

Quiz

1 Which section of the article BEST explains why cladistics and phenetics are not entirely distinct classification methods?

(A) "Types of Classification Systems"

(B) "Biological Classification"

(C) "Classification Systems Based On Phenetics"

(D) "Classification Systems Based On Cladistics/Phylogeny"

2 Read the following statement.

Linnaean taxonomy communicates both the common and distinct features of an organism.

Which selection from the article provides the BEST support for the statement above?

(A) Groups at the top of the hierarchy – domain, kingdom, phylum and class – are more broad in definition and contain a greater number of organisms. The more specific groups that are lower in the hierarchy – families, genera and species – have fewer.

(B) With each group of organisms assigned to a domain, kingdom, phylum, class, family, genus and species, they can be uniquely characterized. Their membership in a group tells us about the traits they share with other members of the group. It also tells us about traits that make them unique.

(C) Classification is the systematic grouping and naming of organisms based on shared structural similarities, functional similarities or evolutionary history. Taxonomy is the science of classifying organisms.

(D) As our knowledge of organisms expands, we gain a better understanding of the similarities and differences among them. In turn, those similarities and differences shape how we assign animals to the various groups, or taxa.

3 Which of the following MOST influenced the changing nature of classification systems?

(A) the shift from phenetic to cladistic methods

(B) Aristotle's division of organisms into animal and plant kingdoms

(C) the development of Linnaean taxonomy

(D) the rapid advancement of science and technology

4 Why was Carolus (Carl) Linnaeus considered a pioneer of modern taxonomy?

(A) He was the first naturalist to develop an effective system for classifying organisms.

(B) His system of categorizing organisms into a hierarchy is still used in modern classification systems.

(C) His use of phenetics inspired other scientists to continue to use this method of classification.

(D) He was the first to understand that shared evolutionary history produces similar physical characteristics.

How political parties pick their presidential nominees

By Christina Barron, Washington Post on 03.11.20
Word Count **618**
Level **MAX**

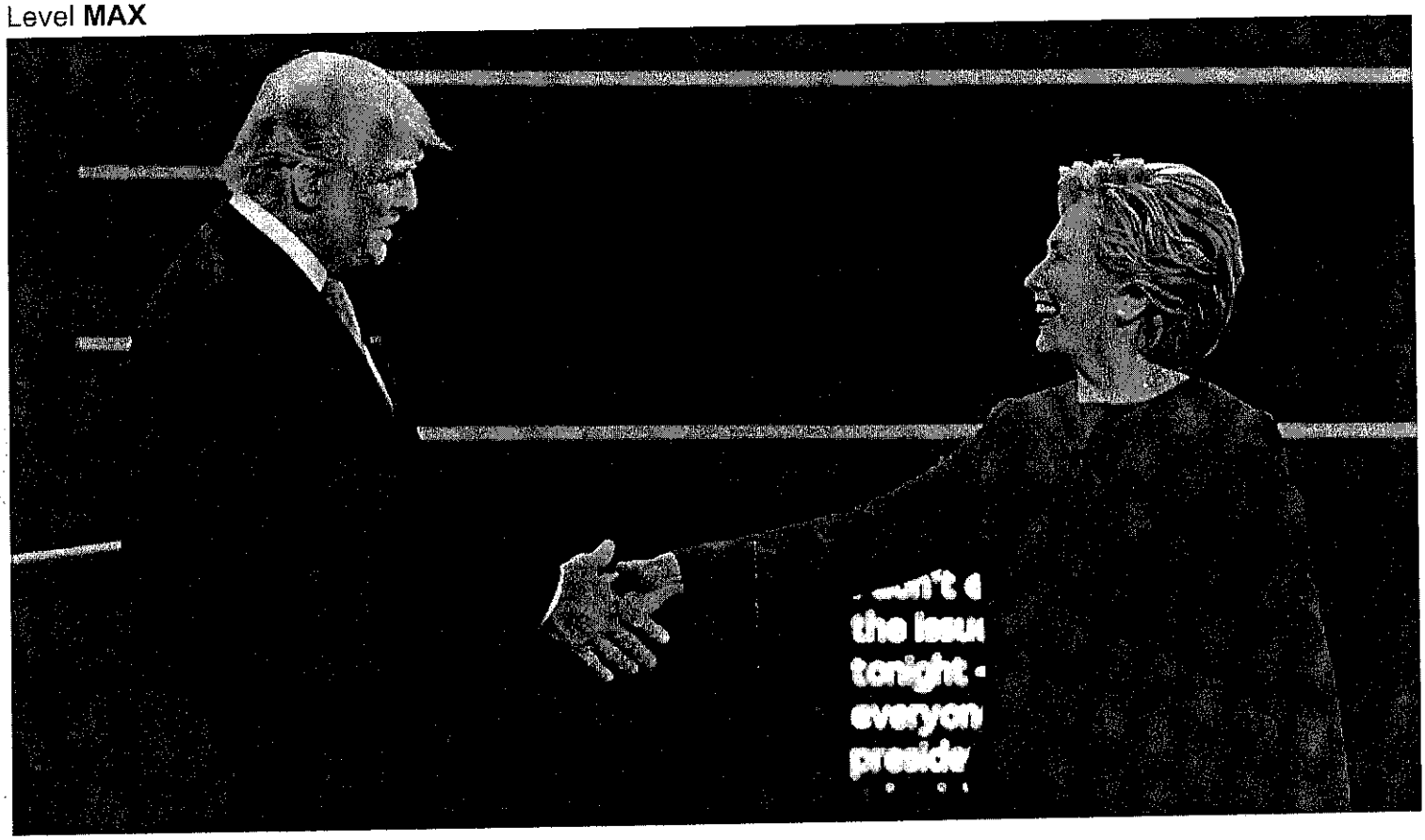


Image 1. The nominees for the 2016 presidential election, Republican nominee Donald Trump and Democratic nominee Hillary Clinton, shake hands during the presidential debate at Hofstra University in Hempstead, New York, on September 26, 2016. Photo: David Goldman/AP Photo

In a presidential election year, Tuesdays are very important. The biggest is the first Tuesday in November, or Election Day. On that day, as you probably know, Americans vote for a president usually from the major-party candidates. But first, through June, voters will help political parties pick their nominees.

Who Can Be Elected President?

There are a few rules mentioned in the Constitution. A person must be at least 35 years old, a U.S. resident for at least 14 years and a "natural-born" U.S. citizen. The term "natural born" is a little fuzzy, but generally it means a citizen from birth, including people born in other countries who have a U.S. citizen parent.

Who Is Running In 2020?

The two main political parties, the Democratic Party and the Republican Party, will nominate one person for president. In the Democratic Party, there are three candidates. The Republican Party has two. There are minor-party candidates and independents, too, but the major parties generally dominate the election process.

Who Elects The President?

When the Constitution was written, generally only white men who owned property could vote. Today, citizens who are age 18 and older can vote in the presidential election. Many of them don't vote, however. In 2016, only 61.6 percent of eligible voters cast ballots, according to the U.S. Census Bureau. That's a lot lower than countries such as Australia, Sweden and Germany.

How Do Voters Pick A Candidate?

Most voters have issues that are important to them. The issues might include health care, education, the economy, immigration, climate change or gun control. The candidates usually campaign for months, making speeches, buying ads, taking part in debates and hosting community rallies. They also post their views on these topics on campaign websites. Journalists research the candidates' proposals and examine their backgrounds to give voters additional information.

How Does The Voting Process Work?

There are two methods: state primaries and caucuses. Most states have primaries. In a primary, voters select one candidate on a ballot. Each state political party makes its own rules for getting on the ballot, so voters in different states may have different choices. Candidates earn delegates to a party's national convention based on how many votes they get.

In traditional caucuses, voters who are registered with a political party meet in schools or community centers to talk (and sometimes argue) about the candidates. They form groups at these meetings based on which candidate they support. Candidates with a certain percentage of supporters earn delegates. This year, the Iowa Democratic Party allowed voters to participate online, but this process had technical glitches that delayed the results by weeks.

When Will The Parties Choose Their Nominees?

State parties will send delegates to national conventions, where they will nominate one person for the Democratic Party and one person for the Republican Party. Democrats will meet for this purpose in mid-July; Republicans in late August. The nominees will also announce, if they haven't already, who will run with them as vice president.

By late August, many voters will focus on just the two people chosen by the major parties. A choice of two may seem easy, but it's an important decision. And even though kids can't vote, it doesn't mean you can't be part of the process. Learn about the candidates. Also, talk to classmates, teachers and family members. You might get adults thinking that the next generation of voters already has voices that need to be heard.

Quiz

1 Read the section "How Do Voters Pick A Candidate?"

Select the sentence from the article that suggests voters need help determining who should be president.

(A) The issues might include health care, education, the economy, immigration, climate change or gun control.

(B) The candidates usually campaign for months, making speeches, buying ads, taking part in debates and hosting community rallies.

(C) They also post their views on these topics on campaign websites.

(D) Journalists research the candidates' proposals and examine their backgrounds to give voters additional information.

2 Read the inference below.

Many citizens are not engaged in the process of selecting the president.

Which sentence from the article provides the BEST support for the statement above?

(A) On that day, as you probably know, Americans vote for a president usually from the major-party candidates.

(B) When the Constitution was written, generally only white men who owned property could vote.

(C) In 2016, only 61.6 percent of eligible voters cast ballots, according to the U.S. Census Bureau.

(D) In traditional caucuses, voters who are registered with a political party meet in schools or community centers to talk (and sometimes argue) about the candidates.

3 Read the following sentence from the article.

The candidates usually campaign for months, making speeches, buying ads, taking part in debates and hosting community rallies.

How does this detail develop the article's central idea?

(A) by explaining what candidates have to do to earn voters' approval

(B) by listing events that lead up to the national conventions for each party

(C) by highlighting the amount of money spent during the presidential campaign

(D) by emphasizing the long process of campaigning through the primaries and caucuses

4 Which sentence from the article would be MOST important to include in a summary of the article?

(A) In a presidential election year, Tuesdays are very important.

(B) The term "natural born" is a little fuzzy, but generally it means a citizen from birth, including people born in other countries who have a U.S. citizen parent.

(C) That's a lot lower than countries such as Australia, Sweden and Germany.

(D) State parties will send delegates to national conventions, where they will nominate one person for the Democratic Party and one person for the Republican Party.

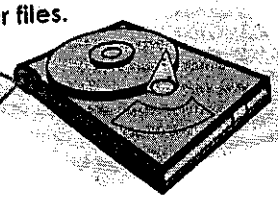
Computer Parts

Can you name all these computer parts? Use the words below and the descriptions for clues.

mouse hard drive CD rom monitor
USB port keyboard printer

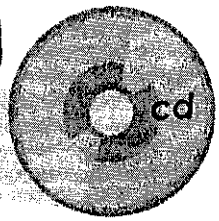
This is the screen that lets you see what you're doing on the computer.

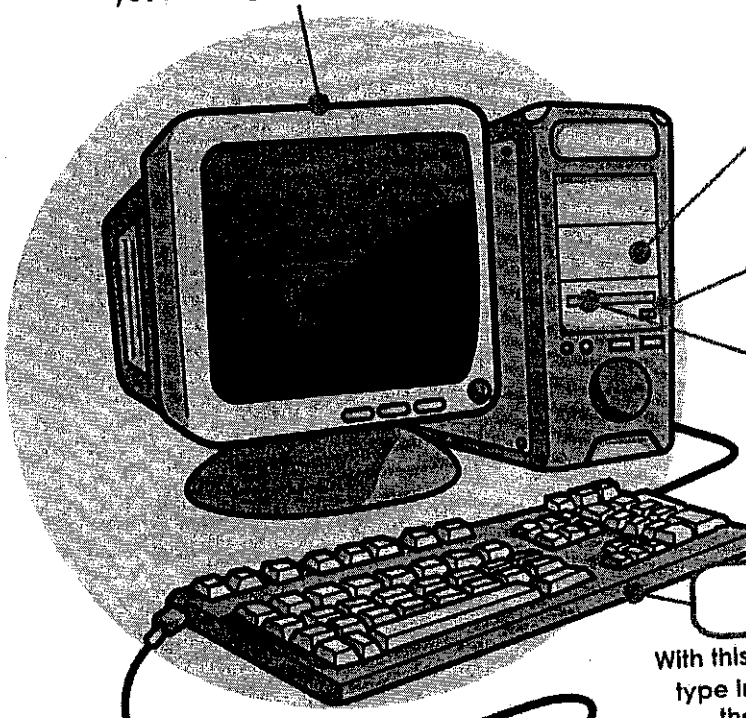
This is inside your computer and stores all your files.



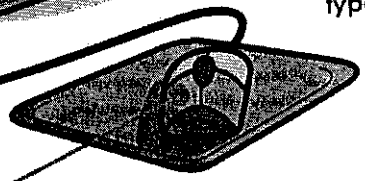
You can plug your keyboard and other computer devices into this.

This lets you play CDs that can hold music, video and other types of files.



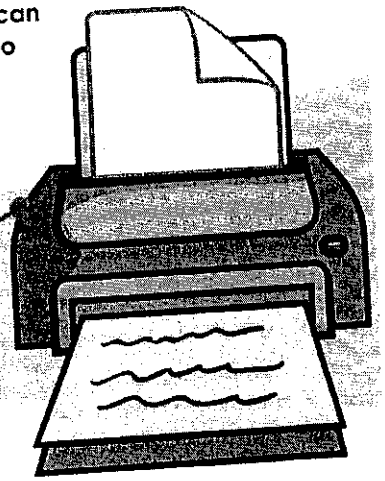


With this device you can type information into the computer.



This device is your digital hand inside the computer.

This device lets you print your pictures, stories or artwork.



ICT I & II: Social Media

S Y F T S W Y Y E I Q E S L S

M E N A I O O L N N L X M M N

A N C K C U C S L G I Q G L A

R S I A T E T I O A V V N K P

T C J U P A B O A Q C T R Q C

P P B I G S G O T L F I H D H

H E L R N C Y T O P M O S E A

O X A I H C C M Y K I E R U T

N M T S E R E T N I P T D U M

E F L I P A G R A M X S S I M

R E T T I W T P B F M A K C A

T U M B L R Z J T N I C Y U H

A P P L I C A T I O N D P Q B

R L G O L B A Q W L L O E G S

D B Q C O H W X Z S N P K J H

APPLICATION
FLIPAGRAM
INSTAGRAM
PINTEREST
SMARTPHONE
TUMBLR
WIKI

BLOG
FORUM
MUSICALLY
PODCAST
SNAPCHAT
TWITTER
YOUTUBE

FACEBOOK
GOOGLE
MYSPACE
SKYPE
SOCIALMEDIA
VINE

Binary Review

Let's practice some binary decoding and encoding. Using the simple alphabet code below, decode the message on the left. For the message on the right, encode the letters into the proper binary numbers. The first one is done for you.

1	2	3	4	5	6	7	8	9	10	11	12	13
a	b	c	d	e	f	g	h	i	j	k	l	m
14	15	16	17	18	19	20	21	22	23	24	25	26
n	o	p	q	r	s	t	u	v	w	x	y	z

16	8	4	2	1	
0	0	0	1	0	b
0	1	0	0	1	
0	1	1	1	0	
0	0	0	0	1	
1	0	0	1	0	
1	1	0	0	1	

0	1	1	0	1	
0	0	0	0	1	
0	1	0	1	1	
0	0	1	0	1	
1	0	0	1	1	

1	0	0	1	1	
0	0	1	0	1	
0	1	1	1	0	
1	0	0	1	1	
0	0	1	0	1	

16	8	4	2	1	
0	0	0	1	1	c
					s

					i
					s

					f
					u
					n

					t
					o

					l
					e
					a
					r
					n

Force and Motion Vocabulary

Force	is a push or a pull
Newton (N)	the unit for force
Balanced Forces	equal but opposite; occurs when the net forces on an object equals "zero" and the objects motion does NOT change
Unbalanced Forces	when the net forces on an object does NOT equal "zero" and the objects motion does change
Gravity	force of attraction between 2 objects; determined by the mass of the objects and the distance between them
Weight	a measure of the force of gravity on an object's mass
Mass	is the amount of matter or stuff in an object
Friction	a force that acts in the opposite direction of motion
Air Resistance	a fluid frictional force on falling objects that opposes gravity
Speed	the rate in which an object moves: calculated by distance / time
Acceleration	the change in velocity over a period of time
Newton's 1st Law of Motion	an object at rest will stay at rest and an object in motion will stay in motion until an outside force acts upon it
Newton's 2nd Law of Motion	explains the relationship between acceleration, mass and force; Force=Mass x Acceleration
Newton's 3rd Law of Motion	for every action there is an equal and opposite reaction

Force and Motion Vocabulary

Motion	caused by unbalanced forces acting on an object
Velocity	speed in a certain direction
Electric	force caused by non-moving charges
Magnetic	force caused by moving charges
Centripetal	it causes objects to travel in a circular path
Applied	a force exerted on an object by a person or another object
Normal	the support force exerted upon an object that is in contact with another stable object
Tension	force that is transmitted through a string, rope, cable or wire when it is pulled tight by forces acting from opposite ends

FORCE AND MOTION VOCABULARY TEST

___1. explains the relationship between acceleration, mass and force; Force=Mass x Acceleration

A. Newton's 1st Law
B. Newton's 2nd Law
C. Newton's 3rd Law
D. motion

___2. an object at rest will stay at rest and an object in motion will stay in motion until an outside force acts upon it

A. Newton's 1st Law
B. Newton's 2nd Law
C. Newton's 3rd Law
D. motion

___3. caused by unbalanced forces acting on an object

A. Newton's 1st Law
B. Newton's 2nd Law
C. Newton's 3rd Law
D. motion

___4. for every action there is an equal and opposite reaction

A. Newton's 1st Law
B. Newton's 2nd Law
C. Newton's 3rd Law
D. motion

___5. is a push or a pull

A. Unbalanced force
B. Balanced force
C. newton
D. force

___6. the unit for force

A. Unbalanced force
B. Balanced force
C. newton
D. force

___7. equal but opposite; occurs when the net forces on an object equals "zero" and the objects motion does NOT change

A. Unbalanced force
B. Balanced force
C. newton
D. force

___8. when the net forces on an object does NOT equal "zero" and the objects motion does change

A. Unbalanced force C. newton
B. Balanced force D. force

___9. force of attraction between 2 objects; determined by the mass of the objects and the distance between them

A. Weight C. friction
B. Gravity D. mass

___10. a measure of the force of gravity on an object's mass

A. Weight C. friction
B. Gravity D. mass

___11. is the amount of matter or stuff in an object

A. Weight C. friction
B. Gravity D. mass

___12. a force that acts in the opposite direction of motion

A. Weight C. friction
B. Gravity D. mass

___13. a fluid frictional force on falling objects that opposes gravity

A. Speed C. acceleration
B. Air resistance D. velocity

___14. the rate in which an object moves: calculated by distance / time

A. Speed C. acceleration
B. Air resistance D. velocity

___15. the change in velocity over a period of time

A. Speed C. acceleration
B. Air resistance D. velocity

___16. speed in a certain direction

A. Speed C. acceleration
B. Air resistance D. velocity

___17. force caused by non-moving charges

A. Electric
B. Magnetic
C. centripetal
D. applied

___18. force caused by moving charges

A. Electric
B. Magnetic
C. centripetal
D. applied

___19. it causes objects to travel in a circular path

A. Electric
B. Magnetic
C. centripetal
D. applied

___20. a force exerted on an object by a person or another object

A. Electric
B. Magnetic
C. centripetal
D. applied

___21. the support force exerted upon an object that is in contact with another stable object

A. Electric
B. normal
C. centripetal
D. tension

___22. force that is transmitted through a string, rope, cable or wire when it is pulled tight by forces acting from opposite ends

A. Electric
B. normal
C. centripetal
D. tension

Name: _____ Teacher: _____ Pd. ___ Date: _____

Newton's Second Law of Motion Problems Worksheet

Newton's Second Law of Motion, sometimes called the **law of force and motion** or **law of acceleration**, states that:

> **An object acted on by an unbalanced force will accelerate in the direction of that force, in direct proportion to the strength of the force, and in inverse proportion to the mass of the object.**

Newton's second law is best described with a mathematical equation that relates three variables, force, acceleration and mass, to one another. The equation can be stated in three forms:

force = mass • acceleration $\quad$ **f = m•a**

$$\text{mass} = \frac{\text{force}}{\text{acceleration}} \qquad \mathbf{m = f/a}$$

$$\text{acceleration} = \frac{\text{force}}{\text{mass}} \qquad \mathbf{a = f/m}$$

In the first set of problems below, you will be given the mass of an object and the acceleration of that object, and then will need to solve for force, using the equation F = ma. In other words, you will need to multiply the mass times the acceleration to calculate the force. Be sure to convert any mass stated in grams into kilograms, by dividing it by 1000 (moving the decimal place over three places to the left). For example, 1000 grams is equal to 1 kilogram. Be sure to state the proper units in your answer, and state each answer to the nearest tenth of a unit, to match the accuracy of the measurements.

1. An object with a mass of 2.0 kg accelerates 2.0 m/s^2 when an unknown force is applied to it. What is the amount of the force? _____

2. An object with a mass of 5.0 kg accelerates 8.0 m/s^2 when an unknown force is applied to it. What is the amount of the force? _____

3. An object with a mass of 1500 g (grams) accelerates 10.0 m/s^2 when an unknown force is applied to it. What is the amount of the force?

_____

4. An object with a mass of 6.0 kg accelerates 4.0 m/s^2 when an unknown force is applied to it. What is the amount of the force? _____

5. An object with a mass of 7.5 kg accelerates 8.3 m/s^2 when an unknown force is applied to it. What is the amount of the force? _____

6. An object with a mass of 2000 g accelerates 8.3 m/s^2 when an unknown force is applied to it. What is the amount of the force? _____

In the second set of problems below, you will be given the force applied to an object and the acceleration of that object, and then will need to solve for mass, using the equation m = F/a. In other words, you will need to divide the force by the acceleration to calculate the mass. Show your work in the space provided. Be sure to state the proper units in your answer, and state each answer to the nearest tenth of a unit, to match the accuracy of the measurements.

7. An object accelerates 3.0 m/s^2 when a force of 6.0 newtons is applied to it. What is the mass of the object? _____

8. An object accelerates 12.0 m/s^2 when a force of 6.0 newtons is applied to it. What is the mass of the object? _____

9. An object accelerates 5.0 m/s^2 when a force of 20.0 newtons is applied to it. What is the mass of the object? _____

10. An object accelerates 2.0 m/s^2 when a force of 12.0 newtons is applied to it. What is the mass of the object? _____

11. An object accelerates 7.2 m/s^2 when a force of 4.0 newtons is applied to it. What is the mass of the object? _____

12. An object accelerates 16.3 m/s^2 when a force of 4.6 newtons is applied to it. What is the mass of the object? _____

In the third set of problems below, you will be given the force applied to an object and the mass of that object, and then will need to solve for acceleration, using the equation a = F/m. In other words, you will need to divide the force by the mass to calculate the acceleration. Be sure to convert any mass stated in grams into kilograms, by dividing it by 1000 (moving the decimal place over three places to the left). For example, 1000 grams is equal to 1 kilogram. Show your work in the space provided. Be sure to state the proper units in your answer, and state each answer to the nearest tenth of a unit, to match the accuracy of the measurements.

13. An object with a mass of 2.0 kg has a force of 4.0 newtons applied to it. What is the resulting acceleration of the object? _____

14. An object with a mass of 5.0 kg has a force of 20.0 newtons applied to it. What is the resulting acceleration of the object? _____

15. An object with a mass of 20.0 kg has a force of 5.0 newtons applied to it. What is the resulting acceleration of the object? _____

16. An object with a mass of 3.0 kg has a force of 9.0 newtons applied to it. What is the resulting acceleration of the object? _____

17. An object with a mass of 2300 g has a force of 6.2 newtons applied to it. What is the resulting acceleration of the object? _____

18. An object with a mass of 3.2 kg has a force of 7.3 newtons applied to it. What is the resulting acceleration of the object? _____

In the following problems, solve for the missing variable, using the two variables provided.

19. An object accelerates 8.2 m/s^2 when a force of 20.1 newtons is applied to it. What is the mass of the object? _____

20. An object with a mass of 6.3 kg has a force of 7.1 newtons applied to it. What is the resulting acceleration of the object? _____

21. An object with a mass of 6.5 kg accelerates 12.3 m/s^2 when an unknown force is applied to it. What is the amount of the force? _____

Name: ANSWER KEY Teacher: _____ Pd. ___ Date: _____

Newton's Second Law of Motion Problems Worksheet

Newton's Second Law of Motion, sometimes called the **law of force and motion** or **law of acceleration**, states that:

> **An object acted on by an unbalanced force will accelerate in the direction of that force, in direct proportion to the strength of the force, and in inverse proportion to the mass of the object.**

Newton's second law is best described with a mathematical equation that relates three variables, force, acceleration and mass, to one another. The equation can be stated in three forms:

force = mass • acceleration $\quad f = m \cdot a$

units N kg m/s^2

$$\text{mass} = \frac{\text{force}}{\text{acceleration}} \qquad m = f/a$$

$$\text{acceleration} = \frac{\text{force}}{\text{mass}} \qquad a = f/m$$

In the first set of problems below, you will be given the mass of an object and the acceleration of that object, and then will need to solve for force, using the equation F = ma. In other words, you will need to multiply the mass times the acceleration to calculate the force. Be sure to convert any mass stated in grams into kilograms, by dividing it by 1000 (moving the decimal place over three places to the left). For example, 1000 grams is equal to 1 kilogram. Be sure to state the proper units in your answer, and state each answer to the nearest tenth of a unit, to match the accuracy of the measurements.

1. An object with a mass of 2.0 kg accelerates 2.0 m/s^2 when an unknown force is applied to it. What is the amount of the force? $2.0\,kg \times 2.0\,m/s^2 = 4N$

2. An object with a mass of 5.0 kg accelerates 8.0 m/s^2 when an unknown force is applied to it. What is the amount of the force? $5.0\,kg \times 8.0\,m/s^2 = 40N$

$= 1.5kg$

3. An object with a mass of 1500 g (grams) accelerates 10.0 m/s^2 when an unknown force is applied to it. What is the amount of the force?

$1.5\,kg \times 10\,m/s^2 = 15N$

a = F/m

13. An object with a mass of 2.0 kg has a force of 4.0 newtons applied to it. What is the resulting acceleration of the object? 4N/2.0kg = 2 m/s²

14. An object with a mass of 5.0 kg has a force of 20.0 newtons applied to it. What is the resulting acceleration of the object? 20N/5kg = 4 m/s²

15. An object with a mass of 20.0 kg has a force of 5.0 newtons applied to it. What is the resulting acceleration of the object? 5N/20kg = 1/4 m/s² 0.25 m/s²

16. An object with a mass of 3.0 kg has a force of 9.0 newtons applied to it. What is the resulting acceleration of the object? 9N/3kg = 3 m/s²

17. An object with a mass of 2300 g = 2.3kg has a force of 6.2 newtons applied to it. What is the resulting acceleration of the object? 6.2N/2.3kg = 2.7 m/s²

18. An object with a mass of 3.2 kg has a force of 7.3 newtons applied to it. What is the resulting acceleration of the object? 7.3N/3.2kg = 2.3 m/s²

In the following problems, solve for the missing variable, using the two variables provided.

19. An object accelerates 8.2 m/s² when a force of 20.1 newtons is applied to it. What is the mass of the object? 20.1 N/8.2 m/s² = 0.41 kg

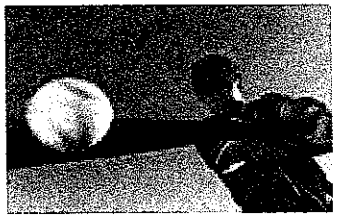
20. An object with a mass of 6.3 kg has a force of 7.1 newtons applied to it. What is the resulting acceleration of the object? 7.1N/6.3kg = 1.1 m/s²

21. An object with a mass of 6.5 kg accelerates 12.3 m/s² when an unknown force is applied to it. What is the amount of the force? 6.5kg x 12.3m/s² = 80 N

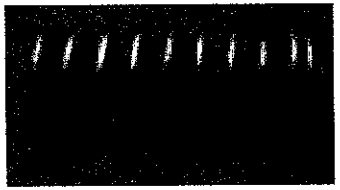
Motion, Forces, and Energy

Types of Forces

Contact forces: interactions between objects that touch



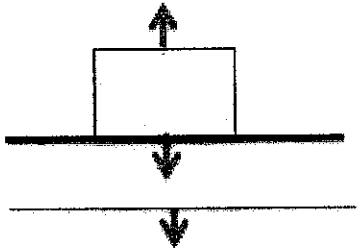
applied force



spring force

drag force

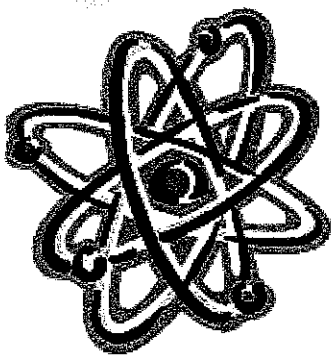
frictional force



normal force

Non-contact forces: attract or repel, even from a distance

magnetic force

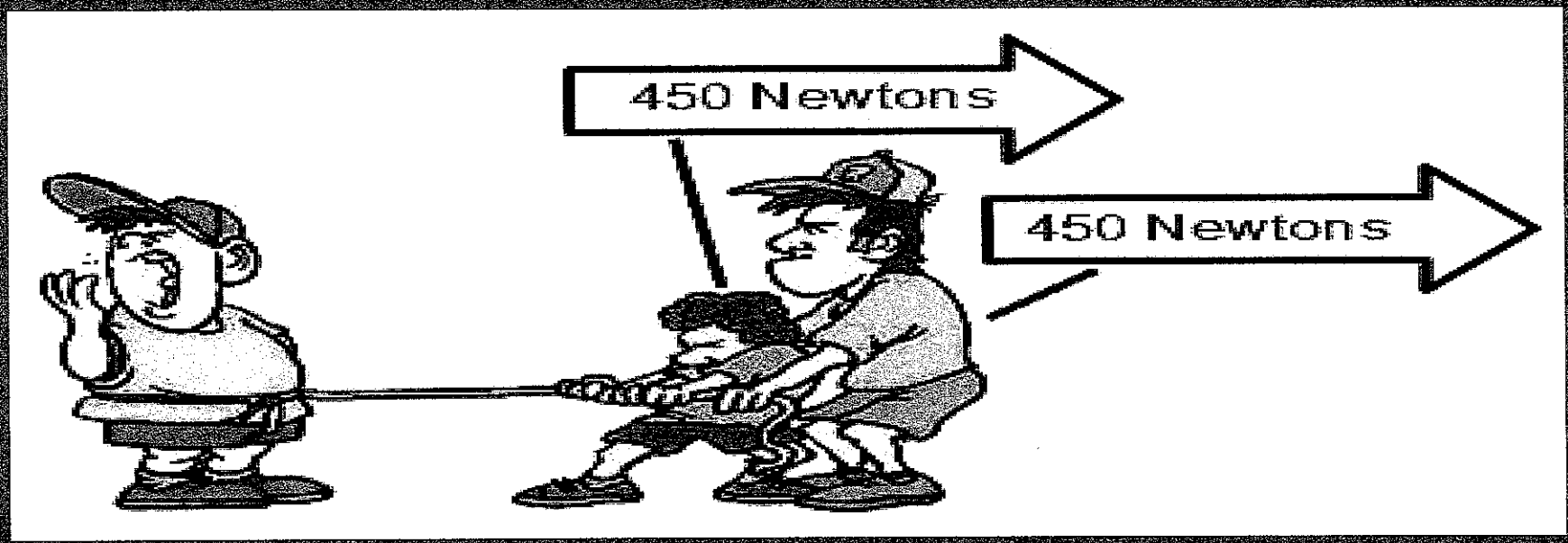


electric force

gravitational force

Forces

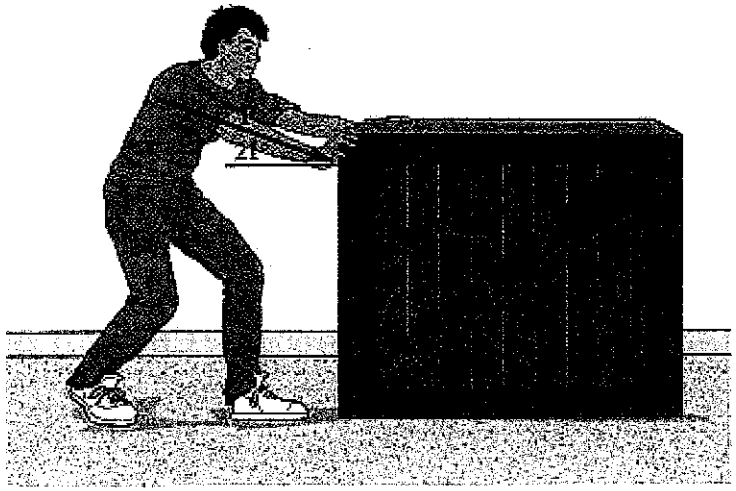
force: is a push or pull; is measured in newtons; causes an object to accelerate, and can change the direction of an objects motion.

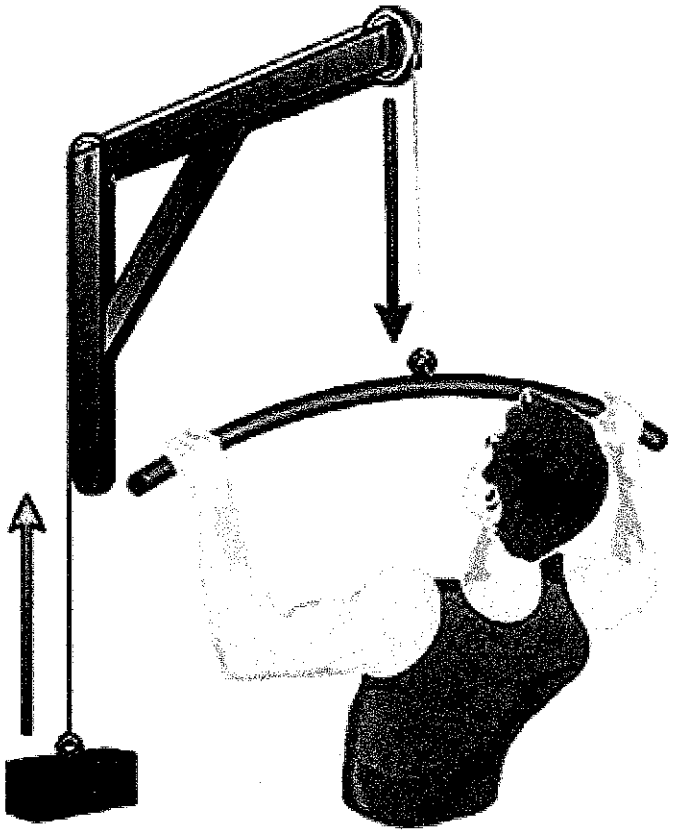


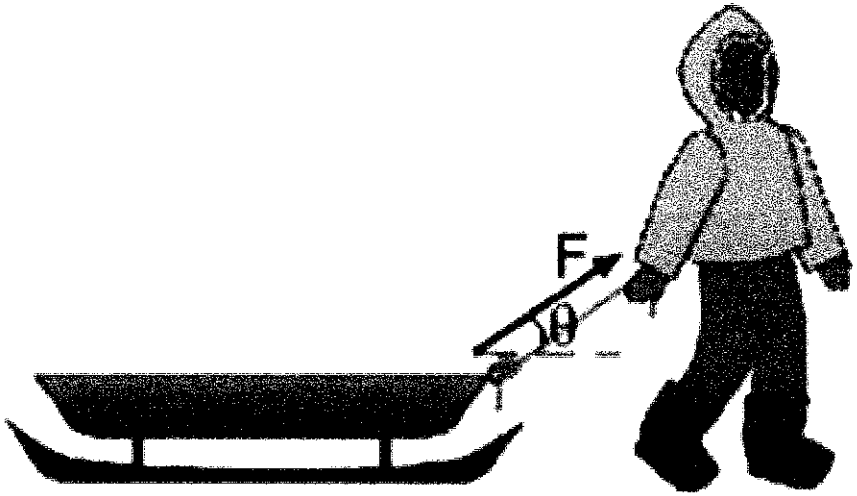
Types of Forces

Applied Force (F_{app})

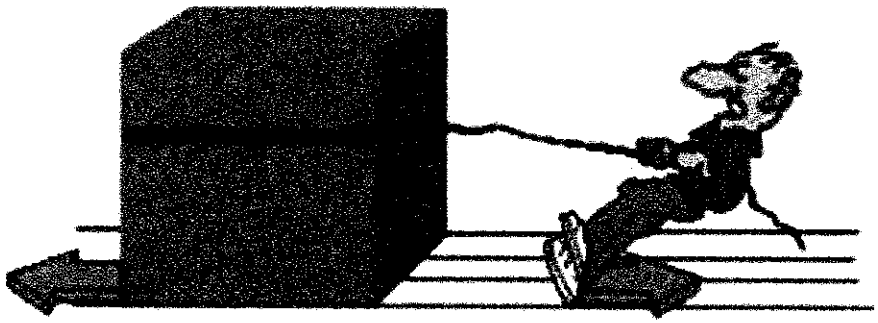
- **An applied force is a force that is applied to an object by a person or another object.**







Types of forces



friction force

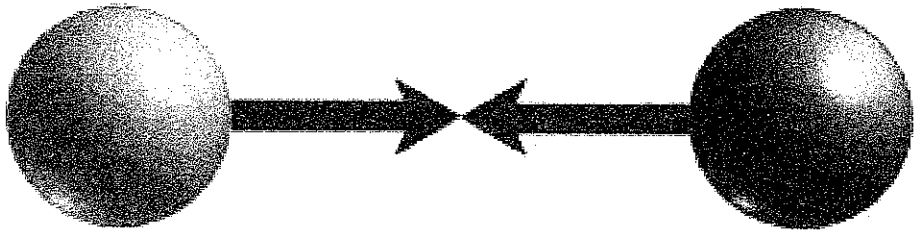
b) FRICTIONAL FORCE

- A force that **opposes the movement** of one surface over another.
- **Produced when two surfaces touch** one another.

Gravity is a force that acts between any 2 masses.

Two factors affect the gravitational attraction between objects: mass and distance.

The force of gravity acts between all objects.

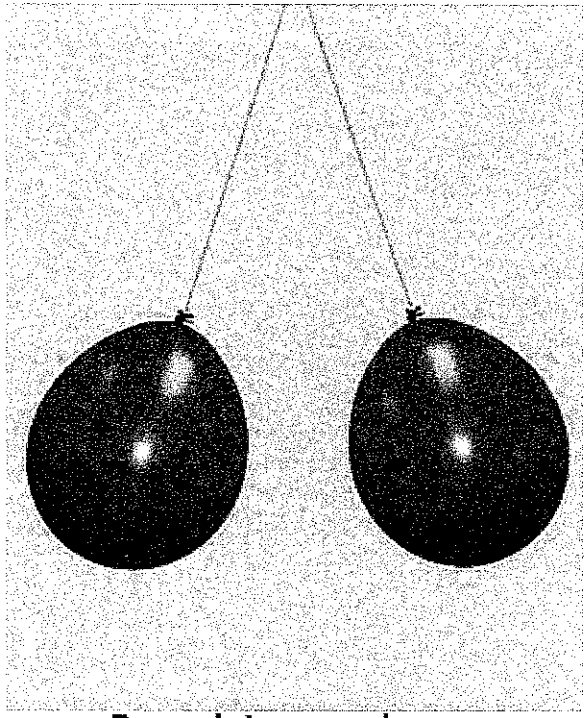


If mass increases, the force of gravity increases.

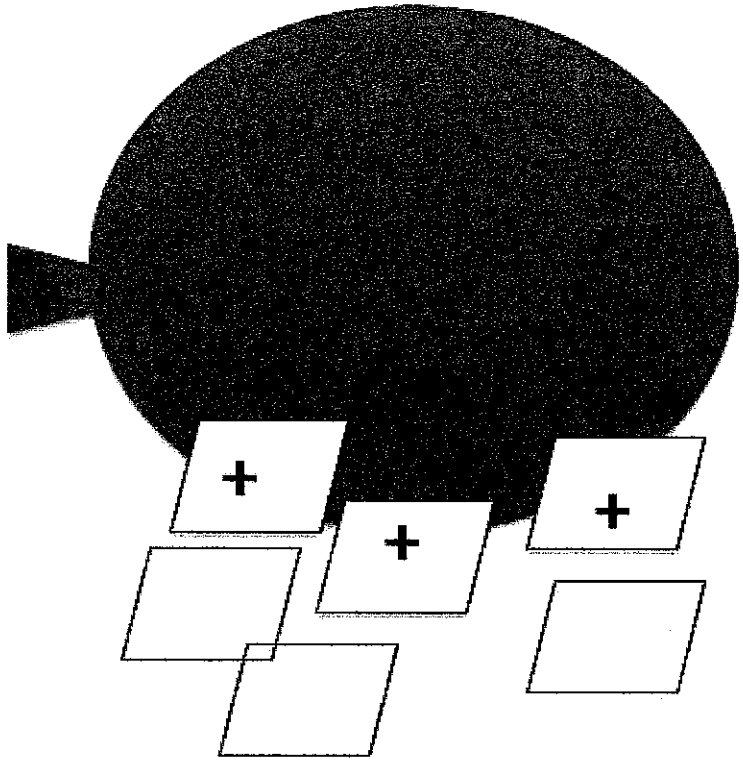
If distance increases, the force of gravity decreases.

Electric Forces

- **Electric Force = an attractive pull or a repulsive push between two electrically-charged objects**



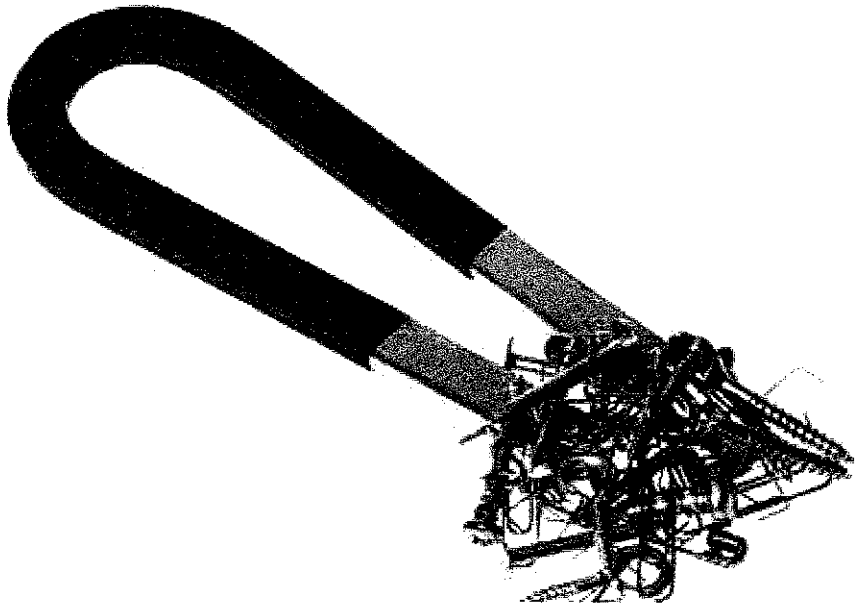
Repulsive push



Attractive pull

Magnetic Forces

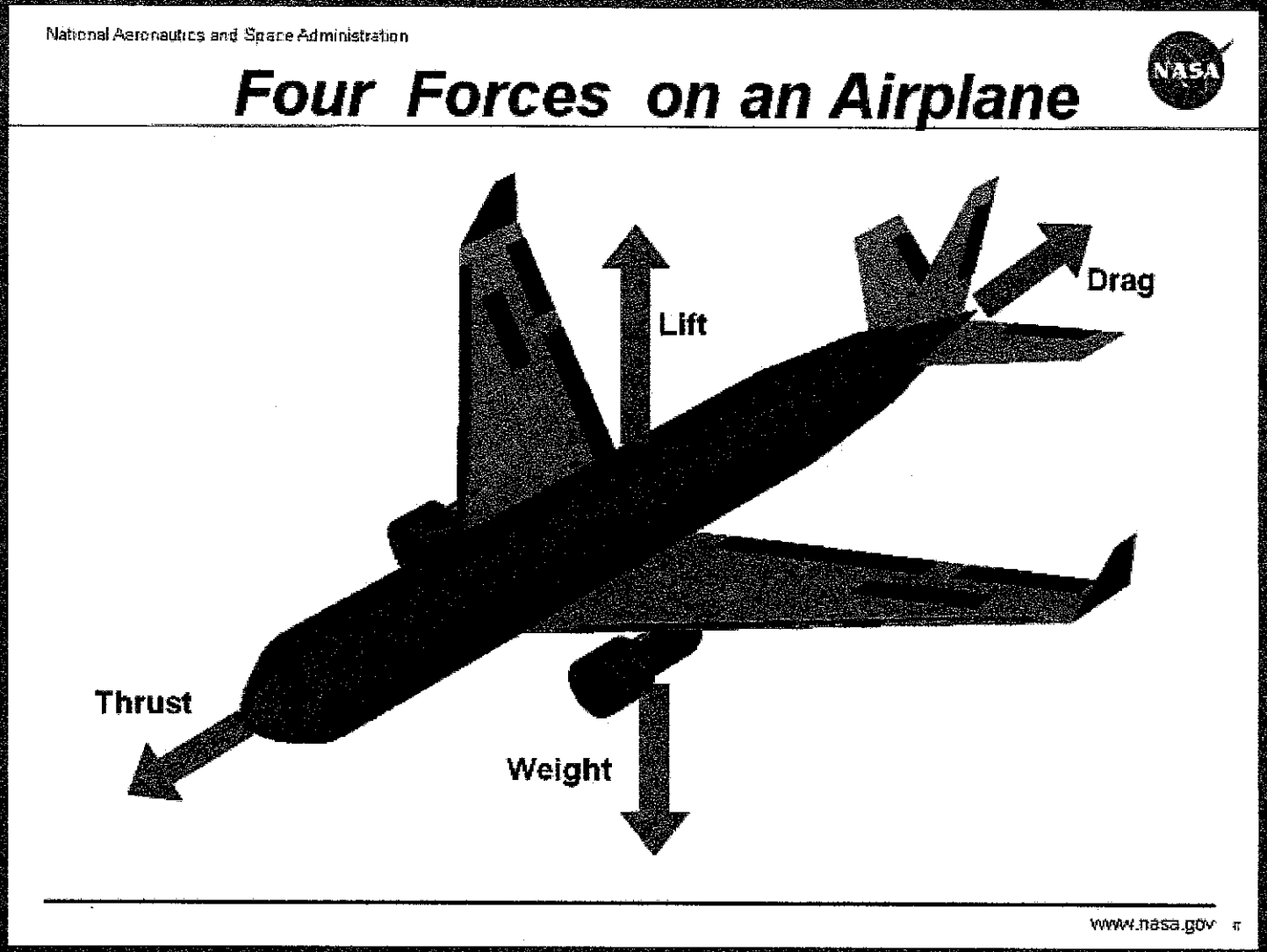
- **Magnetic Force = an attractive pull or a repulsive push between two magnets**



- **A magnet is any material that can generate magnetic forces.**

Forces that Act on Objects

- Gravity
- Friction
- Drag
- Lift
- Thrust



Motion

As you know, there are 2 main kinds of motion:

A: Motion with a constant velocity (i.e velocity does not change & acc. = 0 $m.s^{-2}$).

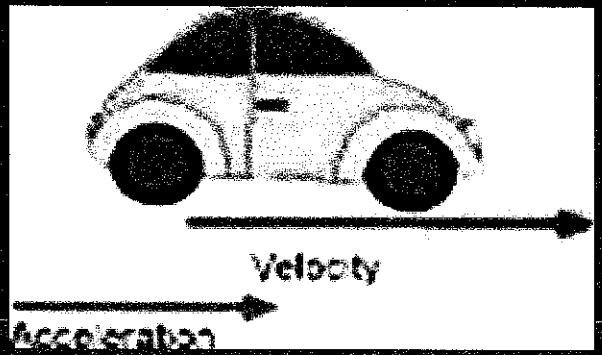
Motion

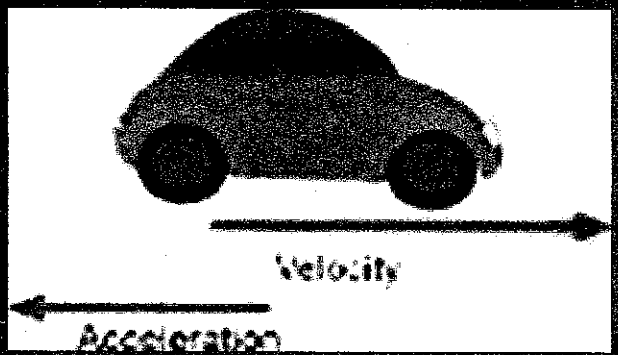
B: Motion with constant acceleration:

+ acceleration (velocity increasing uniformly). OR

– acceleration (velocity decreasing uniformly)

Cons. Velocity + acceleration - acceleration





Motion Affects

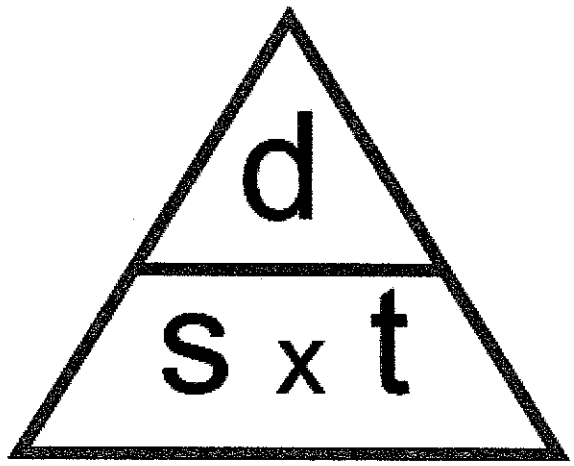
- Position
- Direction
- Speed
- Acceleration

What is speed?

Speed is the rate at which an object moves. To measure the speed of an object you need to know the:

Distance the object moved (m)
How long it took (s)

$$\text{Speed (m/s)} = \frac{\text{Distance (m)}}{\text{Time (s)}}$$

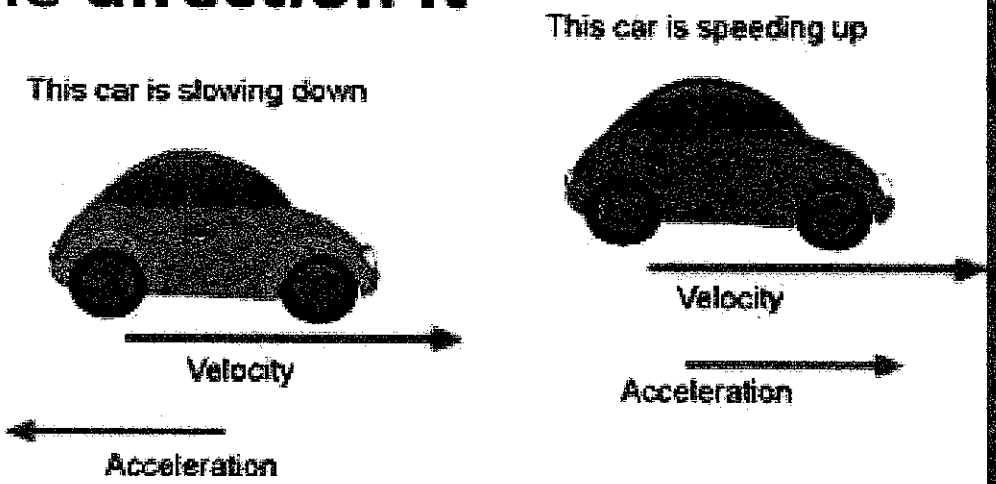


If speed is given a direction then it is called VELOCITY. Velocity is speed in a certain direction.

Acceleration

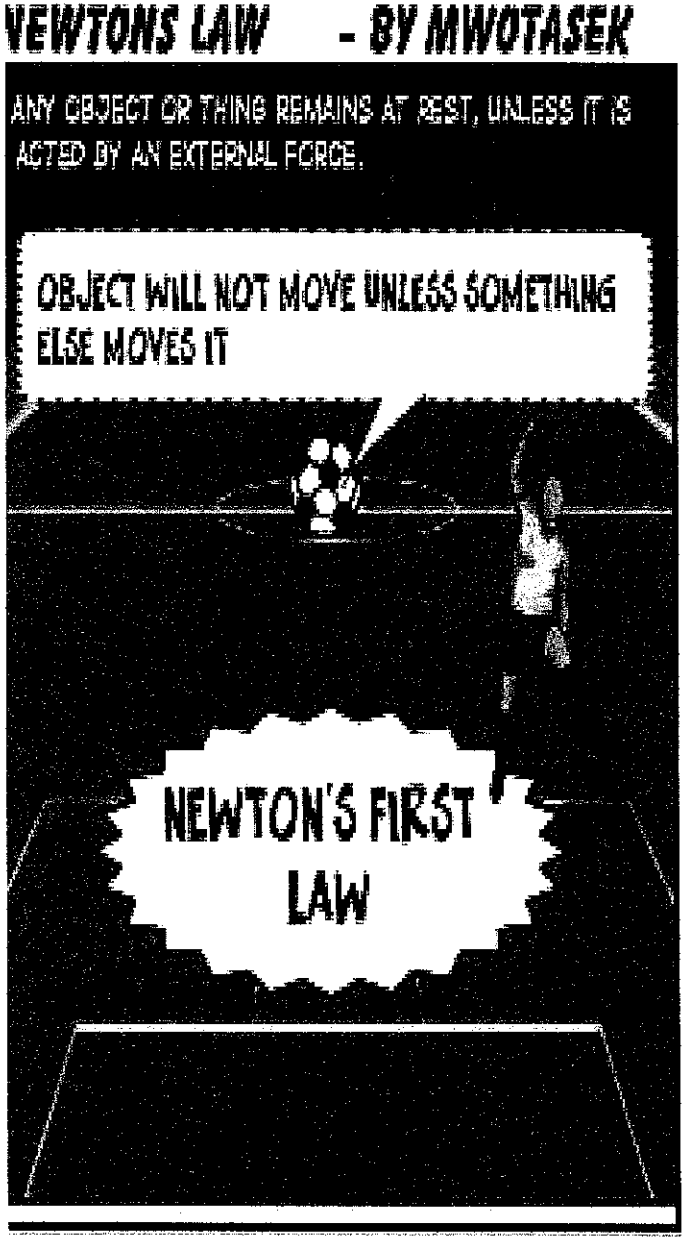
- **Acceleration** is the rate of change of **velocity** (speed with direction)

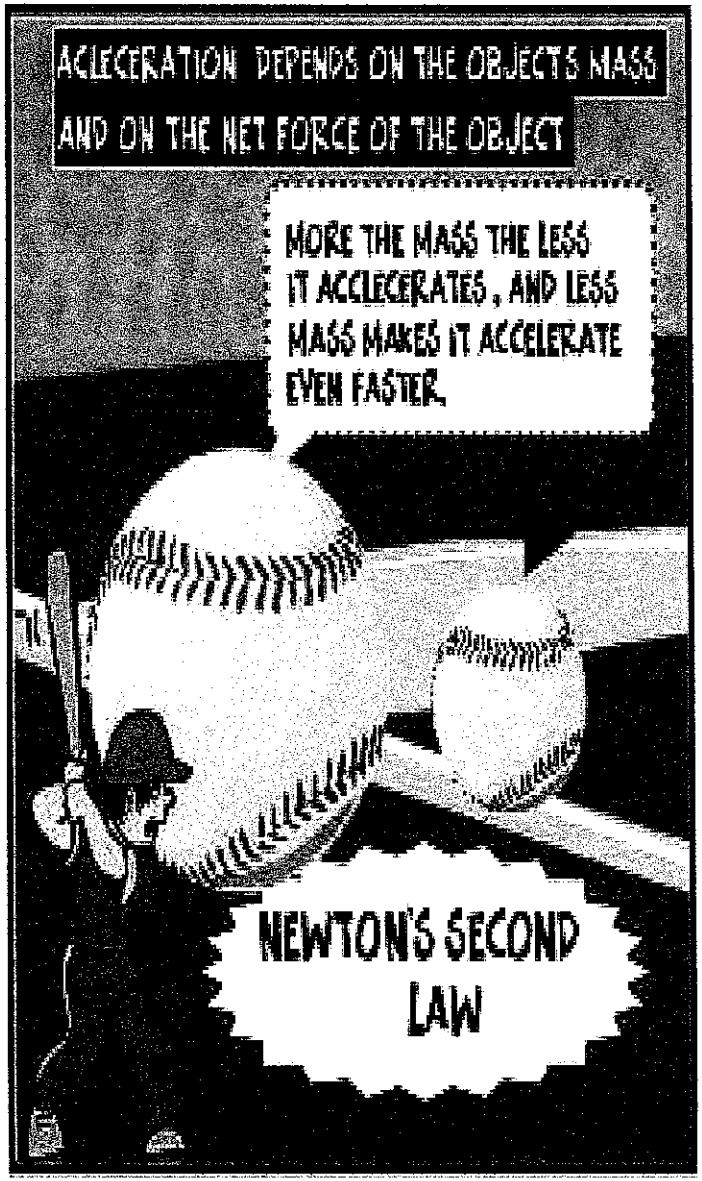
- Acceleration may be **positive** or **negative:**
  Positive – accelerates in the **direction it is moving (speeds up)**
    - **Ex: riding your bike forward harder to speed up**

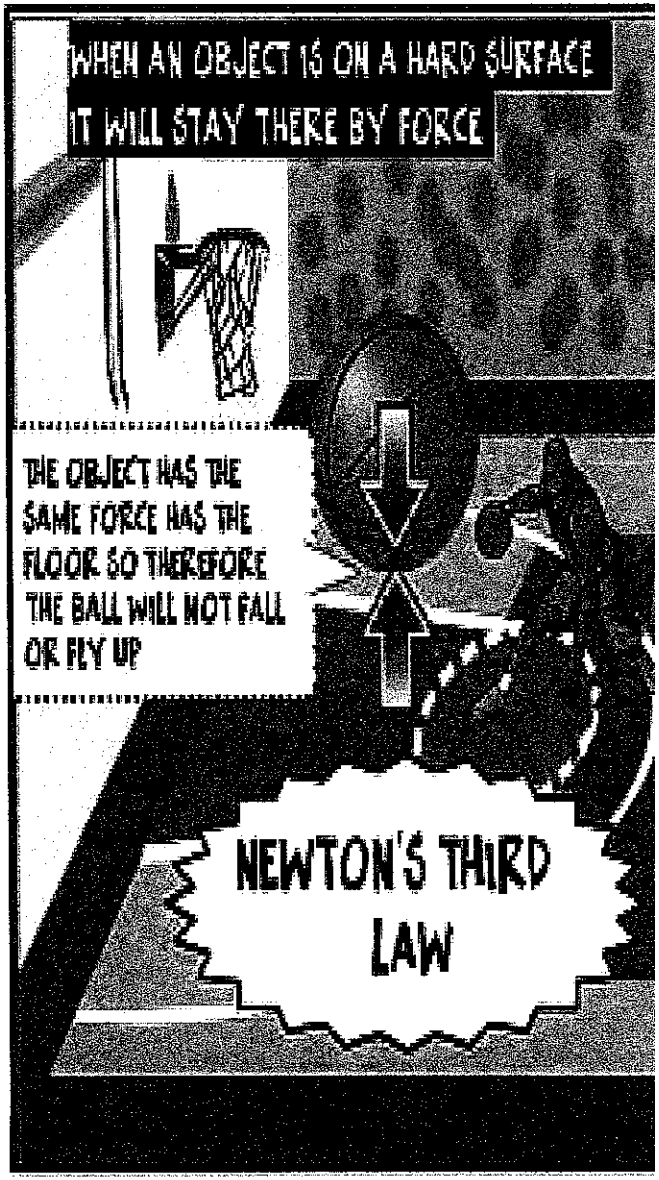


  – **Negative** – accelerates in the **opposite** direction to its movement **(slows down)**
    - **Ex: riding your bike and pushing the brake slows you down**

Newton's Law's of Motion



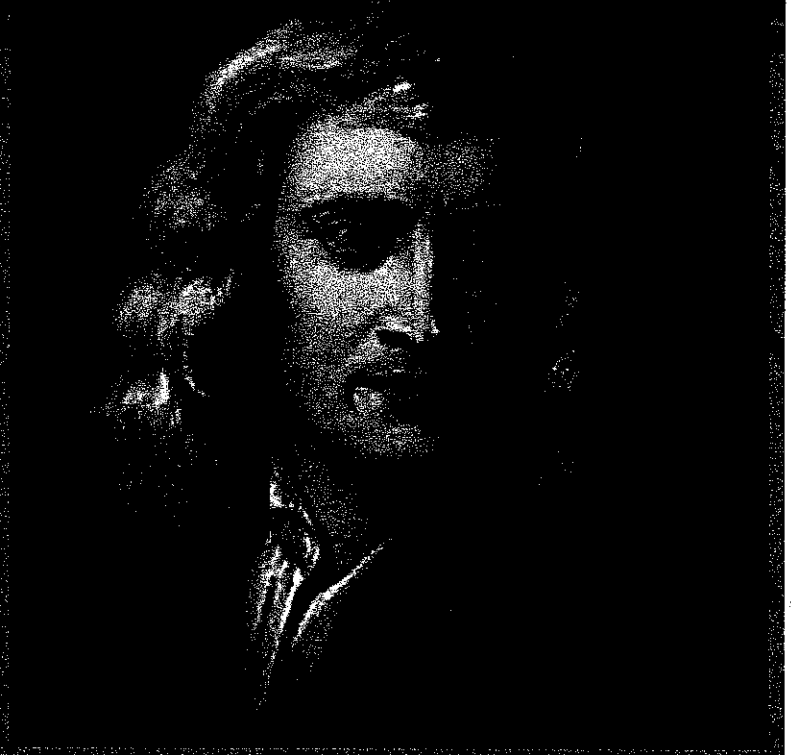




Newton's First Law

States: An object at rest stays at rest unless an unbalanced force acts on it.

***An object moving in a straight line at constant speed will continue doing that unless acted on by a force. This force is called friction. It is a force that resists motion between 2 surfaces that are in contact. It always acts opposite to the direction of motion.**



Sir Isaac Newton

* Inertia is the tendency to resist a change in motion.
* The more mass (amount of matter in an object) an object has, the greater the inertia.
** Example: A toothpick has less inertia than a pencil because it has less mass.

Newton's Second Law

* States: A net force changes the velocity of the object and causes it to accelerate.

*The more mass or inertia an object has, the harder it is to accelerate.

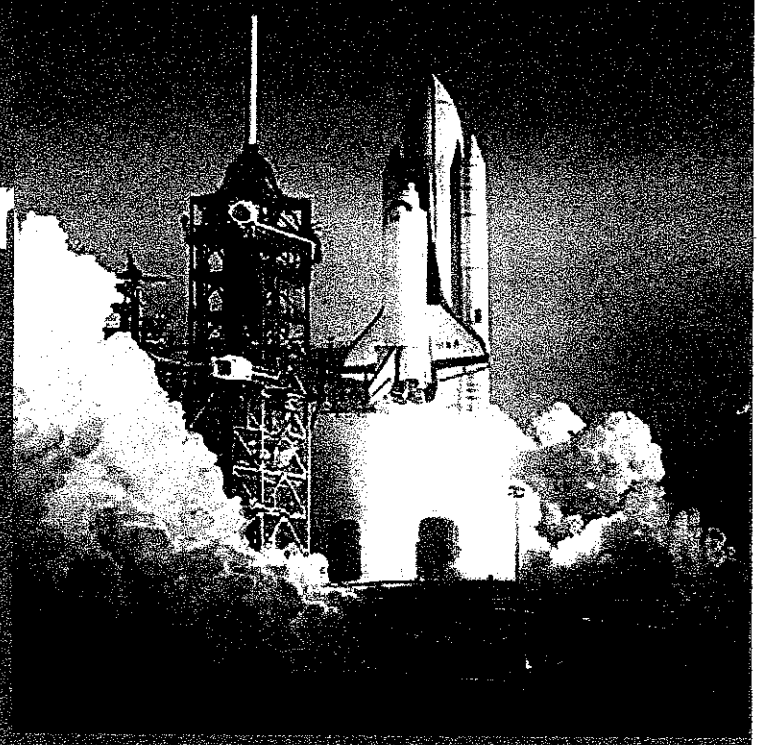
More mass = less acceleration

** Example: pushing a refrigerator vs. pushing a grocery cart

Newton's Third Law

- States: Forces always occur in equal but opposite pairs. In other words, for every action, there is an equal and opposite reaction.

** Example: A rocket blasting off



Space Shuttle Columbia

Types of Energy

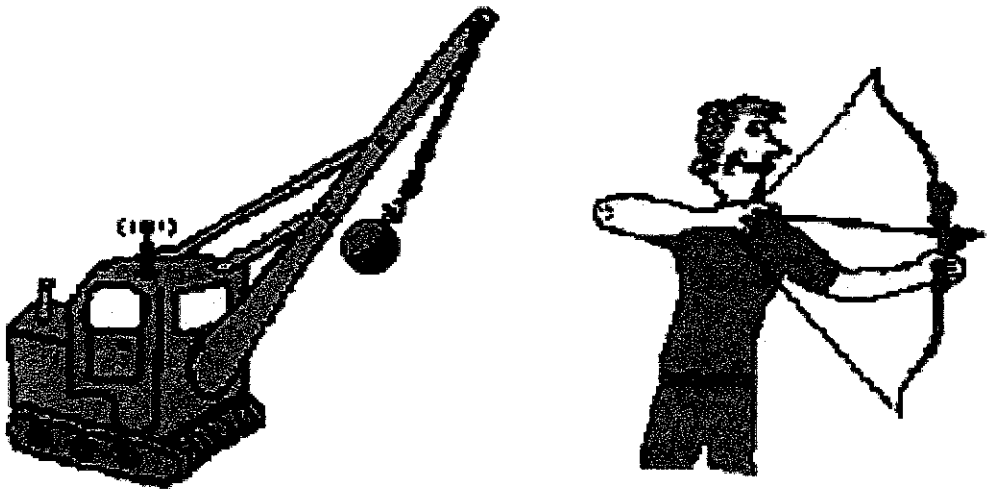
- Potential
- Kinetic
- Thermal

Potential Energy

Three examples of potential energy are elastic potential energy, chemical energy, and gravitational potential energy.

- An object may store energy by virtue of its position.

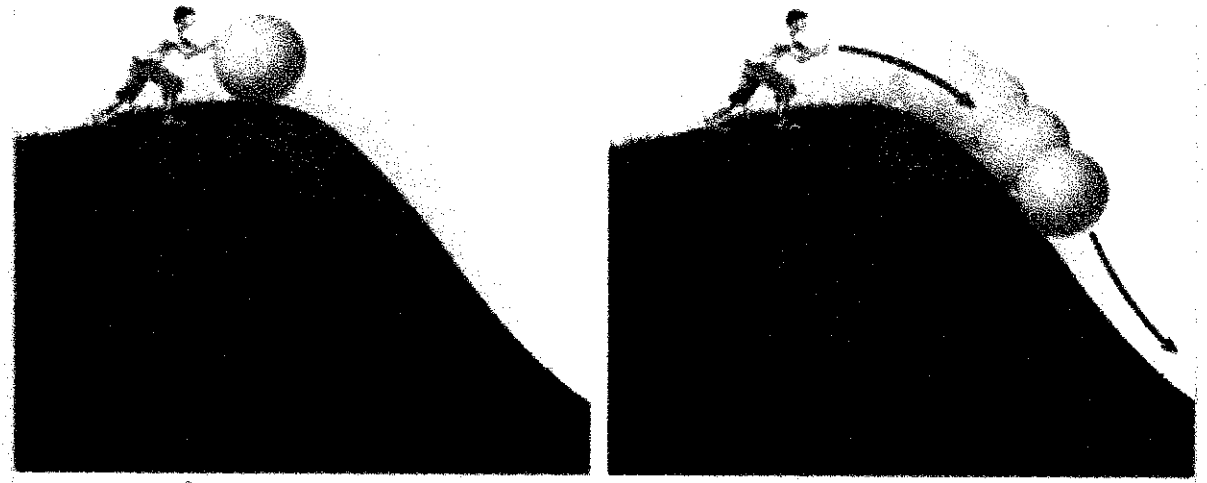
- Energy that is stored and held in readiness is called potential energy (PE) because in the stored state it has the potential for doing work.



The massive ball of a demolition machine and the stretched bow possesses stored energy of position - potential energy.

KINETIC ENERGY

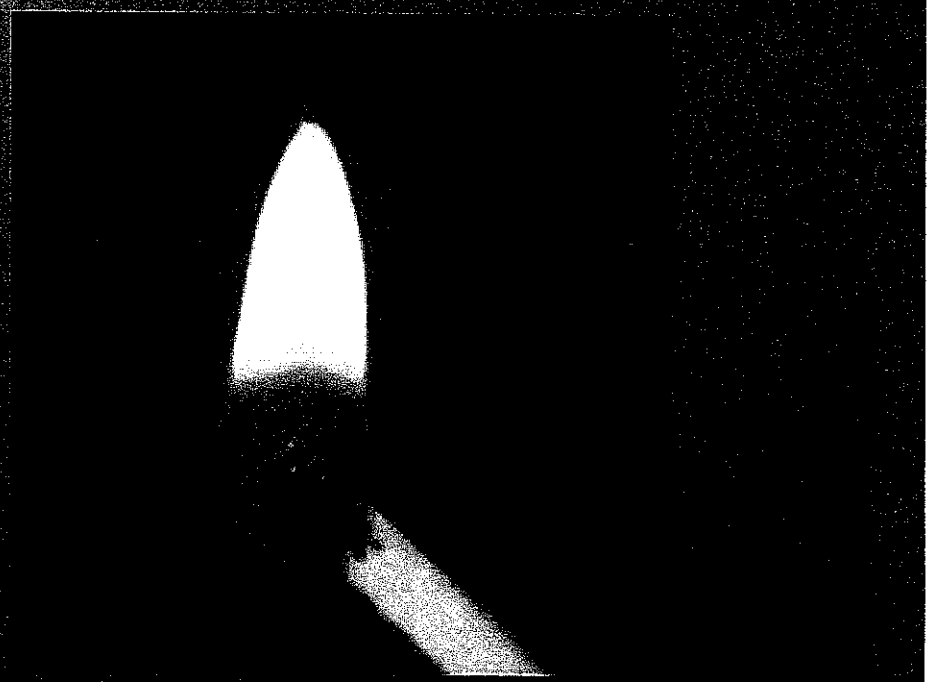
- The energy of motion is kinetic energy.
- Examples:
  - Rolling a ball down a hill
  - Going down a hill on a roller coaster
  - Riding your bicycle



Going from potential energy... to kinetic energy!

Thermal Energy

- *Both the potential energy + the kinetic energy of all the molecules in an object is:* **Thermal Energy**

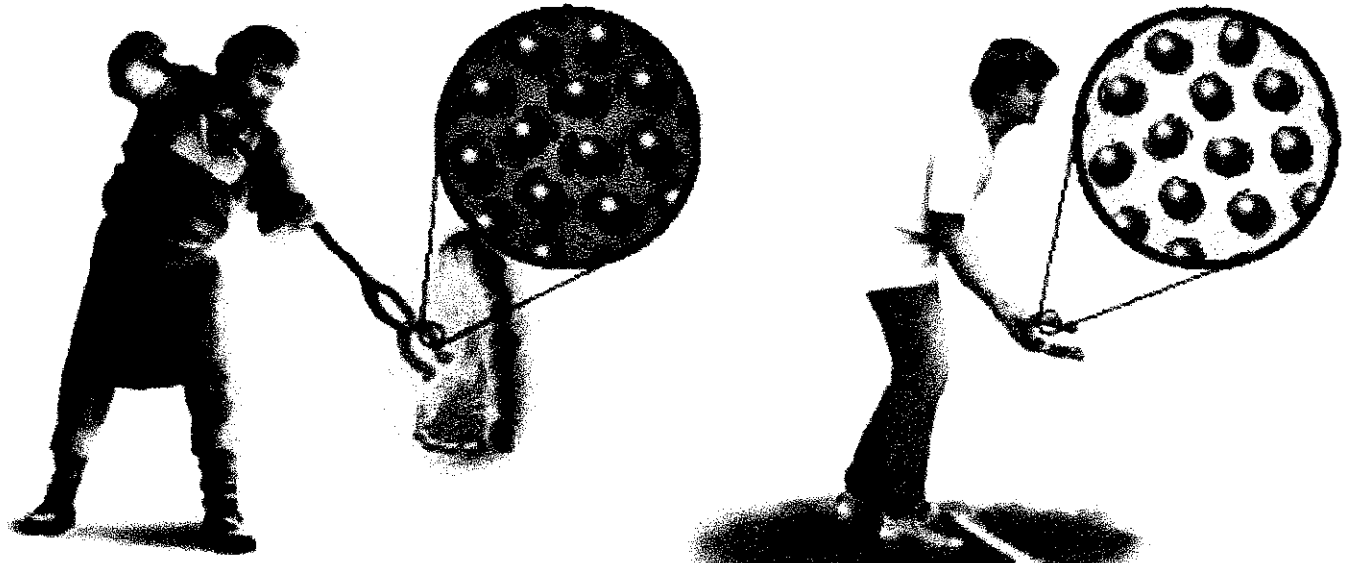


Thermal Energy

A. Temperature & Heat

1. Temperature is the measure of the average kinetic energy of the particles in a substance.

The atoms in an object are in constant motion.



A When the horseshoe is hot, the particles in it move very quickly.

B When the horseshoe has cooled, its particles are moving more slowly.