Department of Education

在家學習
6年級

2009年5月

親愛的六年級學生：

我們正處於非同尋常的艱難時期，有些學校已經停課一週時間。我們承認，中斷教學對您和您的家庭來說可能是一項挑戰。即使學校停課了，您仍然可以利用這段時間來繼續學習。

為幫助您走向成功：

- 請每天閱讀您選擇的書籍、雜誌或報紙
- 每天學習和使用新辭彙
- 每天練習寫作。例如：
    - 就您感興趣的問題給奧巴馬（Obama）總統寫信
    - 開始寫日記，記錄您一天的生活、您的夢想、您的朋友、您的家庭和您的計劃
    - 就您在學校喜歡的科目和活動給您的教師寫信或電子郵件
    - 給親屬或朋友寫信或電子郵件
    - 撰寫一篇短篇小說、詩歌或為一首歌曲作詞
- 參加健身活動和/或創造性活動以保持您的身體和心理健康
- 復習您從學校帶回的筆記和書籍
- 每天與您的家長或監護人分享您的學習成果

在後面的幾頁中，您將看到旨在幫助您有條不紊地學習和走向成功的逐日指南。其中包含建議的作息時間表、活動和教育性電視節目及網站。請使用該指南並每天填寫概述您每日學習活動的圖表。

要獲取其他網路資源和更新的資料，請瀏覽：http://schools.nyc.gov/learnathome。

Day 1 Schedule

Subject	Minutes Per Day (At Least!)	Assignments	What Did I Learn Today?
English Language Arts	45	• Learn new vocabulary words from the Vocabulary List • Activity: Write a Newspaper Article	•
Math	45	• Complete Skill 23	•
Science	45	Complete at least one of the following activities: • Activity 1: *The Longest Walk* (English or Spanish) • Activity 2: Begin *Hurricanes* activity	•
Fitness and Health	30	• Exercise for 30 minutes. Choose from the Activity Calendars at the back of this booklet	•
Arts	30	• Choose one or two activities from the Arts Activities at the back of this booklet	•
TV Shows and Websites	30	• Choose TV shows and websites to further your learning at home	•

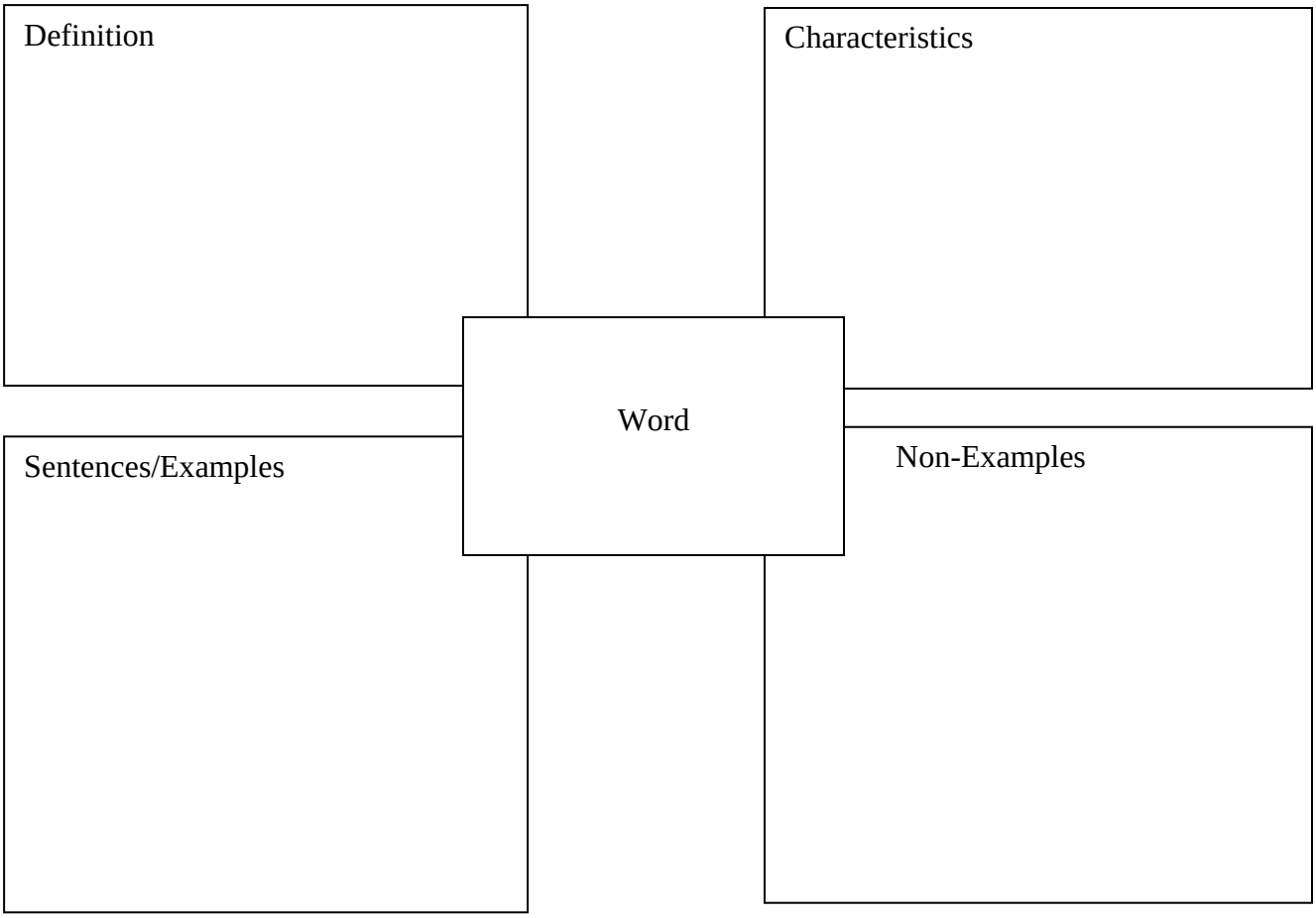
Day 1 English Language Arts

Vocabulary

Learn new vocabulary words from the Vocabulary List at the back of this booklet. Practice using these words during the day and in the activities below.

ELL Support: Use the instructions and model below to study your vocabulary each day this week.

1. Repeat the word aloud three times.
2. Find the meaning of the word in the dictionary.
3. Find the translation of the word in the native language.
4. Write two sentences using the word.
5. Use the Frayer Model (see below) to study the word.



Day 1 English Language Arts (continued)

Activity: *Newspaper Article*

- Write a newspaper article about something going on in the news. Follow the guidelines below:

1. First paragraph:
    a. First write the *lead*. Grab the reader's attention by using an opening sentence which is a question or something unexpected or exciting.
    b. The next few sentences should answer the following questions:
        Who?
        What?
        When?
        Where?
        Why
2. Body of the article (second and third paragraphs):
    a. Include details about the story. Tell more about who was involved and what happened.
    b. Be objective (don’t include your opinion).
3. Last paragraph: Round off your article. You may want to end with a quote or a catchy phrase.

Day 1 Mathematics

Vocabulary

Learn the new math vocabulary words below. You will use these vocabulary words in the activities today.

- **Variables**: A quantity that varies, or changes.
- **Algebraic Expression:** A rule written with numbers and symbols.
- **Evaluate**: To determine the value
- **Define**: To give a definition

Activity 1: *Variables and Expressions*

- Please complete the following worksheet - Skill 23: Variables and Expressions
- Choose at least 15 exercises to solve.
- Solve both Applications (#34, 35). Be sure to show all of your work.

If you need Spanish activities to review the concept of equations**,** please follow the steps below.

- Step 1: Go to tutorial site: http://destination.nycenet.edu

- Step 2: Login with the following user ID and PW:
  - User: studentnyc
  - Password: student

- Step 3: Click on the Exploration Icon to access the tutorial

- Step 4: Scroll down to Mastering Skills & Concepts: Course V: Pre-Algebra – Spanish

- Step 5: Select the skill/concept to review.
  - Activity 1: 1.1.1 - Introducing Variables

Notebook Activity

In your notebook, describe how you would prove that your answer to question 34 is correct. Describe your steps.

Additional Activity

Do you have more time? Complete the following activity

- Skill 69: Guess and Check

SKILL 23

Name _____ Date _____

Variables and Expressions

Algebra is a language of symbols. In algebra, letters, called **variables**, are used to represent unknown quantities. A combination of one or more variables, numbers, and at least one operation is called an **algebraic expression**.

$x - 9$ means x minus 9.

$7m$ means 7 times m.

ab means a times b.

$\frac{h}{4}$ means h divided by 4.

To **evaluate** an algebraic expression, replace the variable or variables with known values and then use the order of operations.

EXAMPLES *Evaluate $2c - 7 + d$ if $c = 8$ and $d = 5$.*

$2c - 7 + d = 2(8) - 7 + 5$	*Replace c with 8 and d with 5.*
$= 16 - 7 + 5$	*Multiply.*
$= 9 - 5$	*Subtract.*
$= 14$	*Add.*

EXERCISES *Evaluate each expression if $x = 9$, $y = 5$, and $z = 2$.*

1. $x + 6$
2. $y - 3$
3. $z + 11$
4. $23 - x$
5. $6z$
6. $14 + y$
7. $4z + 5$
8. $24 - 2x$
9. $3y - 7$
10. $\frac{x}{3}$
11. $\frac{14}{z}$
12. $\frac{xy}{15}$

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13. $4x - 2y$	**14.** $6z - x$	**15.** $18 - 2x$
16. $6y - (x + z)$	**17.** $3x - z$	**18.** $5(y + 7)$
19. $2x + y - z$	**20.** $5z - y$	**21.** $4x - (z + 2y)$
22. $\frac{2x + 3z}{12}$	**23.** $\frac{7y - y}{x}$	**24.** $\frac{5y - 7}{x}$
25. $(11 - 3z) + x + y$	**26.** $7(x - z)$	**27.** $6y - 9z$
28. $\frac{xy}{3} - z$	**29.** $\frac{40}{y} + x$	**30.** $\frac{5y - y}{z}$
31. $3x - 2(y - z)$	**32.** $(14 - 6z) + x$	**33.** $10z - (x + y)$

APPLICATIONS

34. The weekly production costs at Jessica's T-Shirt Shack are given by the algebraic expression $75 + 7s + 12t$ where s represents the number of short-sleeve shirts produced during the week and t represents the number of long-sleeve shirts produced during the week. Find the production cost for a week in which 30 short-sleeve and 24 long-sleeve shirts were produced.

35. The perimeter of a rectangle can be found by using the formula $2\ell + 2w$, where ℓ represents the length of the rectangle and w represents the width of the rectangle. Find the perimeter of a rectangular swimming pool whose length is 32 feet and whose width is 20 feet.

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SKILL 69

Name _____ Date _____

Guess and Check

There are 33 members of the Kennedy Middle School Math Club. There are 7 more girl members than boy members.

EXAMPLE *How many boys and girls are members of the club?*

Use the guess-and-check strategy to solve this problem. Suppose your first guess is 10 boys and 17 girls.

$10 + 17 = 27$

This guess is too low. Try 15 boys and 22 girls.

$15 + 22 = 37$

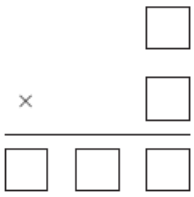
This guess is too high. Try 13 boys and 20 girls.

$13 + 20 = 33$

The club has 13 boys and 20 girls.

EXERCISES *Solve by using the guess-and-check strategy.*

1. A number plus half the number is 33. Find the number.
2. What is the only number you can multiply by itself and get a product of 1,296?
3. Fill in the boxes at the right with the digits 2, 3, 4, 5, 6, and 8 to make this multiplication work. Use each digit exactly once.



4. The length of a rectangle is 4 more meters than the width. The perimeter is 40 meters. Find the length.
5. The sum of two numbers is 56. The difference is 22. What are the two numbers?

APPLICATIONS

6. In the 1992 Summer Olympic Games, the Unified Team, the United States, and Germany won 115 gold medals. The Unified Team won 45 gold medals, and the United States won 4 more gold medals than Germany. How many gold medals did the United States win? How many did Germany win?

7. The Sanchez family bought tickets to the Science Museum. Admission is $8 for adults and $5 for children under 12. They spent $49 for admission. How many adult tickets and how many student tickets did the Sanchez family buy?

8. Zachary and Aimee are in a teen bowling league. The total of their bowling averages is 172. Zachary's average is 14 points higher than Aimee's average. What is Zachary's bowling average?

9. Andy has $2.80 worth of quarters and dimes in his pocket. If the number of quarters equals the number of dimes, how many quarters does he have?

10. Mei-yu bought some pens for $0.89 each and some pencils for $0.19 each. She spent $5.02. How many pens and how many pencils did she buy?

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Day 1 Science

Complete Activity 1 or 2 below:

Activity 1: *The Longest Walk*

- Read the article below and answer the questions that follow.
- Para Espanol, prime aquí: http://schools.nyc.gov/Documents/teachandlearn/LearnatHome/ELL/6day1sp.pdf

Vocabulary
Learn the new vocabulary words below. You will use these vocabulary words in today's activity.

- **devastation** (noun): total destruction
- **harmony** (noun): peace
- **impact** (noun): effect
- **sovereignty** (noun): political independence

The Longest Walk

WASHINGTON, D.C. (Achieve3000, September 18, 2008). This year, hundreds of walkers representing more than 100 Native-American nations participated in the Longest Walk 2. It was an 8,300-mile trek from San Francisco to Washington, D.C. The walk was intended to draw attention to the effects of pollution and environmental devastation. It was also intended to draw attention to Native-American rights and issues of concern to the 11.9 million Native Americans around the nation.

On February 11, the walkers set out from San Francisco, California. They then split into two groups. One group passed through southern states like Texas, Alabama, and Tennessee. Another group crossed northern states like Ohio and Pennsylvania. In all, the walkers crossed 24 states. They visited 35 Native-American reservations. Along the way, they picked up 3,800 bags of trash from the roads and highways. This was in an effort to promote living in harmony with the environment. They also spoke with tribe members in the communities through which they passed. They gathered stories, concerns, and ideas to share with lawmakers at the journey's end, in Washington, D.C.

In Maryland, the two groups came back together and continued east. On the steps of the U.S. Capitol, the walkers were welcomed by U.S. Representative John Conyers. Conyers was handed a "Manifesto for Change" outlining a long list of Native-American concerns. These included environmental damage, health care, and the protection of sacred sites.

In addition to its political and environmental goals, the walk was intended to honor the 30th anniversary of the first Longest Walk. This was a 3,600-mile effort to halt 11 bills before Congress that Native Americans said threatened their sovereignty. Politicians, film stars, and athletes joined the 1978 Longest Walk. They spoke out against proposed bills that would have put an end to treaties between Native Americans and the U.S. government. The effort was a success. However, concerns about tribal sovereignty still appear in the "Manifesto for Change."

Day 1 Science (continued)

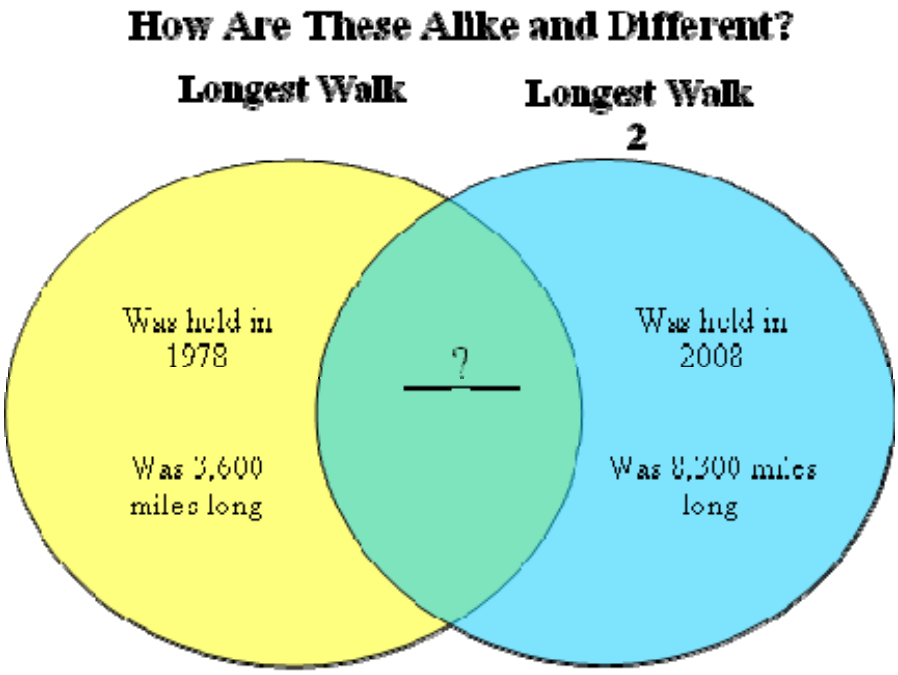
Marching is often used to promote social change. Yet, some people question the impact that a group of people on foot can truly make. However, for those on the Longest Walk 2, including Shanawa Littlebow of the Tigua tribe, there wasn't any doubt that the walk would get people's attention—and that it would bring change.

"There may be a lot of people who don't even care. But at least we're out here, and we're speaking out," Littlebow said. "It's working."

The Associated Press contributed to this story.

Instructions: Select the correct answer.

Question 1:



Based on the article, which best replaces the question mark on the line above?
1. Were intended to draw attention to environmental damage
2. Were intended to draw attention to Native-American rights
3. Included walkers who were politicians, film stars, and athletes
4. Included a final list of concerns called the "Manifesto for Change"

Question 2:
What is this article mainly about?
1. The Longest Walk 2 and the reasons why it passed through 35 reservations
2. The reasons why many Native Americans are concerned about the environment
3. The reasons why tribal sovereignty is still a concern for some Native Americans
4. The Longest Walk 2 and the reasons why Native Americans took part in it

Day 1 Science (continued)

Question 3:
The reader can tell from the article that _____.
1. Shanawa Littlebow must feel that the Longest Walk in 1978 was a waste of time.
2. John Conyers probably wasn't interested in reading the "Manifesto for Change."
3. Some Native Americans must care deeply about maintaining tribal sovereignty.
4. Most of the walkers probably felt that the Longest Walk 2 was much too short.

Question 4:
The article states: The first Longest Walk] was a 3,600-mile effort to halt 11 bills before Congress that Native Americans said threatened their sovereignty. Politicians, film stars, and athletes joined the 1978 Longest Walk. They spoke out against proposed bills that would have put an end to treaties between Native Americans and the U.S. government.

Which would be the closest synonym for the word treaties?
1. Arguments
2. Appointments
3. Agreements
4. Assignments

Question 5:
Which of these is a statement of opinion?
1. The walkers should have made a stronger effort to clean up roads and highways.
2. The walkers spoke with tribe members in many Native-American communities.
3. The Longest Walk 2 covered 24 states and 35 Native-American reservations.
4. The Longest Walk 2 was longer than the original Longest Walk in 1978.

Question 6:
According to the article, what was one purpose for the Longest Walk 2?
1. To draw attention to the effects of pollution and environmental devastation
2. To halt 11 bills before Congress that threatened Native-American sovereignty
3. To help more Native Americans find jobs that help the environment
4. To create 35 Native-American reservations around the United States

Question 7:
Which is the closest synonym for the word devastation?
1. Rumor
2. Reform
3. Revenge
4. Ruin

Question 8:
Which statement from the article best supports the idea that there are many things that Native Americans would still like to change?
1. Yet, some people question the impact that a group of people on foot can truly make.
2. On the steps of the U.S. Capitol, the walkers were welcomed by U.S. Representative John Conyers.
3. Conyers was handed a "Manifesto for Change" outlining a long list of Native-American concerns.
4. Politicians, film stars, and athletes joined the 1978 Longest Walk.

Day 1 Science (continued)

Writing Activity

Write a summary of today's article. As you write your summary, do the following:

- STEP 1: First you must read the article carefully.
- STEP 2: Look back at the article. Then:
  - Pull out the topic sentences for each paragraph.
  - Get rid of any details that are not needed.
  - Put the information into a single paragraph.
- STEP 3: Rethink your summary.
- STEP 4: Check and double-check.

Write your response below.

Day 1 Science (continued)

Activity 2: *Science Inquiry Project - Hurricanes*

The following activity is day one of a three day project.

Vocabulary

Learn the new vocabulary words below. You will use these vocabulary words in today's activity.

- **Greenhouse Effect:** The trapping of heat in Earth's atmosphere by carbon dioxide, can lead to global warming.
- **Meteorology:** The scientific study of the atmosphere and of atmospheric conditions.

Hurricanes are one of the most fascinating and powerful atmospheric phenomenon studied by meteorologists. While hurricanes start in the world's oceans, their damage is felt most powerfully on land. Investigate how storms that become hurricanes are defined and determine which worldwide locations are at greatest risk for hurricanes.

Directions: Conduct research about hurricanes in order to design an informational brochure about this dangerous type of storm. Research the following four questions:

1. What is the definition of a hurricane?
2. Where do hurricanes form?
3. How are hurricanes measured?
4. Why are hurricanes potentially dangerous to coastal areas?

Suggested Resources:

- http://www.aoml.noaa.gov/hrd/ (information from this site is included in the following pages)
- http://tropical.atmos.colostate.edu/
- http://www.nws.noaa.gov/om/hurricane/index.shtml
- http://www.nhc.noaa.gov/
- http://www.hurricanehunters.com/
- http://hurricanes.noaa.gov/

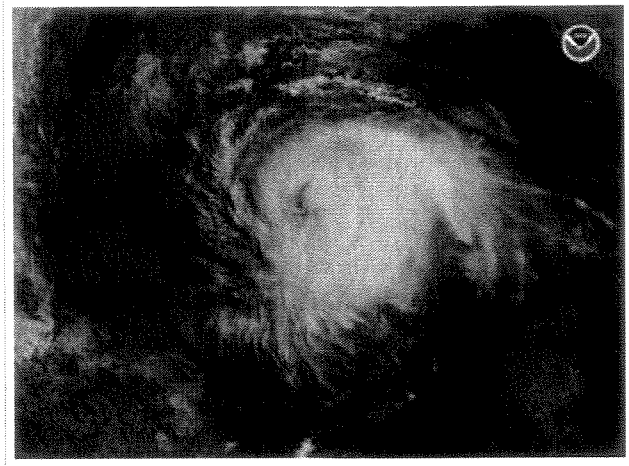
Source: This activity is from Glencoe NY Science, Grade 6 Unit 2: The Atmosphere, Hydrosphere, and the Lithosphere. ***http://glencoe.mcgraw-hill.com/sites/0078771285/student_view0/unit2/unit_project_3.html***

NOAA NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
UNITED STATES DEPARTMENT OF COMMERCE

Four Hurricane Names Retired From List of Storms

May 1, 2009

Three hurricane names in the Atlantic and one in the eastern North Pacific were retired from the official name rotation by the World Meteorological Organization's hurricane committee because of the deaths and damage they caused in 2008.



Hurricane Ike bearing down on Texas.

High resolution (Credit: NOAA)

The names Gustav, Ike and Paloma in the Atlantic and Alma in the North Pacific will not be used again. Those names would have been used again in 2014. In their place will be Gonzalo, Isaias and Paulette in the Atlantic and Amanda in the North Pacific. The committee issues the list of potential names for tropical cyclones to be used every six years for both the Atlantic basin and eastern North Pacific basin.

Details of the retired 2008 named storms are shown below:

- Gustav became a hurricane on Aug. 26, making landfall in Haiti as a Category 1 hurricane. Gustav then struck western Cuba as a Category 4 hurricane, making its final landfall near Cocodrie, La., on Sept. 1 as a Category 2 hurricane. Hurricane force winds, storm surge and heavy rain produced more than $4 billion damage in Louisiana. Gustav killed 112 people, including 77 in Haiti.

- Ike became a hurricane on Sept. 3 and rapidly intensified to a Category 4 hurricane northeast of the Leeward Islands. The storm struck the Turks and Caicos Islands and Great Inagua Island in the Southeastern Bahamas on Sept. 7, and the northeast coast of Cuba later that day. Ike made its final landfall at Galveston Island, Texas on Sept. 13 as a Category 2 hurricane. Ike killed more than 80 people across the Caribbean and Bahamas, and another 20 in Texas, Louisiana and Arkansas. Total estimated U.S. property damage from Ike is estimated at $19.3 billion.

- Paloma reached hurricane intensity on Nov. 7 and became the second strongest November Atlantic hurricane on record the next day, reaching Category 4. According to the Cuban government, more than 1,400 homes were destroyed on that island with $300 million U.S. dollars in damage.

- Alma was the first eastern North Pacific basin tropical cyclone to make landfall along the Pacific Coast of Central America since records began in 1949. The storm formed quickly on May 28 west-northwest of Cabo Blanco, Costa Rica. Alma was responsible for two direct deaths and the destruction of thousands of homes.

NOAA understands and predicts changes in the Earth's environment, from the depths of the ocean to the surface of the sun, and conserves and manages our coastal and marine resources.

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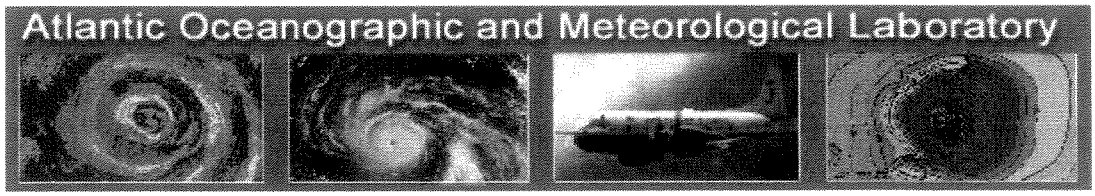

Hurricane Research Division

Frequently Asked Questions

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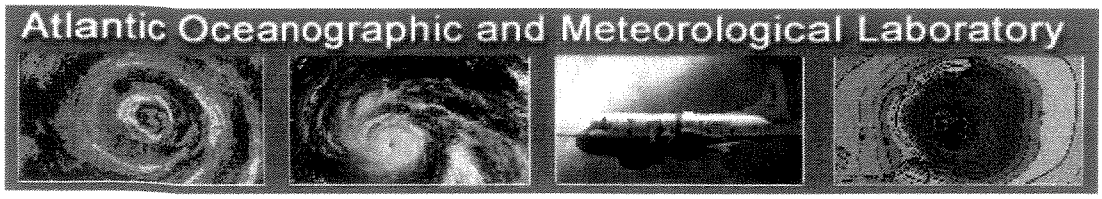
Subject: A3) What is a super-typhoon? What is a major hurricane ? What is an intense hurricane ?
Contributed by Stan Goldenberg

"Super-typhoon" is a term utilized by the U.S. Joint Typhoon Warning Center for typhoons that reach maximum sustained 1-minute surface winds of at least 65 m/s (130 kt, 150 mph). This is the equivalent of a strong Saffir-Simpson category 4 or category 5 hurricane in the Atlantic basin or a category 5 severe tropical cyclone in the Australian basin.

"Major hurricane" is a term utilized by the National Hurricane Center for hurricanes that reach maximum sustained 1-minute surface winds of at least 50 m/s (96 kt, 111 mph). This is the equivalent of category 3, 4 and 5 on the Saffir-Simpson scale.

"Intense hurricane" is an unofficial term , but is often used in the scientific literature. It is the same as **"major hurricane"**.

Back to Basic Definitions Page | Back to Main FAQ Page



Hurricane Research Division

Frequently Asked Questions

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Subject: D7) How much energy does a hurricane release?

Contributed by Chris Landsea

Hurricanes can be thought of, to a first approximation, as a heat engine; obtaining its heat input from the warm, humid air over the tropical ocean, and releasing this heat through the condensation of water vapor into water droplets in deep thunderstorms of the eyewall and rainbands, then giving off a cold exhaust in the upper levels of the troposphere (~12 km/8 mi up).

One can look at the energetics of a hurricane in two ways:

1. the total amount of energy released by the condensation of water droplets or ...
2. the amount of kinetic energy generated to maintain the strong swirling winds of the hurricane (Emanuel 1999).

It turns out that the vast majority of the heat released in the condensation process is used to cause rising motions in the thunderstorms and only a small portion drives the storm's horizontal winds.

- **Method 1) - Total energy released through cloud/rain formation:**

  An average hurricane produces 1.5 cm/day (0.6 inches/day) of rain inside a circle of radius 665 km (360 n.mi) (Gray 1981). (More rain falls in the inner portion of hurricane around the eyewall, less in the outer rainbands.) Converting this to a volume of rain gives 2.1×10^{16} cm3/day. A cubic cm of rain weighs 1 gm. Using the latent heat of condensation, this amount of rain produced gives

  5.2×10^{19} Joules/day or
  6.0×10^{14} Watts.

  This is equivalent to 200 times the world-wide electrical generating capacity - an incredible amount of energy produced!

- **Method 2) - Total kinetic energy (wind energy) generated:**

  For a mature hurricane, the amount of kinetic energy generated is equal to that being dissipated due to friction. The dissipation rate per unit area is air density times the drag coefficient times the windspeed cubed (See Emanuel 1999 for details). One could either integrate a typical wind profile over a range of radii from the hurricane's center to the outer radius encompassing the storm, or assume an average windspeed for the inner core of the hurricane. Doing the latter and using 40 m/s (90 mph) winds on a scale of radius 60 km (40 n.mi.), one gets a wind dissipation rate (wind generation rate) of

  1.3×10^{17} Joules/day or

  1.5×10^{12} Watts.

  This is equivalent to about half the world-wide electrical generating capacity - also an amazing amount of energy being produced!

Either method is an enormous amount energy being generated by hurricanes. However, one can see that the amount of energy released in a hurricane (by creating clouds/rain) that actually goes to maintaining the hurricane's spiraling winds is a huge ratio of 400 to 1.

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U.S. Department of Commerce
National Oceanic and Atmospheric Administration
Office of Oceanic and Atmospheric Research
Atlantic Oceanographic and Meteorological Laboratory

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aoml.hrdwebmaster@noaa.gov

Day 2 Schedule

Subject	Minutes Per Day (At Least!)	Assignments	What Did I Learn Today?
English Language Arts	45	• Learn new vocabulary words from the Vocabulary List • Activity*:* Collage	•
Math	45	• Complete Skill 24	•
Science	30	Complete at least one of the following activities: • Activity 1: *Green TV!* (English or Spanish) • Activity 2: Continue *Hurricanes* activity	•
Fitness and Health	30	• Exercise for 30 minutes. Choose from the Activity Calendars at the back of this booklet	•
Arts	30	• Choose one or two activities from the Arts Activities at the back of this booklet	•
TV Shows and Websites	30	• Choose TV shows and websites to further your learning at home	•

Day 2 English Language Arts

Vocabulary

Learn new vocabulary words from the Vocabulary List at the back of this booklet. Practice using these words in the activities below. For ELL support, see the instructions and model from Day 1.

Activity: *Collage*

- Use newspapers and/or magazines to *create a collage* of pictures and/or words that answer the question: *Who Am I* or *What is My World?*

Directions:

1. Select a stack of magazines and/or newspapers and flip through each one. Cut out pictures or words that *reflect some aspect of you* and best describe *who you are*. Keep going until you have a sufficient number of clippings for your collage.

2. Lay your favorite clippings out and make them the focal points of your collage, and then trim the pictures down as closely as possible so that you can fit them all together.

3. Lay out your collage, on top of a 8 ½ x 12 " piece of paper or cardboard, fitting the pieces together like a jigsaw puzzle. Overlap pieces and just keep rearranging them until every inch of your surface is covered.

4. Remove each piece starting with background pictures and glue them down. Don't worry of the pictures don't end up exactly where they started. Fill in any gaps with smaller images and words. Trim the edges when you're done gluing to make it look more polished.

5. Write a short essay that reflects your "Who Am I?" or "What Is My World?" collage.

I am _____. I speak _____.

I love to _____ and _____.

My favorite story is _____ because

_____.

I don't like to _____because

_____.

This collage represents who I am because it shows _____

_____.

Day 2 Mathematics

Vocabulary

Learn the new math vocabulary words below. You will use these vocabulary words in the activities today.

- **Algebraic Equation**: A mathematical sentence stating that two quantities have the same value. An equal sign, =, is used to separate the two quantities.

Activity 1: *Writing Expressions and Equations*

Please complete the following worksheet. Solve all exercise and at least two Applications problems (#11, 12, and 13). Show all work.

- Skill 24: Writing Expressions and Equations

If you need Spanish activities to review the concept of equations**,** please follow the steps below.

- Step 1: Go to tutorial site: http://destination.nycenet.edu

- Step 2: Login with the following user ID and PW:
  - User: studentnyc
  - Password: student

- Step 3: Click on the Exploration Icon to access the tutorial

- Step 4: Scroll down to Mastering Skills & Concepts: Course V: Pre-Algebra – Spanish

- Step 5: Select the skill/concept to review.
  - Activity 2: 1.1.2 - Identifying Components of Algebraic Expressions

Notebook Activity

After completing # 7 and #8, answer the following question: Is there more than one way your answer could have been written?

Additional Activity

Do you have more time? Complete the following activity

- Lesson 9.3 Study Guide and Intervention: Guess-Check-and-Improve

SKILL 24

Name _____ Date _____

Writing Expressions and Equations

Translating verbal phrases and sentences into algebraic expressions and equations is an important skill in algebra. Key words and phrases play an essential role in this skill.

The first step in translating a verbal phrase into an algebraic expression or a verbal sentence into an algebraic equation is to choose a variable and a quantity for the variable to represent. This is called **defining a variable**.

The following table lists some words and phrases that suggest addition, subtraction, multiplication, and division. Once a variable is defined, these words and phrases will be helpful in writing the complete expression or equation.

Addition	Subtraction	Multiplication	Division
plus	minus	times	divided
sum	difference	product	quotient
more than	less than	multiplied	per
increased by	subtract	each	rate
in all	decreased by	of	ratio
together	less	factors	separate

EXAMPLES

Translate the phrase "three times the number of students per class" into an algebraic expression.

Words three times the number of students per class

Variable Let s represent the number of students per class.

Expression $3s$

Translate the sentence "The weight of the apple increased by five is equal to twelve ounces." into an algebraic equation.

Words The weight of the apple increased by five is equal to twelve ounces.

Variable Let w represent the weight of the apple.

Equation $w + 5 = 12$

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EXERCISES *Translate each phrase into an algebraic expression.*

1. seven points less than yesterday's score
2. the number of jelly beans divided into nine piles
3. the morning temperature increased by sixteen degrees
4. six times the cost of the old book
5. two times the difference of a number and eight

Translate each sentence into an algebraic equation.

6. The sum of four and a number is twenty.
7. Fourteen is the product of two and a number.
8. Nine less than a number is three.
9. The quotient of a number and five is eleven.
10. Fifteen less than the product of a number and three is six.

APPLICATIONS

11. Sierra purchased an ice cream cone for herself and three friends. The cost was $8. Define a variable and then write an equation that can be used to find how much Sierra paid for each ice cream cone.

12. Nicholas weighed 83 pounds at his most recent checkup. He had gained 9 pounds since his last checkup. Define a variable and then write an equation to find Nicholas' weight at the previous checkup.

13. There are three times as many people at the amusement park today than there were yesterday. Today's attendance is 12,000. Define a variable and then write an equation to find yesterday's attendance.

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Name Date

Lesson 9.3 Study Guide and Intervention

Guess-Check-and-Improve

With certain equations, the process of backtracking does not always work. Another method called **guess-check-and-improve** is helpful with equations that are more advanced. This is how the process works.

- **Guess** the solution.
- **Check** the solution by substituting it into the equation.
- Use the result to **improve** the next guess.

Example 1 **Solve $y \cdot (y + 3) = 180$ using guess-check-and-improve.**

The guesses and results can be recorded in a table.

y	$y \cdot (y + 3)$	Comment
5	40	too low
10	130	too low but closer
20	460	too high

Based on the guesses, the solution is between 10 and 20. The table below shows the next two guesses.

y	$y \cdot (y + 3)$	Comment
11	154	too low but close
12	180	12 is the solution

The solution to $y \cdot (y + 3) = 180$ is 12.

Example 2 **Solve $4x = x + 18$ using guess-check-and-improve.**

x	$4x$	$x + 18$	Comment
1	4	19	not the same
2	8	20	closer
5	20	23	very close
6	24	24	equal

The solution to $4x = x + 18$ is 6.

Exercises

Use guess-check-and-improve to solve the equations.

1. $4x + 12 = 76$ **2.** $5c = 3c + 12$ **3.** $n \cdot (n + 6) = 216$

4. $7h + 3 = 2h + 28$ **5.** $6k + 9 = 8k$ **6.** $m^2 + m = 6$

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Day 2 Science

Complete Activity 1 or 2 below:

Activity 1: *Green TV!*

- Read the article below and answer the questions that follow.
- Para Espanol, prime aquí: http://schools.nyc.gov/Documents/teachandlearn/LearnatHome/ELL/6day2sp.pdf

Vocabulary

Learn the new vocabulary words below. You will use these vocabulary words in today's activity.

- **bonus** (noun): extra money that is paid in addition to wages
- **celebrity** (noun): a star; a famous person
- **network** (noun): a company that owns many TV stations that have the same shows
- **simultaneously** (adverb): at the same time
- **unique** (adjective): different from all others

Green TV!

NEW YORK, New York (Achieve3000, June 1, 2008). Viewers of the new Planet Green network will not see a documentary on polar bears. In fact, they will find no serious discussions. Instead, Planet Green viewers will find celebrities such as rapper Ludacris and rocker Tommy Lee.

Make no mistake—the Planet Green network is environmentally conscious. The station hopes to teach viewers how to lead more eco-friendly lives. Its mission, however, is to make entertainment a bigger concern than environmental education. Therefore, according to network president Eileen O'Neill, there will be no lectures.

O'Neill works for Discovery Communications, which owns the Planet Green network. She said that the network is different from any other. O'Neill calls the channel's entertainment programming "eco-tainment." The programs center on ecology. Unlike other networks, Planet Green is adopting a lighter tone. For example, Planet Green will not criticize people who waste paper. Instead, the network is planning a show about a person who built a business on recycling it.

Most new networks are built largely upon reruns of old network shows. This is because of the money needed to get started. Planet Green could not take this approach, however. There was too little existing material that fit its programming goals. Therefore, the channel had no choice. It had to start out with a larger than average amount of original programming.

Planet Green features many popular personalities. This summer, Tommy Lee and Ludacris starred in Battleground Earth. This series of competitions between the rocker and rapper is to determine who's the "greenest." Another show is Supper Club with Tom Bergeron. It spotlights a cook who prepares meals in an environmentally friendly way. Movie star Leonardo DiCaprio helped create the series Greensburg. This series looks at a Kansas town that was hit by a tornado. The town is now being rebuilt in an eco-friendly fashion.

Day 2 Science (continued)

In other programs, stars will demonstrate ways homeowners can simultaneously save money and be kind to the environment. They will also show what happens to everyday items before and after they're used. Discovery Communications believes that an environmentally friendly message sells. The company thinks that a network devoted to the idea will do well. Cable industry researcher Paul Kagan agrees that the company's unique approach might prove successful.

"I think they have a good shot," Kagan said. "I totally understand somebody starting a television network wanting to keep it entertaining and not too serious. Anything too serious doesn't attract a wide audience."

O'Neill said she recognizes that the approach might seem harsh to loyal environmentalists. But she believes most will agree that the Hollywood approach is the best way to get the green message across to the greatest number of people.

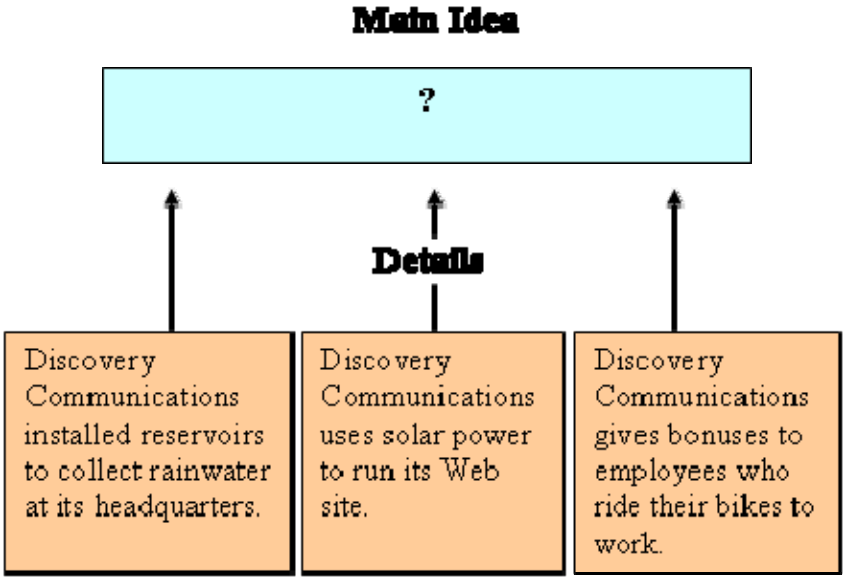
Discovery Communications also believes that it ought to practice what it preaches. The company, therefore, installed 400-gallon reservoirs to collect rainwater at its headquarters. It also installed toilets that conserve water. In addition, Discovery employees who save gasoline by bicycling to work are given a small bonus. Planet Green even uses solar power to run its Web site.

Planet Green officials hope that their programming will inspire people to make similar changes in their lives.

The Associated Press contributed to this story.

Instructions: Select the correct answer.

Question 1:



Which best replaces the question mark in the box above?

1. Discovery Communications made changes to help the environment.
2. Discovery Communications created a program about polar bears.
3. Discovery Communications installed toilets that conserve water.
4. Discovery Communications criticized people who waste paper.

Day 2 Science (continued)

Question 2:
Which is the closest antonym for the word celebrity?
1. Apprentice
2. Invader
3. Employee
4. Unknown

Question 3:
Which of these is most important to include in a summary of this article?
1. Most new networks are built largely upon old reruns.
2. Planet Green hopes to teach viewers how to lead more eco-friendly lives.
3. Planet Green encourages employees to conserve water and save gasoline.
4. Most serious programs fail to attract large audiences.

Question 4:
The article states:
The company, therefore, installed 400-gallon reservoirs to collect rainwater at its headquarters. It also installed toilets that conserve water. In addition, Discovery employees who save gasoline by bicycling to work are given a small bonus. Planet Green even uses solar power to run its Web site.
Why did the author include this information?
1. To show the ways that Tommy Lee inspires people to help the planet
2. To discuss the ways that networks can save money when they are just getting started
3. To show that Discovery Communications is practicing what it teaches
4. To discuss some eco-friendly changes that Discovery viewers should make at home

Question 5:
The article states: [Planet Green's] mission, however, is to make entertainment a bigger concern than environmental education.
Which would be the closest synonym for the word mission?
1. Vein
2. Goal
3. Tour
4. Duet

Thought Question
Review the examples of TV programs on Planet Green. Then, create a new program that is different from the ones described in the article. Describe what your program will be about and who will be on it.

Use information from the article, as well as your own ideas, in your answer.

_____
_____
_____
_____
_____

Day 2 Science (continued)

Achieve3000 (www.teenbiz3000.com)

Day 2 Science (continued)

Activity 2: *Science Inquiry Project - Hurricanes*

The following activity is day two of a three day project.

Vocabulary

Learn the new vocabulary words below. You will use these vocabulary words in today's activity.

- **Atmosphere:** The gases that surround Earth.
- **Hurricane:** A huge, rotating storm that forms over the ocean in the tropic, with strong winds and heavy rains.
- **Weather:** The changing condition of the atmosphere, with respect to heat, cold, sunshine, rain, snow, clouds and wind.

Directions: Continue researching hurricanes in order to design an informational brochure about this dangerous type of storm. Research the following five questions today:

1. How are hurricane paths projected?
2. How are meteorologists around the world studying hurricanes?
3. What can people living in coastal areas do to prepare for hurricanes?
4. What land locations around the world have the highest incidences of hurricanes?
5. What are some notable hurricanes in recent history? How have they affected the people who lived in their paths?

Suggested Resources:

- http://www.aoml.noaa.gov/hrd/
- http://tropical.atmos.colostate.edu/
- http://www.nws.noaa.gov/om/hurricane/index.shtml
- http://www.nhc.noaa.gov/
- http://www.hurricanehunters.com/
- http://hurricanes.noaa.gov/

Source: This activity is from Glencoe NY Science, Grade 6 Unit 2: The Atmosphere, Hydrosphere, and the Lithosphere. ***http://glencoe.mcgraw-hill.com/sites/0078771285/student_view0/unit2/unit_project_3.html***

Day 3 Schedule

Subject	Minutes Per Day (At Least!)	Assignments	What Did I Learn Today?
English Language Arts	45	• Learn new vocabulary words from the Vocabulary List • Activity: Narrative Photo Essay	•
Math	45	Complete • Lesson 9.1 Study Guide & Intervention • Lesson 9.1 Skills Practice	•
Science	30	Complete at least one of the following activities: • Activity 1: *Don't Waste That* (English or Spanish) • Activity 2: Create a brochure in the *Hurricanes* activity	•
Fitness and Health	30	• Exercise for 30 minutes. Choose from the Activity Calendars at the back of this booklet	•
Arts	30	• Choose one or two activities from the Arts Activities at the back of this booklet	•
TV Shows and Websites	30	• Choose TV shows and websites to further your learning at home	•

Day 3 English Language Arts

Vocabulary

Learn new vocabulary words from the Vocabulary List at the back of this booklet. Practice using these words in the activities below. For ELL support, see the instructions and model from Day 1.

Activity: *Narrative Photo Essay*

- Create a *narrative photo essay* that *tells a story that is important to you*. A photo essay is a set of photos that not only tells a story, but also evokes an emotional response in the viewer.

Directions:

1. Select a stack of magazines, newspapers, or photographs and look at them closely, finding a common theme or story.
2. Arrange photos in a specific order, presenting the photos as a sequence of events or actions: lead photo; setting the stage photo; detail photos; and close-up photos;
3. Glue the photos onto paper
4. Arrange into book form.

Day 3 Mathematics

Vocabulary

Learn the new math vocabulary words below. You will use these vocabulary words in the activities today.

- **Solution:** A **v**alue of a variable that makes an equation true.
- **Solution set**: The value(s) that make an algebraic equation correct

Activity 1: *Understand Equations*

Please complete the following activities.

- Lesson 9.1 Study Guide and Intervention: Understand Equations
  - Complete all problems. Be sure to show all of your work.
- Lesson 9.1 Skills Practice: Understand Equations
  - Choose at least 10 problems to solve using tables. Be sure to show all of your work.

If you need Spanish activities to review the concept of equations**,** please follow the steps below.

- Step 1: Go to tutorial site: http://destination.nycenet.edu

- Step 2: Login with the following user ID and PW:
  - User: studentnyc
  - Password: student

- Step 3: Click on the Exploration Icon to access the tutorial

- Step 4: Scroll down to Mastering Skills & Concepts: Course V: Pre-Algebra – Spanish

- Step 5: Select the skill/concept to review.
  - Activity 3: 1.1.3 - Replacing Variables in a Formula

Notebook Activity

Describe in words how you choose the values for m that you selected for question 1

Additional Activity

Have more time? Complete the following activity.

- Lesson 9.3: Skills Practice: Guess-Check-and-Improve

Name Date

Lesson 9.1 Study Guide and Intervention

Understand Equations

Solving Equations

Finding the values of a variable that make an equation true is called *solving* the equation. The variable that makes the equation true is called a *solution*. The solution of an equation can be found by using a table.

Example 1 **Solve $2 \cdot x + 4 = 10$ using a table.**

Try several values for x.

x	$2 \cdot x + 4$	Test	Solution?
0	4	$2 \cdot x + 4 < 10$	no
1	6	$2 \cdot x + 4 < 10$	no
2	8	$2 \cdot x + 4 < 10$	no
3	10	$2 \cdot x + 4 = 10$	yes
4	12	$2 \cdot x + 4 > 10$	no
5	14	$2 \cdot x + 4 > 10$	no

A value of 3 for x is the solution to $2 \cdot x + 4 = 10$ since $2 \cdot 3 + 4 = 10$. The values increase as x increases, so 3 is the only solution.

Example 2 **Solve $c + 6 = 2c$ using a table.**

Try several values for c.

c	$c + 6$	$2c$	Test	Solution?
3	9	6	$c + 6 > 2c$	no
4	10	8	$c + 6 > 2c$	no
5	11	10	$c + 6 > 2c$	no
6	12	12	$c + 6 = 2c$	yes
7	13	14	$c + 6 < 2c$	no
8	14	16	$c + 6 < 2c$	no

A value of 6 for c is the solution to $c + 6 = 2c$ since $6 + 6 = 2 \cdot 6$.

Exercises **Solve each equation. Use tables if necessary.**

1. $4m + 5 = 9$ **2.** $3n + 4 = 13$ **3.** $4x + 8 = 16$

4. $19 = 2s + 11$ **5.** $c + 10 = 3c$ **6.** $5 \cdot y + 10 = 25$

7. One more than four times a number is 13. What is the number?

8. Three is seven less than two times a number. What is the number?

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Name **Date**

Lesson 9.3 Skills Practice

Guess-Check-and-Improve

Use guess-check-and-improve to solve the equations.

1. $m + 2 = 3m$

2. $n + 10 = 2n + 7$

3. $7 + 3b = 1 + 5b$

4. $4 \cdot (n + 1) = 32$

5. $w \cdot (w + 4) = 60$

6. $9x - 7 = 3x + 35$

7. $x^2 + 3x = 40$

8. $k \cdot (k + 2) = 5k$

9. $8n = 3n + 45$

10. $\frac{n + 56}{2} = 4n$

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Day 3 Science

Complete Activity 1 or 2 below:

Activity 1: *Don't Waste That*

- Read the article below and answer the questions that follow.
- Para Espanol, prime aquí: http://schools.nyc.gov/Documents/teachandlearn/LearnatHome/ELL/6day3sp.pdf

Vocabulary

Learn the new vocabulary words below. You will use these vocabulary words in today's activity.

- **batch** (noun): the amount of food cooked at one time
- **chronic** (adjective): continuing for a very long time
- **compensate** (verb): to make up for a disadvantage or disability
- **compost** (noun): dead leaves, food, and other things that are added to soil to make it better
- **institution** (noun): a place with a particular purpose; a school, hospital, etc.

Don't Waste That

PORTLAND, Oregon (Achieve3000, December 18, 2008). Food waste has been a chronic problem for the food industry. Roughly 30 percent of food in the U.S. goes to waste. This costs about $48 billion annually. Unsold and past-due grocery store foods must be thrown out, while restaurants sometimes order more food than they end up needing. Diners don't always clean their plates, either. What's more, millions of tons of food are lost between the farm and the restaurant. This happens because crops are hauled hundreds of miles, stored for weeks in refrigerators, and then prepared at restaurants. Now, as food costs rise, many in the food industry want to stop wasting expensive food.

In 2008 alone, wholesale food costs rose more than 8 percent. This was the biggest jump in decades, according the National Restaurant Association. It came after a 7.6 percent increase in 2007. Experts say there's no easy answer for cutting back on waste because each kitchen is run so differently. This means that restaurants, colleges, and other institutions are now developing their own solutions to compensate for the rising costs of waste.

Some cafeterias are getting rid of trays. In 2008, Virginia Tech took that step. The school's dining halls hoped to cut down on the amount of food going into the trash after meals. The move cut food waste by 38 percent. Before, students often grabbed whatever food looked good. A large portion of their food ended up in the trash can.

Oregon's Portland International Airport is dealing with food waste in a different way. The airport is installing food-only trash cans. The food waste is collected in special bags that will decay naturally. These bags of waste are given to the city to use as compost. Since food waste costs less to have hauled to the landfill than regular trash, the airport is saving money on hauling costs. It's also a more environmentally friendly approach. However, the special bags are expensive. It ends up costing the airport more to compost the food than to throw it away.

Day 3 Science (continued)

Indeed, sometimes institutions have to spend a little to save a little. For $600 a month, LeanPath Inc. sells a software system to track food being tossed out. Restaurant employees put food waste on a scale. They use a touch-screen computer to record what type of food it is. The system determines the cost of the food. It also tracks what is being thrown out.

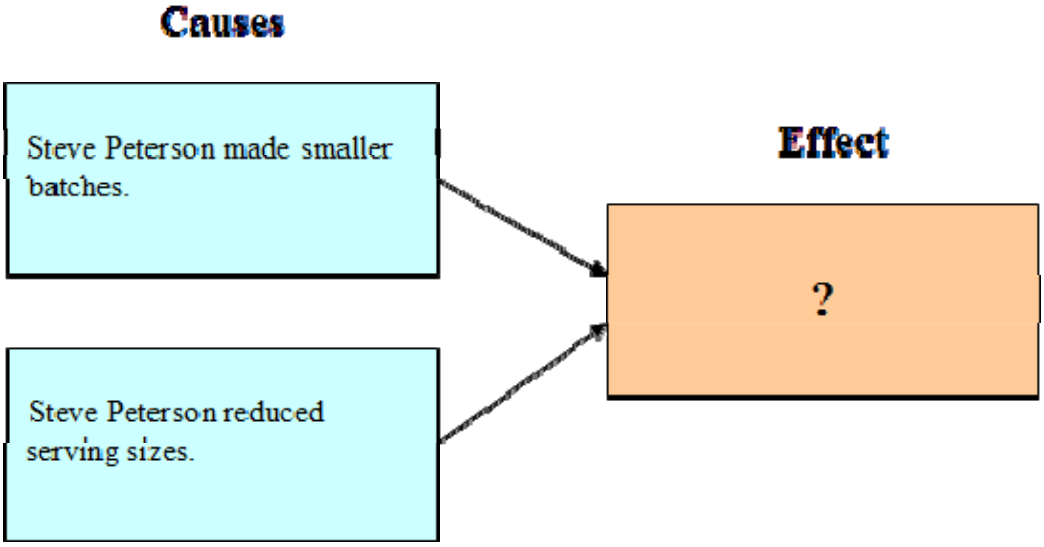
Steve Peterson is the head cook at a hotel. Peterson was surprised when the LeanPath system showed him the value of food being thrown out. To cut costs, Peterson decided to make smaller batches and reduce serving sizes. His customers didn't mind. Peterson found he was able to trim food waste by 15 to 20 percent over 18 months.

Andrew Shackman is the president of LeanPath. He says one of the biggest benefits of the program is simply showing restaurant owners and cooks how much food gets thrown away. They learn that when they're trying to save money, every little scrap counts.

The Associated Press contributed to this story.

Instructions: Select the correct answer.

Question 1:



Based on the article, which best replaces the question mark in the diagram above?
1. Peterson was able to trim food waste in a hotel by 15 to 20 percent over 18 months.
2. Peterson stopped using the LeanPath software system to track food waste in a hotel.
3. Peterson started using special bags that decay naturally to collect food waste.
4. Peterson needed to increase the prices he charged his customers for food.

Question 2:
Which of these is a statement of fact?
1. LeanPath's software that tracks food waste costs $600 per month.
2. Virginia Tech's cafeterias should use their food waste as compost.
3. Students who eat in school cafeterias need to try to eat less food.
4. All airports should use food that comes from farmers in their area.

Day 3 Science (continued)

Question 3:
The article talks mainly about _____.
1. What institutions within the food industry are doing to reduce food waste
2. How Steve Peterson was able to reduce food waste by reducing serving sizes
3. Where Portland International Airport installed its food-only trash cans
4. How LeanPath's software shows cooks how much food gets thrown away

Question 4:
In the fifth paragraph, the author gives information about LeanPath's software in order to _____.
1. Show one way that institutions are spending money to reduce food waste
2. Convince the reader that all airports should use the waste-reducing software
3. Describe how reducing serving sizes could control food waste at home
4. Explain why LeanPath charges companies $600 per month for its software

Question 5:
The article states: Oregon's Portland International Airport is dealing with food waste in a different way. The airport is installing food-only trash cans.
Which would be the closest antonym for the word install?
1. Remove
2. Muffle
3. Soothe
4. Pounce

Question 6:
Which question is not answered by the article?
1. How much food waste does Portland's airport have each year?
2. How much does LeanPath's software cost each month?
3. How much has Steve Peterson reduced food waste at his hotel?
4. How much did Virginia Tech reduce food waste by getting rid of trays?

Question 7:
Which is the closest synonym for the word batch?
1. Quantity
2. Resource
3. Decision
4. Miracle

Question 8:
The reader can tell from the article that _____.
1. Some restaurant employees probably need training to use LeanPath's software.
2. Most students at Virginia Tech would rather eat in a restaurant than the cafeteria.
3. All restaurant owners probably believe that LeanPath's software is too expensive.
4. Few farmers would be concerned about how food is transported to stores and restaurants.

Day 3 Science (continued)

Writing Activity
Think about the problem with food waste in the food industry. What are some ways to solve this problem, besides those mentioned in the article? Why do you think your ideas would work?

Write your answer below.

Achieve3000 (www.teenbiz3000.com)

Day 3 Science (continued)

Activity 2: *Science Inquiry Project - Hurricanes*

The following activity is day three of a three day project.

Vocabulary

Learn the new vocabulary words below. You will use these vocabulary words in today's activity.

- **Storm:** A natural disturbance in the atmosphere that involves low air pressure, clouds, precipitation and strong winds.

Directions: Now that you have conducted research about hurricanes, use a sheet of paper to create a brochure or create it on a computer. Be sure to incorporate words and images to describe the information you have learned. Integrate charts, graphs, maps, and photographs to explain what hurricanes are and how they affect people around the world. Share it with a friend or family member.

Suggested Resources:

- http://www.aoml.noaa.gov/hrd/
- http://tropical.atmos.colostate.edu/
- http://www.nws.noaa.gov/om/hurricane/index.shtml
- http://www.nhc.noaa.gov/
- http://www.hurricanehunters.com/
- http://hurricanes.noaa.gov/

Source: This activity is from Glencoe NY Science, Grade 6 Unit 2: The Atmosphere, Hydrosphere, and the Lithosphere. ***http://glencoe.mcgraw-hill.com/sites/0078771285/student_view0/unit2/unit_project_3.html***

Day 4 Schedule

Subject	Minutes Per Day (At Least!)	Assignments	What Did I Learn Today?
English Language Arts	45	• Learn new vocabulary words from the Vocabulary List • Activity: Create a Scrapbook	•
Math	45	Complete • Skill 64 • Lesson 9.2 Study Guide and Intervention	•
Science	30	Complete at least one of the following activities: • Activity 1: *Lunch Rooms Go Green* (English or Spanish) • Activity 2: Begin *Personal Conservation Project*	•
Fitness and Health	30	• Exercise for 30 minutes. Choose from the Activity Calendars at the back of this booklet	•
Arts	30	• Choose one or two activities from the Arts Activities at the back of this booklet	•
TV Shows and Websites	30	• Choose TV shows and websites to further your learning at home	•

Day 4 English Language Arts

Vocabulary

Learn new vocabulary words from the Vocabulary List at the back of this booklet. Practice using these words in the activities below. For ELL support, see the instructions and model from Day 1.

Activity: *Create a Scrapbook*

- Construct a scrapbook of mementos, highlighting things that inspire you.

Directions:

1. From around your house and bedroom, collect mementos you find meaningful and significant to your life.
2. Organize in an order that makes sense to you.
3. Glue them onto paper (white or color)
4. Create a front page for your scrapbook
5. Provide an inspirational title

Day 4 Mathematics

Vocabulary

Learn the new math vocabulary words below. You will use these vocabulary words in the activities today.

- **Backtracking :** The process of using a flowchart to work backward, starting with the output and undoing each operation to find the input

- **Flowchart:** A diagram, using ovals and arrows, that shows the steps for going from an input to an output.

Activity 1: *Working Backward*

Please complete the following worksheets.

- Skill 64: Work Backward
  - Solve exercises 1-5. Solve at least 2 Applications problems (#6, 7, 8). Be sure to show all of your work.
- Lesson 9.2 Study Guide and Intervention: Backtracking
  - Solve all problems. Be sure to show all of your work.

If you need Spanish activities to review the concept of equations**,** please follow the steps below.

- Step 1: Go to tutorial site: http://destination.nycenet.edu

- Step 2: Login with the following user ID and PW:
  - User: studentnyc
  - Password: student
- Step 3: Click on the Exploration Icon to access the tutorial

- Step 4: Scroll down to Mastering Skills & Concepts: Course V: Pre-Algebra – Spanish

- Step 5: Select the skill/concept to review.
  - Activity 4: 1.3.3 - Solving Simple Equations

Notebook Activity

Describe in words the steps you used to create a flowchart for backtracking

Additional Activities

Have more time? Complete the following activities.

- Skill 65: Solve Equations Involving Addition
- Skill 66: Solve Equations Involving subtraction

SKILL 64

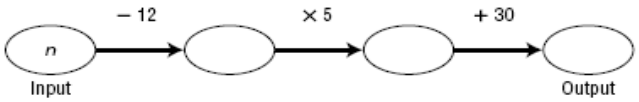
Name _____ Date _____

Work Backward

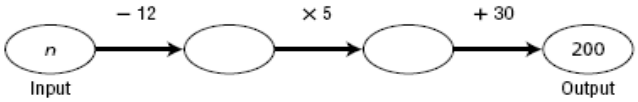
Some problems start with the end result and ask for something that happened earlier strategy of **working backward**, or **backtracking**, can be used to solve problems like this. T this strategy, start with the end result and undo each step.

EXAMPLE ***A number is decreased by 12. The result is multiplied by 5, and 3 added to the new result. The final result is 200. What is the num***

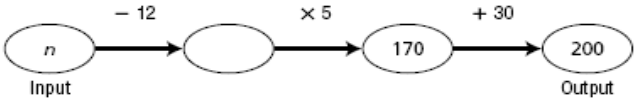
Use a flowchart to show the steps in the computation.



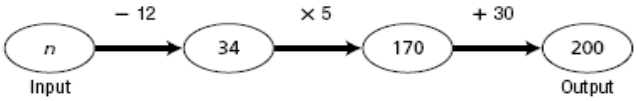
Find the solution by starting with the output.



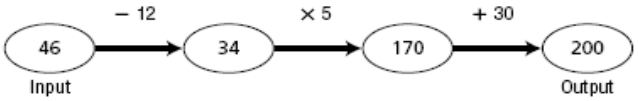
Since 30 was added to get 200, subtract 30. 200 − 30 = 170



Next, divide 170 by 5. 170 ÷ 5 = 34



Then, add 12 to 34. 34 + 12 = 46



Thus, the number is 46.

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EXERCISES *Solve by working backward.*

1. A number is added to 12, and the result is multiplied by 6. The final answer is 114. Find the number.

2. A number is divided by 3, and the result is added to 20. The result is 44. What is the number?

3. A number is divided by 8, and the result is added to 12. The final answer is 78. Find the number.

4. Twenty five is added to a number. The sum is multiplied by 4, and 35 is subtracted from the product. The result is 121. What is the number?

5. A number is divided by three, and 14 is added to the quotient. The sum is multiplied by 7. The product is doubled. The result is 252. What is the number?

APPLICATIONS

6. A bacteria population doubles every 8 hours. If there are 1,600 bacteria after 2 days, how many bacteria were there at the beginning?

7. Each school day, Alexander takes 35 minutes to get ready for school. He takes 5 minutes to walk to Jaaron's house. The two boys take 15 minutes to walk from Jaaron's house to school. School starts at 8:10 A.M. If the boys want to get to school at least 10 minutes before school starts, what is the latest Alexander must get out of bed?

8. A fence is put around a dog pen 10 feet wide and 20 feet long. Enough fencing is left over to also fence a square garden with an area of 25 square feet. If there are 3 feet left after the fencing is completed, how much fencing was available at the beginning?

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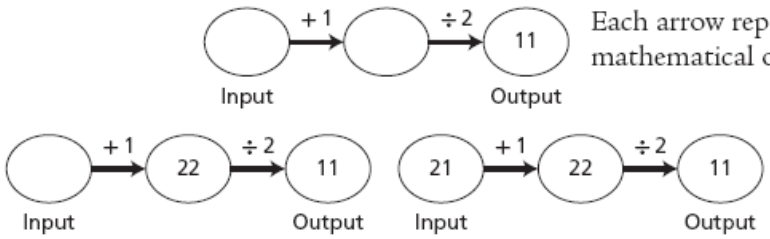
Name **Date**

Lesson 9.2 Study Guide and Intervention

Backtracking

A process called backtracking can used to solve equations. In backtracking, an output is given and flowcharts are used to undo each operation to find the input.

Example 1 **Use backtracking to find the input.**

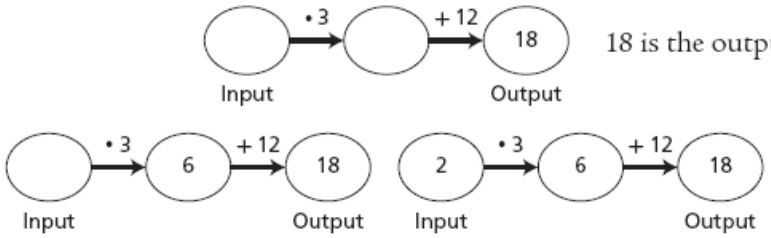


Each arrow represents a mathematical operation.

The input is 21.

Example 2 **Use backtracking to find the solution of the equation.**

Equation $3x + 12 = 18$



18 is the output.

The input is 2.

Exercises

Draw a flowchart to represent the equation.

1. $5x + 20 = 60$

2. $\frac{2v + 4}{8} = 2$

Use a flowchart and backtracking to find the solution to each equation.

3. $\frac{6v + 20}{5} = 10$

4. $\frac{2v + 6}{4} + 12 = 18$

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SKILL 65

Name _____ Date _____

Solve Equations Involving Addition

To solve an equation means to find a value for the variable that makes the equation true. To solve an equation, you need to get the variable by itself.

Subtraction Property of Equality: If you subtract the same number from each side of an equation, the two sides remain equal.

EXAMPLE *Solve $t + 12.2 = 25.1$.*

$$\begin{aligned} t + 12.2 &= 25.1 \\ t + 12.2 - 12.2 &= 25.1 - 12.2 && \textit{Subtract 12.2 from each side.} \\ t &= 12.9 \\ \text{Check: } t + 12.2 &= 25.1 \\ 12.9 + 12.2 &\stackrel{?}{=} 25.1 && \textit{Replace t with 12.9.} \\ 25.1 &= 25.1 \ \checkmark \end{aligned}$$

The solution is 12.9.

EXERCISES *Solve each equation. Check your solution.*

1. $b + 7 = 22$
2. $r + 0.4 = 11.5$
3. $45 = t + 17$
4. $17 + k = 62$
5. $146 + j = 199$
6. $17.2 = h + 4.9$
7. $n + 2\frac{1}{3} = 4\frac{2}{3}$
8. $5\frac{2}{5} + v = 7\frac{1}{2}$
9. $x + 7\frac{1}{2} = 20$
10. $18.42 + t = 63$
11. $e + 12.2 = 40$
12. $m + 18 = 78$

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APPLICATIONS

13. Cicely is saving money to buy a computer printer that costs \$399. She has already saved \$150. If y stands for the amount she still needs to save, which equation could you solve to find the amount she still needs to save?
    a. $150 + 399 = y$
    b. $399 + y = 150$
    c. $150 + y = 399$
    d. none of these

14. The George Washington Carver National Monument is 263 acres smaller than the 473-acre Casa Grande National Monument. Solve the equation $g + 263 = 473$ to find the size of the George Washington Carver National Monument.

15. Wayne bought a share of stock at $29\frac{3}{4}$. A year later, the stock was selling for $42\frac{1}{8}$. How much would Wayne have gained if he had sold his stock then?

16. Jamal delivers 60 papers each day after school. Today he has already delivered 22 papers. Find how many more papers he must deliver by writing an equation and solving it.

17. For Jane's girl scout troop, she needs to volunteer a total of 150 hours in order to earn her Community Service patch. She has volunteered 67 hours already. Find how many more hours she must volunteer by writing an equation and solving it.

18. There are 28 students in art class. Seven students in the class wear glasses or contact lenses. How many students do *not* wear glasses or contact lenses?

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SKILL 66

Name _____ Date _____

Solve Equations Involving Subtraction

To solve an equation means to find a value for the variable that makes the equation true. To solve an equation, you need to get the variable by itself.

Addition Property of Equality: If you add the same number to each side of an equation, the two sides remain equal.

EXAMPLE *Solve $t - 12.2 = 25.1$.*

$$t - 12.2 = 25.1$$

$$t - 12.2 + 12.2 = 25.1 + 12.2 \quad \textit{Add 12.2 to each side.}$$

$$t = 37.3$$

Check: $t - 12.2 = 25.1$

$$37.3 - 12.2 \stackrel{?}{=} 25.1 \quad \textit{Replace t with 37.3.}$$

$$25.1 = 25.1 \checkmark$$

The solution is 37.3.

EXERCISES *Solve each equation. Check your solution.*

1. $8.9 = p - 3.3$
2. $j - 4.5 = 1.7$
3. $y - 9 = 29$
4. $p - 23\frac{4}{5} = 35\frac{7}{10}$
5. $w - 6\frac{1}{2} = 18$
6. $f - 19 = 77$
7. $m - 9.4 = 15.7$
8. $153 = k - 23$
9. $u - 27 = 12$
10. $p - 58 = 73$
11. $x - 4.9 = 12.2$
12. $105 = y - 17$

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APPLICATIONS

13. Madaline was filling balloons with helium for a party. She filled 24 balloons. While she was filling those, she filled 7 others too full and they burst. If t stands for the total number of ballons that she filled, which equation could you solve to find the total number of balloons that she filled?
    a. $24 - 7 = t$
    b. $24 - t = 7$
    c. $t - 7 = 24$
    d. none of these

14. Joe and José have a painting business. Joe spent 3.75 hours painting three rooms of the Dutton's house. This was 6.75 hours less than the total time it took to do the job. Find how much time it took to paint the three rooms by writing an equation and solving it.

15. Ryan and Nick went to the fair. When they rode the carousel, Ryan counted 10 horses that were stationary. This was 24 less than the total number of horses on the carousel. Find how many total horses were on the carousel by writing an equation and solving it.

16. Ben has an insect and spider collection. Fifteen of the bugs are spiders. This is 8 less than the total number of bugs that he has. Find how many bugs Ben has in his collection by writing an equation and solving it.

17. Pat spent $575 buying blankets for the homeless shelter. Cash Mart said that they would match the number of blankets that all of Pat's friends brought to the shelter. Pat's friends brought 23 blankets, but Cash Mart actually gave 45 blankets. A total of 100 blankets were donated. How many blankets were donated by people other than Cash Mart and Pat's friends?

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Day 4 Science

Complete Activity 1 or 2 below:

Activity 1: *Lunch Rooms Go Green*

- Read the article below and answer the questions that follow.
- Para Espanol, prime aquí: http://schools.nyc.gov/Documents/teachandlearn/LearnatHome/ELL/6day4sp.pdf

Vocabulary

Learn the new vocabulary words below. You will use these vocabulary words in today's activity.

- **advocate** (noun): someone who supports something
- **detergent** (noun): a cleaner, often used for washing clothes
- **facilities** (noun): buildings or services created to meet a particular need
- **proponent** (noun): a person who supports or is in favor of something

Lunch Rooms Go Green

GLENVILLE, West Virginia (Achieve3000, August 26, 2008). In one hand, student Derek Walker held a plate filled with beef, mashed potatoes, gravy, corn, spinach, and a roll. In the other hand, he skillfully balanced a salad and a bottle of hot sauce. Walker made his way through a crowded cafeteria and plunked down. He didn't drop a single crumb. A tray would have made his trek from the food line to his seat easier. However, his school, Glenville State College (GSC), no longer provides trays. Many colleges and universities have dismissed their cafeteria trays. They hope their efforts will help protect the environment.

"It speaks well for our [environmental] consciousness," said Peter Barr. Barr is president of GSC.

Food-service companies have noticed that a growing number of schools are doing away with meal trays. Officials from food-service giant Aramark estimated that 50 to 60 percent of the colleges it works with will stop offering trays in their dining facilities. Cafeteria management company Sodexo said that nearly 40 percent of the schools it serves plan to do the same.

So why are so many schools avoiding the use of these handy little trays?

Many colleges and universities are "going green." This means that they are trying to help protect the environment. One strategy that works, proponents say, is to get rid of trays. This lightens the load on dishwashers. Advocates explain that fewer loads through the dishwasher result in a decrease in water-polluting detergents released into the environment. Going trayless also saves energy and conserves water, they say.

Monica Zimmer is a spokeswoman for Sodexo. Zimmer says five times more energy and water is used in dining halls than anywhere else on school grounds.

Schools that have stopped providing trays are saving considerable amounts of water. The Georgia Institute of Technology went trayless. The college now saves 3,000 gallons of water per day. The University of Florida got rid of its trays, too. The school estimates its savings at 470,000 gallons of water annually. The University of Maine went trayless in February 2007. There, water use has decreased by 288,000 gallons.

Day 4 Science (continued)

Proponents say that not using trays also reduces food waste. Without the helpful trays, students are forced to carry less food. Therefore, they are more careful about their food selections.

Aramark conducted a study at 25 colleges. It found that food waste per person shrunk 25 to 30 percent once trays were no longer used. At one GSC dining hall, food waste has declined from three, five-gallon buckets per day to just one per day.

Advocates say that students might discover another benefit of trayless cafeterias: Students can no longer pile on the food. They might eat less, proponents say. This could help students keep off the unhealthy extra pounds often gained in college.

Thus far, most students appear unconcerned about the loss of cafeteria trays. Aramark surveyed 92,000 students and staff at 300 schools. Seventy-nine percent said they don't mind going without trays.

A small percentage of students have expressed unhappiness, however. They complain that it is hard to carry so many dishes.

"I think that's kind of ridiculous," said GSC student Rebecca Riffle. "Whenever there's a bunch of people here at one time, it gets crazy. You have people bumping into you. So if you're balancing stuff, you're going to end up dropping something or breaking something."

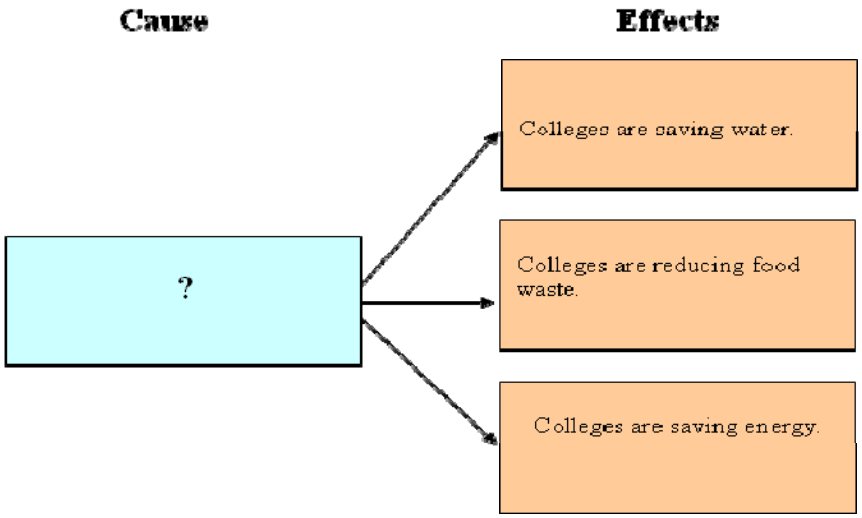
Other students remain unconvinced that the effort will result in their eating less. They imagine they'll simply make more trips to the counter. "I'll just keep coming back for seconds," said GSC student Jeff Lyke.

Like it or not, however, going trayless is becoming more popular. Food services expert Gail Campana said, "This is gaining steam all over the country."

The Associated Press contributed to this story.

Instructions: Select the correct answer.

Question 1:



Day 4 Science (continued)

Which best replaces the question mark in the box above?
1. Many colleges are conducting studies about eating habits.
2. Many colleges are no longer using water-polluting detergents.
3. Many colleges are recommending that students eat less food.
4. Many colleges are no longer using food trays in dining halls.

Question 2:
Which of these is a statement of opinion?
1. Colleges should keep some trays on hand for students who want to use them.
2. Aramark found that 79 percent of students don't mind going without trays.
3. Many colleges are getting rid of trays in order to help protect the environment.
4. Aramark found that food waste per person shrunk once trays were no longer used.

Question 3:
Which is the closest synonym for the word proponent?
1. Substance
2. Substitute
3. Superstition
4. Supporter

Question 4:
This article is placed in the group of news called "Environment." In which other group would this article fit best?
1. College Notes
2. Nutrition News
3. U.S. History
4. Current Events

Question 5:
Which best summarizes the fifth paragraph of the article?
1. Many colleges are releasing water-polluting detergents into the environment.
2. Many colleges are using new dishwashers that are good for the environment.
3. Many colleges are getting rid of dining hall trays in an effort to "go green."
4. Many colleges are asking students to use less water in an effort to "go green."

Question 6:
The article states: So why are so many schools avoiding the use of these handy little trays?
Which would be the closest synonym for the word handy?
1. Courteous
2. Competitive
3. Courageous
4. Convenient

Day 4 Science (continued)

Question 7:
What is this article mainly about?
1. Many colleges are trying to help protect the environment by getting rid of food trays.
2. Aramark led studies at 25 colleges to measure the amount of food waste per person.
3. Many colleges want to help students keep off the extra pounds often gained in college.
4. Students at The Georgia Institute of Technology are making efforts to conserve water.

Question 8:
Think about the following statement made by GSC student Rebecca Riffle:
"I think that's kind of ridiculous. Whenever there's a bunch of people here at one time, it gets crazy. You have people bumping into you. So if you're balancing stuff, you're going to end up dropping something or breaking something."

The author probably included these sentences in order to help the reader know that _____.
1. Getting rid of trays won't cut down on accidents in dining halls.
2. Most students prefer to use trays when carrying their meals in a college dining halls.
3. Not all students appreciate the change to going without trays.
4. Most students believe that colleges should offer trays to students who are uncoordinated.

Writing Activity
Imagine that your school decided to go trayless, and the new plan goes into effect today. Write a story about the scene in the cafeteria as you and your classmates try to get used to the new plan. Use details from the article to describe what you see and hear.

Write your answer below.

Day 4 Science (continued)

Achieve3000 (www.teenbiz3000.com)

Day 4 Science (continued)

Activity 2: *Science Inquiry Project – Personal Conservation Project*

The following activity is day one of a two day project.

Vocabulary

Learn the new vocabulary words below. You will use these vocabulary words in today's activity.

- **Petroleum:** A thick black to yellow, flammable liquid mixture of hydrocarbons.
- **Pollution:** The contamination of air, water, or soil by substances that are harmful to living things.

Did you know that the U.S. demand for petroleum is currently at 20 million barrels per day? Petroleum products are important for fueling machines, heating homes, and manufacturing plastics. However, using them can cause problems such as pollution and the depletion of resources.

Directions: Design a personal conservation project. Your project will conserve one or more resources. This plan does not have to focus solely on petroleum products. Examples of personal conservation include composting refuse, using less water per day, reducing electricity use, and starting a recycling program in your house and/or apartment. Decide which resource you'd like to conserve.

For help, explore the New York City Department of Sanitation Golden Apple Awards Winners at **http://www.nyc.gov/html/nycwasteless/html/at_agencies/at_school_schoolcontests.shtml**

Suggested Resources:

- http://www.moea.state.mn.us/reduce/index.cfm (information from this site is included in the following pages)
- http://www.csgnetwork.com/waterusagecalc.html
- http://water.cas.psu.edu/
- http://www.clpud.org/rtchoice.html (information from this site is included in the following pages)
- http://www.earth911.org/master.asp?s=about&a=contact/startrecycle.asp
- http://www.epa.gov/epawaste/conserve/index.htm

Source: This activity is from Glencoe NY Science, Grade 6 Unit 2: The Atmosphere, Hydrosphere, and the Lithosphere. http://glencoe.mcgraw-hill.com/sites/0078771285/student_view0/unit2/unit_project_1.html

Reduce, Reuse, Recycle

We can have a major impact on the amount of garbage produced in our state by becoming aware of how much we throw out and changing some of our habits about buying and using things.

Environmentally aware consumers are producing less waste by practicing the "3 Rs:" **Reduce, Reuse, Recycle**. They are buying products that are less toxic or contain less packaging, using reusable containers and other reusable items, maintaining and repairing products, participating in recycling programs, and buying products made from recycled materials.

Global Warming and Climate Change in Minnesota
On a global basis, we know that in recent years the surface of the Earth is warming. Read this introduction to the causes and effects of global climate change in Minnesota, and learn what can be done.

Backyard Composting
If you have a yard that generates most any kind of green waste, you probably have the right ingredients and enough room to set up your own compost bin. Composting is easy and cheap, you can cut down your household garbage by hundreds of pounds each year, and create a mixture that can be used to improve the soil.

On-site Disposal: Do Not Burn Your Garbage
For most Minnesotans, it is against the law to burn or bury household wastes—it's been illegal since 1969. Learn more about the risks to the environment and human health of back yard burning of trash, and learn about alternatives.

***Reduce Waste: If not you, Who?* Campaign**
Visit www.reduce.org to learn how simple it is to reduce waste in your daily routine. Every Minnesotan can make a difference, and it starts with you — if not you, who?

Plug Into Recycling: Recycle Old Electronics
Information for consumers and businesses about how and why to recycle waste electronics and electrical products.

Buy recycled! Minnesota's Recycled Products Directory
The searchable Recycled Products database lists quality, locally produced products made from recycled materials.

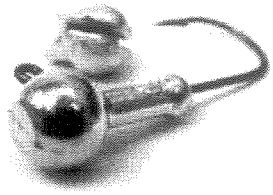
Minnesota's Consumer Handbook to Reducing Waste
This is a terrific introduction to things the average person can do to reduce waste, reuse items that are *worn* but not *worn out*, and recycle.

Recycle Used Motor Oil and Oil Filters
Here in Minnesota, recycling used motor oil and oil filters isn't just a good idea — it's the law! Motor oil is very recycleable (it doesn't wear out, but it does get dirty), and it can cause major pollution of the water and soil if

improperly disposed.

Let's Get the Lead Out!

Lead sinkers and jigs pose a unnecessary threat to wildlife like loons and eagles. Learn about lead poisoning and non-lead alternatives for your tackle box.



No-Waste Holiday Ideas

Reducing waste and giving "green gifts" during the holiday season can be simple. Information and ideas from Anoka County and the Minnesota Pollution Control Agency can help.

Recycling in Minnesota

If you are interested in how Minnesota handles its solid waste, then the annual **SCORE Report** is the place to start. Each year, this report describes developments in the state, and shows the progress Minnesotans have made in reducing and recycling waste. These pages also offer simple searches of historical recycling and waste disposal data.

Second Helping: How to recycle your gently used cast-offs

This article offers up ways for consumers to get unwanted, but still perfectly good, things into the hands of people who want, need and will value them? (Reprint of an article in the *Star Tribune*.)

America Recycles Day: November 15th

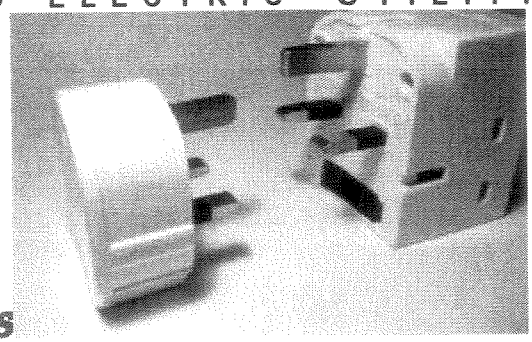
America Recycles Day is an annual, nationwide awareness event that encourages people to recycle and to buy recycled products. Recycled products are high-quality, proven products that perform as well as their non-recycled counterparts. By using recycled materials, the manufacturers of recycled products create less pollution and use less energy.

Updated June 2006

Minnesota Pollution Control Agency

CENTRAL LINCOLN

YOUR PUBLICLY-OWNED ELECTRIC UTILITY



THE RIGHT ENERGY CHOICES

By clicking on any of topics below, you'll find lots of ways to help you make better energy decisions.

Home Energy Choices

About The Electrical Meter

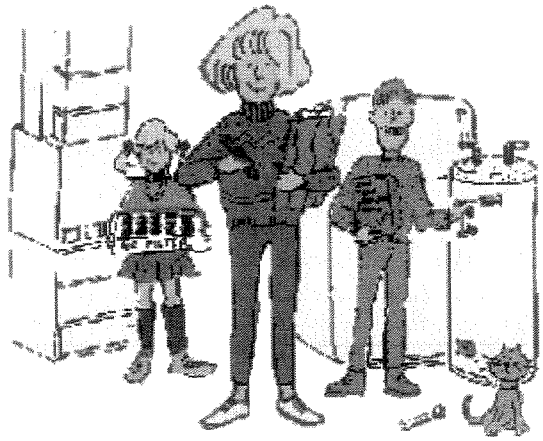
How Much Does It Cost To Run?

High Bill Concerns

How To Read Your Bill

HOME ENERGY CHOICES

Your monthly electric bill is really the total of all the energy choices you make during the month. For example, you may have used the dishwasher 14 times, taken 37 showers, done 16 loads of laundry and watched 55 hours of television. All these choices contribute to your monthly electric bill. Often we're not even aware that we're making energy choices.



Take home heating for instance. We all have to heat our homes, right? So where's the choice? Well, actually there are lots of choices we make every day. How high do we have the thermostat set? Do we open curtains to take advantage of the sun's natural heating? Do we close curtains at night to help insulate against cold? Do we leave the front door open while we chat with a neighbor?

And there are also choices to be made about the proper heating system and insulation levels for your home. All of these choices affect the amount of energy it takes to heat our home. And this just covers your home's heating. There are also choices to be made about water heating, lighting, and everything else we use electricity for.

How Do We Start?

The purpose of this web page is to help you make better energy choices. We'll do that by going through all the basics of electrical usage. Among the things this page covers are *About The Electrical Meter*, *How Much Does It Cost To Run?*, *High Bill Concerns*, and *How To Read Your Bill*. Some of this information may already be familiar to you, but some of it may surprise you, too. All of it is knowledge you can put to use right away to make better energy choices.

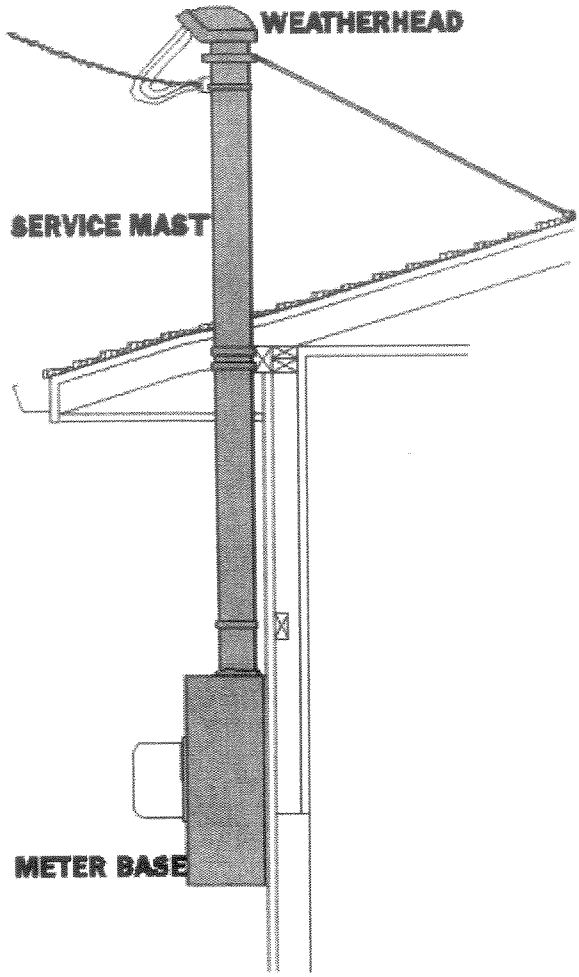
First Things First

When you operate an electrical appliance, you use a certain amount of electricity for a certain amount of time. To keep track of electrical usage, you need a measuring system that uses both an amount of electricity and a period of time used. The industry standard for this purpose is the "Kilowatt Hour," often written as KWH or kwh. It's a term we use throughout this web site, and it refers to the use of one kilowatt of electricity *(1,000 watts)* for one hour. If you have an appliance that uses 1,000 watts of power, and you use it for one hour, you've consumed one kilowatt hour *(1 kwh)* of electricity. If you have an appliance that uses 100 watts of power, such as a typical light bulb, you must run it for ten hours to consume one kwh of electricity.

Return to Home Page Return to Top of Page

ABOUT THE ELECTRICAL METER

We get lots of questions about meters, and we'll try to answer the most commonly-asked ones here.



Who Owns It?

The meter itself is the property of Central Lincoln. The box it attaches to, called the meter base, is the property and responsibility of the homeowner. The metal pipe that rises up from the meter base, called the service mast, is also the property of the homeowner. ***(Homes with underground service won't have a service mast.)***

Please don't ever attempt to remove or tamper with the electric meter. It can be very dangerous, and it's also illegal. If you need the meter removed to repair or replace the meter base, call your local Central Lincoln office.

How Does It Work?

If you think of electricity like water in a faucet, it's easier to understand. When the water is not turned on, it just kind of sits there, waiting to be used. When you turn it on, it flows through the main water inlet to your home, through the plumbing, and out the faucet. Electricity is much the same, and is measured at the main electrical inlet to your home. *(Unlike water, though, electricity can't "leak" out of the pipes. If it's being measured through the meter, it's definitely being used by some electric appliance.)*

The meter measures usage in kilowatt hours, the standard measuring unit for electricity. *(A kilowatt hour is 1,000 watts of electricity used for one hour.)* If the only electrical item in your home that was turned on was a 100-watt lightbulb, it would take ten hours for your meter to measure one additional kilowatt hour. Obviously, the more electrical items you have turned on, the faster the dial moves.

Most homes have many items turned on at the same time, even if they're not actually being used. Things like refrigerators and freezers that run periodically throughout the day and night to maintain temperatures, even when they're not being used. And water heaters that work to maintain the water temperature, even when you're not using water. And clocks in appliances like VCRs, stoves, microwave ovens and coffee makers. All of these appliances, and many more, use electricity even when we're not aware of it. The average home uses a total of about 30 kilowatt hours a day during the summer, and about 50 kilowatt hours a day during the winter.

How Do You Read It?

Reading an electrical meter is really pretty simple, although there are a few basic things to remember.

On most meters, the dials
alternate their direction of rotation. That is, the first dial will rotate clockwise, the next one counter-clockwise, and so forth. You always want to read the number that the dial has completely passed, which is always the lower number. In the example shown here, the first dial on the left *(the "ten thousands" dial)* has the needle between 1 and 2. Since it has not yet passed the 2, it should be read as 1. The position of the needle gives you an indication of what the next number will be, too.

On the second dial *(the "thousands' dial)* the needle is just over halfway between 7 and 8. That means that you read it as 7, and it tells you that the next number should be just over halfway between 0 and 10. The needle on the third dial *(the "hundreds" dial)* is pointing just about straight at the 6, which is just over halfway betweeen 0 and 10. But this is where it gets a little confusing. Should the third dial be read as a 6 or as a 5? To find out, you need to look at the next dial to the right. If the needle has passed the 0 on its way to 1, the previous number will be a 6. If the needle is still between 9 and 0. the meter has not quite reached 6 on the hundreds dial and should be read as 5. *(Some people prefer to read meters from right to left. If you're reading this way, when you see that the "hundreds" needle hasn't passed the 0 yet, you'll know that the "thousands" dial will be the lower number. It's all just a matter of what's easier for you.)*

The fourth dial shows the needle between 9 and 0, so again you read it as the lower number. *(9 is actually the lower number in this case, since the 0 is really indicating a 10.)* The fifth dial is between 8 and 9, so it would be read as 8. The current reading for this meter is 17,598. Since the meter doesn't get reset to zero every month, you need to know the previous reading to determine how much electricity has been used. Simply deduct the previous reading from the current reading to find the number of kilowatt hours used.

Is It Correct?

Electric meters are precision instruments, and they're all tested for accuracy before being installed. In the rare event that a meter malfunctions, it usually stops entirely or runs slow, registering less than actual electrical usage.

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HOW MUCH DOES IT COST?

The following chart gives you average costs to run typical household appliances.
(Hours of usage are based on a family of three people.)

TYPE OF APPLIANCE	TYPICAL WATTAGE	TYPICAL HOURS PER MONTH	COST PER MONTH *(In Dollars)*	COST PER HOUR *(In Cents)*
Blender	350	2	$0.04	2.1¢
Bread Machine	410	16	0.39	2.5
Coffee Maker	1,000	10	0.60	6.0
Computer, Desktop	300	30	0.54	1.8
Computer Printer	50	7	0.02	0.3
Dehumidifier	250	126	1.89	1.5
Dishwasher (One load per day) Hot dry cycle	1,200 1,000	30 30	2.16 1.70	7.2 6.0
Drill	360	2	0.04	2.2
Dryer, Clothes	4,500	30	8.10	27.0
Electric Blanket	150	120	0.90	0.9
Food Dehydrator	600	4	0.14	3.6
Food Processor	375	10	0.23	2.3
Freezer	750	200	9.00	4.5
Furnace (fan only)	200	200	2.40	1.2
Garbage Disposal	445	2.5	0.07	2.7
Hair Dryer	1,000	6	0.36	6.0
Heater, Portable	1,250	30	2.25	7.5
Home Video Game				

(w/TV)	160	60	0.58	1.0
Hot Tap	1,500	1	0.09	9.0
Hot Tub Heater Filter Pump Jet Pump	 1,200 500 1,500	 Varies Varies Varies	 - - -	 7.2 3.0 9.0
Lathe (1/2 hp)	460	2	0.06	2.8
Lawn Mower, Electric	1,200	4	0.29	7.2
Light Bulb, 60-watt	60	180	0.65	0.4
Light Bulb, 100-watt	100	180	1.08	0.6
Light, Fluorescent, 40-watt	40	180	0.43	0.2
Lights, Christmas (64 lights)	480	50	1.44	2.9
Mixer	120	5	0.04	0.7
Microwave Oven	700	15	0.63	4.2
Oven	2,000	20	2.40	12.0
Range, Small Burner	1,250	20	1.50	7.5
Range, Large Burner	2,100	20	2.52	12.6
Refrigerator Pre-1978 1978-1989 1989-1992 Post-1992	 479 319 256 195	 300 300 300 300	 8.62 5.74 4.61 3.51	 2.9 1.9 1.5 1.2
Sewing Machine	100	10	0.06	0.6
Shop Drill (1/4", 1/6 hp)	250	2	0.03	1.5
Skill or Table Saw (1 hp)	1,000	6	0.36	6.0
Slow Cooker	100	32	0.19	0.6
Stereo System	500	150	4.50	3.0
TV, Color	150	150	1.35	0.9
TV, Black & White	100	150	0.85	0.6
Toaster	1,000	5	0.30	6.0
Toaster Oven	1,300	8	0.62	7.8
Vacuum Cleaner	420	10	0.25	2.5
Ventilation Fan	250	30	0.45	1.5
Washing Machine	500	30	0.90	3.0
Washing Machine, Horiz. Axis	250	30	0.45	1.5
Water Bed Heater	400	350	8.40	2.4
Water Heater, 52-gallon	4,500	135	36.45	27.0
Water Pump (1/2 hp)	460	2	0.06	2.8

HOT WATER USAGE

TYPE OF USE	GALLONS OF HOT WATER	COST PER USE AT 5.78¢ PER KWH	TYPICAL USES PER MONTH	ESTIMATED MONTHLY COST
Shower	11	17¢	30 times	$5.10
Tub Bath	16	24¢	30 times	$7.20
Dishwashing, Auto.	2	3¢	30 times	$0.90
Clothes Washing	10	15¢	30 loads	$4.50

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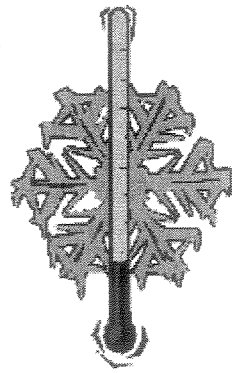
HIGH BILL CONCERNS

We sometimes get calls from customers who feel that their monthly electric bill is unusually high. When we check the situation with them, we almost always find that the reason for the high usage is one of the following:

Winter Weather

Colder winter weather results in higher electricity use all around the home. There is less daylight, so lights are on more often. Air and water both need to be heated from lower temperatures. Showers may last longer and more electricity is used throughout the house as we spend more time indoors.



Electric Heaters

Portable electric heaters can run up a large bill. A 1,500-watt portable heater, used about 4 hours daily, can add over $10 to your monthly bill.

House Guests

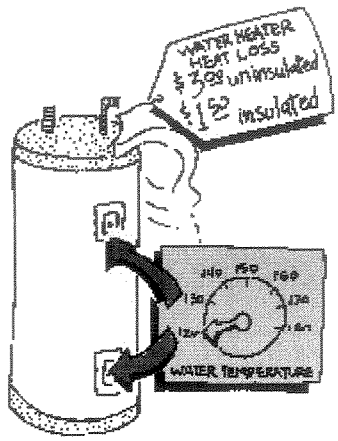
When unexpected guests drop in, you can have increased use of hot water, and additional cooking and lighting for entertainment purposes. Also, an increase in the number of permanent residents of your home can significantly increase the use of electricity.

New Appliances

Adding a new major appliance can cause your electric bill to go up. *(Hot tubs, saunas and water pumps can make a big difference in your bill.)* When purchasing a new appliance, make sure it's as energy-efficient as possible.

Water Heater

Check the thermostat on your water heater. It should be set at 120° F. If it's set much higher than that, you're wasting a lot of electricity.



Fireplace Damper

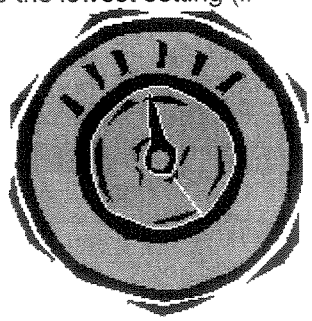
Leaving the fireplace damper open when electric heat is being used is about the same as leaving your front door open. It can double your heating costs.

Heating System Problems

Check for loose or disconnected heating ductwork. You can waste huge amounts of energy if the heat is escaping under your home. Also make sure your ductwork is properly insulated.

Inaccurate Thermostats

Many home thermostats won't actually turn off your heating system. Even when you turn them to the lowest setting (if you're going on vacation, for example), they can still turn the heat on when outside temperatures get low enough.



Variation in Length of Billing Period

We read your meter about every thirty days, but the period can vary by several days either way. For this reason, bills are not always comparable from month to month or year to year. The best way to compare is to calculate your average daily kilowatt hour (kwh) usage. See section on *"How To Read Your Bill"* for details.

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HOW TO READ YOUR BILL

Using the information on your monthly electric bill can give you an accurate picture of just how much electricity you really

use throughout the year.

The "Amount Used" for the billing period is the difference between the "Current" and "Previous" readings. The current billing detail, near the center of your bill, shows what our current rates are for the amount of electricity you used. To determine your average cost per kwh, divide the current billing amount by the kwh used. In the sample bill below, which is a typical wintertime heating bill, that would be:

$$\frac{105.99}{1550} = .0683, \text{ or about } 6.8¢ \text{ per kwh}$$

Your average daily use of electricity is shown in the "Comparison Information" section near the bottom of the bill. This is determined by dividing the total kwh used by the number of days in the billing period. To calculate your average cost per day, simply multiply your average kwh cost by the average kwh used per day. In the example below, that would be:

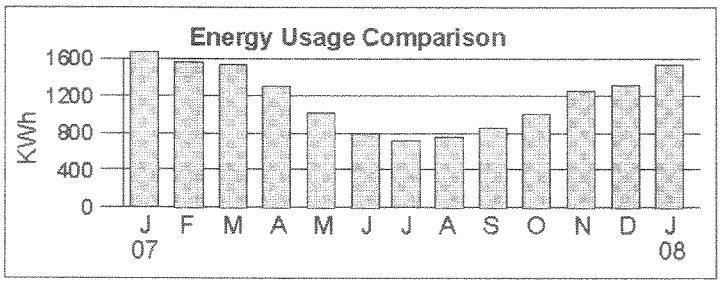
6.8¢ X 48 = $3.26 per day.

CENTRAL LINCOLN
A PUBLIC CITY-OWNED ELECTRIC UTILITY

2129 N. Coast Highway
Newport, OR 97365-0090

NAME JOHN SMITH
ROUTE 123
CUSTOMER NO. 000123-4 01201201
BILLING DATE 01/31/08
SERVICE DESC. 1234 NE SMITH RD
SERVICE FROM 12/23/07
SERVICE TYPE Schedule 100 - Residential Service
SERVICE TO 01/25/08

SERVICE LOCATION NO.	METER NUMBER	METER READING CURRENT	METER READING PREVIOUS	METER MULTIPLIER	AMOUNT USED	READING TYPE	BILLING AMOUNTS
SL0008511	12345	32990	31440	1	1550	kWh	
SL0008511 Basic Charge							15.00
SL0008511 1550 kWh @ $.05870							90.99



CURRENT BILLING	105.99
PREVIOUS BALANCE	84.58
PAYMENTS	84.58CR
PAST DUE AMOUNT	00.00
TOTAL AMOUNT DUE	105.99
MORE INFORMATION ON REVERSE SIDE	**PLEASE PAY THIS AMOUNT**

1 1/2% per month interest will be charged on balance forward

COMPARISON INFORMATION

DAYS IN BILLING PERIOD	KWH BILLED	KWH PER DAY THIS BILLING	SAME PERIOD LAST YEAR
32	1550	48	57

KEEP THIS PORTION

Return to Home Page.

If you have questions, comments, questions or suggestions, please e-mail us at
webmaster@cencoast.com

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Day 5 Schedule

Subject	Minutes Per Day (At Least!)	Assignments	What Did I Learn Today?
English Language Arts	45	• Learn new vocabulary words from the Vocabulary List • Activity: Design an Inspirational Poster	•
Math	45	• Lesson 9.2 Skills Practice: Backtracking	•
Science	30	Complete at least one of the following activities: • Activity 1: *Turning Metal into Money* (English or Spanish) • Activity 2: Complete *Personal Conservation Project* Activity	•
Fitness and Health	30	• Exercise for 30 minutes. Choose from the Activity Calendars at the back of this booklet	•
Arts	30	• Choose one or two activities from the Arts Activities at the back of this booklet	•
TV Shows and Websites	30	• Choose TV shows and websites to further your learning at home	•

Day 5 English Language Arts

Vocabulary

Learn new vocabulary words from the Vocabulary List at the back of this booklet. Practice using these words in the activities below. For ELL support, see the instructions and model from Day 1.

Activity: *Design an Inspirational Poster*

- Design an inspirational poster. An *inspirational poster* is a graphic or textual form of communication that uses thoughts, words, quotes, and/or images and photographs that are eye-catching and convey information. An inspirational poster inspires and motivates people towards achieving personal success.

Directions:

1. Decide on a concept that inspires you : courage; patience; loyalty; etc
2. Decide how best to present this concept visually, through a drawing, photograph, magazine or newspaper picture
3. Give your poster a title

Day 5 Mathematics

Vocabulary

Learn the new math vocabulary words below. You will use these vocabulary words in the activities today.

- **Backtracking :** The process of using a flowchart to work backward, starting with the output and undoing each operation to find the input

Activity 1: *Backtracking*

Please complete the following activity. Complete all problems. Be sure to show your work.

- Lesson 9.2 Skills Practice: Backtracking

If you need Spanish activities to review the concept of equations**,** please follow the steps below.

- Step 1: Go to tutorial site: http://destination.nycenet.edu
- Step 2: Login with the following user ID and PW:
  - User: studentnyc
  - Password: student
- Step 3: Click on the Exploration Icon to access the tutorial
- Step 4: Scroll down to Mastering Skills & Concepts: Course V: Pre-Algebra – Spanish
- Step 5: Select the skill/concept to review.
  - Activity 5: 1.5.3 - Substituting Values and Solving an Equation

Notebook Activity

Describe in words the steps you used to create a flowchart for backtracking

Additional Activities

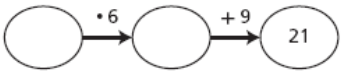
Have more time? Complete the following activities.

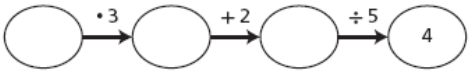
- Skill 67: Solve Equations Involving Multiplication
- Skill 68: Solve Equations Involving Division

Name **Date**

Lesson 9.2 Skills Practice
Backtracking

For each flowchart, write the equation that is being solved. Backtrack to find the solution. Be sure to check your solution.

1. 

2. 

Use a flowchart and backtracking to find the solution to each equation. Be sure to check your solution.

3. $13 = 3 + 2d$

4. $4m - 6 = 34$

5. $\frac{n+1}{7} = 3$

6. $\frac{5c+10}{20} = 2$

7. $6 \cdot (m + 2) = 54$

8. $\frac{3b+10}{2} + 9 = 20$

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SKILL 67

Name _____ Date _____

Solve Equations Involving Multiplication

You can use equations to solve multiplication problems. When a variable is multiplied by a number, divide each side of the equation by that number to set the variable by itself.

Division Property of Equality: If you divide each side of an equation by the same nonzero number, the two sides remain equal.

EXAMPLE *Solve 48.6 = 6c.*

$$48.6 = 6c$$

$$\frac{48.6}{6} = \frac{6c}{6} \qquad \textit{Divide each side by 6.}$$

$$8.1 = c$$

Check: $48.6 \stackrel{?}{=} 6c$

$$48.6 = 6 \times 8.1 \qquad \textit{Replace c with 8.1.}$$

$$48.6 = 48.6 \checkmark$$

The solution is 8.1.

EXERCISES *Solve each equation. Check your solution.*

1. $5r = 45$
2. $180 = 9v$
3. $17v = 289$
4. $5.1p = 61.2$
5. $6.4t = 64$
6. $91 = 13k$
7. $2.4(1.8) = w$
8. $\$8.46h = \$54.99$
9. $504 = 2.8m$
10. $9n = -45$
11. $5m = -35$
12. $-72 = 6r$

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Write an equation for each of the following.

13. A bingo prize of $125 had to be split evenly among five people. How much did each person receive?

14. There are twice as many dogs as there are cats on Sheila's street. If there are six dogs, how many cats are there?

15. Each household on Tremont Street has two cameras. There are 370 cameras on this street. How many houses are there?

16. One hundred fifty six students in Barrington School own a moped. This is four times as many students as owned one three years ago. How many students owned one three years ago?

APPLICATIONS

17. The sum of the measures of the interior angles of a pentagon is 540°. The five angles all have the same measure. Solve the equation $5x = 540$ to find the measure of each angle.

18. At one gas station, one fourth of the customers buy premium gasoline. In one hour, 12 customers bought premium gasoline. What was the total number of customers for the hour?

19. Manuel's weekly pay check is $450. What is his annual salary?

20. A triangle has a base of 6 feet and an area of 9 square feet. What is its height? Remember the area of a triangle is half the base times the height.

21. What is the length of a rectangle with an area of 40 square feet and a width of 5 feet?

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SKILL 68

Name _____ Date _____

Solve Equations Involving Division

You can use equations to solve division problems. When a variable is divided by a number, multiply each side of the equation by that number to get the variable by itself.

Multiplication Property of Equality: If you multiply each side of an equation by the same number, the two sides remain equal.

EXAMPLE *Solve $\frac{w}{5} = 2.3$.*

$$\frac{w}{5} = 2.3$$

$$\frac{w}{5} \times 5 = 2.3 \times 5 \qquad \textit{Multiply each side by 5.}$$

$$w = 11.5$$

Check: $\frac{w}{5} \stackrel{?}{=} 2.3$

$$\frac{11.5}{5} = 2.3 \qquad \textit{Replace w with 11.5.}$$

$$2.3 = 2.3 \checkmark$$

The solution is 11.5.

EXERCISES *Solve each equation. Check your solution.*

1. $\frac{1}{2}y = 7$
2. $30 = \frac{1}{5}k$
3. $\frac{x}{7} = 3$
4. $24 = \frac{r}{2.5}$
5. $\frac{w}{6} = 0.6$
6. $\frac{1}{3}c = \frac{3}{4}$
7. $\frac{y}{5} = 3.5$
8. $\frac{f}{1.1} = 7$
9. $\frac{1}{2} = \frac{1}{8}c$

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10. $3.5 = \frac{m}{4}$ **11.** $\frac{y}{5} = 2.4$ **12.** $\frac{s}{8} = 9.6$

13. Solve $z \div \frac{1}{3} = \frac{6}{7}$.

a. $\frac{6}{21}$ b. $\frac{18}{7}$ c. $\frac{11}{21}$ d. $\frac{2}{7}$

14. Solve $w \div \frac{1}{5} = \frac{3}{4}$.

a. $\frac{1}{2}$ b. $\frac{15}{4}$ c. $\frac{3}{20}$ d. $\frac{2}{12}$

15. The quotient when the number e is divided by 18 is 8. Find the number.

16. The quotient when the number x is divided by 19 is 7. Find the number.

APPLICATIONS

17. Hisako can stay in the sun for 0.5 hours without burning. If she uses NEW LONGER TAN, that has a sun-protection factor of 30, she can safely bask in the sun three times as long. Use the equation $m \div 0.5 = 3$ to determine the number of hours Hisako can stay in the sun using NEW LONGER TAN.

18. One-half of the students who participated in the Walk-a-Thon got a T-shirt. If 28 T-shirts were given out, how many students participated in the Walk-a-Thon?

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Day 5 Science

Complete Activity 1 or 2 below:

Activity 1: *Turning Metal into Money!*

- Read the article below and answer the questions that follow.
- Para Espanol, prime aquí: http://schools.nyc.gov/Documents/teachandlearn/LearnatHome/ELL/6day5sp.pdf

Vocabulary

Learn the new vocabulary words below. You will use these vocabulary words in today's activity.

- **economy** (noun): the business and wealth of a state or country
- **facilities** (noun): buildings or services created to meet a particular need
- **municipality** (noun): a city or town with its own local government
- **scour** (verb): to search
- **supplement** (verb): to provide something as a contribution toward what is needed

Turning Metal Into Money

PITTSBURGH, Pennsylvania (Achieve3000, August 5, 2008). Forklifts rumble around the scrapyard, grabbing pieces of metal and weighing them on scales: Will the junk be worth a tank of gas or a cart full of groceries? More and more people today hope so. The price of metal is soaring. Gas and grocery prices are also climbing. So some thrifty individuals are earning extra cash. They're hauling their scrap metal to recyclers. And these days, recyclers are paying handsome amounts for every pound of the valuable material.

Nationwide, recycling facilities can barely keep up with their increasingly brisk business. Empire Recycling in New York now sees 250 to 300 customers a day. This is up from about 150 customers a day. David Fitzsimmons is the owner of Fitzsimmons Metal Company in Pennsylvania. He says his business has doubled in the last six months alone. Norman Eaton of Meadville Metal says that he is seeing more customers, too. He says that he's observed a 20 percent increase just in the number of people recycling aluminum cans.

Recycling businesses are especially busy on weekends. That is when people have more time to scour their garages and basements for scrap metal. This includes items such as spare copper wire, old metal window frames, and rotted plumbing pipes. Increasingly, people are saving their aluminum cans rather than handing them over to their municipalities for free, along with their other recycling. Some people even drive around neighborhoods the night before trash is collected. They gather metal scraps that others throw away.

"They're bringing in everything," said Steven Kowalsky. Kowalsky is president of Empire Recycling. "They're bringing in scrap iron and steel, aluminum, [and] brass."

This sudden interest in recycling is due to two reasons: skyrocketing metal prices and rapidly rising food and fuel costs. Developing nations, such as China and India, are now importing enormous amounts of America's scrap metal. They reuse it in construction and other industrial activities. This has created an increase in the demand for the material.

Day 5 Science (continued)

The increased demand has triggered a huge rise in metal prices. Until a few years ago, copper, for example, earned less than $1 a pound. Today, it is selling for about $3 a pound. Aluminum cans were going for about 30 cents a pound. Now, they fetch 70 to 80 cents a pound. Seven years ago, steel sold for $40 per ton. Today, it's more than $200 per ton.

In today's slow-moving economy, rapidly rising food and fuel costs are stretching many paychecks to the limit. They are also motivating people to recycle scrap metal. David Trombley, for example, made $133.40. He made this money by turning in scraps he had left over from remodeling his bathroom.

This [will go toward] my gas tank," said the 51-year-old Trombley. "I put most of it in my tank. That'll last me two weeks worth of going to work and back," he said.
"It's kind of like the perfect storm," Steven Kowalsky said. "They get money here and they supplement their income and pay for their food and their fuel and their rent and everything else."

Private citizens are not the only ones saving their scrap metal. Small business owners are also cashing in. According to Pittsburgh's Public Works Department (PPWD), taking their scrap metal to recyclers earns small businesses a few extra bucks. It also reduces the amount of trash they must pay to have hauled away. For this service, the PPWD says, rates have increased right alongside fuel costs.

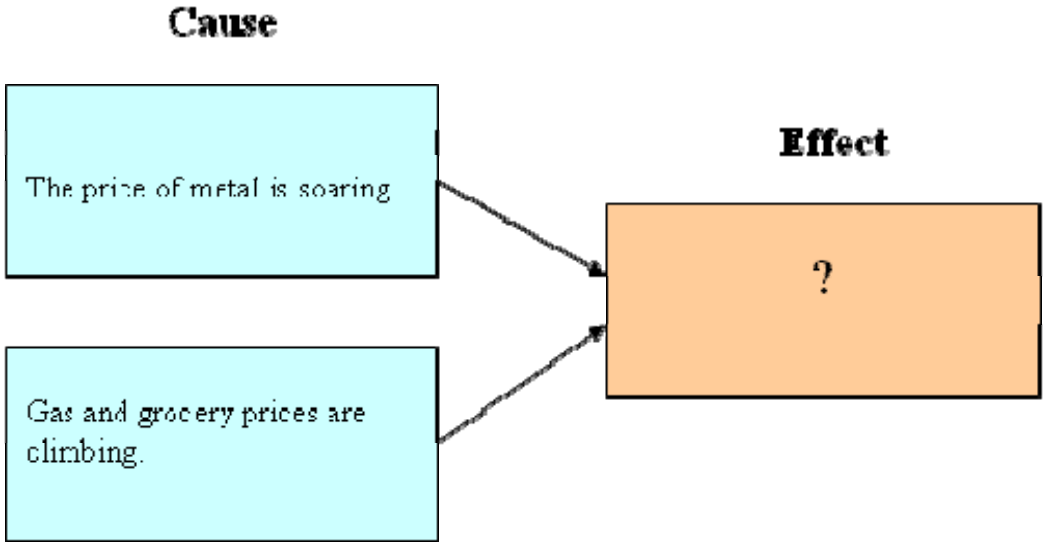
Small business owner Eric Frazee has operated Frazee Plumbing for 22 years. Frazee said that he has recycled his junk metal for years.

"Every time you walk by, it's like walking over a $20 bill in your garage." He added, "Now, I don't throw anything away."

The Associated Press contributed to this story.

Instructions: Select the correct answer.

Question 1:



Day 5 Science (continued)

Which best replaces the question mark in the box above?
1. Some people are recycling scrap metal to earn extra cash.
2. China and India are using scrap metal to make buildings.
3. Municipalities are asking people to recycle their scrap metal.
4. Businesses are demanding more scrap metal for their offices.

Question 2:
Which is the closest synonym for the word facilities?
1. Sessions
2. Services
3. Selections
4. Sermons

Question 3:
According to the article, how are private citizens and small business owners similar?
1. Both groups are selling their scrap metal to businesses in India.
2. Both groups are recycling their scrap metal to earn extra cash.
3. Both groups are scouring trash cans to find extra scrap metal.
4. Both groups are in need of more scrap metal for construction projects.

Question 4:
Which of these should not be included in a summary of this article?
1. Eric Frazee is one person who has recycled his junk metal for years.
2. The slow economy has motivated some people to recycle scrap metal.
3. Metal prices have soared because of increased demand.
4. Developing nations are importing scrap metal from America.

Question 5:
Based on the article, which is most likely to happen?
1. If the economy continues to be slow, developing nations will want more scrap metal.
2. If the price of copper continues to rise, more people will remodel their bathrooms.
3. If the economy continues to be slow, more people will start to recycle scrap metal.
4. If the price of aluminum continues to rise, recycling businesses will lose customers.

Question 6:
The article states: The increased demand has triggered a huge rise in metal prices.

Which would be the closest antonym for the word trigger?
1. Ration
2. Estimate
3. Outline
4. Cease

Day 5 Science (continued)

Question 7:
Which question is not answered by the article?
1. Why are more people starting to recycle their scrap metal?
2. Which developing countries have a need for American scrap metal?
3. How much money did David Trombley earn by recycling scrap metal?
4. How often does David Trombley recycle his scrap metal?

Question 8:
Let's suppose that this article could have a different title. The best one would be _____.
1. More People Motivated To Recycle Scrap Metal
2. More People Scouring Trash Cans for Scrap Metal
3. More People Going to Recycling Centers on Weekends
4. More People Sending Materials to Developing Nations

Writing Activity
You are asking a bank to give you a loan to help your recycling business. Write a letter to convince the bank to grant the loan.

Use information from the article, as well as your own ideas, in your answer.

Write your answer below.

_____
_____
_____
_____
_____
_____
_____
_____
_____

Achieve3000 (www.teenbiz3000.com)

Activity 2: *Science Inquiry Project – Personal Conservation Project*

The following activity is day two of a two day project.

Vocabulary

Learn the new vocabulary words below. You will use these vocabulary words in today's activity.

- **Recycle:** To collect and usually reprocess discarded materials for reuse, often in another form.
- **Hydrocarbon:** Any of numerous organic compounds such as benzene that contain only carbon and hydrogen.

Did you know that the U.S. demand for petroleum is currently at 20 million barrels per day? Petroleum products are important for fueling machines, heating homes, and manufacturing plastics. However, using them can cause problems such as pollution and the depletion of resources.

Directions: Complete your personal conservation project. As you finalize your own plan, think about the 3 R's of conservation – reduce, reuse, and recycle. Complete a two-page paper outlining how you will conserve one or more resources.

For help, explore the New York City Department of Sanitation Golden Apple Awards Winners at **http://www.nyc.gov/html/nycwasteless/html/at_agencies/at_school_schoolcontests.shtml**

Suggested Resources:

- http://www.moea.state.mn.us/reduce/index.cfm
- http://www.csgnetwork.com/waterusagecalc.html
- http://water.cas.psu.edu/
- http://www.clpud.org/rtchoice.html
- http://www.earth911.org/master.asp?s=about&a=contact/startrecycle.asp
- http://www.epa.gov/epawaste/conserve/index.htm

Source: This activity is from Glencoe NY Science, Grade 6 Unit 2: The Atmosphere, Hydrosphere, and the Lithosphere. http://glencoe.mcgraw-hill.com/sites/0078771285/student_view0/unit2/unit_project_1.html

Vocabulary List: Grades 6-8

ELA	Science	Math	Social Studies	Non-Content Specific
argumentation	abiotic/nonliving factors	algebraic expression	adaptation	apply
author's purpose	acid rain	altitude	agrarian society	boundary
bibliography	adaptations	angle bisector	agricultural	calculate
biography	air mass	area	assembly line	categorize
caption	animal development	array	assimilate/ assimilation	classify
character trait	asexual reproduction	axis of symmetry	authoritarian rule	compare
climax	asthenosphere	base	bourgeoisie	create
descriptive language	atmosphere	base 10	capitalism	describe
dialect	atoms	capacity	checks and balances	determine
editorial	bacteria	congruence	citizenship	develop
elaboration	barometric pressure	constant ratio	civil disobedience	device
empathy	beneficial relationships	coordinate system	civil service	devise
episode	binary fission	cube number	civilization	different
etymology	biological communities	cube root	colonization	digest
explicit	biomes	data set	conservatism	disadvantage
exposition	biosphere	estimate	corruption	disappointment
fact	biotic/living factors	experiment	custom	discern
fact vs. opinion	blizzards	exponent	depression	dominant
figurative	boundaries	frequency	desegregation	dramatize
figurative language	buoyancy	geometric formula	discrimination	draw conclusions
foreshadow	carnivore	grid	disenfranchisement	efficient
foreshadowing	celestial objects	growth rate	dissent	employ
generalization	cell	height	economics	entertain
historical fiction	cell division	integer	economy	environment
homonym	cell growth	intersecting lines	ethnic origin	equation
homophone	cell parts	length	emigrate	estimate
hyperbole	chemical reactions	minimum	enclave	ethics
idiom	climate	nonlinear equation	ethnic identity	evaluate
imagery	cloning	ordered pairs	ethnic minority	excerpt
implicit	competition	outliers	ethnocentrism	exchange
inference	complex machine	parallel figures	evolution	exclusion
interpretation	compound microscope	parallelogram	fascism	explain
irony	compounds	perfect square	financial	explicit
issue	compressional	perimeter	goods	extend
metaphor	conduction	perpendicular	green card	external
meter	conductivity	plane	hierarchy	extract
monologue (internal)	conservation	polygon	hostility	factual
offense	continent	prism	illegal alien	failure
offense	contraction	proportion	immigrate	feat
omniscient	convection	quadrilateral	imperialism	form
onomatopoeia	convection currents	range	industrialist	format
opinion	convergent	rate	industry	formation
paraphrase	core	rational number	interpretation	formulate
passion	crust	rectangle	intervention	generalization
personification	density	rectangular prism	isolationism	generate
perspective	dichotomous key	right angle	labor	however
persuasion	displace	Roman numeral	laissez faire	hypothesis

ELA	Science	Math	Social Studies	Non-Content Specific
plagiarism	divergent	root	liberty	hypothesize
point of view	DNA	rotation symmetry	lynching	identify
position	drought	square	manufacture	illustrate
pro vs. con	dynamic equilibrium	surface area	mass production	impact
prologue	Earth's axis	three-dimensional figure	mixed economy	imprint
protagonist	eclipses	triangle	monarchy	indicate
quotation	effect of elevation	two-dimensional figure	monastery	infer
resolution	egg	vertex	monopoly	interdependence
rhythm	electromagnetic energy	volume	mosque	observe
sarcasm	elements	width	nation-state	oppose
satire	endangered species		nativism	opposing
simile	endocrine system		naturalization	outline
symbolism	energy		neutrality	paraphrase
sympathy	energy conservation		nobility	preceding
syntax	energy pyramid		nomadic people	predict
tension	environmental concerns		patriarchal society	prefix
theme	environmental toxins		peasantry	pressure
thesis	epicenter		persecution	procedure
tone	erosion		perspective	qualification
transition	evolution		philanthropy/philanthropist	quality
verb tense	expansion		political alliance	rank
vignette	extensional		political party	rationale
voice	external environment		public opinion	rationalize
	extinction		push-pull factor	realization
	fault		rationing	reasonable
	faults		refugee	refute
	field map		robber baron	reinforce
	fold		rural	relationship
	food chain		scarcity	relative
	food web		secession	release
	force		segregation	relevance
	fossil record		services	remain
	friction		social status	represent
	gametes		sovereign state	require
	genes		spoils system	requirement
	genetic engineering		stereotype	resolve
	genetic expression		stratification	respond
	global warming		strike	response
	gravity		tariffs	reveal
	hardness		tenement	revolution
	harmful relationships		terrorism	rival
	herbivore		transportation	root
	heredity		trust-busting	rotation
	homeostasis		tycoon	scan
	hormonal regulation		union	secondary
	human body systems		urban	section
	human impact		urbanization	select
	hydrosphere		visa	signal
	igneous		wage	significance

ELA	Science	Math	Social Studies	Non-Content Specific
	immune system inertia infectious disease interdependence internal environment kinetic energy kingdoms latitude Law of Conservation of Energy light waves lithosphere locomotion longitude magnetism mantle matter Mendelian genetics metabolism metamorphic mixtures molecules molten motion multicellular multicellular organism mutations natural cycles natural resources Newton's First Law Newton's Second Law Newton's Third Law nutrients ocean basin oceanic omnivore organs overpopulation ozone depletion Pangaea parasites patterns of motion periodic table phases of matter phases of the moon photosynthesis plant development plants plate tectonics population growth potential energy			similarity skill sophisticated specify speculate spontaneous standard state statement stereotype structure study subsequent substitute successful suffix suggestion summarize support survey survive suspended symbol sympathetic system table text thesis timeline tradition transfer transformation type vague validity values variation Venn diagram viewpoint virtue

ELA	Science	Math	Social Studies	Non-Content Specific
	predator/prey relationship pressure probability Punnett square radiation recycle reflection refraction regulation relative humidity renewable sources of energy respiration Richter scale ring of fire rock classification rock cycle rotation seafloor seasonal variations sedimentary seismograph sexual reproduction simple machine solar system solubility solutions sound waves species sperm spreading streak thermoregulation tides tilt tissues topographic map topography transfer of heat transformation of energy trench unicellular unicellular organism unrenewable source of energy variation vegetative propagation vibration voltmeter water displacement weathering weather map			

Fitness and Health Activities

Participate in **30 or more minutes** of daily physical activity. Choose **at least three (3) activities** from the options below and the following calendars. There is something for everyone! Each one takes about 10 minutes. Increase your heart rate, improve flexibility, and build muscle strength!

If you have access to the Internet, you can track your physical activity by going to http://www.bam.gov/sub_physicalactivity/cal_index.asp, where you can create a customized physical activity calendar.

- Activity Calendar (in English and Spanish) – online at
  - http://www.aahperd.org/naspe/Toolbox/pdf_files/May09/Calendar_Sec_Eng.pdf (English)
  - http://www.aahperd.org/naspe/Toolbox/pdf_files/May09/Calendar_Sec_Span.pdf (Spanish)
- "10 at a Time" Activity Calendar – online at
  - http://www.aahperd.org/naspe/Toolbox/pdf_files/May09/Ten.pdf
- Small Space Energizers – online at
  - http://www.ncpublicschools.org/docs/curriculum/healthfulliving/resources/instructional/middleschoolenergizers/healthfuliving.pdf
- Muscle Strengthening Routine at Home – online only
  - http://cdc.gov/physicalactivity/everyone/videos/index.html
- Physical Activity Games – online only
  - http://www.kidnetic.com/Kore/

May 2009
Secondary Physical Activity Calendar

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	MilkPEP and the NBA teamed up to launch *Get Fit By Finals*, a new fitness and nutrition education initiative for teens. Visit www.MilkDelivers.org NOW to download a FREE *Get Fit* activation kit that includes a guide to implementing *Get Fit By Finals* in your school -- plus fitness and nutrition tips and tools from the NBA. **Log on by May 1 and tell us how you're getting your students fit and you could be eligible to WIN A GYM MAKEOVER FOR YOUR SCHOOL!** Also, check back to Web site weekly for new NBA player videos you can use in your classroom or gym to help motivate your students to get fit.				***1*** ***25 body squats w/ hands behind your head. Now 3 sets of as many push-ups as you can do.***	***2*** ***4 intervals, 15 min running, walk for 1 min between each interval.***
3 ***Get outside today with the family and go fly a kite!***	***4*** ***3 sets/15 reps bench press; 3 sets/ 15 reps tricep dips.***	***5*** ***Jump rope 2 min, fast walking 2 min, 12 minute run; repeat 3X.***	***6*** ***3 sets/15 reps body squats, then 3 sets/20 reps concentration curls.***	***7*** ***1 mile fitness run, sprint 50 yds, jog 50 yds- do this for 1 mile. Try again for a second fitness mile.***	***8*** ***3 sets /to tolerance, sitting overhead press. 3 sets/15 reps lying hamstring curl.***	***9*** ***4 sets/10 reps lying leg raises; 4 sets/10 reps lifting side plank.***
10 ***Go bowling today with friends or family. No lanes? Make pins from old 2 liter bottles filled w/sand or water.***	***11*** ***3 sets/12 reps inclined push-ups; 3 sets/15 reps tricep extensions.***	***12*** ***Yoga plank position- hold and raise each leg one at a time 10X. Repeat 2 more sets. 3 sets/12 reps toes to ceiling on bench.***	***13*** ***15 squat jumps with a ball extending overhead; 3 sets 15 reps one-arm row to both sides.***	***14*** ***2 min of ab work- basic crunches, crunches with legs up, twisting crunches. Repeat two more times.***	***15*** ***3 sets/15 reps stiff-legged dead lift; 3 sets/20 reps standing lateral raise.***	***16*** ***Speed play today: run, jog, run fast, walk, skip, run for a total of 40 min. Stretch afterward.***
17 ***Find 3 friends, go to the park and play 2 v. 2 volleyball.***	***18*** ***3 sets/12 reps declined push-ups; 3 sets/12 reps flyes.***	***19*** ***3 sets/20 reps knee tucks on a bench; 3 sets/15 reps reverse crunch.***	***20*** ***3 sets/20 reps bicep curl w/resistance; 3 sets/15 reps back extensions.***	***21*** ***Find a basketball and perform 4 sets of 25 crunches with the basketball held under your chin.***	***22*** ***Alternating walking lunges- 3 sets/20 reps; 4 sets/8 reps standing shoulder press.***	***23*** ***Ride a bicycle for one hr-pick a scenic route around town. Wear your helmet! No bike? One hr power walk/jog.***
24 ***Find a tennis court, play tennis for 30 minutes or hit against a wall.***	***25*** ***3 sets/10 reps wide arm push-ups; jump rope for 2 min in between each set.***	***26*** ***4 sets/10 reps twisting bench crunch; 10 min power walk in between each set.***	***27*** ***3 sets/15 reps superman; 3 sets/20 reps alternating bicep curls.***	***28*** ***How about some 3 on 3 basketball today?***	***29*** ***3 sets/20 reps calf raises off a step; 3 sets/ 15 reps seated overhead press.***	***30*** ***3 sets/15 reps single leg lift; 10 min. jog in between sets.***

May 2009
Ten At A Time Physical Activity Calendar

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Need help remembering exercises? Go to http://www.shapefit.com/training.html#8 for demos of exercises.	***Duplicated with permission from the National Association for Sport and Physical Education (NASPE). To assess whether your child is receiving a quality physical education program, visit www.naspeinfo.org/observePE for an observation assessment tool.***			*Each day lists one exercise that can be executed "10 at a time". Keep track of each set of 10 reps you accomplish throughout the day, or for cardio, ten minutes of the activity.*	***1 Squats w/ hands behind your head.***	***2 Power-walk 10 min.***
3 Tricep dips.	***4 Bench press.***	***5 Jump rope.***	***6 Concentration curls.***	***7 Lying hamstring curl.***	***8 Sitting overhead press.***	***9 Lying leg raise.***
10 Lifting side plank.	***11 Inclined push-ups.***	***12 Yoga plank position.***	***13 One-arm row to both sides.***	***14 Twisting crunches.***	***15 Stiff-legged dead lift.***	***16 Jump rope 10 min.***
17 Tricep extensions.	***18 Declined push-ups.***	***19 Knee tucks on a bench.***	***20 Bicep curl w/resistance.***	***21 Crunches with a basketball held under your chin.***	***22 Alternating walking lunges.***	***23 10 min power walk/jog.***
24 Toes to ceiling on bench.	***25 Wide arm push-ups.***	***26 Twisting bench crunch.***	***27 Superman.***	***28 Standing shoulder press.***	***29 Calf raises off a step.***	***30 Single leg lift.***

Arts Activities for Grades 6-8

A number of the activities listed reference specific works of art. If you are not familiar with them you may find them on the internet (even the performances). However, these are provided as examples, and you can substitute similar works of art with which you are familiar or to which you have access.

All Arts Activities taken from the *Blueprints for Teaching and Learning in the Arts: Grades PreK-12.*

DANCE

- Create a work using original movement material, devices to manipulate phrases, and a clear choreographic structure.
- Analyze how varying the use of force affects the way a movement feels, is perceived, and is interpreted.
- Maintain a dance journal, including dance research, dance resources and notation.
- Reflect upon personal criteria for evaluating dance, and share in discussion.
- Research the connections between two dance styles.
- Make a "family tree" of a dance form including major artists and dates of significant works.
- Research the period in which a choreographer was working or a dance form arose.
- Choose from a "grab bag of countries," and research the dances of the country chosen.
- Brainstorm the ways in which studying dance affects students' health.

MUSIC

- Listen to the folk song "Shenandoah," and write a private journal entry describing feelings evoked by the music.
- Share a recording or performance of a song from a particular culture that evokes a similar personal response.
- Compare at least two different settings of the same text in a choral work from online resources. Discuss specific similarities and differences in repertoire, such as: "Ave Maria" (Schubert, Byrd, others), "Still Nacht"/"Silent Night"(Gruber; German and English versions), "Anvil Chorus" (Verdi; Italian and English versions), "Toreador Song" (Bizet; French and English versions).
- Compare a jazz song performed by two different soloists— such as "Cherokee" (R. Noble) by Charlie Parker, Ella Fitzgerald, Wynton Marsalis, or others—listening for differences and similarities in "musical voice."
- Create a "Top 10 list" of favorite performers, repertoire representative of classical, world, jazz, and popular music styles and genres. Each item should be supported by a written explanation containing music vocabulary, where appropriate.
- Prepare a historical timeline reflecting world, national, state, or municipal events and their corresponding musical components.

THEATER

- Rehearse and perform a scene in front of others.
- Rehearse and perform the same scene in three distinct styles or genres such as situation comedy, reality show, soap opera, disaster movie.
- Research and portray a character, using at least one appropriate costume piece, prop, gesture, need and physical shape.
- Perform the written word in a reading or memorized presentation.
- Using original writing related to a specified theme, develop it into a monologue.

- Write a scene that has:
    - a plot comprising of a sequence of actions characters with clear intentions/wants
    - obstacles to characters' wants
    - character growth or transformation from overcoming an obstacle or resolving conflict
    - unified and consistent theme
    - written stage directions, including character descriptions and notes
    - clear and articulated choices about dramatic style, structure and convention
- Analyze a dramatic script for elements of structure, character development, conflict and plot.
- Create a marketing poster for a show with an identifiable dominant image.
- Measure a room and create a ground plan including furniture and other elements from the room.
- Make a CD or audio tape to score a scene.

VISUAL ARTS

- Create a painting that demonstrates:
    - the rich use of a specific painting medium such as: watercolor, tempera or acrylic
    - awareness of light, value and contrast
    - strategies to depict the illusion of depth
    - use of prior observational sketches
- Create a pencil, conté, or pen and ink drawing that demonstrates:
    - perspective
    - observation of detail
    - scale of objects and figures
    - a wide range of values
    - a personal view
- Discuss techniques of perspective and scale, artist's choice in degree of detail, artist's message.
- Create a collage that demonstrates:
    - use of a variety of materials and textures
    - unity through color
    - balanced composition

Educational TV Shows

Channel	Show	Subject	Day	Time	Recommended Audience	Description
Discovery	How It's Made	Science, Engineering	Weekdays	9:00-10:00 AM	4-5, 6-8, 9-12	The show is a documentary program showing how common, everyday items (including food products like bubblegum, industrial products such as motors, musical instruments such as guitars, and sporting goods such as snowboards) are manufactured.
NYC TV - 25	Standard Deviants TV	ELA, Science, Mathematics	Weekdays	10:00 AM, 10:30 AM	6-8, 9-12	A fast-paced educational series for youngsters 12 and up, adapted from the "Standard Deviants" video series used in schools. The concept: break subjects (such as Shakespeare, astronomy and business law) down to their basic components and jazz them up with computer graphics, MTV-style production, and humor, which is supplied by the series' 12 young cohosts.
NYC TV - 25	Globe Trekker	Geography	Weekdays	1:00 PM	6-8, 9-12	Globe Trekker transports viewers to unforgettable destinations through its stunning photography, rhythmic indigenous music and spirit of adventure. In each episode, one vibrant young traveler ventures off-the-beaten path to soak up the local culture, sample the cuisine and revel in breathtaking vistas.
Animal Planet	Meerkat Manor	Nature	Weekdays	3:00 PM, 3:30 PM	6-8, 9-12	The series tells the story of the Whiskers, one of over a dozen families of meerkats in the Kalahari Desert being studied as part of the Kalahari Meerkat Project, a long-term field study into the ecological causes and evolutionary consequences of the cooperative nature of meerkats.

Channel	Show	Subject	Day	Time	Recommended Audience	Description
Discovery	Deadliest Catch	Nature	Weekdays	4:00 PM	6-8, 9-12	Deadliest Catch is a documentary television series that documents the events aboard fishing boats in the Bering Sea during the Alaskan king crab and Opilio crab fishing seasons. The Aleutian Islands port of Dutch Harbor (located in Unalaska, Alaska) is the base of operations for the fishing fleet. The show is named Deadliest Catch because the crew of these boats are at a high risk of injury or death.
Animal Planet	Growing Up	Nature	Weekday	4:00 PM	4-5, 6-8, 9-12	Each episode is an hour long and follows the life (usually the first year) of a wild animal growing up in captivity.
HBO OnDemand	Earth to Kids: A Guide to Products for a Healthy Planet	Science, Environmentalism	OnDemand	27 minutes	2-3, 4-5, 6-8	Making the Earth a better place to live is the focus of this special on reducing, reusing and recycling trash.