

Lawrence Virtual School
Junior High
Resource Manual

7th Grade



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Online Resources

RESOURCE	URL	USERNAME/PASSWORD
K12	www.k12/lvs.com	• — • —
LVS Junior High Website	www.lawrencevs.org > Schools > Junior High	n/a
Kansas Computerized Assessment (KCA) 	To install: http://www.cete.us/kap/ > KCA Version 5.4 To complete a KCA Quiz: Double Click on the Kansas Assessment icon on your desktop	Math • — ...will be given to you by your Math ES • Password: math Reading • — ...will be given to you by your Language Skill ES • Password: reading
Study Island	www.studyisland.com	<u>Username:</u> first letter of your first name.last name@LVS <u>Password:</u> student (you can change this after your first log in) • — • —
LVS Website	www.lawrencevs.org	n/a
LVS Operating Procedures	www.lawrencevs.org > Operating Procedures	n/a
LVS Technology Support	www.lawrencevs.org > Technology	n/a
LVS Art Website	www.lawrencevs.org > Art	• — • —
IXL	www.ixl.com	• — • —
ALEKS		• — • —
BAIP		• — • —
Renzulli	www.renzulli.com	• — • —
Quizlet	www.quizlet.com	• — • —
		• — • —

Illuminate Classrooms

Department	Education Specialist	Classroom Link
Academic Enhancement; Math		
Academic Enhancement; Reading	Deb Hernandez	http://tinyurl.com/hernandez-reading-room
History		
	Kim Hett	http://tinyurl.com/5nfum3
Language Arts	Charles Goolsby	http://tinyurl.com/GoolsbysRoom
Language Arts	Amanda Gorman	http://tinyurl.com/gorman-classroom
Math	Rachel Long	http://tinyurl.com/rlongmathchat
Math		
Science		
	Emily Collins	http://tinyurl.com/Mrs-Collins
SPED	Nancy Jackson	http://tiny.cc/NJacksonVirtualClassroom
SPED	Amy Mispagel	http://tinyurl.com/ms-mispagel

Helpful Numbers

CURRICULUM CONCERNS	
K12 Customer Care	1.866.512.2273
LAPTOP SUPPORT	
Dell Gold Tech Support	Call 1-866-516-3115 if you have a Latitude E5400; Call 1-888-977-3355 if you have a D530
Dell Gold Support Website	www.support.dell.com
LVS JH Technology Website	www.lawrencevs.org > Technology > Laptop Repair
LAWRENCE VIRTUAL SCHOOL	
Phone: 785.832.5620 FAX: 785.832.5621 www.lawrencevs.org	Wakarusa Valley Learning Center 1104 E. 1000 Rd. Lawrence, KS 66047
EDUCATION SPECIALISTS	
Emily Collins	913-393-9988
Charles Goolsby	785-550-2216
Amanda Gorman	913-888-7749
Deb Hernandez	785-342-6083
Kim Hett	785-212-6064
Nancy Jackson	785-741-2009
Rachel Long	913-709-5294
Amy Mispagel	913-390-6723

Conference Notes

AUGUST			
Date:	Time:	Participants:	
<i>Looking Back:</i> What's Going Well? What Needs Improvement?	<i>Current K12 Progress:</i> Math- English- History- Science- Curriculum ?'s-	<i>Agenda Items & Specific Topics:</i> Issues/Questions-	<i>Looking Ahead Goals:</i> To Do-
Notes:			

AUGUST			
Date:	Time:	Participants:	
<i>Looking Back:</i> What's Going Well? What Needs Improvement?	<i>Current K12 Progress:</i> Math- English- History- Science- Curriculum ?'s-	<i>Agenda Items & Specific Topics:</i> Issues/Questions-	<i>Looking Ahead Goals:</i> To Do-
Notes:			

SEPTEMBER			
Date:	Time:	Participants:	
<i>Looking Back:</i>	<i>Current K12 Progress:</i>	<i>Agenda Items & Specific Topics:</i>	<i>Looking Ahead Goals:</i>
What's Going Well?	Math-		
	English-		
What Needs Improvement?	History-	Issues/Questions-	To Do-
	Science-		
	Curriculum ?'s-		
Notes:			

SEPTEMBER			
Date:	Time:	Participants:	
<i>Looking Back:</i>	<i>Current K12 Progress:</i>	<i>Agenda Items & Specific Topics:</i>	<i>Looking Ahead Goals:</i>
What's Going Well?	Math-		
	English-		
What Needs Improvement?	History-	Issues/Questions-	To Do-
	Science-		
	Curriculum ?'s-		
Notes:			

OCTOBER			
Date:	Time:	Participants:	
<i>Looking Back:</i>	<i>Current K12 Progress:</i>	<i>Agenda Items & Specific Topics:</i>	<i>Looking Ahead Goals:</i>
What's Going Well?	Math-		
	English-		
What Needs Improvement?	History-	Issues/Questions-	To Do-
	Science-		
	Curriculum ?'s-		
Notes:			

OCTOBER			
Date:	Time:	Participants:	
<i>Looking Back:</i>	<i>Current K12 Progress:</i>	<i>Agenda Items & Specific Topics:</i>	<i>Looking Ahead Goals:</i>
What's Going Well?	Math-		
	English-		
What Needs Improvement?	History-	Issues/Questions-	To Do-
	Science-		
	Curriculum ?'s-		
Notes:			

NOVEMBER			
Date:	Time:	Participants:	
<i>Looking Back:</i>	<i>Current K12 Progress:</i>	<i>Agenda Items & Specific Topics:</i>	<i>Looking Ahead Goals:</i>
What's Going Well?	Math-		
	English-		
What Needs Improvement?	History-	Issues/Questions-	To Do-
	Science-		
	Curriculum ?'s-		
Notes:			

NOVEMBER			
Date:	Time:	Participants:	
<i>Looking Back:</i>	<i>Current K12 Progress:</i>	<i>Agenda Items & Specific Topics:</i>	<i>Looking Ahead Goals:</i>
What's Going Well?	Math-		
	English-		
What Needs Improvement?	History-	Issues/Questions-	To Do-
	Science-		
	Curriculum ?'s-		
Notes:			

DECEMBER			
Date:	Time:	Participants:	
<i>Looking Back:</i>	<i>Current K12 Progress:</i>	<i>Agenda Items & Specific Topics:</i>	<i>Looking Ahead Goals:</i>
What's Going Well?	Math-		
	English-		
What Needs Improvement?	History-	Issues/Questions-	To Do-
	Science-		
	Curriculum ?'s-		
Notes:			

DECEMBER			
Date:	Time:	Participants:	
<i>Looking Back:</i>	<i>Current K12 Progress:</i>	<i>Agenda Items & Specific Topics:</i>	<i>Looking Ahead Goals:</i>
What's Going Well?	Math-		
	English-		
What Needs Improvement?	History-	Issues/Questions-	To Do-
	Science-		
	Curriculum ?'s-		
Notes:			

JANUARY			
Date:	Time:	Participants:	
<i>Looking Back:</i>	<i>Current K12 Progress:</i>	<i>Agenda Items & Specific Topics:</i>	<i>Looking Ahead Goals:</i>
What's Going Well?	Math-		
	English-		
What Needs Improvement?	History-	Issues/Questions-	To Do-
	Science-		
	Curriculum ?'s-		
Notes:			

JANUARY			
Date:	Time:	Participants:	
<i>Looking Back:</i>	<i>Current K12 Progress:</i>	<i>Agenda Items & Specific Topics:</i>	<i>Looking Ahead Goals:</i>
What's Going Well?	Math-		
	English-		
What Needs Improvement?	History-	Issues/Questions-	To Do-
	Science-		
	Curriculum ?'s-		
Notes:			

FEBRUARY			
Date:	Time:	Participants:	
<i>Looking Back:</i>	<i>Current K12 Progress:</i>	<i>Agenda Items & Specific Topics:</i>	<i>Looking Ahead Goals:</i>
What's Going Well?	Math-		
	English-		
What Needs Improvement?	History-	Issues/Questions-	To Do-
	Science-		
	Curriculum ?'s-		
Notes:			

FEBRUARY			
Date:	Time:	Participants:	
<i>Looking Back:</i>	<i>Current K12 Progress:</i>	<i>Agenda Items & Specific Topics:</i>	<i>Looking Ahead Goals:</i>
What's Going Well?	Math-		
	English-		
What Needs Improvement?	History-	Issues/Questions-	To Do-
	Science-		
	Curriculum ?'s-		
Notes:			

MARCH			
Date:	Time:	Participants:	
<i>Looking Back:</i>	<i>Current K12 Progress:</i>	<i>Agenda Items & Specific Topics:</i>	<i>Looking Ahead Goals:</i>
What's Going Well?	Math-		
	English-		
What Needs Improvement?	History-	Issues/Questions-	To Do-
	Science-		
	Curriculum ?'s-		
Notes:			

MARCH			
Date:	Time:	Participants:	
<i>Looking Back:</i>	<i>Current K12 Progress:</i>	<i>Agenda Items & Specific Topics:</i>	<i>Looking Ahead Goals:</i>
What's Going Well?	Math-		
	English-		
What Needs Improvement?	History-	Issues/Questions-	To Do-
	Science-		
	Curriculum ?'s-		
Notes:			

APRIL			
Date:	Time:	Participants:	
<i>Looking Back:</i>	<i>Current K12 Progress:</i>	<i>Agenda Items & Specific Topics:</i>	<i>Looking Ahead Goals:</i>
What's Going Well?	Math-		
	English-		
What Needs Improvement?	History-	Issues/Questions-	To Do-
	Science-		
	Curriculum ?'s-		
Notes:			

APRIL			
Date:	Time:	Participants:	
<i>Looking Back:</i>	<i>Current K12 Progress:</i>	<i>Agenda Items & Specific Topics:</i>	<i>Looking Ahead Goals:</i>
What's Going Well?	Math-		
	English-		
What Needs Improvement?	History-	Issues/Questions-	To Do-
	Science-		
	Curriculum ?'s-		
Notes:			

MAY			
Date:	Time:	Participants:	
<i>Looking Back:</i>	<i>Current K12 Progress:</i>	<i>Agenda Items & Specific Topics:</i>	<i>Looking Ahead Goals:</i>
What's Going Well?	Math-		
	English-		
What Needs Improvement?	History-	Issues/Questions-	To Do-
	Science-		
	Curriculum ?'s-		
Notes:			

MAY			
Date:	Time:	Participants:	
<i>Looking Back:</i>	<i>Current K12 Progress:</i>	<i>Agenda Items & Specific Topics:</i>	<i>Looking Ahead Goals:</i>
What's Going Well?	Math-		
	English-		
What Needs Improvement?	History-	Issues/Questions-	To Do-
	Science-		
	Curriculum ?'s-		
Notes:			

I will insert the hard copy of the Standards Based Progress Report here.

Math & Reading Resource Packets

As LVS Education Specialists we are always trying to think of ways to help you, the Learning Coach, as you take on the awesome job educating your child/ren. In an effort to support your teaching endeavors, we would like to offer these resources to help you enrich and build upon the educational base that you are building. Use them throughout the year as you are working through the K12 Math curriculum. We will also be referring to these resources and providing more guidance as the year progresses. We hope you will find these to be beneficial.

MATH & READING PACKETS

You can pick these up at the beginning of the year Technology pick-ups, any Meet Your Teacher event, or request them through your Education Specialist, to be mailed to you. You can use these resources in conjunction with your K12 course work, Elluminate Sessions, and when you are conferencing with your Education Specialist.

MATH CONTENTS:

7th GRADE

- COVER LETTER
- FLASHCARDS (Area, Perimeter, Frequency Table, Venn Diagram, Plots, Graphs, Circumference)
- BOOKMARK ('of')
- SMALL POSTERS (Clues to Changing Word Problems to Equations, Triangles, Finding the nth Term, Quadrilaterals, SA of Cube and Volume Formula, Coordinate Graphing, Formula, Scratch Paper, Composite Area, Composite Perimeter, Finding a pattern in a Sequence of Numbers, Misleading Data Circle Graph, Misleading Data Line Graph)

8th GRADE

- COVER LETTER
- FLASHCARDS (Area, Perimeter, Mean, Median, Mode, Range, Natural, Whole, Rational, Irrational Numbers, Integers, Area & Circumference of a Circle, Slope, Pythagorean Theorem)
- SMALL POSTERS (Measures of Central Tendency, Order of Operations, Subsets of the Real Number System, Number Sense, Pythagorean Theorem, Clues to Changing Word Problems to Equations, Slope, Connecting Geometry and Algebra Perspective, Probability, Formula, Scratch Paper, Median, Mode, Mean)

READING CONTENTS:

- Narrative Text Cue Cards
- Expository Text Cue Cards
- Read-Aloud as a Teaching Time Article
- Question Answer Relationship (QAR) Student Question Chart – Copy this form and have your student periodically fill it out as they read an Expository text.
- QAR Question Prompts – Periodically use these bookmarks as your student reads an Expository text.
- Graphic Organizers and How to Use Them handout
- Text Structure Signal Questions & Signal Words handout
- Academic Vocabulary form – copy and complete when needing to remember important vocabulary terms in an Expository text passage (great for history lessons, science experiments, etc.)
- Flashcards

Kansas State Assessment Information

What Do the Kansas State Assessments Assess?

Our state has done a very good job of creating a list of specific skills that each student needs to have mastered by the end of a specific grade level. These skills will help them to be successful, functioning, productive members of our global society. The list starts out with very broad concepts every student should be able to do well before they enter the working world or continue on to college. These broad targets are called **standards**. Under each standard are more specific tasks each student should be able to do at each grade level; these are called **benchmarks**. The way that they will demonstrate mastery of the standard is called an **indicator**. For example, everyone would agree that it is critical for students to be able to understand what they have read, so the state created this *standard* in reading:

Reading Standard 1: The student reads and comprehends text across the curriculum. (This means that they can read and understand all types of texts)

The goal for every 18 year old graduating school should be to have each *standard* mastered. But, looking at the *standard* above, we all know that children are not born knowing how to read and comprehend. There are many small steps, *benchmarks*, which need to be mastered along the way, before a student is able to read and comprehend what they have read.

Benchmark 3: The student expands vocabulary.

If you don't understand what the words on a page mean, when you read out loud you are simply "word calling" and won't get much from the text. An example is the student who moved to Kansas from Cambodia. She could pronounce every word in her textbook correctly and seemed to be a strong reader, but when you asked her what she read she had no clue. Her working English vocabulary was very small, and this really hindered her ability to comprehend text. We knew she was struggling with this benchmark by observing her during instruction. But, we can do more than just observe. We can identify, in depth, the specific skills, *standards*, that they are having difficulty with by creating assessments that allow them to demonstrate what they know. Through this demonstration, we are able to take it a step further and analyze if a student is on track.

Indicator: The student can read one-syllable and often-heard words by sight.

If the Learning Coach / teacher points to one-syllable, familiar words and the student recognizes and reads them by the spring of their kindergarten year then they are doing fine. If they are struggling a bit, this assessment helps the Learning Coach / teacher to pinpoint the specific skill, and then provide more instruction and support in it. Taking a little extra time working on this with our kindergarten student will ensure that he/she has the skill necessary to go on to the next grade level and enjoy success. Fast forward to seventh grade....looking at the same standard and the same benchmark, we will expect our student to perform at a higher level. As the grade levels increase, so do the expectations of the *indicators*:

Indicator: The student determines the meaning of words or phrases using context clues from sentences or paragraphs.

Norm Referenced vs. Criterion Referenced Tests

There are two types of tests that a student may take in the course of their educational career: Norm Referenced and Criterion Referenced tests. Some students have taken the ITBS (Iowa Tests of Basic Skills) or the CAT5 (California Achievement Test). These are Norm Referenced tests. Scores from Norm Referenced tests do not tell us specifically what a student knows or what they do not know. They can only tell us how a given student's knowledge or skill compares with that of others in the norm group. A Kansas student's ITBS scores are compared to kids across the country. A 6th grade student who scores in the 55th percentile in math tells us that the student did better than 55% of all the 6th grade students who took the test. But what specifically are they struggling with? The test results for these Norm Referenced tests do not tell us. So, a student may score a 99% and have done better than 99% of his/her classmates. But they may have only answered 35% of the *questions* correctly. That test did not paint an accurate picture of how the student was performing. It just meant that the group he/she was being compared too, learned even less! ACT and SAT tests taken in high school for college admissions are also Norm Referenced tests.

Criterion Referenced tests, like our Kansas State Assessment, involve comparing a student's performance with a list of specific skills or knowledge they are expected to know, rather than with the performance of a norm group. It does not matter if a student does better than 55% of all the other students in Kansas on the state assessment. What matters is how many of the indicators they personally, show mastery on. [Note: The lesson and unit tests our students take through K12 are also Criterion Referenced tests.]

What do the Kansas State Assessment Scores Mean?

Based upon a formula that the state has created, students are placed into five categories according to the percentage of correct answers they earn on the state assessment. The categories, from lowest to highest are:

- Academic Warning (AW)
- Approaches Standard (AS)
- Meets Standard (MS)
- Exceeds Standard (ES)
- Exemplary (EX)

It is important to remember that these performance levels do *not* correspond to traditional grades (i.e. A, B, C, D, and F). The designations "Meets Standard", "Exceeds Standard", and "Exemplary" mean that a student is on track to meeting the Kansas state standard, on or before they finish high school. If a student does not meet the standard, earning an "Academic Warning" or "Approaches Standard" score, this does not mean that they have failed the assessment. It means that we want to take a closer look at the specific standards, benchmarks, and indicators that he/she scored lower in, and discuss why this happened. This dialogue will help to focus specifically on the student and how we can best help them to master the necessary skills.

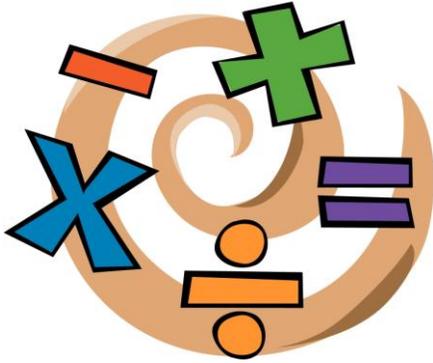
How Can A Student Best Prepare for the Kansas State Assessment?

Engaging in school, every day, will help students learn and practice the skills that are necessary for their educational success. LVS Junior High students will have many opportunities to help prepare for the state assessments.

- Complete *K12 lessons* as required and/or scheduled
- Follow and complete *Math Map*

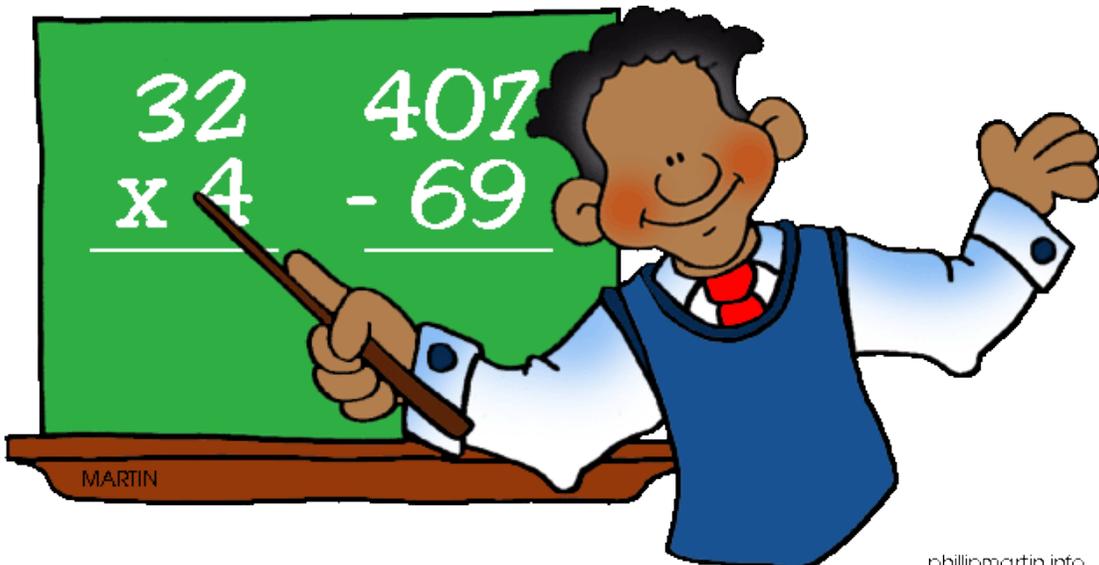
- Complete *Math Checkpoint Quizzes* – Kansas Computerized Assessment Formative Tests (And participating in the re-teaching / re-assessing if needed.)
- Complete *Reading Checkpoint Quizzes* - Study Island Quizzes (And participating in the re-teaching / re-assessing if needed.)
- Attend Curriculum *Illuminate Sessions*
- Utilize the *Standards Based Progress Report*
- Complete the “Assessment Practice Questions”, in this manual

By completing K12 lessons, engaging in the above preparation activities, and working closely with Education Specialists, students will have covered the needed grade level skills, and be fully prepared for the Kansas State Assessment.



phillipmartin.info

MATH



Grade Seven Math Assessment Practice

Contents of This Section:

1. Specific Indicator; including a Teaching Tip and a Mini Math Test

Upon completion of the Mini-Math Test, if it is evident that a student needs more practice, the Learning Coach can adjust the daily teaching, reteach needed skills, and/or ask an Education Specialist for more support and test practice.

2. Grade 7 Comprehensive Math Practice Test, covering all of the State Tested Indicators

The questions on the Kansas State Assessment will not be grouped together by specific indicator. This practice test is a great example of a comprehensive test. When a student completes these tests, it is wise to encourage them to be completed in a quiet, controlled environment. If they have a question over the directions, a Learning Coach *can* read the directions and/or problem to them, but cannot *explain* the directions and/or problem to them. Although this can be difficult, it gives a more accurate picture of what they will need help with on the actual assessment. After they have completed the test, spend time going over what they did and didn't understand. The answers to the tests can be found after the Practice Test.

3. Math State Standards and Benchmarks

The indicators that are included in the State Math Assessment are marked with a triangle, known as a 'delta'.

Tested Indicator A

Standard/Benchmark/Indicator

M.7.1.1.A1a

Standard: Number and Computation

Benchmark: Number Sense

Indicator: Generates and/or solves real-world problems using: a) equivalent representations of rational numbers and simple algebraic expressions: a) addition, subtraction, multiplication, and division of rational numbers with a special emphasis on fractions and expressing answers in simplest form

Explanation of Indicator

Student realizes that there are a variety of ways to represent expressions such as $2x$ is the same as $x + x$ or $\$.50$ can be represented with two quarters ($\$.25 = \$.25$) or five dimes ($\$.10 + \$.10 + \$.10 + \$.10 + \$.10$). Use equivalent representations for fractional operations such as $2/4 + 2/4$ which equals 1 is the same as $1/2 + 1/2$, or $2/4 \bullet 3/4$ which equals $3/8$ is the same as $1/2 \bullet 3/4$.

Instructional Example

1. Have your student count out change for a given amount using several different sets of coins.
2. Have student write out an expression for the price of three cans of soda in several different ways ($x + x + x$ or $3x$).
3. Have student write several different ways to add, subtract, multiply, or divide fractions in equivalent forms.

Item Specification

Category 3: Demonstrate Understanding of Mathematical Ideas: 3b. Use representations to model mathematical ideas

Category 5: Solve Non-routine Problems/Make Connections: 5b. Apply mathematics in contexts outside of mathematics (whenever possible, include diagrams/visuals)

Assessment Item Example

A triangular road sign has a height of 4.2 feet and a base of 5.4 feet. What is the area of the road sign in square feet (ft^2)?

A 11.34 ft^2

B 13.80 ft^2

C 19.20 ft^2

D 22.68 ft^2

Correct Answer: A

Teaching Tip—

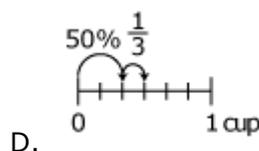
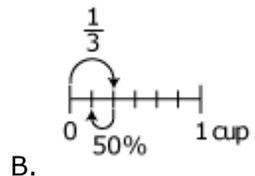
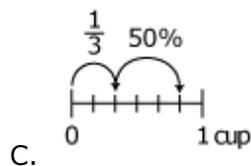
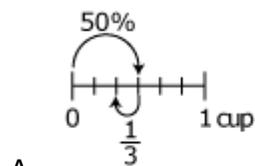
Talk through problems while problem solving. Encourage students to explain the steps used in order to solve. What words helped you know what to do? What strategies did you use to solve? Talking it through out loud will help students be able to self-talk later.

Grade 7 Mini Math Test A

Student Name: _____

Read each question below and circle the correct answer.

1. Nancy is making a recipe that calls for $\frac{1}{3}$ cup of sugar. However, she is only using 50% of this amount of sugar in the first step of the recipe. Which diagram represents the amount of sugar Nancy is using in the first step of the recipe?



2. Two students took a math test with 50 questions. The first student answered 90% of the questions correctly. The second student answered $\frac{35}{50}$ questions correctly. How many more questions did the first student answer correctly than the second student?

A. 5 questions

C. 15 questions

B. 10 questions

D. 20 questions

3. Bill went to basketball practice. He spent $\frac{1}{5}$ of the time shooting free throws, 10% of the time dribbling, and 15% of the time passing the ball. What percent of the time was **left** for other activities?

A. 45%

C. 60%

B. 55%

D. 70%

Tested Indicator B

<p>Standard/Benchmark/Indicator M.7.1.4.K2a-d N <u>Standard</u>: Number and Computation <u>Benchmark</u>: Computation <u>Indicator</u>: Performs and explains these computational procedures: a) adds and subtracts decimals from ten millions place through hundred thousandths place; b) multiplies and divides a four-digit number by a two-digit number using numbers from thousands place through thousandths place; c) multiplies and divides using numbers from thousands place through thousandths place by 10; 100; 1,000; .1; .01; .001; or signal-digit multiples of each; d) adds, subtracts, multiplies, and divides fractions and expresses answers in simplest form</p>
<p>Explanation of Indicator a) $21,370,004.57 + 39.25681$ b) $1.698 \div 25$ or 1.698×25 c) $54.3 \div .002$ or $54.3 \times .002$ d) $\frac{2}{3} \times \frac{5}{8}$</p>
<p>Instructional Example 1. Using an atlas, compare the population of New York City and Los Angeles 2. Compares monthly bills for electricity, water, etc. 3. Using a recipe, double or half the required ingredients to double the recipe of half it.</p>
<p>Item Specification Category 2: Perform procedures: 2b. Do computational procedures or algorithms. Category 3: Demonstrate Understanding or Mathematical Ideas: 3a. Communicate mathematical ideas or rules and/or explain the process.</p>
<p>Assessment Item Example Alan hiked 0.7 kilometers (km) on Monday, 2.089 km on Tuesday, and 1.02 km on Wednesday. What is the total number of kilometers that Alan hiked on all three days? A. 2.188 km B. 2.198 km C. 3.709 km D. 3.809 km Correct Answer: D</p>

Teaching Tips—

- Addition and subtraction of fractions requires the fractions to have a common denominator. Although some students can do the calculations in their head, it is recommended to show work in an organized way on paper so that a step is not missed.
- When multiplying fractions, you do NOT need to have a common denominator.
- The answers will be in simplest form. Make sure students understand how to reduce and make the answer simple. 😊 This is good common practice whenever working with fractions.
- When adding or subtracting decimal be sure to line up the decimals in order to solve.
- In multiplication and division of larger numbers, it important to keep work lined up. Use of graph paper can assist with this if your student is having trouble keeping it all organized.

Grade 7 Mini Math Test #B

Student Name: _____

Read each question below and circle the correct answer.

1. One distance on a map measured 0.01 meters (m). Another distance measured 0.006 m. What is the difference between the two measurements?

A. 0.04 m

C. 0.004 m

B. 0.05 m

D. 0.005 m

2. Kate needs to add the numbers shown below.

$$0.5129 + 0.7$$

Which digit should be added to the 7?

A. 9

C. 1

B. 2

D. 5

3. A subtraction problem is shown below.

$$33.33 - 3.3$$

Which subtraction problem shows the digits properly lined up before subtracting?

A.
$$\begin{array}{r} 33.330 \\ - \quad 3.3 \\ \hline \end{array}$$

C.
$$\begin{array}{r} 33.33 \\ - \quad 3.30 \\ \hline \end{array}$$

B.
$$\begin{array}{r} 33.33 \\ - \quad 3.3 \\ \hline \end{array}$$

D.
$$\begin{array}{r} 33.33 \\ - \quad 3.300 \\ \hline \end{array}$$

4. The sum of two fractions is $\frac{12}{30}$. Which procedure should be used to simplify this fraction?

- A. divide only the numerator by 6
B. divide the numerator and denominator by 6
C. subtract 6 from only the numerator
D. subtract 6 from the numerator and denominator
-

5. What is the total number of digits that are to the **left** of the decimal point in the quotient of $28.72 \div 0.78$?

- A. 1
B. 2
C. 3
D. 4
-

6. What is the product of 34.25 and 0.01?

- A. 0.03425
B. 0.3425
C. 3.425
D. 34.25
-

7. Laura wants to simplify the expression shown below.

$$712 - 0.12$$

Which subtraction problem shows the correct way to line up the numbers before subtracting?

- A.
$$\begin{array}{r} 712 \\ - 0.12 \\ \hline \end{array}$$
- B.
$$\begin{array}{r} 712.0 \\ - 0.12 \\ \hline \end{array}$$
- C.
$$\begin{array}{r} 712.00 \\ - 0.12 \\ \hline \end{array}$$
- D.
$$\begin{array}{r} 712.000 \\ - 0.12 \\ \hline \end{array}$$
-

Tested Indicator C

Standard/Benchmark/Indicator M.7.1.4.K5 <u>Standard</u> : Number and Computation <u>Benchmark</u> : Computation <u>Indicator</u> : Finds percentages of rational numbers
Explanation of Indicator Rational number is any number that can be written as a fraction. Percent is based on an amount out of 100.
Instructional Example When shopping, have your child figure the cost when the sale is a percent off of the original price. Ex. A pair of shoes costs \$49.99. The sale is 25% off. What is the new sale price?
Item Specification Category 2: Perform Procedures: 2b. Do computational procedures or algorithms.
Assessment Item Example What is 200% of 78? A. 15.6 B. 39 C. 93.6 D. 156 Correct Answer: D

Teaching Tips—

To find the percent of a number: 25% of $60 = ?$

Write the percent as a decimal. $.25$
Multiply. $.25 \times 60 = 15.00$

OR

Write the percent as a fraction. $25/100 = 1/4$
Multiply. $1/4 \times 60 = 15$

The “of” is our clue to multiply!

Grade 7 Mini Math Test #C

Student Name: _____

Read each question below and circle the correct answer.

1. What is 75% of 330?

A. 24.75

C. 2,475

B. 247.5

D. 24,750

2. What is 90% of 230?

A. 20.7

C. 207

B. 23

D. 255.6

3. What is 112% of 50?

A. 0.56

C. 56

B. 5.6

D. 560

4. What is 130% of 65?

A. 8.45

C. 84.5

B. 50

D. 500

5. What is 300% of 25?

A. 75

C. 7,500

B. 750

D. 75,000

6. What is 175% of \$90?

A. \$15.75

C. \$120.00

B. \$67.50

D. \$157.50

7. What is 64% of \$25.50?

A. \$0.40

C. \$16.32

B. \$2.51

D. \$39.84

8. What is 22% of 66?

A. 14.52

C. 44

B. 33

D. 65.78

9. What is 40% of 312.50?

A. 7.81

C. 125

B. 12.5

D. 781.25

10. A company that makes shampoo is putting 25% more shampoo into each of their 64-ounce bottles. What is 25% of 64 ounces?

A. 16 ounces

C. 48 ounces

B. 39 ounces

D. 80 ounces

Tested Indicator D

Standard/Benchmark/Indicator

M.7.2.1.K1a-b

Standard: Algebra

Benchmark: Patterns

Indicator: Identifies, states, and continues a pattern presented in various formats including numeric (list or table), algebraic (symbolic notation), visual (pictures, table, or graph), verbal (oral description), kinesthetic (action), and written using these attributes:
a) counting numbers including perfect squares, cubes, and factors and multiples (number theory); b) positive rational numbers including arithmetic and geometric sequences (arithmetic: sequence of numbers in which the difference of two consecutive numbers is the same, geometric: a sequence of numbers in which each succeeding term is obtained by multiplying the preceding term by the same number)

Explanation of Indicator

I identifies and extends a variety of patterns

Instructional Example

1. If a square has 3 in. sides, the area is $3 \times 3 = 9$ sq. in. If a square has 4 in. sides, the area is $4 \times 4 = ?$ sq. in.
2. Your child's allowance doubles each week? If they start with \$2, how much will they receive the 4th week?

Item Specification

Category 4: Conjecture/Generalize/Prove: 4c. Recognize, generate, or continue patterns

Assessment Item Example

The table below shows the total number of bacteria in a colony on each of 4 days.

Bacteria Growth

Day	Number of Bacteria
1	4
2	32
3	256
4	2,048
5	?

The bacteria growth follows a pattern. Based on this pattern, what will be the **total** number of bacteria in the colony on day 5?

- A. 2,076 bacteria
- B. 3,840 bacteria
- C. 16,384 bacteria
- D. 131,072 bacteria

Correct Answer: C

Teaching Tips—

- Students should understand how the numbers in a pattern relate to one another. Looking for patterns helps to come up with clues.
- Another idea is to try each (and ALL) the multiple choice choices and see which one works. When using this strategy, it is important to try all the choices to make sure that a simple mistake was not made.
- Often, you can use logical reasoning to eliminate a choice or two.

4. A number pattern is shown below.

$$\frac{1}{3} \quad \frac{1}{2} \quad \frac{2}{3} \quad \frac{5}{6}$$

The pattern continues. Which rule could be used to find the next number in the pattern?

A. add $\frac{1}{3}$ to the previous term

B. add $\frac{1}{6}$ to the previous term

C. multiply the previous term by $\frac{1}{3}$

D. multiply the previous term by $\frac{1}{6}$

Tested Indicator E

Standard/Benchmark/Indicator M.7.2.1.K4 <u>Standard</u> : Algebra <u>Benchmark</u> : Patterns <u>Indicator</u> : States the rule to find the n^{th} term of a pattern with one operational change (addition or subtraction) between consecutive terms
Explanation of Indicator The n^{th} term is an arbitrary term in a sequence or pattern of numbers which can be found by with the rule for the pattern.
Instructional Example <p style="text-align: center;">x xxx xxxxx xxxxxxx</p> <ol style="list-style-type: none">How many x's would be in the fifth row, sixth row, n^{th} row?Using this example, have your kids determine how many cans will be needed to form a pyramid that is four rows high to be used at the school carnival where the participants throw balls to knock over the cans.
Item Specification Category 4: Conjecture/Generalize/Prove: 4d. Find a mathematical rule to generate a pattern or number sequence
Assessment Item Example The first four numbers of a number pattern are shown below. 89 78 67 56 Which rule could be used to find the n^{th} term of the pattern? A. $11n + 1$ B. $11n + 56$ C. $-11n + 89$ D. $-11n + 100$ Correct Answer: D

Teaching Tips—

K12 asks about patterns in many of their lessons. Don't gloss over that. Use it as an opportunity to have students verbalize what patterns they see. That is the best way to practice this skill. Just keep using it in your lessons. You may also find patterns in everyday life to point out and discuss.

Students should understand how the numbers in a pattern relate to one another. Looking for patterns helps to come up with clues.

Another idea is to try each (and ALL) the multiple choice choices and see which one works. When using this strategy, it is important to try all the choices to make sure that a simple mistake was not made.

Often, you can use logical reasoning to eliminate a choice or two.

Grade 7 Mini Math Test #E

Student Name _____

Read each question below and circle the correct answer.

1. The numbers shown below follow a pattern.

2.5 4.5 6.5 8.5 10.5 ...

Which rule could have been used to create the n th term in the pattern?

A. $n + 1.5$

C. $3n - 0.5$

B. $2n + 0.5$

D. $4n - 3.5$

2. A number pattern is shown below.

2 5 8 11 ...

Which rule could be used to find the n th term in the pattern?

A. $n + 2$

C. $3n - 1$

B. $n + 3$

D. $4n - 2$

Term Number	Term
1	46
2	42
3	38
4	34
5	30

3. A table is shown:

Which rule could be used to find the n th term in the table?

A. $4n + 30$

C. $-4n + 46$

B. $4n + 34$

D. $-4n + 50$

4. The first four numbers in a pattern are shown below.

5 8 11 14 ...

Which rule could be used to find the n th term in the pattern?

A. $n + 3$

C. $2n + 3$

B. $n + 4$

D. $3n + 2$

5. A number pattern is shown below.

3 8 13 18 23 ...

The pattern continues. Which rule could be used to find the n th term in the pattern?

A. $2n + 1$

C. $5n - 2$

B. $4n - 1$

D. $6n - 3$

6. A number pattern is shown below.

10 12 14 16 18 ...

Which rule could be used to find the n th term in this pattern?

A. $n + 2$

C. $2n + 8$

B. $n + 9$

D. $3n + 3$

7. A number pattern is shown below.

0 4 8 12 16 20 ...

Which rule could be used to find the n th term in the pattern?

A. $n + 4$

C. $3n + 1$

B. $2n - 2$

D. $4n - 4$

Tested Indicator F

Standard/Benchmark/Indicator M.7.2.2.A1 <u>Standard</u> : Algebra <u>Benchmark</u> : Variables, Equations, and Inequalities <u>Indicator</u> : Represents real-world problems using variables and symbols to write linear expressions, one- or two-step equations
Explanation of Indicator Write expressions ($2.89x$) and equations ($2.89x = 12$). An Expression does not contain an equal sign while an equation does.
Instructional Example Have student write an expression for the cost of x cans of pop at \$.89 per can ($.89x$) and an equation for the number of cans of pop x that can be purchased for \$5 ($.89x = 5$).
Item Specification Category 3: Demonstrate Understanding of Mathematical Ideas: 3b. Use representations to model mathematical ideas Category 5: Solve Non-routine Problems/Make Connections: 5b. Apply mathematics in contexts outside of mathematics (whenever possible, include diagrams/visuals)
Assessment Item Example Dinah has some packs of gum. Gary has one less than twice as many packs of gum as Dinah. Which equation represents the relationship between the number of packs of gum Dinah has (d) and the number of packs of gum Gary has (g)? A. $g = 2d - 1$ B. $g = 1 - 2d$ C. $g = 2d + 1$ D. $g = 2 + 2d$ Correct Answer: A

Teaching Tips—

When translating word problems into equations, follow these steps:

Read the problem carefully.

- Decide what the unknowns are
- Decide what the facts are

Choose a variable and represent the unknowns.

- Choose a variable for one unknown
- Write an expression for the other unknown using the variable and one of the facts

Reread the problem and write the equation.

- Use the facts from the problem to write an equation

Check your work!

Try to brainstorm lists of words that help your student know when to add, subtract, multiply, or divide. Add to that list during the year.

- He is *older than*—addition
- A number *decreased by*—subtraction
- One third *of* a number—multiplication
- The pie was *divided into*—division

Grade 7 Mini Math Test #F

Student Name: _____

Read each question below and circle the correct answer.

1. Benjamin is 34 years older than Josh. Which equation describes the relationship between Benjamin's age (b) and Josh's age (j)?

A. $b = j + 34$

C. $b = j - 34$

B. $b = 34j$

D. $b = \frac{j}{34}$

2. A runner ran the same number of miles each day for 10 days. The runner ran 2 miles on the 11th day. Which equation describes the relationship between the **total** number of miles the runner had run by the end of the 11th day (t) and the number of miles the runner ran each of the first 10 days (m)?

A. $t = 10m - 2$

C. $t = \frac{10}{m} + 2$

B. $t = 10m + 2$

D. $t = 2m + 10$

3. Over the summer, Marta read two less than four times the number of books that Chris read. Which equation describes the relationship between the number of books that Marta read (m) and the number of books that Chris read (c)?

A. $m = 4c - 2$

C. $m = 2 - 4c$

B. $m = \frac{4c}{2}$

D. $m = \frac{2}{4c}$

4. Mark has $\frac{1}{2}$ as much money as Will. If w represents the amount of money that Will has, which expression represents the **total** amount of money that the boys have altogether?

A. $\frac{w}{2}$

C. $2w$

B. $w + \frac{w}{2}$

D. $2w + \frac{w}{2}$

5. Frank is 3 years older than twice Michael's age. Which equation describes the relationship between Frank's age (f) and Michael's age (m)?

A. $f = \frac{1}{2}m + 3$

C. $f = \frac{1}{2}m - 3$

B. $f = 2m - 3$

D. $f = 2m + 3$

6. To make her favorite lime drink, LuAnn needs three times as much honey as lime-juice concentrate. Which equation represents the amount of honey LuAnn needs (h) in terms of the amount of lime juice concentrate she needs (c)?

A. $h = c + 3$

C. $h = c - 3$

B. $h = \frac{1}{3}c$

D. $h = 3c$

7. The number of books in a box is 3 more than 3 times the number of books in Jolanda's backpack. Which equation describes the relationship between the number of books in the box (b) and the number of books in Jolanda's backpack (j)?

A. $b = 6j$

C. $b = 3j + 3$

B. $b = 9j$

D. $b = 3j - 3$

Tested Indicator G

Standard/Benchmark/Indicator

M.7.2.2.K7

Standard: Algebra

Benchmark: Variable, Equations, and Inequalities

Indicator: Knows the mathematical relationship between ratios, proportions, and percents and how to solve for a missing term in a proportion with positive rational number solutions and monomials

Explanation of Indicator

Knows that $\frac{3}{4}$ (ratio) is equal to 75%

Knows that $\frac{3}{4} = \frac{6}{8}$ (a proportion), and are both equal to 75%

Instructional Example

With your student, go over one of their graded homework papers and calculate the percentage by dividing the number correct out of the number possible. This will give you a decimal that needs to be multiplied by 100 to give you the percent.

Item Specification

Category 2: Perform Procedures: 2d. Solve equations, formulas, or routine word problems

Category 3: Demonstrate Understanding of Mathematical Ideas: 3a. Communicate mathematical ideas or rules and/or explain the process

Assessment Item Example

A proportion is shown below.

$$\frac{6}{8} = \frac{x}{4}$$

What is the relationship between the values of x and 6 in the proportion?

- A. x is equal to one-fourth of 6
- B. 6 is equal to one-fourth of x
- C. x is equal to one-half of 6
- D. 6 is equal to one-half of x

Correct Answer: C

Teaching Tip—

In these problems, the proportion is already set up. Students need to understand how to cross multiply.

Grade 7 Mini Math Test #G

Student Name: _____

Read each question below and circle the correct answer.

1. A proportion is shown below.

$$\frac{3}{4} = \frac{21}{r}$$

What is the value of r in the proportion?

- A. 22
B. 28
C. 81
D. 87
-

2. A proportion is shown below.

$$\frac{1}{12} = \frac{n}{648}$$

What is the value of n in the proportion?

- A. 53
B. 54
C. 637
D. 661
-

3. Ken hiked 0.5 mile in 1 hour. He thinks he can hike at the same pace for 3 hours. Which proportion could be solved to find the number of miles (x) Ken could hike in 3 hours?

A. $\frac{x}{0.5} = \frac{1}{3}$

C. $\frac{1}{x} = \frac{0.5}{3}$

B. $\frac{0.5}{1} = \frac{3}{x}$

D. $\frac{0.5}{1} = \frac{x}{3}$

4. A proportion is shown below.

$$\frac{8}{6} = \frac{x}{24}$$

What is the value of x in the proportion?

- A. 18
B. 22
C. 26
D. 32
-

5. A proportion is shown below.

$$\frac{9}{r} = \frac{13.5}{16.5}$$

What is the value of r in the proportion?

- A. 11
B. 12
C. 135
D. 162
-

6. The total cost of 3 pounds of hamburger meat at a market is \$7.20. Shawn wrote the proportion below to determine the total cost (x) of 7 pounds of hamburger meat at the market.

$$\frac{3}{7.20} = \frac{7}{x}$$

What is the **total** cost of 7 pounds of hamburger meat at the market?

- A. \$11.20
B. \$16.80
C. \$28.60
D. \$29.4
-

$$\frac{w}{x} = \frac{y}{z}$$

7. In the proportion $\frac{w}{x} = \frac{y}{z}$, x divided by w is equal to 2. Which other pair of variables in the proportion must be equal to 2 when divided?

- A. w divided by z
B. x divided by y
C. y divided by x
D. z divided by y

Tested Indicator H

Standard/Benchmark/Indicator M.7.2.2.K8 <u>Standard</u> : Algebra <u>Benchmark</u> : Variable, Equations, and Inequalities <u>Indicator</u> : Evaluates simple algebraic expressions using positive rational numbers
Explanation of Indicator Replacing variables (what's unknown) with given numbers and finding the value.
Instructional Example Have your child figure your age based on the age you were when they were born.
Item Specification Category 2: Perform Procedures: 2b. Do computational procedures or algorithms
Assessment Item Example An expression is shown below. $3(x+b)$ What is the value of the expression when $x = 3.5$ and $b = 2.8$? A. 6.3 B. 9.3 C. 18.9 D. 29.4 Correct Answer: C

Teaching Tip—

When solving $6y + 5$ when $y = 2$, sometimes students forget to MULTIPLY 6 and 2 before they add it to 5. When 6 and y are right next to each other like that, they are supposed to be multiplied. The problem is not supposed to be $62 + 5$... ☺

Grade 7 Mini Math Test #H

Student Name _____

Read each question below and circle the correct answer.

1. An expression is shown below.

$$4x + 2y - 1$$

What is the value of the expression when $x = \frac{1}{2}$ and $y = \frac{1}{4}$?

A. 1

C. 3

B. $1\frac{1}{2}$

D. $3\frac{1}{2}$

2. An expression is shown below.

$$\frac{3}{4}h + \frac{1}{3}k$$

What is the value of the expression when $h = 16$ and $k = 27$?

A. 13

B. 15

C. 21

D. 39

3. An expression is shown below.

$$5x - 2y + 3z$$

What is the value of the expression when $x = 2$, $y = 5$, and $z = \frac{1}{3}$?

A. 0

C. 22

B. 1

D. 28

Tested Indicator I

Standard/Benchmark/Indicator

M.7.3.1.K3.a-g

Standard: Geometry

Benchmark: Geometric Figures and Their Properties

Indicator: Identifies angle and side properties of triangles and quadrilaterals: a) sum of the interior angles of any triangle is 180° ; b) sum of the interior angles of any quadrilateral is 360° ; c) parallelograms have opposite sides that are parallel and congruent; d) rectangles have angles 90° opposite sides are congruent; e) rhombi have all sides the same length, opposite angles are congruent; f) squares have angles of 90° , all sides congruent; g) trapezoids have one pair of opposite sides parallel and the other pair of opposite sides are not parallel

Explanation of Indicator

Recognize that shapes have specific characteristics such as; triangle has three angles that add up to 180° , parallelograms have opposite sides that are parallel and congruent (same size, same shape), rectangles have four right angles (90°), rhombi have four congruent sides, squares have four congruent angles and sides, trapezoids are quadrilaterals (four-sided figures) that have exactly one pair of parallel sides.

Instructional Example

Have your child identify parallelograms around your home. Have them measure the sides and angles to determine if it is a rectangle, square, rhombus, or trapezoid.

Item Specification

Category 1: Memorize Facts/Definitions/Formulas: 1b. Recall or recognize mathematical terms, definitions, or concepts

Assessment Item Example

The three angles in triangle FGH, shown below, are all congruent.



What is the measure of $\angle FGH$?

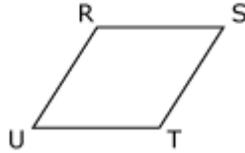
- A. 30°
- B. 60°
- C. 120°
- D. 180°

Correct Answer: B

Teaching Tip—

This indicator basically spells out what they would like you to know. It would be nice if they were all like that! ☺ Make sure students know the information above.

3. A parallelogram is shown.



Which describes a relationship about the measures of the angles in the parallelogram that **must** be true?

A. angle R + angle S = 90°

C. angle R + angle S + angle T + angle U = 180°

B. angle R + angle T = 90°

D. angle R + angle S + angle T + angle U = 360°

4. Which term describes a quadrilateral with two pairs of parallel sides?

A. hexagon

C. trapezoid

B. parallelogram

D. triangle

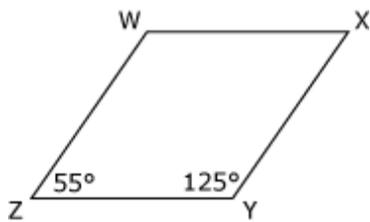
5. Properties of quadrilateral WXYZ are described below.

side \overline{WX} is parallel and congruent to side \overline{WZ}

side \overline{WX} is parallel and congruent to side \overline{ZY}

the measure of $\angle WZY$ is 55°

the measure of $\angle XYZ$ is 125°



Which term describes quadrilateral WXYZ?

A. parallelogram

C. square

B. rectangle

D. trapezoid

Tested Indicator J

Standard/Benchmark/Indicator

M.7.3.2.A1c

Standard: Geometry

Benchmark: Measurements and Estimation

Indicator: Solves real-world problems: c) finding perimeter and area of two-dimensional composite figures of squares, rectangles, and triangles

Explanation of Indicator

Find distance around (perimeter) and space inside of (area) of figures made with squares, rectangles and triangles.

Instructional Example

1. Have your student find the amount of ribbon needed (in inches centimeters, etc.) to go a rectangle or square with a triangle on top.
2. Have your student draw a rectangle or square on paper with a triangle on top and then find the amount of spaghetti needed to paste around the edges of the figure.
3. Have student find the amount of paper needed (in square inches, centimeters, etc.) to cover a rectangle or square with a triangle on top.

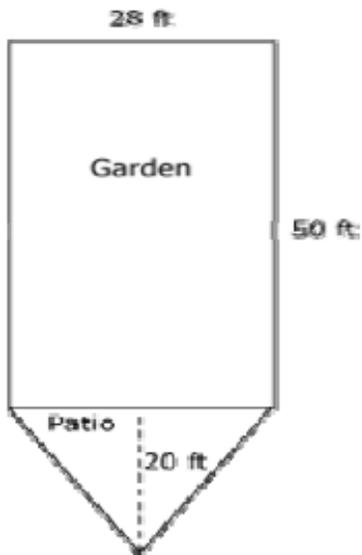
Item Specification

Category 2: Perform Procedures: 2d. Solve equations, formulas, or routine word problems

Category 5: Solve Non-routine Problems/Make Connections: 5b. Apply mathematics in contexts outside of mathematics (whenever possible, include diagrams/visuals)

Assessment Item Example

A rectangular garden has a triangular patio next to it, as shown below.



What is the **area**, in square feet (ft^2) of both the garden and the patio combined?

- A. 1,120 ft^2
- B. 1,400 ft^2
- C. 1,680 ft^2
- D. 1,960 ft^2

Correct Answer: C

Teaching Tips—

Here is a case where students will just need to memorize these formulas.

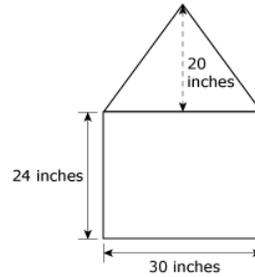
If a student wants to find the perimeter of a square, rectangle, or triangle, they will need to find the distance around the figure. So, they would add all the sides together.

If a student wanted to find the area of a rectangle or a square, they would multiply length times width. In order to find the area of a triangle, they would multiply length times width and then divide it in half.

In order to solve most of these problems, many different formulas will be necessary. Students will need to break up the figure into squares, triangles, and rectangles in order to solve.

Sometimes students get area and perimeter confused. If you wanted to cover a space with carpet, you would need to know the area. If you wanted to build a fence around the shape, that would be the perimeter. The perimeter of a circle would be its circumference—the distance around the circle. The answer to a problem involving area would be in square units. Since perimeter is just measuring the distance around, the answer would NOT be in square units. No wonder it's confusing! 😊

3. A window is composed of a rectangular pane and a triangular pane of glass, as shown below.



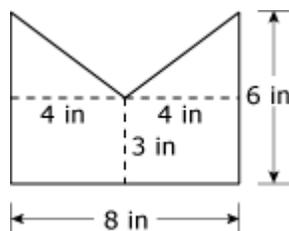
What is the **total** area of the window in square inches (in^2)?

- A. 720 in^2
- B. 870 in^2
- C. $1,020 \text{ in}^2$
- D. $1,320 \text{ in}^2$

4. Sandy is giving a party and wants to cover the front of her gate with fabric. The front of her gate is made up of two rectangles that measure 12 feet (ft.) by 7 ft. What is the **minimum** number of square feet (sq. ft.) of fabric needed to completely cover the front of the gate?

- A. 76 sq. ft.
- B. 84 sq. ft.
- C. 168 sq. ft.
- D. 336 sq. ft.

5. The picture below shows the front-view of a wooden book holder.



The front of the book holder will be painted white. Exactly how many square inches (in^2) of wood will be painted?

- A. 25 in^2
- B. 36 in^2
- C. 48 in^2
- D. 72 in^2

Tested Indicator K

Standard/Benchmark/Indicator M.7.3.2.K4 <u>Standard</u> : Geometry <u>Benchmark</u> : Measurement and Estimation <u>Indicator</u> : Knows and uses perimeter and area formulas for circles, squares, rectangles, triangles, and parallelograms
Explanation of Indicator Find perimeter (distance around the outside) and area (square units of space inside) of various shapes
Instructional Example Have your student find the area and perimeter of rooms in your house.
Item Specification Category 1: Memorize Facts/Definitions/Formulas: 1c. Recall formulas or computational procedures Category 2: Perform Procedures: 2d. Solve equations, formulas, or routine word problems
Assessment Item Example A triangular road sign has a height of 4.2 feet and a base of 5.4 feet. What is the area of the road sign in square feet (ft ²)? A 11.34 ft ² B 13.80 ft ² C 19.20 ft ² D 22.68 ft ² Correct Answer: A

Teaching Tips—

Here is a case where students will just need to memorize these formulas.

If a student wants to find the perimeter of a rectangle, triangle, or parallelogram, they will need to find the distance around the figure. So, they would add all the sides together.

If a student wants to find the area of a rectangle or a parallelogram, they would multiply length times width. In order to find the area of a triangle, they would multiply length times width and then divide it in half.

The circumference of a circle can be found by multiplying pi times the diameter of the circle or multiplying pi times the radius of the circle times two. When calculating circumference, a student can use 3.14 as an approximation of pi.

The area of a circle can be found by multiplying pi times the radius of the circle squared.

Sometimes students get area and perimeter confused. If you wanted to cover a space with carpet, you would need to know the area. If you wanted to build a fence around the shape, that would be the perimeter. The perimeter of a circle would be its circumference—the distance around the circle. No wonder it's confusing! ☺

Other tips that works for some—

C = pi(d) – think of that as “cherry pie delicious” –cherry (c) pie (pi) delicious (d)

A = pi(r²) – since the word “area” has two As, there is a little two with the R

5. Which formula could be used to calculate the circumference (C) of a circle with a radius of 7 inches? (Use $\pi = \frac{22}{7}$)

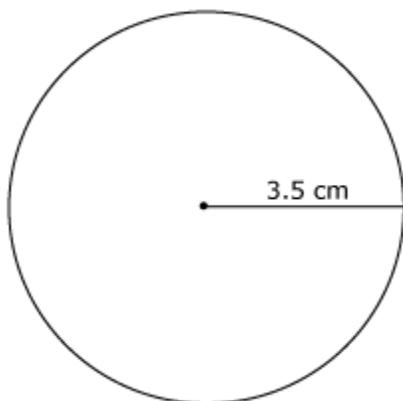
A. $C = \frac{22}{7} \cdot 7$

C. $C = 2 \cdot \frac{22}{7} \cdot 7$

B. $C = \frac{22}{7} \cdot 7 \cdot 7$

D. $C = 2 \cdot \frac{22}{7} \cdot 7 \cdot 7$

6. A circle is shown below.



What is the approximate circumference of the circle? (Use $\pi = 3.14$)

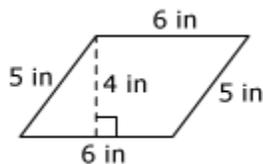
A. 10.99 cm

C. 21.98 cm

B. 12.25 cm

D. 38.47 cm

7. A parallelogram is shown below.



What is the area of the parallelogram?

A. 22 in^2

C. 26 in^2

B. 24 in^2

D. 30 in^2

Tested Indicator L

Standard/Benchmark/Indicator

M.7.3.2.K6a-b

Standard: Geometry

Benchmark: Measurement and Estimation

Indicator: Uses given measurement formulas to find: a) surface area of cubes; b) volume of rectangular prisms

Explanation of Indicator

Find surface area (the area of all six sides of a three dimensional object) and the volume of rectangular prisms (the amount of space inside of a box).

Instructional Example

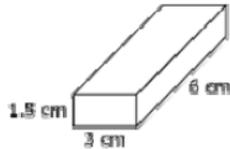
1. Have your student figure the area in square units (e.g. square inches, centimeters, etc.) of the construction paper needed to cover the sides of a cube.
2. Have your student figure the volume in cubic units (e.g. cubic inches, centimeters, etc.) a box will hold.
3. Have your student figure the amount of sugar cubes can fit in a box of cubes after it is empty using just a few cubes.

Item Specification

Category 2: Perform Procedures: 2d. Solve equations, formulas, or routine word problems

Assessment Item Example

A rectangular prism is shown below.



What is the volume of this prism in cubic centimeters (cm^3)? ($V = lwh$)

- A. 9 cm^3
- B. 18 cm^3
- C. 27 cm^3
- D. 54 cm^3

Correct Answer: C

Teaching Tips—

Here is another case where students will just need to memorize these formulas.

If a student wants to find the surface area of a cube, they will find the area of one face (take a side and multiply it by itself). Once they have found the area of one face, they will multiply that by how many faces there are in a cube (6) to get the answer. When talking about area, the answer would be in square units.

If a student wants to find the volume of a rectangular prism, they would multiply the length times the width times the height.

Sometimes students get volume and area confused. With volume, it is as if you are filling up the object with water (or cubes...) and want to know how much it will hold. If you wanted to cover a space with carpet, you would need to know the area.

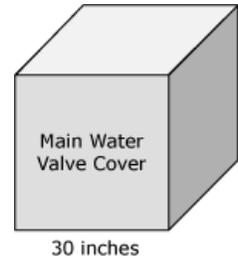
Grade 7 Mini Math Test #L

Student Name: _____

Read each question below and circle the correct answer.

1. Each main water valve at an office building is covered by a box shaped like a cube, as shown.

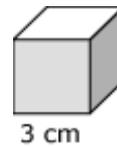
The edges of each box are 30 inches long. How much material is required to make each box? ($SA = 6s^2$)



- A. 2,700 square inches
B. 3,600 square inches
C. 4,500 square inches
D. 5,400 square inches
-

2. A cube with sides 3 centimeters (cm) long is shown.

What is the surface area of the cube? ($SA = 6s^2$)



- A. 12 cm²
B. 27 cm²
C. 36 cm²
D. 54 cm²
-

3. What is the volume in cubic centimeters (cm³) of a rectangular prism that measures 12 centimeters long, 3 centimeters high, and 4 centimeters wide? ($V = lwh$)

- A. 19 cm³
B. 40 cm³
C. 144 cm³
D. 288 cm³
-

4. Farah has a fish tank that is 4 feet (ft.) long, 1 ft. high, and 2 ft. wide. How much water will the fish tank hold when filled? ($V = lwh$)

- A. 9 ft³
B. 8 ft³
C. 7 ft³
D. 6 ft³
-

Tested Indicator M

Standard/Benchmark/Indicator

M.7.3.3.A3

Standard: Geometry

Benchmark: Transformational Geometry

Indicator: Determines the actual dimensions and/or measurements of a two-dimensional figure represented in a scale drawing

Explanation of Indicator

Determine actual measurement of a distance given the scale of a drawing (e.g. 1 in = 20 miles on a map).

Instructional Example

1. Have your student figure the actual size of an airplane given the scale of the model airplane.
2. Use a map to figure the distance of a trip given the scale of the map being used for the trip.
3. Use a scale of a drawing to figure the actual dimensions of the completed object.

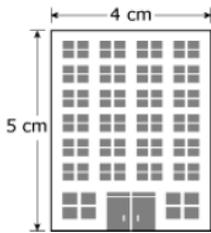
Item Specification

Category 3: Demonstrate Understanding of Mathematical Ideas: 3b. Use representations to model mathematical ideas

Category 5: Solve Non-routine Problems/Make Connections: 5b. Apply mathematics in contexts outside of mathematics (whenever possible, include diagrams/visuals).

Assessment Item Example

Sean drew a scale drawing of a building, as shown below.



If the width of the actual building is 60 feet across, what is the height of the actual building?

- A. 48 feet
- C. 65 feet
- B. 61 feet
- D. 75 feet

Correct Answer: D

Teaching Tips—

Encourage students to notice the details...a word in bold or an arrow pointing. These details will help them to navigate through the problem.

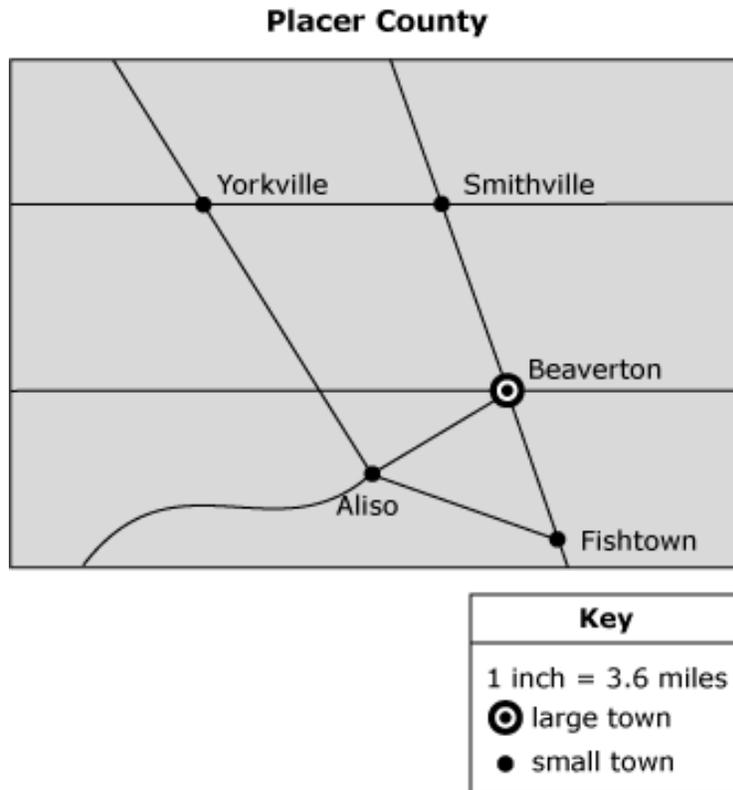
Once a student understands how to set up these types of problems, it should be relatively easy for them to solve. When scale is involved, it is most likely that they will need to set up a proportion to solve.

Grade 7 Mini Math Test #M

Student Name: _____

Read each question below and circle the correct answer.

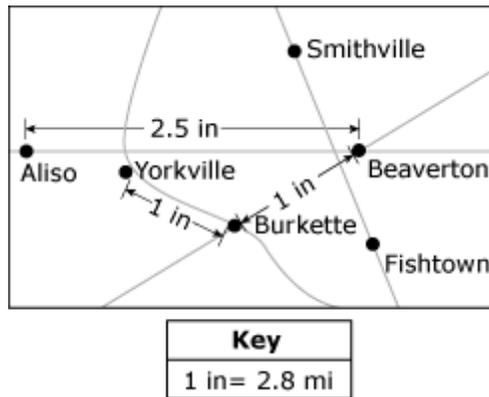
1. The distance from Smithville to Fishtown on the map below is 3 inches.



What is the **actual** distance from Smithville to Fishtown?

- A. 0.8 miles C. 6.6 miles
B. 3.6 miles D. 10.8 miles
-

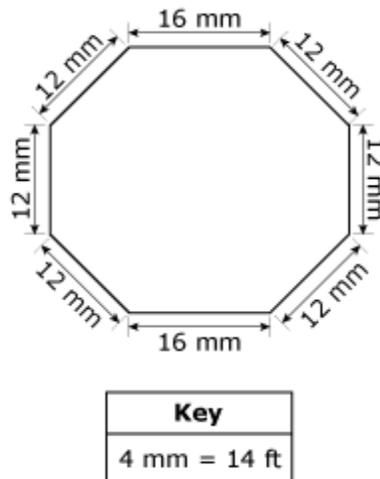
2. A map of Placer County is shown below.



Marty drives from Yorkville to Burkette and then from Burkette to Beaverton. Based on the map, what is the actual number of miles (mi) that Marty drove?

- A. 2.8 mi
- C. 5.6 mi
- B. 3.8 mi
- D. 7.0 mi

3. The scale drawing below represents the floor plan of a building in a park.



What are the actual measurements, in feet (ft.), of the different length sides of the building?

- A. 17 ft. and 18 ft.
- C. 30 ft. and 34 ft.
- B. 26 ft. and 30 ft.
- D. 42 ft. and 56 ft.

Tested Indicator N

Standard/Benchmark/Indicator

M.7.4.2.A3a-b

Standard: Data

Benchmark: Statistics

Indicator: Recognizes and explains: a) misleading representations of data; b) the effects of scale or interval changes on graphs of data sets

Explanation of Indicator

Find misrepresentations of data that distorts the appearance of the data. How changing the vertical and horizontal parts (axis) of a graph can distort the appearance of the graph.

Instructional Example

1. Have your student identify misrepresentations of data in commercials, newspapers, or other media.
2. Have student draw graphs of data with a variety of scales and compare to see which scale change may distort data.

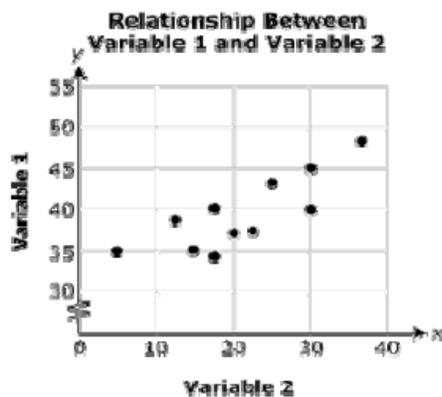
Item Specification

Category 3: Demonstrate Understanding of Mathematical Ideas: 3a. Communicate mathematical ideas or rules and/or explain the process

Category 4: Conjecture/Generalize/Prove: 4f. Identify faulty arguments or identify misrepresentations of data

Assessment Item Example

This scatter plot shows the relationship between two variables.



The y-axis scale is **changed** to include 5, 10, 15, 20, and 25 on the scale. Which statement describes the effect this scale change has on the appearance of the scatter plot?

- A.** There is no effect on the appearance of the scatter plot.
- B.** The spread of the data points will widen to cover the entire scatter plot.
- C.** The spread of the data points will become more concentrated in the top half of the scatter plot.
- D.** The spread of the data points will become more concentrated in the bottom half of the scatter plot.

Correct Answer: C

Teaching Tips—

- If a student understands how to set up and read a graph, they should be able to find the errors.
- One of the most common mistakes people make when making a graph is that they do not use even intervals or make sure that all their data adds up in the way it is supposed to.
- If a student has a hard time finding the mistake on their own, encourage them to read ALL the choices and see which one is true.

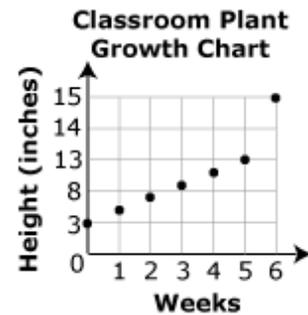
Grade 7 Mini Math Test #N

Student Name: _____

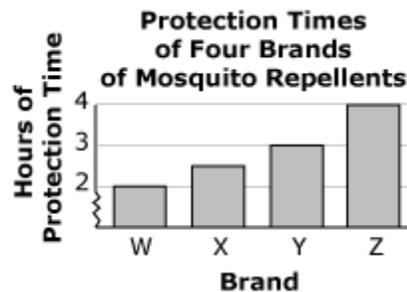
Read each question below and circle the correct answer.

1. The graph shows that a plant grew 2 inches each week, over a 6-week period. For which reason could the graph be misleading?

- A. The intervals on the x-axis increase by uneven amounts.
- B. The intervals on the y-axis increase by uneven amounts.
- C. The first data point does not appear at the origin.
- D. The seventh data point was plotted incorrectly.



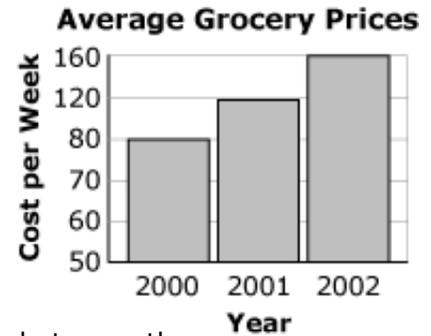
2. The graph below shows the number of hours of protection time that each of four brands of mosquito repellents provides.



Sue looked at the graph and said that brand Z lasts 3 times as long as brand W, but she made a mistake when reading the graph. What mistake did she make?

- A. She looked at the height of the bars instead of the interval on the vertical axis.
- B. She compared brands Y and W instead of brands Z and W.
- C. She looked at the height of the bars instead of the interval on the horizontal axis.
- D. She subtracted the value of brand W from the value of brand Z.

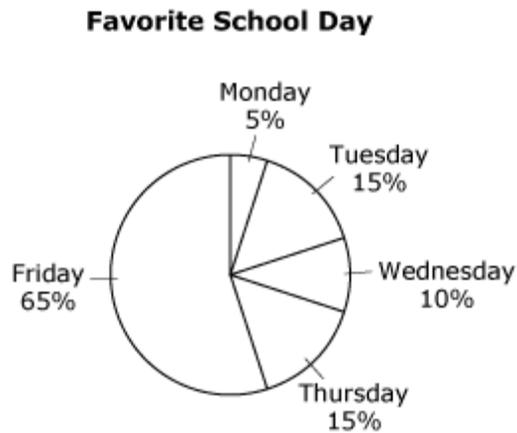
3. The bar graph below shows the increase in average weekly grocery prices over three years.



Shanna looked at the graph and stated that average weekly grocery prices increased by \$10 per year, but she made a mistake. What mistake did Shanna make?

- A. She stated the number of years instead of the difference between the heights of the bars.
 - B. She stated the number of years instead of the cost per week.
 - C. She thought that the horizontal scale consistently increased by 10.
 - D. She thought that the vertical scale consistently increased by 10.
-

4. David asked students to choose their favorite school day. The results of his survey are shown in the circle graph below.



David made a mistake when creating the circle graph. What mistake did he make?

- A. He made five sections instead of seven sections.
 - B. He made the Tuesday and Thursday sections the same size.
 - C. He did not include the percent of students who chose each day.
 - D. He did not make sure that all of the percents added up to 100%.
-

Tested Indicator O

Standard/Benchmark/Indicator

M.7.4.2.K1a-g

Standard: Data

Benchmark: Statistics

Indicator: Organizes, displays, and reads quantitative (numerical) and qualitative (non-numerical) data in a clear, organized, and accurate manner including a title, labels, categories, and rational number intervals using these data displays: a) frequency tables and line plots; b) bar, line, and circle graphs; c) Venn diagrams or other pictorial displays; d) charts and tables; e) stem-and-leaf plots (single); f) scatter plots; g) box-and whiskers plots

Explanation of Indicator

Read and make a. vertical and horizontal tables and charts, b. line, circle, and picture graphs, and c. scatter, stem-and-leaf, and box-and-whisker plots.

Instructional Example

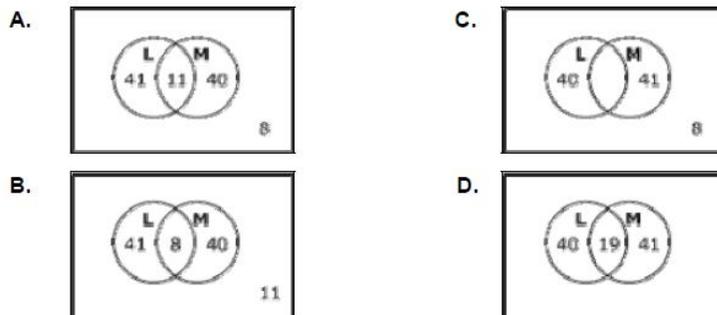
1. Have your student use newspaper to find and identify a variety of graphs (USA Today is famous for a variety of graphs daily).
2. Have your student collect data such as daily high temperatures for two weeks and graph with a line graph.
3. Have your student collect data such as amount of time spent on a variety of daily tasks and graph with a circle graph.
4. Have your student collect data on amount spent on groceries, gas, and other weekly expenses and graph with picture graph (example would be using a picture of a ten dollar bill).

Item Specification

Category 2: Perform Procedures: 2e. Organize or display data

Assessment Item Example

A poll of 100 people was taken to find which political candidate was preferred, L or M. The poll showed that 8 people did not prefer either candidate, 11 people preferred both candidates equally, 41 people preferred only candidate L, and 40 people preferred only candidate M. Which Venn diagram correctly shows the results of the poll?



Correct Answer: A

Teaching Tip—

Any of the data displays that are listed in the indicator above could be something a student is tested over. They do not need to create one, but they need to understand how to read it. If a student is unfamiliar in this area, practice is important.

Grade 7 Mini Math Test #0

Student Name _____

Read each question below and circle the correct answer.

1. The number of points scored by each student in a game is shown below.

12 8 9 10 2 2 7 12 8 19 13 8

Which frequency table **correctly** displays this information?

Points Scored

Point Range	Number of Students
0-5	2
5-10	6
10-15	4
15-20	1

A.

Points Scored

Point Range	Number of Students
0-5	4
5-10	50
10-15	47
15-20	19

B.

Points Scored

Point Range	Number of Students
0-5	2
6-10	6
11-15	3
16-20	1

C.

Points Scored

Point Range	Number of Students
0-5	4
6-10	50
11-15	37
16-20	19

D.

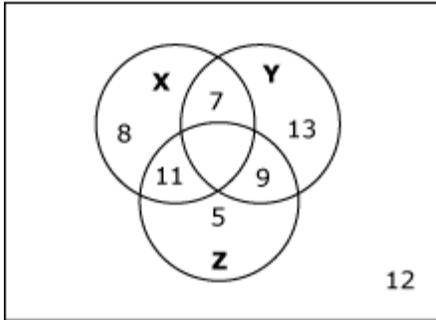
Movie Survey Results

2. Sixty-five people were asked in a survey which movie was their favorite: X, Y, or Z. Some people liked two or all three movies equally. The survey results are shown in the table below.

Favorite Movie	Number of People
X only	13
Y only	8
Z only	5
X and Y	7
X and Z	9
Y and Z	11
X, Y, and Z	12

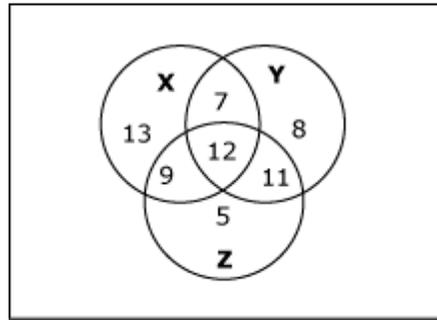
Which Venn diagram shows the survey results?

Movie Survey Results



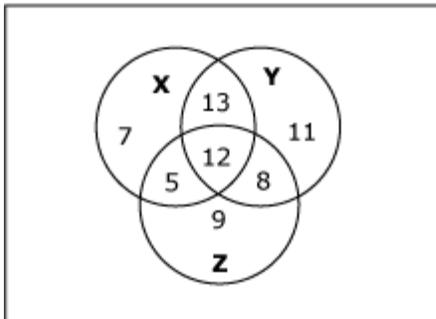
A.

Movie Survey Results



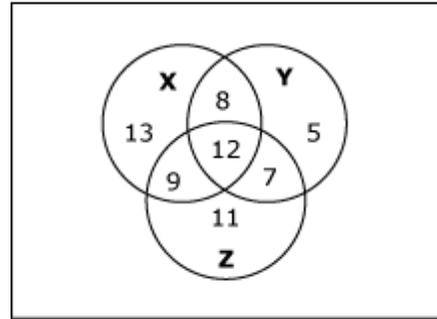
C.

Movie Survey Results



B.

Movie Survey Results



D.

3. A bicycle rental company recorded the number of rentals it had for each of the past ten weeks. The data is shown below.

9 15 19 26 37 47 32 26 19 8

The company wants to display the data using a stem-and-leaf plot. Which list gives all the numbers that would be used for the stems?

A. 0 1 2 3

C. 1 2 3 4

B. 0 1 2 3 4

D. 2 5 6 7 8 9

Grade 7 Comprehensive Math Practice Test

Student Name _____

1. Erin is half as old as her sister, Marissa. Which equation describes the relationship between Erin's age (e) and Marissa's age (m)?

A. $e = m + \frac{1}{2}$

C. $e = m - \frac{1}{2}$

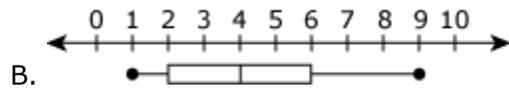
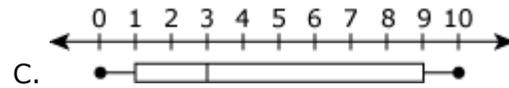
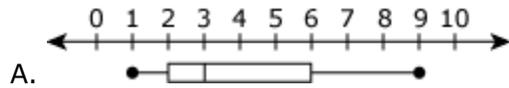
B. $e = 2m$

D. $e = \frac{1}{2}m$

2. The ages, in years, of 10 dogs at a local animal shelter are shown below.

1 2 2 2 3 3 4 6 8 9

Which box-and-whisker plot **best** represents the ages of the dogs?



3. Three students wrote down the distances they drove to get from their homes to college, as shown below.

Stephanie: 920 miles

Samantha: 1.15×10^3 miles

William: 1.2×10^2 miles

What is the **total** number of miles driven by the three students from their homes to college?

A. 1,155 miles

C. 2,190 miles

B. 2,082 miles

D. 3,270 miles

4. Among 6 students, $3\frac{1}{2}$ pounds of peanuts are equally divided. Which procedure could they use to determine the number of pounds of peanuts that each student should get?

A. divide 6 by $3\frac{1}{2}$

C. multiply 6 by $3\frac{1}{2}$

B. divide $3\frac{1}{2}$ by 6

D. subtract $3\frac{1}{2}$ from 6

5. The numbers shown below follow a pattern.

2 7 12 17 ...

Which rule could be used to find the n th term in this pattern?

A. $4n - 2$

C. $5n - 3$

B. $2n + 6$

D. $3n + 1$

6. Kyle added 0.5 liters of water to 5.06 liters of water already in his bucket. Exactly how many liters of water does Kyle now have in his bucket?

A. 5.01 liters

C. 5.56 liters

B. 5.11 liters

D. 5.65 liters

7. What is 62% of 806?

A. 13

C. 499.72

B. 49.97

D. 1,300

8. The number pattern below shows a company's quarterly profits for the past 4 quarters.

\$7.25 million \$9.75 million \$12.25 million \$14.75 million ...

The company expects its quarterly profit to continue to increase by the same amount each quarter. Which rule could be used to find the company's expected quarterly profit in the **next** quarter?

A. add \$2.50 million to the last number

C. add \$7.25 million to the last number

B. add \$5.00 million to the last number

D. add \$14.75 million to the last number

9. A cube has sides that are 8 centimeters (cm) long.

What is the surface area of the cube? ($SA = 6s^2$)

A. 64 cm^2

C. 384 cm^2

B. 270 cm^2

D. 54 cm^2

10. Mary read 15 pages in 40 minutes. She thinks she can read another 8 pages at the same rate. Which proportion could be solved to find the number of minutes (x) it should take Mary to read another 8 pages?

A. $\frac{x}{8} = \frac{15}{40}$

C. $\frac{15}{x} = \frac{40}{8}$

B. $\frac{x}{8} = \frac{40}{15}$

D. $\frac{15}{8} = \frac{x}{40}$

11. What is the measure of **each** angle in a rectangle?

A. 45°

C. 135°

B. 90°

D. 180°

12. An expression is shown below.

$$6xy + 2$$

What is the value of the expression when $x = \frac{5}{4}$ and $y = 9$?

A. $9\frac{1}{2}$

C. $67\frac{1}{2}$

B. $18\frac{1}{2}$

D. $69\frac{1}{2}$



13. Bret drew the rhombus shown.

Which statement **best** describes the rhombus that Bret drew?

A. All sides are congruent, and opposite angles are congruent.

C. Adjacent sides are congruent, and adjacent angles are congruent.

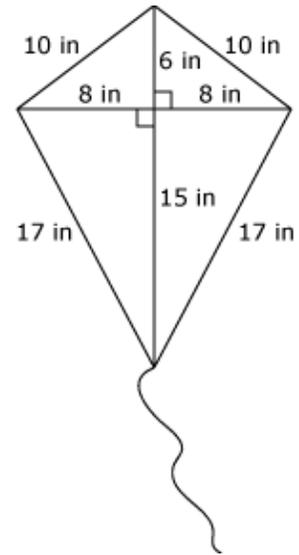
B. Opposite sides are congruent, and all angles are congruent.

D. Only opposite sides are congruent, and only adjacent angles are congruent.

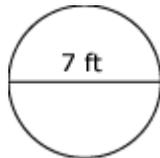
14. Tim built the kite shown, out of 4 triangles of paper and sticks.

Tim wants to paint the front of his kite red. What is the total number of square inches (in^2) of paper that Tim will paint?

- A. 54 in^2
- B. 91 in^2
- C. 168 in^2
- D. 303 in^2



15. A circle is shown:



What is the area of the circle? (Use $\pi = \frac{22}{7}$)

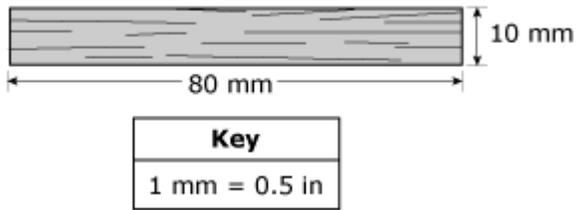
A. $\frac{431}{28} \text{ ft}^2$

C. $\frac{77}{2} \text{ ft}^2$

B. 22 ft^2

D. 44 ft^2

16. Katie's dad made the scale drawing below of a piece of wood he is using to build a fence.



What is the actual length and width of the piece of wood?

- A. 400 in by 50 in
 - B. 160 in by 20 in
 - C. 80 in by 10 in
 - D. 40 in by 5 in
-

17. The line graph below shows a company's monthly profit for 11 months.



An employee wants to change the scale on the vertical axis to show units of 10 instead of 5. Which statement best describes how the graph will look after this change is made?

- A. The change in the company's profit each month will appear to be less.
 - B. The change in the company's profit each month will appear to be greater.
 - C. The greatest amount of monthly profit will appear to be in the 9th month.
 - D. The greatest amount of monthly profit will appear to be in the 10th month.
-

Grade 7 Math Answer Keys

Grade 7 Mini Math Test #1

1. B 2. B 3. B 4. D 5. C 6. D

Grade 7 Mini Math Test #2

1. C 2. D 3. C 4. B 5. B 6. B 7. C

Grade 7 Mini Math Test #3

1. B 2. C 3. C 4. C 5. A 6. D 7. C 8. A 9. C 10. A

Grade 7 Mini Math Test #4

1. A 2. B 3. D 4. B

Grade 7 Mini Math Test #5

1. B 2. C 3. D 4. D 5. C 6. C 7. D

Grade 7 Mini Math Test #6

1. A 2. B 3. A 4. B 5. D 6. D 7. C

Grade 7 Mini Math Test #7

1. B 2. B 3. D 4. D 5. A 6. B 7. D

Grade 7 Mini Math Test #8

1. B 2. C 3. B 4. D 5. D 6. C 7. A

Grade 7 Mini Math Test #9

1. C 2. D 3. D 4. B 5. A

Grade 7 Mini Math Test #10

1. D 2. C 3. C 4. C 5. B

Grade 7 Mini Math Test #11

1. D 2. B 3. D 4. A 5. C 6. C 7. B

Grade 7 Mini Math Test #12

1. D 2. D 3. C 4. B

Grade 7 Mini Math Test #13

1. D 2. C 3. D

Grade 7 Mini Math Test #14

1. B 2. A 3. D 4. D

Grade 7 Mini Math Test #15

1. C 2. C 3. B

Grade 7 PRACTICE TEST

1. D 2. A 3. C 4. B 5. C 6. C 7. C 8. A 9. C 10. B 11. B
12. D 13. A 14. C 15. C 16. D 17. A

Grade Seven Math State Standards and Benchmarks

The relationship between standards, benchmarks, and indicators is was touched upon earlier in the booklet. Here you will see the specific standards, benchmarks, and indicators for 7th graders. Understand that the state expects 7th grade students to know *more* than just the tested indicators. Included below are benchmarks that are not marked with a delta. This indicates that it is an indicator that is not a tested item. This does not mean that there is nothing expected of a 7th grade student in that area, it just indicates that the state will not be assessing that particular indicator.

Standard 1: Number and Computation – The student uses numerical and computational concepts and procedures in a variety of situations.
--

Benchmark 1: Number Sense –

The student demonstrates number sense for rational numbers, the irrational number π , and simple algebraic expressions in one variable in a variety of situations.

▲ The student generates and/or solves real world problems using equivalent representations of rational numbers and simple algebraic expressions

Benchmark 2: Number Systems and Their Properties –

The student demonstrates an understanding of the rational number system and the irrational number π ; recognizes, uses, and describes their properties; and extends these properties to algebraic expressions in one variable.

Benchmark 3: Estimation –

The student uses computational estimation with rational numbers and the irrational number π in a variety of situations.

Benchmark 4: Computation –

The student models, performs, and explains computation with rational numbers, the irrational number π , and first-degree algebraic expressions in one variable in a variety of situations.

▲ The student performs and explains these computational procedures:

- Adds and subtracts decimals from ten millions place through hundred thousandths place
- Multiplies and divides a four-digit number by a two-digit number using numbers from thousands place through thousandths place
- Multiplies and divides using numbers from thousands place through thousandths place by 10; 100; 1,000; .1; .01; .001; or single-digit multiples of each
- Adds, subtracts, multiplies, and divides fractions and expresses answers in simplest form

▲ The student finds percentages of rational numbers

Standard 2: Algebra – The student uses algebraic concepts and procedures in a variety of situations.

Benchmark 1: Patterns –

The student recognizes, describes, extends, develops, and explains the general rule of a pattern in a variety of situations.

▲ The student identifies, states, and continues a pattern presented in various formats including numeric (list or table), algebraic (symbolic notation), visual (picture, table, or graph), verbal (oral description), kinesthetic (action), and written using these attributes:

- Counting numbers including perfect squares, cubes, and factors and multiples
- Positive rational numbers including arithmetic and geometric sequences (arithmetic: sequence of numbers in which the difference of two consecutive numbers is the same, geometric: a sequence of numbers in which each succeeding term is obtained by multiplying the preceding term by the same number)

▲ The student states the rule to find the n th term of a pattern with one operational change (addition or subtraction) between consecutive terms.

Benchmark 2: Variable, Equations, and Inequalities –

The student uses variables, symbols, rational numbers, and simple algebraic expressions in one variable to solve linear equations and inequalities in a variety of situations.

▲ The student represents real-world problems using variables and symbols to write linear expressions, one- or two-step equations

▲ The student knows the mathematical relationship between ratios, proportions, and percents and how to solve for a missing term in a proportion with positive rational number solutions and monomials

▲ The student evaluates simple algebraic expressions using positive rational numbers

Benchmark 3: Functions –

The student recognizes, describes, and analyzes constant and linear relationships in a variety of situations.

Benchmark 4: Models –

The student generates and uses mathematical models to represent and justify mathematical relationships found in a variety of situations.

Standard 3: Geometry – The student uses geometric concepts and procedures in a variety of situations.

Benchmark 1: Geometric Figures and Their Properties –

The student recognizes geometric figures and compares their properties in a variety of situations.

▲ The student identifies angle and side properties of triangles and quadrilaterals

- Sum of the interior angles of any triangle is 180 degrees
- Sum of the interior angles of any quadrilateral is 360 degrees
- Parallelograms have opposite sides that are parallel and congruent
- Rectangles have angles of 90 degrees, opposite sides are congruent
- Rhombi have all sides the same length, opposite angles are congruent
- Squares have angles of 90 degrees, all sides congruent
- Trapezoids have one pair of opposite sides parallel and the other pair of opposite sides are not parallel

Benchmark 2: Measurement and Estimation –

The student estimates, measures, and uses measurement formulas in a variety of situations.

- ▲ The student solves real-world problems by finding perimeter and area of two-dimensional composite figures of squares, rectangles, and triangles
- ▲ The student knows and uses perimeter and area formulas for circles, squares, rectangles, triangles, and parallelograms
- ▲ The student uses given measurement formulas to find surface area of cubes and volume of rectangular prisms

Benchmark 3: Transformational Geometry –

The student recognizes and performs transformations on two- and three- dimensional geometric figures in a variety of situations.

- ▲ The student determines the actual dimensions and/or measurements of a two-dimensional figure represented in a scale drawing

Benchmark 4: Geometry From An Algebraic Perspective –

The student relates geometric concepts to a number line and a coordinate plane in a variety of situations.

Standard 4: Data – The student uses concepts and procedures of data analysis in a variety of situations.

Benchmark 1: Probability –

The student applies the concepts of probability to draw conclusions, generate convincing arguments, and make predictions and decisions including the use of concrete objects in a variety of situations.

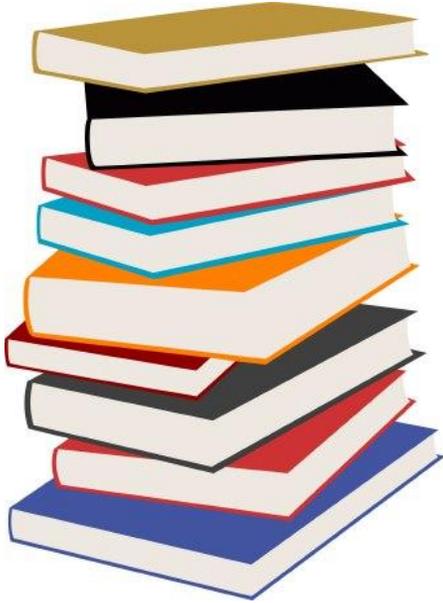
Benchmark 2: Statistics –

The student collects, organizes, displays, and explains numerical (rational numbers) and non-numerical data sets in a variety of situations with a special emphasis on measures of central tendency.

- ▲ The student recognizes and explains misleading representations of data and the effects of scale or interval changes on graphs of data sets
- ▲ The student organizes, displays, and reads quantitative (numerical) and qualitative (nonnumerical) data in a clear, organized, and accurate

manner including a title, labels, categories, and rational number intervals using these data displays:

- Frequency tables
- Bar, line, and circle graphs
- Venn diagrams or other pictorial displays
- Charts and tables
- Stem-and-leaf plots
- Scatter plots
- Box-and-whiskers plots



READING



Grade Seven Reading Assessment Practice

SECTION 1 - State Standards, Benchmarks, and Indicators and Sample Questioning

The State Standards, Benchmarks, and Indicators that a student will be tested over on the Kansas State Assessment are listed and marked with a triangle (delta).

Sample questioning and examples are below the state tested indicators. These are a great way to 'see' what the assessment questions might look like on a test.

SECTION 2 - Reading Passages

Narrative, Expository, Technical, and Persuasive reading passages and tests questions are created by the state to help students as they prepare for the state assessment. Students will read the passage and answer the questions. The answer key for each passage follows the student questions.

When a student takes the *Kansas State Assessment Test*, he/she will be tested in the grade level that they are in, not necessarily the level of K12 curriculum they are working in. When administering these practice tests, try to do so in the same way that students will take the *Kansas State Assessment Tests*, in a quiet, controlled environment. Learning Coaches are not allowed to read a passage to the student. Reading or explaining the directions to them is not allowed either. However, Learning Coaches *are* allowed to read the question and answer choices to them if they would like help. Although this can be difficult, it gives a more accurate picture of what they will need help with on the actual assessment.

It is a good test-taking strategy to encourage students to read the questions before the passage. After reading the passage, it is also a good practice to teach students to re-read and skim the passage as they answer, if they are unsure of, or simply want to check their answers/s.

After the practice test is completed, Learning Coaches and students can, *and should*, spend time going over what they did and did not understand. If a student needs more practice on a particular Indicator, visit with an Education Specialist. Together, a plan can be created to adjust the daily teaching to work more on a particular concept/skill or find additional test practice for that particular State Indicator.

Grade Seven Reading Standards, Benchmarks, & Indicators

Below is the list of *Standards, Benchmarks, and Indicators* that the state of Kansas deems as most important for a 7th grade student to master. In this document, the Indicator that will be tested on the state assessment is marked with a delta (▲). The items not marked with a delta, are still important skills that all 7th grade students need to know, but are not the focus of our state assessment preparation.

NOTE: Each Standard, Benchmark, and Indicator can be identified by referencing the letters and numbers in parenthesis. Example: (Subject.Grade Level.Benchmark.Indicator) – (R.7.1.3.5)

Standard 1: (R.7.1) Reading – The student reads and comprehends text across the curriculum.

<p>Benchmark 1 (R.7.1.1): The student uses skills in alphabets to construct meaning from text.</p>	
<p>Benchmark 2 (R.7.1.2): The student reads fluently.</p>	
<p>Benchmark 3 (R.7.1.3): The student expands vocabulary.</p>	<p>Indicator 1 (R.7.1.3.1) ▲The student determines the meaning of words or phrases by using context clues (e.g., definitions, restatements, examples, descriptions, comparison-contrast, clue words) from sentences or paragraphs.</p>
<p><u>Explanation of Indicator</u> When a student encounters an unknown word or phrase, he should be able to use the clues from the surrounding words to figure out the meaning of the unknown word or phrase.</p>	
<p><u>Instructional Example</u> Choose a text or an article that contains unfamiliar text that can be supported through the contextual information. The student reads the article and highlights unfamiliar text. Read the text to the student and brainstorm with student which context helped him/her to understand the unfamiliar text. The student is asked to underline the text used for understanding the unfamiliar word.</p>	
<p><u>Sample Questions</u></p> <ol style="list-style-type: none"> In Step 10, the word <u>luminous</u> probably means: In the second paragraph, the word <u>herbivores</u> refers to animals that: In the first paragraph, the phrase “standard fare” probably means: Read the sentence below from the passage. <i>The soup was boiling in a large <u>cauldron</u> that hung from a hook in the fireplace.</i> In the sentence, the word <u>cauldron</u> probably means: 	
	<p>Indicator 3 (R.7.1.3.3) ▲The student determines meaning of words through structural analysis, using knowledge of *Greek, *Latin, and Anglo-Saxon *roots, *prefixes, and *suffixes to understand complex</p>

words, including words in science, mathematics, and social studies.

Explanation of Indicator

The student knows how adding beginnings or endings to words change the meaning of the word.

Instructional Example

The student uses a list of root words and various prefixes and suffixes with their meanings. The student forms words and then uses the dictionary to determine the correctness of their words or write a definition for his/her invented word.

Prefixes, Suffixes, and Bases to Be Tested

Prefix	Meaning	Examples
A	On	aboard, afire, afoot, ashore, atop
A	Not	apathy, atheist, atrophy, atypical
Be	Make	becalm, befriend, beguile, bewitch
Mid	Middle	midnight, midway, midsummer, midyea, midshipman
Post	After	postdate, postdoctoral, posterior, postpone, postscript
Semi	Half	semiannual, semicircle, semiconscious, semiautomatic
Super	Over	superimpose, superscript, supersede
Super	more than	superfine, superhuman, supernatural
Suffix	Meaning	Examples
ant/ent	one who	servant, immigrant, assistant, regent, superintendent, resident
Ess	one who (female)	waitress, actress, countess, hostess
Ism	state of quality of	baptism, heroism, racism, despotism
Ism	doctrine of	capitalism, socialism, hedonism
Ist	one who practices	biologist, capitalist, communist
Root	Meaning	Examples
Aero	Air	aerobics, aerodynamics, aeronautics,
Aqua	Water	aquarium, aquatic, aquamarine, aquifer
Biblio	Book	bibliography, bibliotherapy,
Bio	Life	biology, biography, biochemistry, biosphere
Chron	Time	chronological, synchronize, chronicle, chronic
Dem	People	democracy, demography, endemic, epidemic
Geo	Earth	geography, geometry, geology, geophysics
Graph	Write	photography, phonography, autography, graphite
Hemi	Half	hemisphere, hemicycle,
Meter	Measure	thermometer, centimeter, diameter, barometer

Micro	Small	microdot, microchip, micrometer, microfilm
Migr	change, move	migrate, immigrant, migratory
Mim	Same	mimic, pantomime, mimeograph, mime
Mort	Death	mortician, mortuary, mortal, immortal, mortify
Phon	Sound	phonograph, symphony, telephone, microphone, phonics
Photo	Light	telephoto, photosynthesis, photogenic
scrib/script	Write	scribe, inscribe, describe, transcript, scripture
Tele	Distance	telephone, telephony, teleconference, telecast

Sample Question

1. Knowing the meaning of the Greek root *photo* helps the reader understand that “photosensitivity” means:

	<p>Indicator 4 (R.7.1.3.4) ▲The student identifies and determines the meaning of figurative language including *similes, *metaphors, *analogies, hyperbole, *onomatopoeia, *personification, and idioms.</p>
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Explanation of Indicator

The student understands the meaning of word images and figures of speech.

Instructional Example

The student reads poems containing examples of figurative language such as analogies, similes, metaphors, hyperbole, onomatopoeia, and personification. The student then creates his/her own examples of figurative language modeled after the poets.

Sample Questions

1. Read the sentence below from the passage.
The snow was a white blanket on the ground.
 The sentence is an example of which type of figurative language?
2. Read the sentence below from the passage.
Radio signals move the way ripples move in a pond when you drop a stone, spreading out from the middle and getting larger and larger.
 The sentence contains an example of which type of figurative language?
3. In paragraph three, the phrase “Victor sounded like his mouth was full of cotton balls” probably means that Victor:
4. In paragraph two, the phrase “a grocery list as long as a novel” is an example of which type of figurative language?

<p>Benchmark 4 (R.7.1.4): The student comprehends a variety of texts (narrative, expository, technical, and persuasive).</p>	<p>Indicator 2 (R.7.1.4.2) ▲The student understands the purpose of text features (e.g., title, graphs/charts and maps, table of contents, pictures/illustrations, boldface type, italics, glossary, index, headings, subheadings, topic and summary sentences, captions, sidebars, underlining, numbered or bulleted lists) and uses such features to locate information in and to gain meaning from appropriate-level texts.</p>
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Explanation of Indicator

The student understands how the features located in text (e.g., title, graphs/charts and maps,

table of contents, pictures/illustrations, boldface type, italics, glossary, index, headings, subheadings, topic and summary sentences, captions, sidebars, underlining, numbered or bulleted lists) can help him/her understand the meaning of the text.

Instructional Example

The student uses a news magazine and locates as many text features as possible. The student discusses why the text feature was selected for that information.

Sample Questions

1. The bulleted list at the beginning of the recipe helps the reader understand:
2. The purpose of the sidebar is to:
3. According to the sidebar, where do butterflies go when it rains?
4. The purpose of the title is to
 - a. introduce the topic of the passage.
 - b. explain the importance of the passage.
 - c. inform the reader about the author of the passage.
 - d. help the reader think about the setting of the passage.

Indicator 5 (R.7.1.4.5)

▲ The student uses information from the text to make inferences and draw conclusions.

Explanation of Indicator

The student is able to make a prediction or draw a conclusion about the text.

Instructional Example

Provide sentences with statements that require inferences from the student, such as "When the light went out, the room was completely dark". After reading the sentence, ask the student, "Where are you?". The student supports his/her guesses with evidence from the sentence.

Sample Questions

1. Based on the passage, tusks would probably be **most** useful when elephants are:
2. What is the **main** benefit of aerobic exercise?

Indicator 6 (R.7.1.4.6)

▲The student analyzes how text structure (e.g., sequence, problem-solution, comparison-contrast, description, cause-effect) helps support comprehension of text.

Explanation of Indicator

The student is able to tell how an author organizes material or information in the text (e.g., sequence, problem-solution, comparison-contrast, description, cause-effect).

Instructional Example

The student uses key words to identify the kind of text structure and why the author selected that particular type for that specific information.

Key Signal Words for Different Text Structures:

Problem-Solution and Cause-Effect

because
 since
 therefore
 consequently
 as a result of
 this led to
 so that
 nevertheless

Compare - Contrast

but
 as well as
 on the other hand
 not only... but also
 either...or
 same as
 in contrast
 while

<p>accordingly If . . . Then Thus subsequently.</p> <p>Sequence on (date) not long after now as before after when first</p>	<p>although more than less than unless similarly yet likewise on the contrary</p> <p>Description for instance to begin with also in fact for example in addition characteristics of</p>
<p><u>Sample Questions</u></p> <ol style="list-style-type: none"> 1. The section titled "From Tree to Bottle" uses sequence as its text structure to: 2. Explain the steps that farmers take to turn apples into apple juice. 3. The author uses cause and effect as the structure of the passage mainly to: 	

	<p>Indicator 7 (R.7.1.4.7) ▲ The student compares and contrasts varying aspects (e.g., characters' traits and motives, themes, problem-solution, cause-effect relationships, ideas and concepts, procedures, viewpoints, authors' purposes) in one or more appropriate-level texts.</p>
<p><u>Explanation of Indicator</u> The student should be able to tell how varying aspects (e.g., characters' traits and motives, themes, problem-solution, cause-effect relationships, ideas and concepts, procedures, viewpoints, authors' purposes) are alike or different.</p>	
<p><u>Instructional Example</u> Ask the student to use a chart with two different familiar topics, such as the crusts from two different pizza parlors, or two different types of sodas to show a comparison. Then encourage the student to use the chart to compare the traits or motives of two characters within a single text or across multiple texts. The student may also compare the themes between two texts or movies, or may compare the author's purpose between two texts.</p>	
<p><u>Sample Questions</u></p> <ol style="list-style-type: none"> 1. Unlike other mammals, bats are able to: 2. During the chess match, Justin's feelings about his opponent changed from: 3. The father and son are similar because they both: 4. In the passage, what is the main difference between the first summer and the second summer? 	

	<p>Indicator 8 (R.7.1.4.8) ▲ The student explains cause-effect relationships in appropriate-level narrative, expository, technical, and persuasive texts.</p>
<p><u>Explanation of Indicator</u></p>	

The student understands how one or more things can have an effect on the outcome of another.
Instructional Example The student uses both fiction and nonfiction texts and highlights the causes in one color and the effects in another color and explains the relationship between the two.
Sample Question 1. What would probably happen if Malcolm stopped delivering the paper on time? 2. How did Emily’s absence affect her teammates? 3. Based on the passage, what causes the moths to stay away from the wool sweaters?

	Indicator 9 (R.7.1.4.9) ▲ The student uses paraphrasing and organizational skills to summarize information (e.g., stated and implied main ideas, main events, important details) from appropriate-level narrative, expository, persuasive, and technical texts in logical order.
Explanation of Indicator The student restates main idea and important details in logical order.	
Instructional Example The student highlights key concepts that aides in giving an oral summary of the text.	
Test Notes <ul style="list-style-type: none"> For narrative (fictional) and persuasive passages, main idea questions will focus on the main idea of the whole passage. Main idea questions may not be asked about parts (e.g., important paragraphs or sections, sidebars) of fictional or persuasive passages. For expository and technical passages, main idea questions may focus on the main idea of the whole passage or parts (i.e., important paragraphs or sections, sidebars) of the passage. Example question: “Which sentence(s) summarizes the passage?” Answer choices will be complete sentences or short paragraphs containing main ideas or main events and important details in logical order. 	
Sample Question 1. Which best summarizes the passage?	

	Indicator 10 (R.7.1.4.10) ▲ The student identifies the topic, main idea(s), supporting details, and theme(s) in text across the content areas and from a variety of sources in appropriate-level texts.
Explanation of Indicator The student identifies the topic, main idea(s), supporting details, and theme(s) in text.	
Instructional Example The student answers the questions “Who?”, “What?”, “When?”, “Where?”, “How?”, and “Why?”. The student reads to find the main idea and to find answers to the questions. The student writes the main idea of the story and answers the questions “Who is the author talking about?”, “What did they do?”, “When did they do it?”, “Where did they do it?”, “How did they do it?”, and “Why did they do it?”	
Test Notes <ul style="list-style-type: none"> For narrative (fictional) and persuasive passages, main idea questions will focus on the main idea of the whole passage. Main idea questions may not be asked about parts (e.g., important paragraphs or sections, sidebars) of fictional or persuasive passages. For expository and technical passages, main idea questions may focus on the main idea 	

of the whole passage or parts (i.e., important paragraphs or sections, sidebars) of the passage.

- Supporting details are details that support the topic, main idea(s), and/or theme(s) of a whole passage or part of a passage. Keep in mind that important (vs. trivial) details in a passage are not always supporting details.

Sample Questions

1. Which is a main theme of the passage?
2. What is the **main** idea of the passage?
3. The passage is **mainly** about:
4. What is the **main** topic of the passage?
5. Which detail from the passage **best** supports the main idea?
6. According to the passage, where do sparrows make their homes?
7. What was the **first** thing Glen did after he won the game?

Indicator 11 (R.7.1.4.11)

▲ The student explains the relationship between elements of an author's style in a text (e.g., word choice, sentence structure) and his or her purpose for writing the text.

Explanation of Indicator

The student explains how the author's purpose for writing the text influences his style of writing.

Instructional Example

The student makes a text-to-text connection by comparing two pieces of text by the same author. The student compares both pieces to determine the author's style. The student discusses how the author's style supports their purpose for writing.

Sample Questions

1. In the first paragraph, the author uses phrases like "daring adventures" and "one thrill after another" to:
2. Explain why *Treasure Island* is exciting to read.

Indicator 14 (R.7.1.4.14)

▲ The student identifies the author's positions in a persuasive text and describes techniques the author uses to support that position (e.g., bandwagon approach, glittering generalities, testimonials, citing statistics, other techniques that appeal to reason or emotion).

Explanation of Indicator

The student identifies the details that point to the conclusions drawn by the author.

Instructional Example

Provide the student with a copy of a speech. Discuss how the speech made him/her feel and how the speech appeals to emotion.

Sample Question

1. Which technique does the author use to support the position that daily exercise improves self-confidence?
 - A. bandwagon approach
 - B. statistics
 - C. glittering generalities
 - D. testimonials
2. Which sentence from the passage **best** supports the author's conclusion that bats are helpful to farmers?

	<p>Indicator 15 (R.7.1.4.15) ▲ The student distinguishes between fact and opinion, and recognizes propaganda (e.g., advertising, media, politics, warfare), bias, and stereotypes in various types of appropriate-level texts.</p>
<p><u>Explanation of Indicator</u> The student understands the difference between fact and opinion and recognizes different types of propaganda.</p>	
<p><u>Instructional Example</u> Provide the student with various newspaper clippings and ask him/her to distinguish between the factual stories and the editorial opinions. The student highlights any opinions that may be included in the factual stories.</p>	
<p><u>Sample Question</u></p> <ol style="list-style-type: none"> 1. Which sentence from the passage is an opinion? 2. Which statement based on the passage is an opinion? 3. Which sentence from the passage best shows the author’s bias about using solar energy? 	

Standard 2: (R.7.2) Literature – The student responds to a variety of text.

<p>Benchmark 1 (R.7.2.1): The student uses literary concepts to interpret and respond to text.</p>	<p>Indicator 1 (R.7.2.1.1) ▲ The student describes aspects of major and minor characters (e.g., their physical traits, personality traits, feelings, actions, motives) and explains how those aspects influence characters' interactions with other characters and elements of the plot, including resolution of the major conflict.</p>
<p><u>Explanation of Indicator</u> The student describes different aspects of major and minor characters (e.g., their physical traits, personality traits, feelings, actions, motives) and explains how those aspects influence characters' interactions with other characters.</p>	
<p><u>Instructional Example</u> The student selects a favorite character from a book or a movie and discusses how the character’s traits, feelings, actions, and motives impact other characters and the story.</p>	
<p><u>Sample Question</u></p> <ol style="list-style-type: none"> 1. Why did Grandpa tell Mary to share the money with her sister? 2. After the tournament, Cathy mainly felt: 3. Why did Cindy think Tim was conceited when she first met him? 4. Which is the main reason Alex brought the newspaper home? 	

	<p>Indicator 2 (R.7.2.1.2) ▲ The student identifies and describes the setting (e.g., environment, time of day or year, historical period, situation, place) and analyzes connections between the setting and other story elements (e.g., character, plot).</p>
<p><u>Explanation of Indicator</u> The student describes the setting (e.g., environment, time of day or year, historical period,</p>	

situation, place) and explains the importance of the setting to the story.
<u>Instructional Example</u> The student invents an alternative setting for the story and describes how that might impact the outcome of the story.
<u>Test Notes</u> <ul style="list-style-type: none"> • Connections between setting and other story elements can include the ways in which the setting influences various aspects of characters (e.g., their traits, feelings, actions, motives) and various elements of the plot (e.g., conflict, crisis/turning moment, climax, resolution, rising action, falling action, subplots, parallel episodes).
<u>Sample Question</u> <ol style="list-style-type: none"> 1. The explorer has trouble finding the treasure because the cave is: 2. What is the setting of the passage? 3. Which is the main setting of the passage? 4. The passage takes place during which time of day? 5. Which best describes how the rural setting affects events in the passage?

	<u>Indicator 3</u> (R.7.2.1.3) ▲ The student identifies major and minor elements of the plot (e.g., problem or conflict, climax, resolution, rising action, falling action, subplots, parallel episodes) and explains how these elements relate to one another.
<u>Explanation of Indicator</u> The student describes the major and minor events in a story and explains how one event gives rise to another.	
<u>Instructional Example</u> The student draws the major events related to the conflict in a story and explains how one event leads to another.	
<u>Sample Question</u> <ol style="list-style-type: none"> 1. By resolving her problem, Anita was able to: 2. The major conflict in the story is resolved when: 3. What is the major conflict in the passage? 4. Which is the climax of the passage? 5. Which is the resolution of the story? 	

<u>Benchmark 2</u> (R.7.2.2): The student understands the significance of literature and its contributions various cultures.	
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Grade Seven Reading Passages – by Text Type

Betsy on the Farm

(A Narrative Reading Passage)

by Dorothy Canfield

Read the following passage and answer the questions by circling the correct answer.

The following passage is taken from the novel Understood Betsy, set around 1917 on a farm in a medium-sized city in a medium-sized state in the middle of this country. In many farmhouses at that time, the kitchen was located on the main floor, and the dining room was on the second level so that everyone could stay warm during the cold winters. When the family sat down to dinner after working in the fields, fresh meats like chicken were a welcome luxury. In this passage, the main character, Elizabeth Ann (who is called by her nickname Betsy), visits her Aunt Abigail, her Uncle Henry, and her Cousin Ann.

Betsy was very much surprised to hear Cousin Ann's voice calling, "Dinner!" down the stairs. It did not seem possible that the whole morning had gone by. "Here," said Aunt Abigail, "just put that pat on a plate, will you, and take it upstairs as you go." The little girl smiled and skipped up the stairs proudly with her butter.

Dinner was smoking on the table, which was set in the midst of a great pool of sunlight. A very large black-and-white dog, with a great bushy tail, was walking around and around the table, sniffing the air. He looked as big as a bear to Betsy; and as he walked his great red tongue hung out of his mouth and his white teeth gleamed horribly. Betsy shrank back in terror, clutching her plate of butter with tense fingers. Cousin Ann said, over her shoulder: "Oh, bother! There's old Shep, got up to pester us begging for scraps! *Shep!* You go and lie down this minute!"

To Betsy's astonishment and immense relief, the great animal turned, drooping his head sadly, walked back across the floor, got up on the couch again, and laid his head down on one paw very forlornly, turning up the whites of his eyes meekly at Cousin Ann. Aunt Abigail, who had just pulled herself up the stairs, panting, said, between laughing and puffing: "I'm glad I'm not an animal on this farm. Ann does boss them around so."

"Well, *somebody* has to!" said Cousin Ann, advancing on the table with a platter. This proved to have chicken fricassee on it, and Betsy's heart melted at the smell. She loved chicken gravy on hot biscuits beyond anything in the world, but chickens are so expensive when you buy them in the market that Aunt Harriet hadn't had them very often for dinner. And there was a plate of biscuits, golden brown, just coming out of the oven! She sat down very quickly, her mouthwatering, and attacked with extreme haste the big plateful of food which Cousin Ann passed her. At Aunt Harriet's she had always been aware that everybody watched her anxiously as she ate, and she had heard so much about her light appetite that she felt she must live up to her reputation, and had a very natural and human hesitation about eating all she wanted when there happened to be something she liked very much. But nobody here knew that she "only ate enough to keep a bird alive," and that her "appetite was *so* capricious!" Nor did anybody notice her while she stowed away the chicken and gravy and hot biscuits and currant jelly and baked potatoes and apple pie — when did Betsy ever eat such a meal before? She actually felt her belt grow tight.

In the middle of the meal Cousin Ann got up to answer the telephone, which was in the next room. The instant the door had closed behind her, Uncle Henry leaned forward, tapped Betsy on the shoulder, and nodded toward the sofa. His eyes were twinkling, and as

for Aunt Abigail, she began to laugh silently, shaking all over, her napkin at her mouth to stifle the sound. Betsy turned wonderingly and saw the old dog cautiously and noiselessly letting himself down from the sofa, one ear cocked rigidly in the direction of Cousin Ann's voice in the next room. "The old tyke!" said Uncle Henry. "He always sneaks up to the table to be fed if Ann goes out for a minute. Here, Betsy, you're nearest, give him this piece of skin from the chicken neck."

The big dog padded forward across the room, evidently in such a state of terror about Cousin Ann that Betsy felt for him. She had a fellow-feeling about that relative of hers. Also, it was impossible to be afraid of so abjectly meek and guilty an animal. As old Shep came up to her, poking his nose inquiringly on her lap, she shrinkingly held out the big piece of skin, and though she jumped back at the sudden snap and gobbling gulp with which the old dog greeted the tidbit, she could not but sympathize with his evident enjoyment of it. He waved his bushy tail gratefully, cocked his head to one side, and, his ears standing up at attention, his eyes glistening greedily, he gave a little, begging whine.

"Oh, he's asking for more!" cried Betsy, surprised to see how plainly she could understand dog-talk. "Quick, Uncle Henry, give me another piece!"

Uncle Henry rapidly transferred to her plate a wing-bone from his own, and Aunt Abigail, with one deft swoop, contributed the neck from the platter. As fast as she could, Betsy fed these to Shep, who woofed them down at top speed, the bones crunching loudly under his strong, white teeth. How he did enjoy it! It did your heart good to see his gusto!

There was the sound of the telephone receiver being hung up in the next room — and everybody acted at once. Aunt Abigail began drinking innocently out of her coffee cup, only her laughing old eyes showing over the rim; Uncle Henry buttered a slice of bread with a grave face, as though he were deep in conjectures about who would be the next President; and as for old Shep, he made one plunge across the room, his toenails clicking rapidly on the bare floor, sprang up on the couch, and when Cousin Ann opened the door and came in he was lying in exactly the position in which she had left him, his paw stretched out, his head laid on it, his brown eyes turned up meekly so that the whites showed.

I've told you what these three did, but I haven't told you yet what Betsy did. And it is worth telling. As Cousin Ann stepped in, glancing suspiciously from her sober-faced and abstracted parents to the lamb-like innocence of old Shep, little Betsy burst into a shout of laughter. It's worth telling about, because, so far as I know, that was the first time she had ever laughed out heartily in all her life. For my part, I'm half surprised to know that she knew how. Of course, when she laughed, Aunt Abigail had to laugh, too, setting down her coffee cup and showing all the funny wrinkles in her face screwed up hard with fun; and that made Uncle Henry laugh, and then Cousin Ann laughed and said, as she sat down, "You are bad students, the whole four of you!"

And old Shep, seeing the state of things, stopped pretending to be meek, jumped down, and came lumbering over to the table, wagging his tail and laughing too; you know that good, wide dog-smile! He put his head on Betsy's lap again and she patted it and lifted up one of his big black ears. She had quite forgotten that she was terribly afraid of big dogs.

Test Questions - Betsy on the Farm

1. In the seventh paragraph, the word "shrinkingly" means

- A. angrily.
 - B. happily.
 - C. casually.
 - D. nervously.
-

2. Read the sentence below from the passage.

He looked as big as a bear to Betsy; and as he walked his great red tongue hung out of his mouth and his white teeth gleamed horribly.

The sentence contains an example of which type of figurative language?

- A. idiom
 - B. simile
 - C. onomatopoeia
 - D. personification
-

3. What is the **main** idea of the passage?

- A. A girl overcomes her fear of a dog.
 - B. A cousin takes charge of preparing a big dinner.
 - C. An uncle laughs about feeding a dog during dinner.
 - D. A girl learns that she likes chicken from her aunt's farm.
-

4. In the second paragraph, the author uses phrases like "*as big as a bear*" and "*white teeth gleamed horribly*" to

- A. bring out the reader's sympathy for the dog.
 - B. make Betsy's fear of the dog apparent to the reader.
 - C. explain to the reader why the dog is dangerous.
 - D. make the reader think Cousin Ann is brave to confront the dog.
-

5. In the second paragraph, the word *Shep!* is in italics to show that Cousin Ann

- A. whispers the dog's name.
 - B. says the dog's name with force.
 - C. writes down the dog's name.
 - D. thinks the dog's name to herself.
-

6. When Cousin Ann says, "Well, *somebody* has to!" this suggests that

- A. she feels she has to do all the work in the house.
 - B. other people in the house are not strict with the dog.
 - C. she wants another person to help serve the dinner.
 - D. other people in the house do not like living on a farm.
-

7. After Cousin Ann leaves the room, Uncle Henry's actions suggest that he

- A. has fed the dog from the table before.
 - B. does not want to finish the food on his plate.
 - C. wants to make the dog go back to the couch.
 - D. does not want to be bothered while he is eating.
-

8. The author uses sequence in the passage **mainly** to show

- A. when the table is set for dinner.
 - B. how slowly Uncle Henry butters his bread.
 - C. which foods the dog likes to eat.
 - D. how Betsy becomes more comfortable around the dog.
-

9. Cousin Ann is **different** from Betsy because Cousin Ann is

- A. cheery.
 - B. patient.
 - C. helpful.
 - D. confident.
-

10. What caused Betsy's belt to feel tight?

- A. eating a large plate of food that she liked
 - B. feeling frightened of Shep eating her food
 - C. being nervous about eating all she wanted
 - D. thinking Cousin Ann was watching her eat
-

11. Based on the passage, what causes Shep to stay away from the table?

- A. He is put outside.
 - B. Cousin Ann yells at him.
 - C. He does not like chicken.
 - D. Betsy is afraid of him.
-

12. Which **best** summarizes the passage?

- A. Betsy is about to have dinner with Aunt Abigail, Uncle Henry and Cousin Ann. She is frightened by a large dog near the table. After she eats a large meal, Uncle Henry encourages her to feed the dog and everyone laughs.
 - B. Cousin Ann calls to Betsy from upstairs. A large dog is walking around the dinner table and frightens her. Cousin Ann tells the dog to lie down. Aunt Abigail and Uncle Henry feed the dog scraps from the table.
 - C. Betsy eats a large meal with Aunt Abigail, Uncle Henry, and Cousin Ann. Cousin Ann leaves the room to answer the telephone. Then the dog gets down from the couch to beg for scraps from the dinner table.
 - D. Cousin Ann brings chicken to the dinner table. Betsy eats a large meal including hot biscuits and baked potatoes. Aunt Abigail and Uncle Henry laugh when the dog gets off the couch and comes to the table.
-

13. Why does Uncle Henry wait to give Shep chicken until Cousin Ann leaves the room?

- A. He wants to be helpful to Cousin Ann by feeding Shep.
 - B. He does not want Cousin Ann to think her food is only good for dogs.
 - C. He wants to surprise Cousin Ann when she comes back into the room.
 - D. He knows Cousin Ann would not allow Shep to eat food from the table.
-

14. At the end of the story, Betsy's feelings toward Shep have changed from scared to

- A. angry.
 - B. impatient.
 - C. surprised.
 - D. affectionate.
-

15. Which element of the setting is **most** important to the plot?

- A. There are biscuits on the dining room table.
 - B. Sunlight is shining onto the dining room table.
 - C. A couch is placed near the dining room table.
 - D. The telephone cannot be seen from the dining room.
-

16. Which best describes the atmosphere of the setting?

- A. loud and scary
 - B. warm and inviting
 - C. distant and empty
 - D. large and exciting
-

17. Which event **most** helps Betsy overcome her fear of Shep?

- A. feeding Shep table scraps
 - B. lifting up one of Shep's ears
 - C. watching Shep sit on the couch
 - D. seeing Shep walk around the table
-

18. Which **best** describes the climax of the story?

- A. Cousin Ann puts a big platter of chicken on the table.
 - B. Betsy brings a plate of butter up the stairs.
 - C. Cousin Ann comes back into the room after talking on the phone.
 - D. Betsy jumps back when the dog grabs the chicken from her hand.
-

Amazing Discoveries

(An Expository Reading Passage)

by Tara Weaver-Missick

Read the following passage and answer the questions by circling the correct answer.

Did you know several kinds of corn are used for making agricultural and food products? For instance, popcorn is made with a type of corn containing more water so that it pops when heated. Corn on the cob comes from sweet corn varieties. Dent corn is used to feed animals and to make ethanol fuel, cornstarch, and sweeteners. Many different products are made from corn. How many things can you think of? Most of these products come from stuff inside the corn kernel, such as fiber and starch. Scientists are looking for ways to use fiber and starch to make even more products. They have made two new discoveries that could increase the uses for corn.

Discovery #1 is a new corn fiber oil removed from the hull of a corn kernel. The hull is the seed coat around the entire kernel, except for the pointy tip. The new oil, called "*Amaizing Oil*," may lower cholesterol levels when added to foods. In early studies, the corn fiber oil lowered total cholesterol levels in hamsters. (The hamsters weren't harmed in the study.) For people, lower cholesterol could mean lower chances for heart disease and possibly longer lives. Scientists are working with research partners at the University of Massachusetts to further develop "*Amaizing Oil*." The corn processing industry produces about 4 million tons of corn fiber each year, which could yield about 80,000 tons of corn fiber oil. Corn fiber isn't worth a lot of money. "We wanted to find a way to turn this cheap fiber into valuable new products," says chemist Kevin B. Hicks.

Discovery #2 is corn fiber gum — not the kind of gum you chew and blow bubbles with. This gum is used in products like salad dressings and beverages. It's usually brown or tan. Corn processors and industrial users want corn fiber gum with very little color. So researchers have invented a way to make white corn fiber gum, called "*Zeagen*." (The scientific name for corn is *Zea mays*.) For about 50 years, researchers have been trying to produce a good-quality gum from corn. That's a long time! This new gum could be used as a thickener. Thickeners are used in foods like soups and spreads — to make them thick, of course. Thickeners also are used to make glues for things like paper and cardboard, and for water-based paint.

Fact: A bushel of corn contains about 27,000 kernels.

Fact: One bushel of corn can make 33 pounds of sweetener, 32 pounds of starch, or 2.5 gallons of ethanol fuel.

Test Questions - Amazing Discoveries

1. According to the passage, the word hull refers to corn's
 - A. fiber gum.
 - B. pointy tip.
 - C. seed coat.
 - D. yellow color.

2. According to the passage, most corn-based products are made from the corn's
 - A. hull.
 - B. seeds.
 - C. extra water.
 - D. fiber and starch.

3. The passage is mainly about
 - A. different types of corn.
 - B. how corn is grown by farmers.
 - C. why corn is good for you.
 - D. new products made from corn.

4. Which sentence from the passage is an opinion?
 - A. "That's a long time!"
 - B. "It's usually brown or tan."
 - C. "How many things can you think of?"
 - D. "Corn on the cob comes from sweet corn varieties."

5. In the passage, the phrase *Zea mays* is in italics because it is
 - A. a scientific name.
 - B. the most important phrase.
 - C. difficult to understand.
 - D. the name of a new product.

6. The purpose of the sidebar is to
 - A. persuade readers to eat more corn.
 - B. tell the reader where to find out more about corn.
 - C. give the reader statistics about corn.
 - D. describe for readers the different varieties of corn.

7. Corn processors want corn fiber gum with very little color most likely because it

- A. has more water so it pops when heated.
 - B. will be thicker than corn fiber gum with color.
 - C. may be healthier than corn fiber gum with color.
 - D. will not change the color of the food it is put in.
-

8. Based on the passage, researchers hope that "*Amaizing Oil*" will improve

- A. corn's taste.
 - B. people's health.
 - C. fiber gum's color.
 - D. corn fiber's value.
-

9. The author uses problem and solution as the main text structure of the passage to

- A. describe what the different varieties of corn taste like.
 - B. persuade readers to buy more products that are made from corn.
 - C. inform readers about how scientists are looking for new ways to use corn.
 - D. list the sequence of steps used to turn corn into various different products.
-

10. According to the passage, "*Amaizing Oil*" is different from other corn fiber oil because "*Amaizing Oil*"

- A. may lower cholesterol.
 - B. is worth more money.
 - C. makes a good thickener.
 - D. comes from sweet corn.
-

11. According to the passage, one way "*Zeagen*" is different from other corn fiber gums is that it is

- A. thicker than other gums.
 - B. white instead of brown.
 - C. used in more products.
 - D. made from dent corn.
-

12. One of the reasons scientists use corn fiber to develop many corn-based products is most likely that it

- A. can lower cholesterol.
 - B. is not worth a lot of money.
 - C. pops when it is heated.
 - D. is white instead of brown.
-

Outdoor Safety — Camping Tips

(A Technical Reading Passage)

Read the following passage and answer the questions by circling the correct answer.

Whether you're roughing it in a tent or planning a family outing to a national forest, there are many ways to make sure your experience is fun and safe. Consider the following safety tips:

- **Pack a first aid kit.** Your kit can prove invaluable if you or a member of your group suffers a cut, bee sting or allergic reaction. Pack antiseptics for cuts and scrapes, tweezers, insect repellent, bug spray, a snake bite kit, pain relievers, and sunscreen.
- **Bring emergency supplies.** In addition to a first aid kit, this includes: a map, compass, flashlight, knife, waterproof fire starter, personal shelter, whistle, warm clothing, high energy food, water, and insect protection.
- **Learn the ABC's of treating emergencies.** Recognizing serious injuries will enable you to attend to a victim until medical help arrives.
- **Before you leave, find out the weather report.** When you arrive at the site, watch the skies for changes and carry a compact weather radio. In inclement weather, find shelter until the worst passes. Stay dry — wet clothes contribute to heat loss. Also, keep sleeping bags and important gear dry at all times.
- **Arrive early.** Plan your trip so that you arrive at your actual campsite with enough daylight to check over the entire site and to set up camp.
- **Check for potential hazards.** Be sure to check the site thoroughly for glass, sharp objects, branches, large ant beds, poison ivy, bees, and hazardous terrain.
- **Avoid areas of natural hazards.** Check the contour of the land and look for potential trouble due to rain. Areas that could flood or become extremely muddy can pose a problem.
- **Inspect the site.** Look for a level site with enough room to spread out all your gear. Also, a site that has trees or shrubs on the side of prevailing winds will help block strong, unexpected gusts.
- **Build fires in a safe area.** Your open fires and fuel-burning appliances must be far enough away from the tent to prevent ignition from sparks, flames, and heat. Never use a flame or any other heating device inside a tent. Use a flashlight or battery-powered light instead.
- **Make sure your fires are always attended.** Be sure you have an area for a fire that cannot spread laterally or vertically — a grill or stone surface is ideal. When putting the fire out, drown it with water, making sure all embers, coals and sticks are wet. Embers buried deep within the pile have a tendency to reignite later.
- **Pitch your tent in a safe spot.** Make sure your tent is made of a flame-retardant fabric, and set up far enough away from the campfire. Keep insects out of your tent by closing the entrance quickly when entering or leaving.
- **Dispose of trash properly.** Remember to recycle — use the proper recycling bins if available.
- **Be cautious when using a propane stove.** Read the instructions that come with the stove and propane cylinder. Use the stove as a cooking appliance only — never leave it unattended while it's burning.
- **Watch out for bugs.** Hornets, bees, wasps, and yellow jackets are a problem at many campsites. Avoid attracting stinging insects by wearing light-colored clothing and avoiding perfumes or colognes. Should such an insect approach, do not wave wildly and swat blindly — instead use a gentle pushing or brushing motion to deter them.

- **Beware when encountering wildlife.** To ward off bears, keep your campsite clean, and do not leave food, garbage, coolers, cooking equipment or utensils out in the open. Remember that bears are potentially dangerous and unpredictable — never feed or approach a bear. Use a flashlight at night — many animals feed at night and the use of a flashlight may warn them away.
- **Beware of poisonous plants.** Familiarize yourself with any dangerous plants that are common to the area. If you come into contact with a poisonous plant, immediately rinse the affected area with water and apply a soothing lotion such as calamine to the affected area.
- **Practice good hygiene.** Make sure you wash your hands, particularly after using the toilet and before handling food, to prevent everyone in your group becoming ill.

Test Questions – Outdoor Safety – Camping Trips

1. In the fourth item in the bulleted list, the word inclement probably means
 - A. stormy.
 - B. important.
 - C. predictable.
 - D. improving.

2. In the first item in the bulleted list, the word invaluable probably means
 - A. innocent.
 - B. elaborate.
 - C. important.
 - D. expensive.

3. According to the passage, what is the **best** way to keep insects out of your tent?
 - A. gently push them away
 - B. keep the campsite clean
 - C. close the entrance quickly
 - D. set up far from a campfire

4. The passage is **mainly** about how to
 - A. camp outdoors safely.
 - B. pack supplies for camping.
 - C. camp at national forests.
 - D. treat camping emergencies.

5. The boldface type at the beginning of each tip in the bulleted list helps the reader know the
 - A. setting of the tip.
 - B. main idea of the tip.
 - C. supporting details of the tip.
 - D. effect of not following the tip.

6. Under which item on the bulleted list can the reader find information about avoiding perfumes and colognes?
 - A. "Inspect the site."
 - B. "Watch out for bugs."
 - C. "Beware when encountering wildlife."
 - D. "Beware of poisonous plants."

7. The author uses description as the structure of the passage **mainly** to
- A. encourage people to go camping in national forests.
 - B. list suggestions for campers in order of importance.
 - C. warn inexperienced campers against camping alone.
 - D. tell how to make a camping trip safe and comfortable.
-
8. Unlike a fuel-burning appliance, a flashlight can be used
- A. as a heating device.
 - B. in muddy areas.
 - C. to ward off insects.
 - D. inside a tent.
-
9. According to the passage, what encourages bears to approach a campsite?
- A. food items
 - B. light colored clothing
 - C. open fires
 - D. perfumes and colognes
-
10. According to the passage, how can one **best** send away insects?
- A. shine a flashlight
 - B. apply calamine lotion
 - C. use a brushing motion
 - D. drown them with water
-
11. According to the passage, to protect your campsite from wind you should
- A. find a site that is level.
 - B. check the contour of the site.
 - C. find a site that has trees.
 - D. check the site for branches.
-

A World Without Airplanes?

(A Persuasive Reading Passage)

Read the following passage and answer the questions by circling the correct answer.

What would the world be like if there were no airplanes? In the 100 years since airplanes were invented, they have changed the world a lot. In fact, it would be hard to imagine what life would be like without them. How would the world be different if the Wright brothers had stayed in the bicycle business?

NASA [gloss 1] assembled a team of experts to answer that question. The team discussed the issue during an on-line chat forum [gloss 2]. The panel of experts agreed that without airplanes the world would be a bigger, slower place. Travel that takes a few hours on an airplane would take days or weeks without them.

Ken Schrock is an engineer at NASA's Marshall Space Flight Center. He noted that if there were no airplanes, the increased traffic on land would mean more people would be hurt in traffic accidents. "If all the people flying for business or pleasure were driving, there would be more cars on the road, and statistically there would be more accidents," Schrock said. "Moving the cargo would also put more trucks and trains on the roads, or intersecting roads, and [result in] more accidents."

In addition, longer transportation times would mean that goods would cost more. "A plane can easily fly overseas in a night," he said. "Crossing the Pacific in any kind of boat is going to take days, if not weeks. I think aircraft have changed the way we view the world. You can see in one view what would have taken a pioneer in a covered wagon weeks to make [it] across."

The panel also agreed that a world without airplanes would be a more divided place. "People would have much less exposure to other cultures," said Donald Mendoza. He's an aerospace engineer at NASA's Ames Research Center. Airplanes have made commerce around the world very useful and handy. They have also played a major role in the mixing of the world's populations. "People are able to visit and live in places they otherwise could not," he said. "Without aircraft, the world would seem much bigger because it would take much longer to travel great distances."

Without airplanes, the world might not have some of the advanced computers we enjoy today. "We would have computers without airplanes, but they probably would not be as powerful," Mendoza said. To study aircraft in flight, computers that can keep track of a large number of calculations are needed. To tackle this problem, thousands of processors were linked together. This makes it possible for them to tackle bigger and more complex tasks.

The use of computers for flight control systems has also led to new uses for computers. Military fighters and many commercial airliners are "driven" by their flight computers. The pilots just give inputs to the flight control system computers. To cover computer glitches, there are usually three computers to do the same job. They "vote" to look for two or three answers that are the same. If one of the answers is different, it is ignored. The answer that is the same on two computers is the one that is used to control the aircraft.

Even warfare would not be the same without airplanes. Having the best airplanes for battle has become a very important part of modern warfare. But this does more than just help the military. A lot of the technology created for military aircraft has also been used to benefit the world. Cargo planes designed for the military are being used to drop food to those in need in remote places. Better aircraft control systems that were designed for fighter jets are now used on passenger planes. Even the anti-lock brakes on cars were first used on airplanes.

Airplanes have also changed the way we think about our world. "I'm not sure whether airplanes create the need for speed or vice versa," said Andrew Hahn. He's an aircraft designer at Ames. "I think that history shows that whenever a faster gizmo comes on the scene, it changes everyone's expectations. On land, we saw stagecoaches, trains, and cars alter the speed of travel. On water, we saw Viking longboats, clipper ships, piston steamships, turbine steamships, and gas turbine ships each, in turn, shrink the planet a little more. Messaging went from messengers walking around to carts to the Pony Express to telegraph to radio to telephone to email, all the way to electronic chat rooms. Each time, what was perfectly useful yesterday became obsolete, and people just expect that messages or goods will be delivered at the latest benchmark speed. Airplanes have contributed to this, being the fastest way to move goods and people available. Because of air freight, I actually expect that something I order online today will be at my doorstep tomorrow."

Even if the airplane had not been invented, the world would still have aircraft. Even before airplanes were around, people were taking to the air in blimps. If the airplane had not been invented, blimps probably would have been used even more. People might also be flying in helicopters. Leonardo da Vinci came up with the first helicopter design in the late 1400s. This was long before the first human flight. In fact, it was almost 400 years before the first person even went up in a balloon. If the airplane had not been invented when it was, Schrock believes it would have been invented sooner or later. "If the airplane hadn't been invented, I agree that research into faster transportation means would have uncovered it," he said. So, what would the world be like without airplanes?

- It would be a world where going anywhere takes forever. A world where technology is lacking.
- A world where our understanding of the world around us is limited.

Perhaps, someday, people will remember when the solar system used to be the same way.

[gloss 1] NASA – National Aeronautics and Space Administration

[gloss 2] on-line chat forum – a virtual meeting place that allows many people to communicate with each other on-line at the same time from separate locations

Test Questions – A World Without Airplanes

1. In the third from the last paragraph, the word *obsolete* means

- A. out of date.
 - B. better quality.
 - C. less expensive.
 - D. in high demand.
-

2. Knowing the meaning of the Greek root *aero* helps the reader understand that "aeronautical" refers to traveling in

- A. air.
 - B. galaxies.
 - C. water.
 - D. machines.
-

3. Read the sentence below from the passage.

It would be a world where going anywhere takes forever.

The sentence is an example of which type of figurative language?

- A. simile
 - B. onomatopoeia
 - C. hyperbole
 - D. personification
-

4. What is the **main** topic of the passage?

- A. how airplanes were first invented
 - B. how airplanes have improved over time
 - C. how airplanes influence the world today
 - D. how airplanes are important to researchers
-

5. In the first paragraph, the author asks questions **probably** to

- A. give the reader new information.
 - B. test how much the reader already knows.
 - C. get the reader interested in the passage.
 - D. show the reader that answers are hard to find.
-

6. Which technique does the author **mainly** use to support the position that airplanes have changed the world?

- A. expert testimonials
 - B. appeals to emotion
 - C. bandwagon approach
 - D. citing statistics
-

7. Which sentence from the passage **best** supports the author's position that airplanes have changed the world?

- A. "The panel of experts agreed that without airplanes the world would be a bigger, slower place."
 - B. "He noted that if there were no airplanes, the increased traffic on land would mean more people would be hurt in traffic accidents."
 - C. "Having the best airplanes for battle has become a very important part of modern warfare."
 - D. "Even if the airplane had not been invented, the world would still have aircraft."
-

8. Which sentence from the passage is an opinion?

- A. "The team discussed the issue during an on-line chat forum."
 - B. "To study aircraft in flight, computers that can keep track of a large number of calculations are needed."
 - C. "Leonardo da Vinci came up with the first helicopter design in the late 1400s."
 - D. "In fact, it would be hard to imagine what life would be like without them."
-

9. Which sentence from the passage **best** shows the author's bias about the importance of airplanes?

- A. "In addition, longer transportation times would mean that goods would cost more."
 - B. "The answer that is the same on two computers is the one that is used to control the aircraft."
 - C. "Airplanes have also changed the way we think about our world."
 - D. "If the airplane had not been invented, blimps probably would have been used even more."
-

10. The purpose of the title is to

- A. introduce the topic of the passage.
 - B. explain the importance of the passage.
 - C. inform the reader about the author of the passage.
 - D. help the reader think about the setting of the passage.
-

11. Which of these conclusions is **best** supported by information in the passage?
- A. Airplanes have changed the world.
 - B. Airplanes make the world seem much bigger.
 - C. Airplanes have led to increased traffic problems.
 - D. Airplanes make people more nervous about traveling.
-
12. Which **best** expresses how airplanes have made the world a less divided place?
- A. They have helped to mix the various populations and cultures in the world.
 - B. Modern warfare has been improved by increased airplane technology.
 - C. They have made deliveries possible one day after an order is placed.
 - D. Thousands of airplane computer processors have been linked together.
-
13. The author uses comparison and contrast as the structure of the passage **mainly** to
- A. explain how airplanes use technology.
 - B. show why people like to travel on airplanes.
 - C. explain the history of the invention of airplanes.
 - D. show the changes airplanes have made in the world.
-
14. According to the passage, what would **most likely** happen if airplanes had not been invented?
- A. Travel would be less expensive.
 - B. Computers would not have been invented.
 - C. Bicycles would be the best way to transport products.
 - D. People would have a limited understanding of the world.
-
15. According to the passage, how did airplanes influence the development of computers?
- A. Airplanes needed computers to be less expensive.
 - B. Computers had to be made smaller to be used on airplanes.
 - C. Teams of experts discussed questions in on-line forums.
 - D. Computers were made powerful enough to do many calculations.
-

Answer Keys

Betsy on the Farm

1. Correct Answer: D
2. Correct Answer: B
3. Correct Answer: A
4. Correct Answer: B
5. Correct Answer: B
6. Correct Answer: B
7. Correct Answer: A
8. Correct Answer: D
9. Correct Answer: D
10. Correct Answer: A
11. Correct Answer: B
12. Correct Answer: A
13. Correct Answer: D
14. Correct Answer: D
15. Correct Answer: D
16. Correct Answer: B
17. Correct Answer: A
18. Correct Answer: C

NOTE:

You can access *more* Narrative Reading Passages via the LVS Junior High School webpage by clicking on the [Kansas Assessment Information](#) tab on the left hand side of the Internet screen.

Amazing Discoveries

1. Correct Answer: C
2. Correct Answer: D
3. Correct Answer: D
4. Correct Answer: A
5. Correct Answer: A
6. Correct Answer: C
7. Correct Answer: D
8. Correct Answer: B
9. Correct Answer: C
10. Correct Answer: A
11. Correct Answer: B
12. Correct Answer: B

NOTE:

You can access *more* Expository Reading Passages via the LVS Junior High School webpage by clicking on the [Kansas Assessment Information](#) tab on the left hand side of the Internet screen.

Outdoor Safety--Camping Tips

1. Correct Answer: A
2. Correct Answer: C
3. Correct Answer: C
4. Correct Answer: A
5. Correct Answer: B
6. Correct Answer: B
7. Correct Answer: D
8. Correct Answer: D
9. Correct Answer: A
10. Correct Answer: C
11. Correct Answer: C

NOTE:

You can access *more* Technical Reading Passages via the LVS Junior High School webpage by clicking on the [Kansas Assessment Information](#) tab on the left hand side of the Internet screen.

A World without Airplanes?

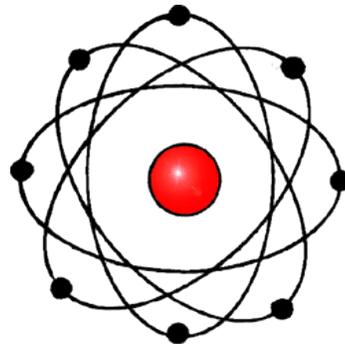
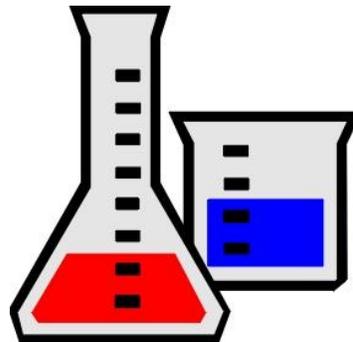
1. Correct Answer: A
2. Correct Answer: A
3. Correct Answer: C
4. Correct Answer: C
5. Correct Answer: C
6. Correct Answer: A
7. Correct Answer: A
8. Correct Answer: D
9. Correct Answer: C
10. Correct Answer: A
11. Correct Answer: A
12. Correct Answer: A
13. Correct Answer: D
14. Correct Answer: D
15. Correct Answer: D

NOTE:

You can access *more* Persuasive Reading Passages via the LVS Junior High School webpage by clicking on the [Kansas Assessment Information](#) tab on the left hand side of the Internet screen.



SCIENCE



Grade Seven Science Assessment

Introduction to the Science Standards

7th grade students will be taking the Science Assessments as part of the Kansas State Assessment in the spring. Students will be tested over some very broad indicators in the fields of:

- Earth Science
- Life Science
- Physical Science

All 6-8th graders in the state of Kansas take these three courses at some point. But each school district in Kansas chooses the order. As a result, 7th graders tested in science are usually missing *one* of these courses. For students at LVS, it is Physical Science that they generally do not have by the time they take the test in the Spring.

In order to better prepare the LVS students, below is a comprehensive list of science standards.

There will be additional opportunities for preparation beginning in January. This Science preparation will use a program called "BAIP", which is organized very much like the KCA Checkpoint Quizzes students are familiar with. BAIP is an excellent program that will help students be better prepared for the Science Assessment. More information about how to use this program, will be coming from Education Specialists.

Grade Seven Science Standards, Benchmarks, & Indicators

STANDARD 1: SCIENCE AS INQUIRY

The student will develop the abilities to do *scientific inquiry*, be able to demonstrate how *scientific inquiry* is applied, and develop understandings about *scientific inquiry*.

Benchmark 1: The student will demonstrate abilities necessary to do the processes of *scientific inquiry*.

Grades 5-7 Indicators	Instructional Examples
<p>The student...</p> <ol style="list-style-type: none"> 1. ▲ identifies questions that can be answered through scientific investigations. 2. ▲ designs and conducts <i>scientific investigations</i> safely using appropriate tools, mathematics, <i>technology</i>, and techniques to gather, analyze, and interpret data. 3. ▲ identifies the relationship between evidence and logical conclusions. 4. ▲ communicates scientific procedures, results and explanations. 	<p>The student...</p> <ol style="list-style-type: none"> 1. explores properties and phenomena of various materials and generates testable questions to investigate. 2. <ol style="list-style-type: none"> a. designs and conducts an investigation on a question; example, What is the effect of light on plant growth? Components of the investigation may include background and hypothesis, identification of variables (independent variable, dependent variable, variables to be held constant), list of materials, procedures, collection and analysis of data, and conclusions. b. given an investigative question, determines what to measure and how to measure. c. displays data collected from performing an investigation using tables, graphs, diagrams and other graphic organizers. 3. <ol style="list-style-type: none"> a. checks data to determine: Was the question addressed? Was the hypothesis supported/not supported? Did this design work? How could this experiment be improved? What other questions could be investigated? b. looks for patterns from the mean of multiple trials, such as the rate of dissolving relative to different temperatures. c. uses observations for inductive and deductive reasoning, such as explaining a person's energy level after a change in eating habits (e.g., uses Likert-type

	<p>scale).</p> <p>d. states relationships in data, such as variables, which vary directly or inversely.</p> <p>4. Presents a report of his/her investigation so that others understand it and can replicate the design.</p>
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TEACHER NOTES:

Given appropriate curriculum and adequate instruction, students can develop the skills of investigation and the understanding that scientific inquiry is guided by knowledge, observations, questions, and a design which identifies and controls variables to gather evidence to formulate an answer to an original question. Students are to be provided opportunities to engage in full and partial inquiries in order to develop the skills of inquiry.

Teachers can facilitate success by providing guidelines or boundaries for studying inquiry. Teachers assist students in choosing interesting questions, monitoring design plans, providing relevant examples of effective observation and organization strategies, and checking and improving skills in the use of instruments, technology, and techniques. Students at the middle level need special guidance in using evidence to build explanations, inferences, and models, guidance to think critically and logically, and to see the relationships between evidence and explanations.

Scientific investigation – A scientific investigation uses scientific inquiry to ask an answer a question.

Technology - Creates products to meet human needs by applying scientific principles. Science and technology are reciprocal. Science helps drive technology. Technology is essential to science, because it provides instruments and techniques that promote scientific inquiry,

Benchmark 2: The student will apply different kinds of investigations to different kinds of questions.

Grades 5-7 Indicators	Instructional Examples
<p>The student...</p> <ol style="list-style-type: none"> 1. develops questions and adapts (frames) the inquiry process to guide the appropriate type of investigation. 2. differentiates between qualitative and quantitative data in an investigation 	<p>The student...</p> <ol style="list-style-type: none"> 1. <ol style="list-style-type: none"> a. after reading a science news article, identifies variables and writes an appropriate investigative question related to the topic of the article. b. adapts an existing lab or activity to write a different question, identify another variable, and/or modify the procedure to guide a new investigation. 2. observes a decomposing compost pile, and determines how to collect quantitative (numerical, measurable) data and qualitative (descriptive) data. Identifies a question that produces quantitative data. (e.g., is the temperature constant throughout the compost pile?) Identifies a question that produces qualitative data. (e.g., does the color of the compost pile change over time?) With the class, analyzes all questions to classify as qualitative or quantitative.

TEACHER NOTES:

Some investigations involve observing and describing objects, organisms or events. Investigations can also involve collecting specimens, experiments, seeking more information, discovering new objects and phenomena, and creating models to explain the phenomena. Instructional activities of scientific inquiry need to engage students in identifying and shaping questions for investigations. Different kinds of questions suggest different kinds of investigations. Many processes or objects in science cannot be directly observed due to size distance or other constraints. However, scientific evidence can be used to draw conclusions and develop a model or picture of the process or object.

To help focus, students need to frame questions such as “What do we want to find out?” “How can we make the most accurate observations?” “If we do this, then what do we expect to happen?” Students need instruction to develop the ability to refine and refocus broad and ill-defined questions.

Benchmark 3: The student will analyze how science advances through the interaction of new ideas, scientific investigations, skepticism, and examinations of evidence of varied explanations,

Grades 5-7 Indicators	Instructional Examples
<p>The student...</p> <ol style="list-style-type: none">1. after completing an investigation, generates alternative methods of investigation and/or further questions for inquiry.2. ▲ evaluates the work of others to determine evidence which scientifically supports or contradicts the results, identifying faulty reasoning or conclusions that go beyond evidence and/or are not supported by data.	<p>The student...</p> <ol style="list-style-type: none">1. asks “What would happen if...?” questions to generate new ideas for investigation.2. a. examines and analyzes a scientific breakthrough (such as a Hubble discovery) using multiple scientific sources. b. explains how a reasonable conclusion is supported. c. analyzes evidence and data which supports or contradicts various theories (e.g. theory of continental drift, spontaneous generation, etc...).

TEACHER NOTES:

Scientific investigations often result in new ideas and phenomena for study. These generate new investigations in the scientific community. Science advances through legitimate skepticism. Asking questions and querying other scientists’ explanations is part of scientific inquiry. Scientists evaluate the proposed explanations by examining and comparing evidence, identifying faulty reasoning, and suggesting other alternatives.

Much time can be spent asking students to scrutinize evidence and explanations, but to develop critical thinking skills students must be allowed this time. Data that are carefully recorded and communicated can be reviewed and revisited frequently providing insights beyond the original investigative period. This teaching and learning strategy allows students to discuss, debate, question, explain, clarify, compare, and propose new thinking through social discourse. Students will apply this strategy to their own investigations and to scientific theories.

STANDARD 2: PHYSICAL SCIENCE

The student will apply process skills to develop an understanding of physical science including: properties, changes of properties of matter, motion and forces, and transfer of energy.

Benchmark 1: The student will observe, compare, and classify properties of matter.

Grades 5-7 Indicators	Instructional Examples
<p>The student...</p> <ol style="list-style-type: none">1. ▲ compares and classifies the states of matter; solids, liquids, gases, and plasma2. compares and contrasts the classes of matter; elements, compounds, and mixtures.3. identifies and communicates properties of matter including but not limited to, boiling point, solubility, and density.	<p>The student...</p> <ol style="list-style-type: none">1. makes a diagram/model showing the various states of water demonstrating that the molecules of a solid has definite volume and shape, the molecules of a liquid have a definite volume but an indefinite shape, the molecules of a gas have an indefinite volume and indefinite shape.2 a. separates sand, iron filings, and salt using a magnet and water. b. observes properties of kitchen powders (baking soda, salt, sugar, flour). Mixes in various combinations, then identifies by properties. c. given a chemical formula, uses a periodic table to identify the number and type elements in a compound.3 a. measures and graphs the boiling point temperatures for several different liquids. b. graphs the cooling curve of a freezing ice cream mixture. c. observes substances that dissolve (sugar) and substances that do not dissolve (sand).

TEACHER NOTES:

Substances have characteristic properties. Substances often are placed in categories if they react or act in similar ways. An example of a category is metals. There are more than 100 known elements that combine in a multitude of ways to produce compounds, which account for the living and non-living substances we encounter. Middle level students have the capability of understanding relationships among properties of matter. For example, they are able to understand that density is a ratio of mass to volume, boiling point is affected by atmospheric pressure, and solubility is dependent on pressure and temperature.

These relationships are developed by concrete activities that involve hands-on manipulation of apparatus, making quantitative measurements, and interpreting data using graphs. It is important to connect characteristics of matter to common experiences so that concepts can be reconstructed. Some relevant questions are "What happens in a pressure cooker?" "Why does adding oil to boiling rice and pasta keep it from boiling over?" "What is in antifreeze and how does it keep your radiator from freezing?" "Why do bridges have metal expansion joints?"

Benchmark 2: The student will observe, measure, infer, and classify changes in properties of matter.	
Grades 5-7 Indicators	Instructional Examples
<p>The student...</p> <ol style="list-style-type: none"> ▲ understands the relationship of atoms to elements and elements to compounds. ▲ measures and graphs the effects of temperature on matter. 	<p>The student...</p> <ol style="list-style-type: none"> draws a diagram to show how different compounds are composed of elements in various combinations. changes water from solid to liquid to gas using heat. Measures and graphs temperature changes. Observes changes in volume occupied.
<p>TEACHER NOTES:</p> <p>Substances react chemically in characteristic ways with other substances to form new substances (compounds) with different characteristic properties. Middle level students have the capability of inferring characteristics that are not directly observable and stating their reasons for their inferences. Students need opportunities to form relationships between what they can see and their inferences of characteristics of matter.</p> <p>We cannot always see the products of chemical reactions, so the teacher can provide opportunities for students to measure reactants and products to build the concept of conservation of mass. "Is mass lost when baking soda (solid) and vinegar (liquid) react to produce a gas?" "How could we design an experiment which would (safely) contain the reaction in a closed container in order to measure the materials before and after the reaction?" Students need to engage in activities that lead to these understandings.</p>	

Benchmark 3: The student will investigate motion and forces.	
Grades 5-7 Indicators	Instructional Examples
<p>The student...</p> <ol style="list-style-type: none"> identifies the forces that act on an object (e.g., gravity and friction) ▲ describes, measures, and represents data on a graph showing the motion of an object (position, direction of motion, speed). ▲ recognizes and describes examples of Newton's Laws of Motion. 	<p>The student...</p> <ol style="list-style-type: none"> <ol style="list-style-type: none"> explores the variables of (wheel and ramp) surfaces that would allow a powered car to overcome the forces of gravity and friction to climb an inclined plane. investigate the forces acting on an airplane (thrust, drag, lift, and gravity). <ol style="list-style-type: none"> follows the path of a toy car down a ramp that is first covered with tile and then with sandpaper. traces the force, direction, and speed of a baseball, from leaving the pitcher's hand and returning back to the pitcher through one of many possible paths. rolls a marble down a ramp. Makes adjustments to the board or to the marble's position in order to hit a target located on the floor. Measures and graphs the results. <ol style="list-style-type: none"> places a small object on a rolling toy vehicle, stops

	<p>the vehicle abruptly, and observes the motion of the small object. Relates to personal experience - stopping rapidly in a car.</p> <p>b. with a ping pong ball and 2 straws, investigates the effects of the force of air through two straws on the ping-pong ball with the straws at the same side of the ball, on opposite sides, and at other angles. Illustrates results with vectors (force arrows).</p> <p>a. researches safety equipment, such as seat belts and safety helmets, and the role they play related to inertia.</p>
4. ▲investigates and explains how simple machines multiply force at the expense of distance.	4 a. investigates the load (force) that can be moved as the number of pulleys in a system is increased. b. investigates how bicycle gears work.

TEACHER NOTES:

All matter is subjected to forces that affect its position and motion. Relating motions to direction, amount of force, and/or speed allows students to graphically represent data for making comparisons. A moving object that is not being subjected to a force will continue to move in a straight line at a constant speed. The principle of inertia helps to explain many events such as sports actions, household accidents, and space walks. If more than one force acts upon an object moving along a straight line, the forces may reinforce each other or cancel each other out, depending on their direction and magnitude.

Students experience forces and motions in their daily lives when kicking balls, riding in a car, and walking on ice. Teachers should provide hands-on opportunities for students to experience these physical principles. The forces acting on natural and human-made structures can be analyzed using - computer simulations, physical models, and games such as pool, soccer, bowling, and marbles.

Weight – The response of mass to the pull of gravity. Weight is a measure of force. Note: Weight is often confused with mass. Mass is the amount matter (stuff) an object has and is not dependent on the object’s location. Weight is a measure of force and is not constant because the pull of gravity on an object’s mass varies with location. An object would weigh less on Earth than on Jupiter because Jupiter has greater mass than Earth; Jupiter’s mass would have a greater gravitational attraction for the object..

Benchmark 4: The student will understand and demonstrate the transfer of energy.	
Grades 5-7 Indicators	Instructional Examples
<p>The student...</p> <p>1. understands the difference between potential and kinetic energy.</p> <p>2. ▲ understands that when work is done energy transforms from one form to another, including</p>	<p>The student...</p> <p>1. uses a pendulum to compare kinetic energy (speed) with potential energy (height).</p> <p>2. a. sequences the transmission of energy through various real-life systems.</p> <p>b. designs an energy-transfer device using various forms of energy that will accomplish a simple task, such as popping a balloon.</p>

<p>mechanical, heat, light, sound, electrical, chemical, and nuclear energy, yet is conserved.</p> <p>3. ▲ observes and communicates how light (electromagnetic) energy interacts with matter: transmitted, reflected, refracted, and absorbed.</p> <p>4. ▲ understands that heat energy can be transferred from hot to cold by radiation, convection, and conduction.</p>	<p>c. draws a chart of energy flow through a telephone from the caller's voice to the listener's ear.</p> <p>3. classifies classroom objects as to how they interact with light: a window transmits; black paper absorbs; a pencil appears to bend when placed in water demonstrating refraction; a mirror reflects.</p> <p>4. adds colored warm water to cool water. Observes convection. Measures and graphs temperature over time.</p>
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TEACHER NOTES:
 Energy forms, such as heat, light, electricity, mechanical (motion), sound, and chemical energy are properties of substances. Energy can be transformed from one form to another. The sun is the ultimate source of energy for life systems, while heat convection currents deep within the earth are energy sources for gradually shaping the earth's surface. Energy cycles through physical and living systems. Energy can be measured and predictions can be made based on these measurements.
 Students can explore light energy using lenses and mirrors, then connect with real-life applications such as cameras, eyeglasses, telescopes, and bar code scanners. Students connect the importance of energy transfer with sources of energy for their homes, such as chemical, nuclear, solar, and mechanical sources. Teachers provide opportunities for students to explore and experience energy forms, energy transfers, and make measurements to describe relationships.

STANDARD 3: LIFE SCIENCE
The student will apply process skills to explore and understand structure and function in living systems, reproduction and heredity, regulation and behavior, populations and ecosystems, and diversity and adaptations of organisms.

Benchmark 1: The student will model structures of organisms and relate functions to the structures.	
Grades 5-7 Indicators	Instructional Examples
<p>The student...</p> <p>1. ▲ will understand the cell theory; that all organisms are composed of one or more cells, cells are the basic unit of life, and that cells come from other cells.</p> <p>2. ▲ relates the structure of cells, organs, tissues,</p>	<p>The student...</p> <p>1. will observe plant and animal cells using a microscope.</p> <p>2. creates and compares two models: the major parts and their functions of a single-cell organism and the major parts and their functions of a multi-cellular organism, e.g. amoeba and hydra.</p> <p>3. a. identifies human body organs and characteristics. Then relates their characteristics to function.</p>

<p>organ systems, and whole organisms to their functions</p> <p>3. compares organisms composed of single cells with organisms that are multi-cellular.</p> <p>4. concludes that breakdowns in structure or function may be caused by disease, damage, heredity, or aging.</p>	<p>b. maps human body systems, researches their functions and shows how each supports the health of the human body.</p> <p>c. relates an organism's structure to how it works.</p> <p>d. compare and contrast plant and animal cells.</p> <p>4. compares lung capacity of smokers with that of non-smokers and graphs the results.</p>
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TEACHER NOTES:

The cell theory states that organisms are made of cells, cells are the basic unit of life, and cells come from other cells. Living things at all levels of organization demonstrate the complimentary nature of structure and function. Disease is a breakdown in structure or function of an organism. It is useful for middle level students to think of life as being organized from simple to complex, such as a complex organ system includes simpler structures. Understanding the structure and function of a cell can help explain what is happening in more complex systems. Students must also understand how parts relate to the whole, such as each structure is distinct and has a set of functions that serves the whole.

Teachers can help students understand this organization of life by comparing and contrasting the levels of organization in both plants and animals. Teachers reinforce understanding of the cellular nature of life by providing opportunities to observe live cultures, such as pond water, creating models of cells, and using the Internet to observe and describe electron micrographs. Early adolescence is an ideal time to investigate the human body systems as an example of relating structure and function of parts to the whole.

Benchmark 2: The student will understand the role of reproduction and heredity for all living things.

Grades 5-7 Indicators	Instructional Examples
<p>The student...</p> <p>1. ▲ differentiates between asexual and sexual reproduction of organisms.</p> <p>2. understands how hereditary information of each cell is passed from one generation to the next</p> <p>3. infers that the characteristics of an organism result from heredity and interactions with the environment</p>	<p>The student...</p> <p>1. a. compares the regeneration of a planarian to the reproduction of an earthworm.</p> <p>b. compares the propagation of new plants from cuttings, which skips a portion of the life cycle, with the process of producing a new plant from fertilization of an ovum.</p> <p>c. observes and communicates the life cycle of an organism.</p> <p>2. a. in a cooperative setting, traces parent characteristics with those of an offspring using Punnett squares.</p> <p>b. uses coin tossing to predict the probability of traits being passed on.</p>

	3. chooses an organism. Researches its characteristics. Infers if these characteristics result from heredity, environment, or both.
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TEACHER NOTES:
 Reproduction is an activity of all living systems to ensure the continuation of every species. Organisms reproduce sexually and/or asexually. Every organism requires a set of instructions for specifying its traits. Heredity is the passage of these instructions from one generation to another. Students need to clarify misconceptions about reproduction, specifically about the role of the sperm and egg, and the sexual reproduction of flowering plants. In learning about heredity, younger middle level students will focus on observable traits, and older students will gain understanding that genetic material carries coded information. Teachers should provide opportunities for students to observe a variety of organisms and their sexual and asexual methods of reproduction by culturing bacteria, yeast cells, paramecia, hydra, mealworms, guppies, or frogs. Tracing the origin of students' own development back to sperm and egg reinforces how an organism develops from a combination of male and female sex cells. Discussions with students about traits they possess from their father and mother lead to understanding of how an organism receives genetic information from both parents and how new combinations result in the students' unique characteristics.

Benchmark 3: The student will describe homeostasis, the regulation and balance of internal conditions in response to a changing external environment.

Grades 5-7 Indicators	Instructional Examples
<p>The student...</p> <ol style="list-style-type: none"> ▲ understands that internal and/or environmental conditions affect an organism's behavior and/or response in order to maintain and regulate stable internal conditions to survive in a continually changing environment. recognizes that the survival of all organisms requires the ingestion of materials, the intake and release of energy, growth, release of wastes and responses to environmental change. 	<p>The student...</p> <ol style="list-style-type: none"> <ol style="list-style-type: none"> selects a variable to alter the environment (e.g., temperature, light, moisture, gravity) and observes the effects on an organism (e.g., pill bug or earthworm). Thinks of his/her own behaviors and determines environmental conditions that affect behavior. observes the response of the body when competing in a running event. (In order to maintain body temperature, various systems begin cooling through such processes as sweating and cooling the blood at the surface of the skin). investigates the effects of various stimuli on plants and how they adapt their growth: phototropism, geotropism, and thermotropism are examples.

TEACHER NOTES:
 All organisms perform similar processes to maintain life. They take in food and gases, eliminate wastes, grow and progress through their life cycle, reproduce, and maintain stable internal conditions while living in a constantly changing environment. An organism's behavior changes as its environment changes. Students need opportunities to investigate a variety of organisms to realize that all living things have similar fundamental needs. After observing an organism's way of moving, obtaining food, and responding to danger, students can alter the environment and observe the effects on the organism.

This is an appropriate time to study the human nervous and endocrine systems. Students can compare and contrast how messages are sent through the body and how the body responds. An example is how fright causes changes within the body, preparing it for fighting or fleeing.

Benchmark 4: The student will identify and relate interactions of populations of organisms within an ecosystem.

Grades 5-7 Indicators	Instructional Examples
<p>The student...</p> <ol style="list-style-type: none"> 1. ▲ recognizes that all populations living together (biotic resources) and the physical factors (abiotic resources) with which they interact compose an ecosystem. 2. understands how limiting factors determine the carrying capacity of an ecosystem. 3. ▲ traces the energy flow from the sun (source of radiant energy) to producers (via photosynthesis – chemical energy) to consumers and decomposers in food webs. 	<p>The student...</p> <ol style="list-style-type: none"> 1 <ol style="list-style-type: none"> a. creates a classroom terrarium and identifies the interactions between the populations and physical conditions needed for survival. b. participates in a field study examining the living and non-living parts of a community. 2 changes variables such as wheat crop yield, mice, or a predator, and chart the possible outcomes. (For example, how would a low population of mice affect the population of the predator over time)? 3 <ol style="list-style-type: none"> a. explores populations at a stream, pond, field, forest floor, and/or rotting log. Identifies the various food webs and observes that organisms in a system are classified by their function. b. role-plays the interactions and energy flow of organisms in a food web e.g. Passes a ball of string among a circle of students who represent parts of a food web (green plants, the sun, insects, etc...). (The string connecting students represents the relationships among food web components, resulting in a web-like model). c. investigates the importance of photosynthesis to all life.

TEACHER NOTES:

A population consists of all individuals of a species that occur together at a given time and place. All populations living together and the physical factors with which they interact compose an ecosystem. Populations can be categorized by the functions they serve in an ecosystem: producers (make their own food), consumers (obtain food by eating other organisms), and decomposers (use waste materials). The major source of energy for ecosystems is sunlight. This energy enters the ecosystem as sunlight and is transformed by producers into food (chemical) energy which then passes from organism to organism, which we observe as food webs. The resources of an ecosystem, biotic and abiotic, determine the number of organisms within a population that can be supported.

Middle level students understand populations and ecosystems best when they have an opportunity to explore them actively. Taking students to a pond or a field, or even having them observe life under a rotting log, allows them to identify and observe interactions between populations and identify the physical conditions needed for their survival. A classroom

terrarium, aquarium, or river tank can serve as an excellent model for observing ecosystems and changes and interactions that occur over time between populations of organisms and changes in physical conditions. Constructing their own food webs, given a set of organisms, helps students to see multiple relationships more clearly.

Benchmark 5: The student will observe the diversity of living things and relate their adaptations to their survival or extinction.

Grades 5-7 Indicators	Instructional Examples
<p>The student...</p> <ol style="list-style-type: none"> 1. concludes that species of animals, plants, and microorganisms may look dissimilar on the outside but have similarities in internal structures, developmental characteristics, chemical processes, and genomes. 2. ▲ understands that adaptations of organisms (changes in structure, function, or behavior that accumulate over successive generations) contribute to biological diversity. 3. ▲ associates extinction of a species with environmental changes and insufficient adaptive characteristics. 	<p>The student...</p> <ol style="list-style-type: none"> 1. <ol style="list-style-type: none"> a. researches numerous organisms and creates a classification system based on observations of similarities and differences. b. uses a field guide and/or dichotomous key to identify an organism. c. explores various ways animals take in oxygen and give off carbon dioxide. 2. compares characteristics of birds such as beaks, wings, and feet, with how a bird behaves in its environment. Then works in a cooperative group to design different parts of an imaginary bird. Relates characteristics and behaviors of that bird with its structures. 3. uses various objects to model bird beaks, such as spoons, toothpicks, clothespins. Uses "beaks" to "eat" several types of food, such as cereal, raisins, noodles. (When "food" sources change, those species that have not adapted die).

TEACHER NOTES:

Millions of species of animals, plants and microorganisms are alive today. Animals and plants vary in body plans and internal structures. The theory of biological evolution explains how gradual changes of characteristics of organisms over many generations have resulted in variations among populations and species. Therefore, a structural characteristic, process, or behavior that helps an organism survive in its environment is called an adaptation. When the environment changes and the adaptive characteristics are insufficient, the species becomes extinct.

As they investigate different types of organisms, teachers guide students toward thinking about similarities and differences. Students can compare similarities between organisms in different parts of the world, such as tigers in Asia and mountain lions in North America to explore the concept of common ancestry. Instruction needs to be designed to uncover and correct misconceptions about natural selection. Students tend to think of all individuals in a population responding to change quickly rather than over a long period of time. Using examples such as Darwin's finches help develop understanding of natural selection over time. Providing students with fossil evidence and allowing them time to construct their own explanations is important in developing middle level students' understanding of extinction as a natural process that has

affected earth's species over time..

STANDARD 4: EARTH and SPACE SCIENCE

The student will apply process skills to explore and develop an understanding of the structure of the earth system, earth's history, and earth in the solar system.

Benchmark 1: The student will understand that the structure of the earth system is continuously changing due to earth's physical and chemical processes.

Grades 5-7 Indicators	Instructional Examples
<p>The student...</p> <ol style="list-style-type: none">1. ▲ identifies properties of the solid earth, the oceans and fresh water, and the atmosphere.2. ▲ models earth's cycles, constructive and destructive processes, and weather systems.	<p>The student...</p> <ol style="list-style-type: none">1. <ol style="list-style-type: none">a. classifies rocks, minerals, and soil by properties.b. creates a concept map of earth materials using links to show connections, such as water causing erosion of solid rock, wind evaporating water, etc...c. investigates water's major role in changing the solid surface of earth, such as the effect of oceans on climates and water as an erosion force.d. maps major climate zones and relates to ocean currents.e. compares heating and cooling over land and water.f. compares the densities of salt and fresh water.2. <ol style="list-style-type: none">a. creates rock cycle and water cycle dioramas.b. illustrates global ocean and wind currents.c. constructs models of rock types using food. Peanut brittle without the peanuts can illustrate a molten material crystallizing to form a solid substance similar to an igneous rock.d. observes the effects of mechanical and chemical weathering on various rock types.b. investigates local examples of weathering, erosion, and deposition.

TEACHER NOTES:

Earth has four major interacting systems: the geosphere, the atmosphere, the hydrosphere, and the biosphere. Earth (geosphere) material is constantly being reworked and changed. Physical forces, chemical reactions, heat, energy, and biological processes power the rock cycle and the water cycle. The outermost layer of the earth is the lithosphere. Under the lithosphere is a hot, convecting mantle and a dense, metal-rich core. Massive lithospheric plates containing continents and oceans move slowly in response to movement in the mantle. These plate

motions also result in earthquakes, volcanoes, and mountain building. Constructive and destructive forces change earth's landforms. Constructive forces include crustal formation by plate movement, volcanic eruptions, earthquakes, and deposition of sediments. Destructive forces include weathering, erosion, and glacial action.

Students learn about the major earth systems and their relationships through direct and indirect evidence. First-hand observations of weather, rocks, soil, oceans, and gases lead students to make inferences about some of those major systems. Indirect evidence is used when determining the composition and movement in earth's mantle and core.

Benchmark 2: The student will understand past and present earth processes and their similarity.

Grades 5-7 Indicators	Instructional Examples
<p>The student...</p> <p>1. ▲ understands that earth processes observed today (including movement of lithospheric plates and changes in atmospheric conditions) are similar to those that occurred in the past; earth history is also influenced by occasional catastrophes, such as the impact of a comet or asteroid.</p>	<p>The student...</p> <p>1 a. makes models which show how erosion and deposition has changed Earth's surface over time.</p> <p>b. investigate how the Grand Canyon was formed and continues to change.</p>

TEACHER NOTES:

The constructive and destructive forces we see today are similar to those that occurred in the past. Earth's history is written in the layers of the rocks, and clues in the rocks can be used to piece together a story and picture. Geologic processes that form rocks and mountains today are similar to processes that formed rocks and mountains over a long period of time in the distant past.

Teachers can provide opportunities for students to observe and research evidence of changes that can be found in earth's crust. Sedimentary rocks, such as limestone, sandstone, and shale show deposition of sediments over time. Volcanic flows of ancient volcanoes and earthquake damage can show us what to expect from modern day catastrophes. Glacial deposits show past ice ages and global warming and cooling. Some fossil beds enable the matching of rocks from different continents, and other fossil beds show how organisms developed over a long period of time. Students will need to apply knowledge of earth's past to make decisions relative to earth's future..

Benchmark 3: The student will identify and classify stars, planets, and other solar system components.

Grades 5-7 Indicators	Instructional Examples
<p>The student...</p> <p>1. ▲ compares and contrasts the characteristics of stars, planets, moons, comets,</p>	<p>The student...</p> <p>1 a. identifies the sun as a star and compares its characteristics to those of other stars.</p>

<p>and asteroids.</p> <ol style="list-style-type: none"> 2. models spatial relationships of the earth/moon/planets/sun system to scale. 3. identifies past and present methods used to explore space.. 	<ol style="list-style-type: none"> b. classifies bright stars visible from earth by color, temperature, age, apparent brightness, and distance from earth. c. creates a graphic organizer to visualize comparisons of planets. d. identifies and classifies characteristics of asteroids and comets. <ol style="list-style-type: none"> 2. models the solar system to scale in a long hallway or school yard using rocks for rocky planets and balloons for gaseous planets. Designates a large object as the sun. Models the earth/moon/sun system to scale with the question: If earth were the size of a tennis ball, how big would the moon be? How big would the sun be? How far apart would they be? 3. researches ancient observations and explanations of the heavens and compares with today's knowledge and methods such as, how we learn about phenomena/objects we can't observe directly. Ex. Spectral analysis to determine the chemistry of stars.
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TEACHER NOTES:

The solar system consists of the sun, which is an average-sized star in the middle of its life cycle, and the nine planets and their moons, asteroids, and comets, which travel in elliptical orbits around the sun. The sun, the central and largest body in the system, radiates energy outward. Earth is the third of nine planets in the system, and has one moon. Other stars in our galaxy are visible from earth, as are distant galaxies, but are so distant they appear as pinpoints of light. Scientists have discovered much about the composition and size of stars, and how they move in space. Space and the solar system are of high interest to middle level students. Teachers can help students take advantage of the many print and on-line resources, as well as by becoming amateur sky-watchers.

Benchmark 4: The student will model motions and identify forces that explain earth phenomena.

Grades 5-7 Indicators	Instructional Examples
<p>The student...</p> <ol style="list-style-type: none"> 1. ▲ demonstrates and models object/space/time relationships that explain phenomena such as the day, the month, the year, seasons, phases of the moon, eclipses and tides. 2. describes how the angle of incidence of solar energy striking earth's surface affects the amount of heat energy absorbed at earth's surface. 	<p>The student...</p> <ol style="list-style-type: none"> 1 <ol style="list-style-type: none"> a. uses an earth/moon/sun model to demonstrate a day, a month, a year, and the seasons. b. models the relative positions of the sun, earth, and moon to create eclipses, phases of the moon, and tides. 2. places a piece of graph paper on the surface of a globe at the equator. Holds a flashlight 10 cm. from the paper perpendicular to the globe. Marks the lighted area of the paper. Then, places the graph paper at high latitude. Again holds the flashlight perpendicular to the paper 10 cm from the paper. Compares the areas lit at the equator and at the high latitude, with the same amount of light energy. Identifies where each lighted square of paper receive the most energy?

TEACHER NOTES:

There are many motions and forces that affect earth. Most objects in the solar system have regular motions, which can be tracked, measured, analyzed, and predicted. These motions can explain such phenomena as the day, year, seasons, tides, phases of the moon, and eclipses of the sun and moon. The force that governs the motions within the solar system, keeps the planets in orbit around the sun, and the moon in orbit around the earth is gravity. Phenomena on earth's surface, such as winds, ocean currents, the water cycle, and the growth of plants, receive their energy from the sun.

Misconceptions abound among middle level students about concepts such as the cause of the seasons and the reasons for the phases of the moon. Hands-on activities, role-playing, models, and computer simulations are helpful for understanding the relative motion of the planets and moons. Many ideas are misconceptions which could be considered in a series of "what if" questions: What if the sun's energy did not cause cloud formation and other parts of the water cycle? What if the earth rotated once a month? What if the earth's axis were not tilted?

STANDARD 5: SCIENCE AND TECHNOLOGY

The student will demonstrate abilities of technological design and understandings about science and technology.

Benchmark 1: The student will demonstrate abilities of technological design.

Grades 5-7 Indicators	Instructional Examples
<p>The student...</p> <ol style="list-style-type: none"> 1. identifies appropriate problems for technological design, designs a solution or product, implements the proposed design, evaluates the product, and communicates the process of technological design. 	<p>The student...</p> <ol style="list-style-type: none"> 1 <ol style="list-style-type: none"> a. designs a measurement instrument (e.g., weather instrument) for a science question that students are investigating. b. selects and researches a current technology, then projects how it might change in the next twenty years. c. designs, creates and evaluates a product that meets

	<p>a need or solves a problem in a student’s life.</p> <p>d. keeps a log of designing (and building) a technology, then uses the log to explain the process.</p>
<p>TEACHER NOTES:</p> <p>Technological design focuses on meeting human needs, solving human problems or developing a product. Students need to develop abilities to identify specific needs and design solutions for those needs. The tasks of technological design include addressing a range of needs, materials, and aspects of science. Suitable experiences could include designing inventions that meet a need in the student’s life.</p> <p>Building a tower of straws is a good start for collaboration and work in design preparation and construction. Students need to develop criteria for evaluating their inventions/products. These questions could help develop criteria: Who will be the users of the product? How will we know if the product meets their needs? Are there any risks to the design? What is the cost? How much time will it take to build? Using their own criteria, students can design several ways of solving a problem and evaluate the best approach. Students could keep a log of their designs and evaluations to communicate the process of technological design. The log might address these questions: What is the function of the device? How does the device work? How did students come up with the idea? What were the sequential steps taken in constructing the design? What problems were encountered?</p> <p>For more information see pages 161 - 166 of the National Science Education Standards.</p>	

<p>Benchmark 2: The student will develop understandings of the similarities, differences, and relationships in science and technology.</p>	
<p>Grades 5-7 Indicators</p>	<p>Instructional Examples</p>
<p>The student...</p> <ol style="list-style-type: none"> 1. compares the work of various types of scientists and engineers. 2. evaluates benefits, risks, limitations and trade-offs of technological solutions. 3. identifies contributions to science and technology by many people and many cultures. 	<p>The student...</p> <ol style="list-style-type: none"> 1. Completes a Venn diagram to compare the processes of scientists and engineers. 2. selects a technology to evaluate using a graphic organizer listing uses, limitations, and possible consequences. 3. using a map of the world, marks the locations for people and events that have contributed to science.
<p>TEACHER NOTES:</p> <p>The primary difference between science and technology is that science investigates to answer questions about the natural world and technology creates a product to meet human needs by applying scientific principles. Middle level students are able to evaluate the impact of technologies, recognizing that most have both benefits and risks to society. Science and technology have advanced through contributions of many different people, in different cultures, at different times in history.</p> <p>Students may compare and contrast scientific discoveries with advances in technological design. Students may select a device they use, such as a radio, microwave, or television, and compare it to one their grandparents used.</p>	

STANDARD 6: SCIENCE IN PERSONAL AND ENVIRONMENTAL PERSPECTIVES

The student will apply process skills to explore and develop an understanding of issues of personal health, population, resources and environment, and natural hazards.

Benchmark 1: The student will understand scientific knowledge relative to personal health.

Grades 5-7 Indicators	Instructional Examples
<p>The student...</p> <p>1. ▲ identifies individual nutrition, exercise, and a rest needs based on science and uses a scientific approach to thinking critically about personal health, lifestyle choices, risks and benefits.</p>	<p>The student...</p> <p>1 a. designs, implements, and self-evaluates a personal nutrition and exercise program.</p> <p>b. compares and contrasts immediate benefits of eating junk food (high caloric, low nutritional foods) to long term benefits of a lifetime of healthy eating.</p> <p>c. evaluates the risks and benefits of foods, medicines, and personal products.</p> <p>d. evaluates and compares the nutritional and toxic properties of various natural and synthetic foods.</p>

TEACHER NOTES:
 Regular exercise, rest, and proper nutrition are important to the maintenance and improvement of human health. Injury and illness are risks to maintaining health. Middle level students need opportunities to apply scientific knowledge to their understanding of personal health and science-based decision-making related to health risks.

Teachers should understand that the decision making capacities of ten, eleven, twelve and thirteen year-old children are not fully developed, are subject to significant interference from hormonal changes, and otherwise lack the experience and maturity of an adult that may be necessary for wise and prudent decisions about their lives. Accordingly, teachers should work to reinforce normative parental and legal expectations designed to optimize their personal health. The challenge to teachers is to show students how science validates legal and normative parental expectations and requirements about health issues such as smoking, use of alcohol, disease, healthy eating, and the wearing of seat belts and helmets and why it is in their best personal interests to comply with these healthy expectations and requirements.

Benchmark 2: The student will understand the impact of human activity on resources and environment.

Grades 5-7 Indicators	Instructional Examples
<p>The student...</p> <p>1. ▲ investigates the effects of human activities on the environment and analyzes decisions based on the knowledge of benefits and risks.</p>	<p>The student...</p> <p>1 a. counts the number of cars that pass the school during a period of time. Investigates the effects of traffic volume on environmental quality (e.g., water and air quality, plant health).</p> <p>b. investigates the effects of repeatedly walking off the sidewalks. Discusses the implications for</p>

	<p>the environment.</p> <p>c. participates in an environmental study, such as stream monitoring.</p> <p>d. evaluates the benefits of burning fossil fuels to meet energy needs against the risks of increased air pollution, etc...</p>
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TEACHER NOTES:
 When an area becomes overpopulated by a species, the environment will change due to the increased use of resources. Middle level students need opportunities to learn about concepts of carrying capacity. They need to gather evidence and analyze effects of human interactions with the environment.

Teachers can help their students understand these global issues by starting locally. "What changes in the atmosphere are caused by all the cars we use in our community?" Ground level ozone indicators provide an opportunity to quantify the effect. "After a heavy rain, where does the water go that runs off your lawn?" "What happens to that water source if your lawn was fertilized just before the rain?" The role of the teacher is to help students apply scientific understanding, gained through their own investigations, of environmental issues. Teachers should help students base environmental decisions on understanding, not emotion.

Benchmark 3: The student will understand that natural hazards are dynamic examples of earth processes which cause us to evaluate risks.

Grades 5-7 Indicators	Instructional Examples
<p>The student...</p> <ol style="list-style-type: none"> 1. recognizes patterns of natural processes and/or human activities that may cause and/or contribute to natural hazards. 2. evaluates risks and defines appropriate actions associated with the natural hazard. 	<p>The student...</p> <ol style="list-style-type: none"> 1 <ol style="list-style-type: none"> a. sees how channeling a stream may promote flooding downstream. Could use a County Conservation Commission's stream trailer to investigate the dynamics of a stream and the effects of human interaction with the stream. 2 <ol style="list-style-type: none"> a. finds news articles that show inadvisable risks taken in a natural hazard situation. b. investigates appropriate safety procedures for dealing with various natural hazards e.g. Tornadoes, floods, lightning, etc...

TEACHER NOTES:

California has earthquakes. Florida has hurricanes. Kansas has tornadoes. Natural hazards can also be caused by human interaction with the environment, such as channeling a stream. Middle level students need opportunities to identify the causes and human risks and challenges of natural hazards.

Teachers can help students use data on frequency of occurrence of natural hazard events both to dispel unnatural fears for some students and overcome the common middle level student misconception of invincibility (it won't happen to me). "What would you need in a tornado survival kit to keep in the basement for your family?" This question would cause students to assess the kinds of damage caused by a tornado (need a flashlight because electrical lines may be down) and the kinds of support services available in the community.

STANDARD 7: HISTORY AND NATURE OF SCIENCE**The student will examine and develop an understanding of science as a historical human endeavor.****Benchmark 1: The student will develop scientific habits of mind.**

Grades 5-7 Indicators	Instructional Examples
<p>The student...</p> <ol style="list-style-type: none"> 1. practices intellectual honesty, demonstrates skepticism appropriately, displays open-mindedness to new ideas, and bases decisions on evidence. 	<p>The student...</p> <ol style="list-style-type: none"> 1 <ol style="list-style-type: none"> a. analyzes news articles to determine whether data/statistics presented adequately and objectively support conclusions that are made. b. analyzes data and recognizes that a hypothesis not supported by data should not be perceived as a right or wrong answer. c. attempts to replicate an investigation to support or refute a conclusion. d. shares interpretations that differ from currently held explanations on topics such as global warming and dietary claims. Evaluates the validity of results and accuracy of stated conclusions. e. reviews results of individual, group, or peer investigations to assess the accuracy of conclusions based upon data collection and analysis and use of evidence to reach a conclusion.

TEACHER NOTES:

Science requires varied abilities depending on the field of study, type of inquiry, and cultural context. The abilities characteristic of those engaged in scientific investigations include: reasoning, intellectual honesty, tolerance of ambiguity, appropriate skepticism, open-mindedness, and the ability to make logical conclusions based on current evidence.

Teachers can support the development of scientific habits of mind by providing students with on-going instruction using inquiry as a framework. Students can apply science concepts in investigations. They can work individually and on teams while conducting inquiry. They can share their work through varied media, and they can self-evaluate their learning. High expectations for accuracy, reliability, and openness to differing opinions should be exercised.

Benchmark 2: The student will research contributions to science throughout history.

Grades 5-7 Indicators	Instructional Examples
<p>The student...</p> <ol style="list-style-type: none"> 1. ▲ recognizes that new knowledge leads to new questions and new discoveries, replicates historic experiments to understand principles of science, and relates 	<p>The student...</p> <ol style="list-style-type: none"> 1 <ol style="list-style-type: none"> a. discusses discoveries that replaced previously held knowledge, such as safety of Freon or saccharine use, knowledge concerning the transmission of AIDS, cloning, or Pluto's status as a planet. b. rediscovers principles of electromagnetism by replicating Oersted's compass needle experiment.

<p>contributions of men and women to the fields of science.</p>	<p>(Compass needle deflects perpendicular to current carrying wire.) c. researches the contributions of men and women of science, and creates a timeline to demonstrate the ongoing contributions of dedicated scientists across ethnic, religious, and gender lines.</p>
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TEACHER NOTES:

Scientific knowledge is not static. New knowledge leads to new questions and new discoveries that may be beneficial or harmful. Contributions to scientific knowledge can be met with resistance, causing a need for replication and open sharing of ideas. Scientific contributions have been made over an expanse of time by individuals from varied cultures, ethnic backgrounds, and across gender and economic boundaries.

Students should engage in research realizing that the process may be a small portion of a larger process or of an event that takes place over a broad historical context. Teachers should focus on the contributions of scientists and how the culture of the time influenced their work. Reading biographies, interviews with scientists, and analyzing vignettes are strategies for understanding the role of scientists and the contributions of science throughout history.