

# STAAR CONNECTION™

## Diagnostic Series™

Math  
**2**  
teacher  
v2



**KAMICO®**  
Instructional Media, Inc.

# STAAR CONNECTION™

## Math 2 teacher

## Diagnostic Series™

XVI/ix/MMXXVI  
Version 2.1



**KAMICO®**

Instructional Media, Inc.

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**KAMICO® Instructional Media, Inc.**  
**CONNECTION® to the TEKS**  
**Introduction**

KAMICO® Instructional Media's program is validated by scientifically based research. **STAAR CONNECTION™ Diagnostic Series™** and **CONNECTION® to the TEKS Developmental Series™** can be used in tandem to ensure mastery of Texas reporting categories and TEKS. The *Diagnostic Series™* consists of a bank of assessments. Each assessment covers a mixture of reporting categories and TEKS. This research-based format provides continual reinforcement for and ensures retention of mastered concepts. To take full advantage of this series, administer an assessment to students. After they have completed the assessment, use it as an instructional tool. Go over each item with the class, discussing all correct and incorrect answers. Then, use the assessment as a diagnostic tool to determine a standard for which students need remediation. Find that standard in the *Developmental Series™*.

Each book in the **CONNECTION® to the TEKS Developmental Series™** consists of instructional activities and assessments over isolated TEKS to allow for the remediation and development of specific TEKS. For every TEKS, there is at least one individual or group activity. The activities provide a fun, challenging, yet nonthreatening, way to develop mastery of the TEKS. In addition to these activities, each *Developmental Series™* book contains assessments on isolated TEKS to be used to identify mastery or the need for further skill development or reinforcement. Continue to alternate between the **STAAR CONNECTION™ Diagnostic Series™** and the **CONNECTION® to the TEKS Developmental Series™**.

KAMICO's **Game Gallery®** consists of over 300 board games in English and in Spanish. These games create a game-based learning environment to facilitate additional reinforcement of TEKS.

KAMICO® Instructional Media, Inc., supports efforts to ensure adequate yearly progress and eliminate surprises in high-stakes test results.

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**KAMICO® Instructional Media, Inc.**  
**STAAR CONNECTION™**  
**Diagnostic Series™**  
**Grade 2 Math**  
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## Texas Essential Knowledge and Skills Grade 2 Mathematics

### Mathematical Process Standards

(2.1) **Mathematical process standards.** The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:

- (A) apply mathematics to problems arising in everyday life, society, and the workplace;
- (B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;
- (C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;
- (D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;
- (E) create and use representations to organize, record, and communicate mathematical ideas;
- (F) analyze mathematical relationships to connect and communicate mathematical ideas; and
- (G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

**Reporting Category 1:**  
**Numerical Representations and Relationships**

- (2.2) **Number and operations.** The student applies mathematical process standards to understand how to represent and compare whole numbers, the relative position and magnitude of whole numbers, and relationships within the numeration system related to place value. The student is expected to:
- (A) use concrete and pictorial models to compose and decompose numbers up to 1,200 in more than one way as a sum of so many thousands, hundreds, tens, and ones;
  - (B) use standard, word, and expanded forms to represent numbers up to 1,200;
  - (C) generate a number that is greater than or less than a given whole number up to 1,200;
  - (D) use place value to compare and order whole numbers up to 1,200 using comparative language, numbers, and symbols ( $>$ ,  $<$ , or  $=$ );
  - (E) locate the position of a given whole number on an open number line; and
  - (F) name the whole number that corresponds to a specific point on a number line.
- (2.3) **Number and operations.** The student applies mathematical process standards to recognize and represent fractional units and communicates how they are used to name parts of a whole. The student is expected to:
- (A) partition objects into equal parts and name the parts, including halves, fourths, and eighths, using words;
  - (B) explain that the more fractional parts used to make a whole, the smaller the part; and the fewer the fractional parts, the larger the part;
  - (C) use concrete models to count fractional parts beyond one whole using words and recognize how many parts it takes to equal one whole; and
  - (D) identify examples and non-examples of halves, fourths, and eighths.

## **Reporting Category 2: Computations and Algebraic Relationships**

- (2.4) **Number and operations.** The student applies mathematical process standards to develop and use strategies and methods for whole number computations in order to solve addition and subtraction problems with efficiency and accuracy. The student is expected to:
- (A) recall basic facts to add and subtract within 20 with automaticity;
  - (B) add up to four two-digit numbers and subtract two-digit numbers using mental strategies and algorithms based on knowledge of place value and properties of operations;
  - (C) solve one-step and multi-step word problems involving addition and subtraction within 1,000 using a variety of strategies based on place value, including algorithms; and
  - (D) generate and solve problem situations for a given mathematical number sentence involving addition and subtraction of whole numbers within 1,000.
- (2.5) **Number and operations.** The student applies mathematical process standards to determine the value of coins in order to solve monetary transactions. The student is expected to:
- (A) determine the value of a collection of coins up to one dollar; and
  - (B) use the cent symbol, dollar sign, and the decimal point to name the value of a collection of coins.
- (2.6) **Number and operations.** The student applies mathematical process standards to connect repeated addition and subtraction to multiplication and division situations that involve equal groupings and shares. The student is expected to:
- (A) model, create, and describe contextual multiplication situations in which equivalent sets of concrete objects are joined; and
  - (B) model, create, and describe contextual division situations in which a set of concrete objects is separated into equivalent sets.

(2.7) **Algebraic reasoning.** The student applies mathematical process standards to identify and apply number patterns within properties of numbers and operations in order to describe relationships. The student is expected to:

- (A) determine whether a number up to 40 is even or odd using pairings of objects to represent the number;
- (B) use an understanding of place value to determine the number that is 10 or 100 more or less than a given number up to 1,200; and
- (C) represent and solve addition and subtraction word problems where unknowns may be any one of the terms in the problem.

### **Reporting Category 3: Geometry and Measurement**

(2.8) **Geometry and measurement.** The student applies mathematical process standards to analyze attributes of two-dimensional shapes and three-dimensional solids to develop generalizations about their properties. The student is expected to:

- (A) create two-dimensional shapes based on given attributes, including number of sides and vertices;
- (B) classify and sort three-dimensional solids, including spheres, cones, cylinders, rectangular prisms (including cubes as special rectangular prisms), and triangular prisms, based on attributes using formal geometric language;
- (C) classify and sort polygons with 12 or fewer sides according to attributes, including identifying the number of sides and number of vertices;
- (D) compose two-dimensional shapes and three-dimensional solids with given properties or attributes; and
- (E) decompose two-dimensional shapes such as cutting out a square from a rectangle, dividing a shape in half, or partitioning a rectangle into identical triangles and identify the resulting geometric parts.

- (2.9) **Geometry and measurement.** The student applies mathematical process standards to select and use units to describe length, area, and time. The student is expected to:
- (A) find the length of objects using concrete models for standard units of length;
  - (B) describe the inverse relationship between the size of the unit and the number of units needed to equal the length of an object;
  - (C) represent whole numbers as distances from any given location on a number line;
  - (D) determine the length of an object to the nearest marked unit using rulers, yardsticks, meter sticks, or measuring tapes;
  - (E) determine a solution to a problem involving length, including estimating lengths;
  - (F) use concrete models of square units to find the area of a rectangle by covering it with no gaps or overlaps, counting to find the total number of square units, and describing the measurement using a number and the unit; and
  - (G) read and write time to the nearest one-minute increment using analog and digital clocks and distinguish between a.m. and p.m.

## **Reporting Category 4:**

### **Data Analysis and Personal Financial Literacy**

- (2.10) **Data analysis.** The student applies mathematical process standards to organize data to make it useful for interpreting information and solving problems. The student is expected to:
- (A) explain that the length of a bar in a bar graph or the number of pictures in a pictograph represents the number of data points for a given category;
  - (B) organize a collection of data with up to four categories using pictographs and bar graphs with intervals of one or more;
  - (C) write and solve one-step word problems involving addition or subtraction using data represented within pictographs and bar graphs with intervals of one; and
  - (D) draw conclusions and make predictions from information in a graph.
- (2.11) **Personal financial literacy.** The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security. The student is expected to:
- (A) calculate how money saved can accumulate into a larger amount over time;
  - (B) explain that saving is an alternative to spending;
  - (C) distinguish between a deposit and a withdrawal;
  - (D) identify examples of borrowing and distinguish between responsible and irresponsible borrowing;
  - (E) identify examples of lending and use concepts of benefits and costs to evaluate lending decisions; and
  - (F) differentiate between producers and consumers and calculate the cost to produce a simple item.

Name \_\_\_\_\_

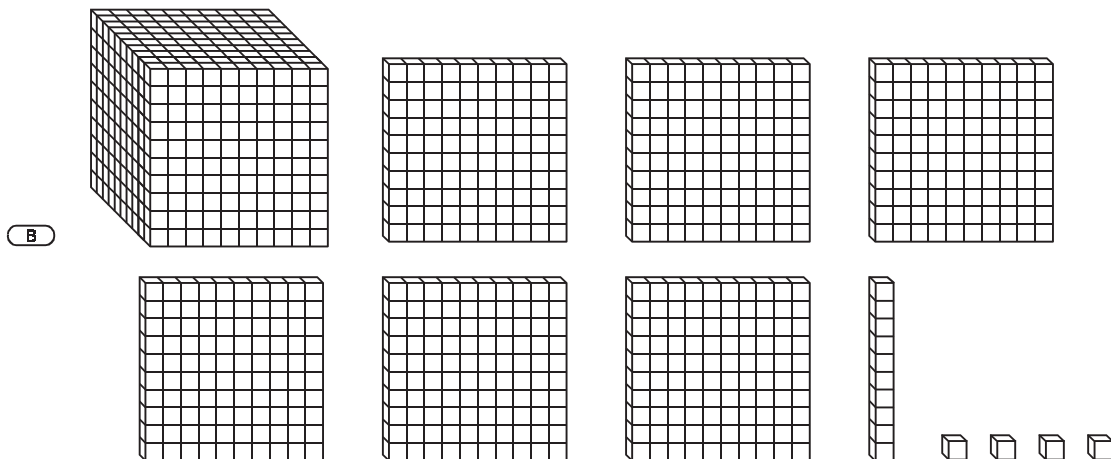
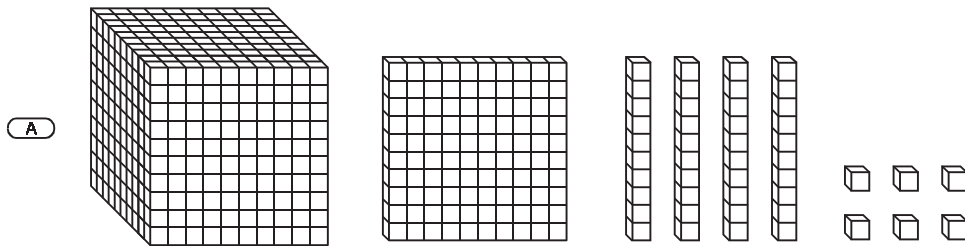
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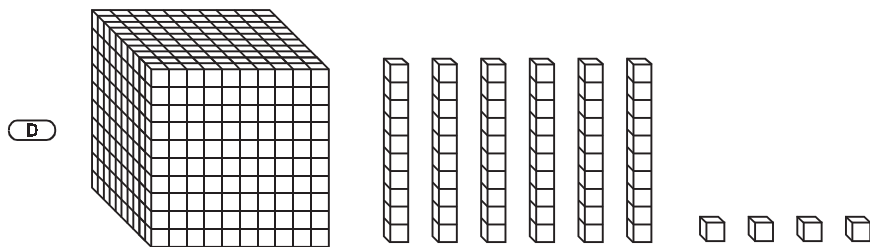
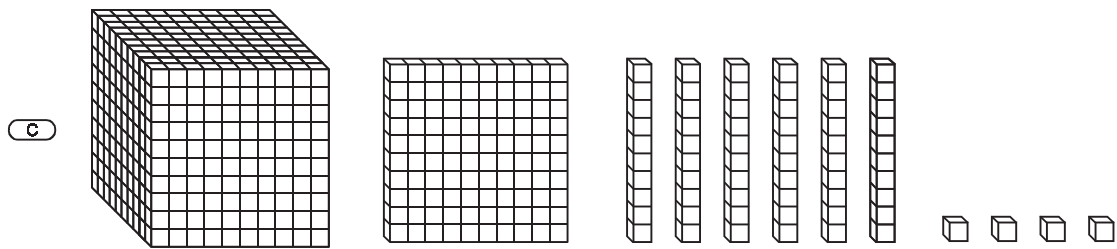
- 1 Butterflies can grow to be 12 inches wide. If 97 12-inch-wide butterflies were in a line as shown, they would form a line 1,164 inches long.

**TEKS 1/2A  
Process Skill 1D**



Which model represents 1,164?





**Bonus:**

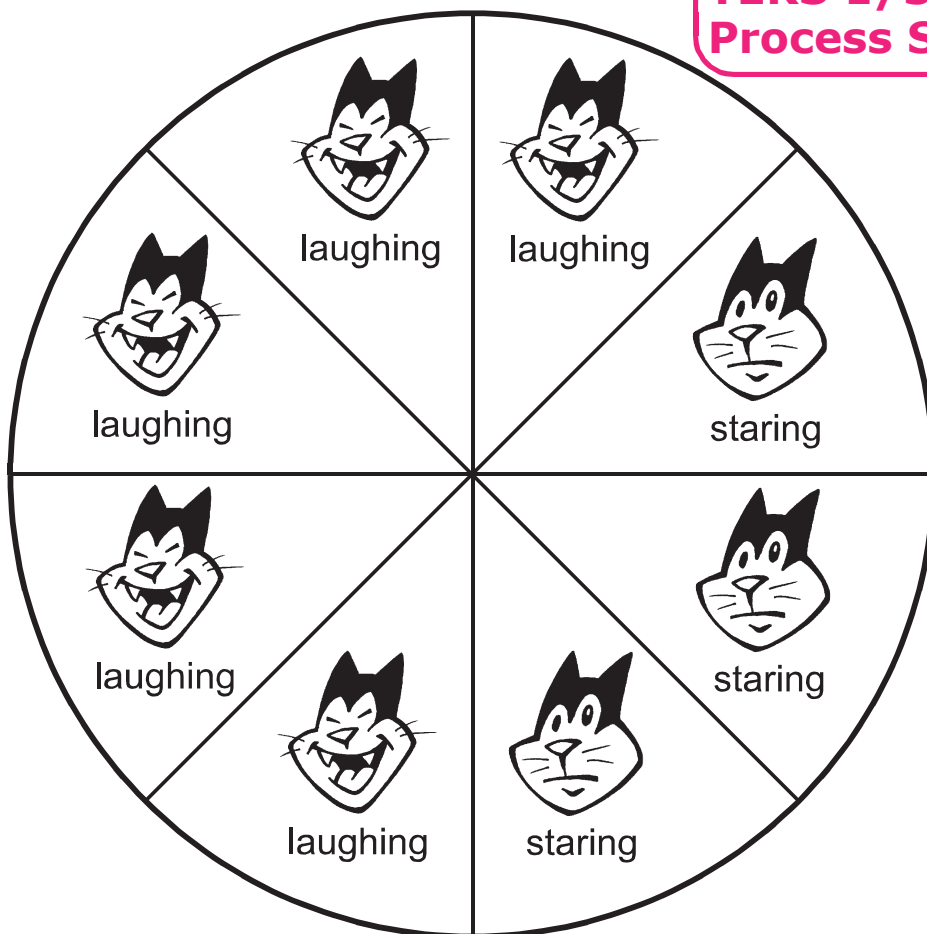
Subtract 50 from 1,164.

$$1,164 - 50 = \underline{\hspace{2cm}}$$

Draw a model to represent the difference between 1,164 and 50.

- 2 Wally is making a game to help his sister learn about fractions. The spinner for the game is shown.

**TEKS 1/3A**  
**Process Skill 1A**



What fraction of the spinner has laughing cats?

☐ F  $\frac{3}{5}$

☐ H  $\frac{5}{8}$

☐ G  $\frac{8}{5}$

☐ J  $\frac{1}{2}$

**Bonus:**

What fraction of the spinner does **not** have laughing cats?

3 Solve each equation.

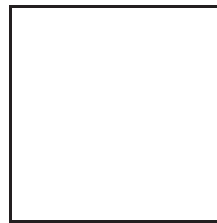
**TEKS 2/4A**  
**Process Skill 1C**

$$1 + 1 = \underline{\hspace{2cm}}$$

$$1 + 10 = \underline{\hspace{2cm}}$$

$$2 + 3 = \underline{\hspace{2cm}}$$

$$1 + 2 = \underline{\hspace{2cm}}$$



What is the sum of the sums?

☐ A 11

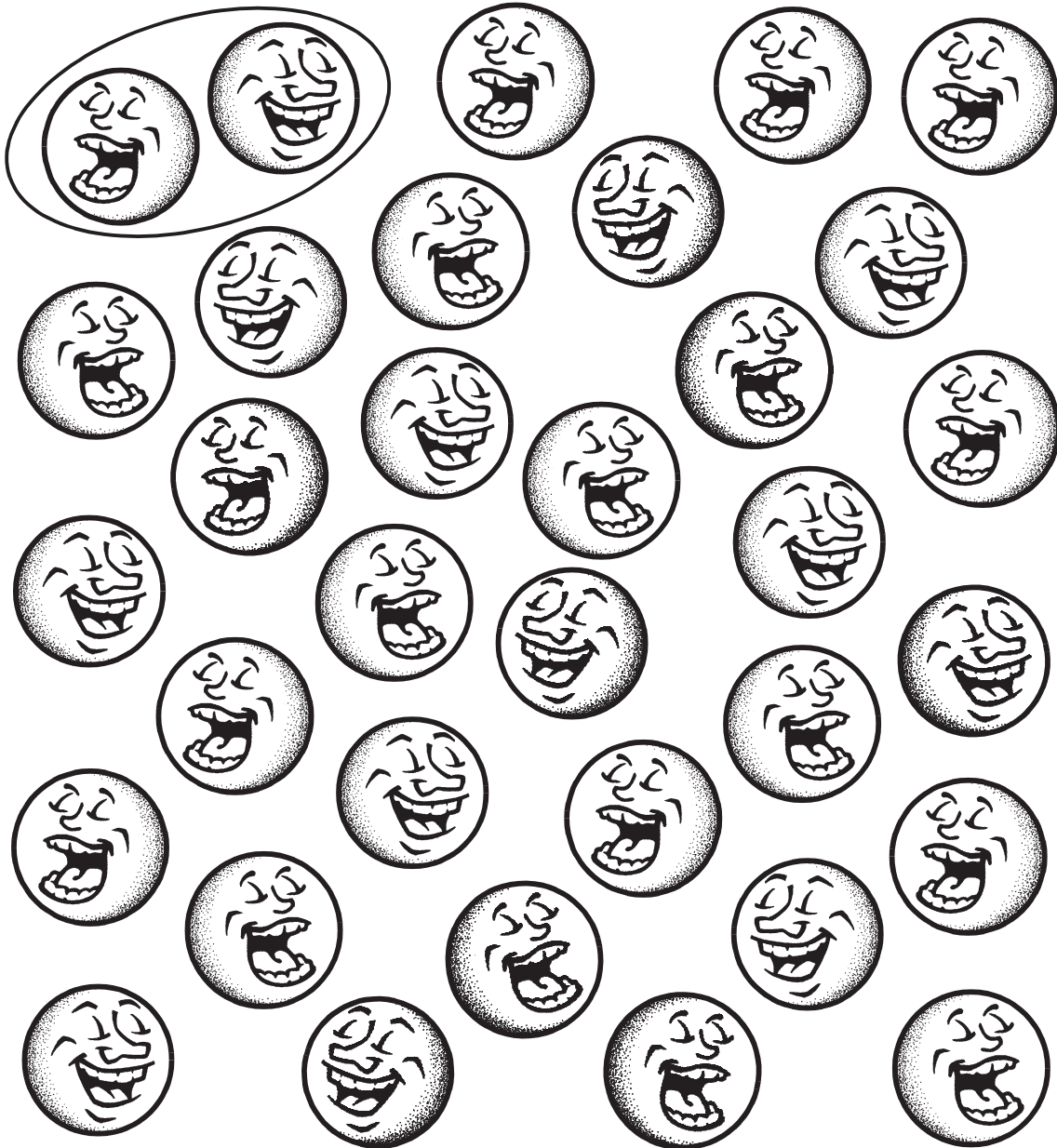
☐ B 12

☐ C 21

☐ D 111

- 4 Look at the 33 singing spheres. Pair the spheres to see if 33 is an odd or an even number. The first pair has been circled for you.

**TEKS 2/7A**  
**Process Skill 1E**



Is 33 an odd number or an even number?

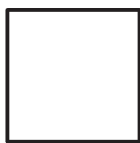
☐ F odd

☐ G even

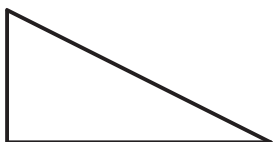
5 Which figure has 3 sides and 3 vertices?

**TEKS 3/8A**  
**Process Skill 1D**

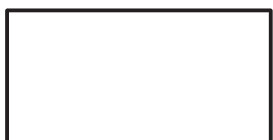
A



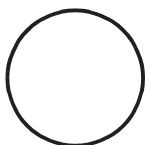
B



C



D



**Bonus:**

Draw three triangles.

A triangle has  sides and  vertices.

- 6 Look at the tiny tiger driving a taxi.

**TEKS 3/9A**  
**Process Skill 1C**



How many centimeter cubes long is the taxi?

Look at the little lion riding a lawn mower.



How many centimeter cubes long is the lawn mower?

How many centimeter cubes longer is the taxi than the lawn mower?

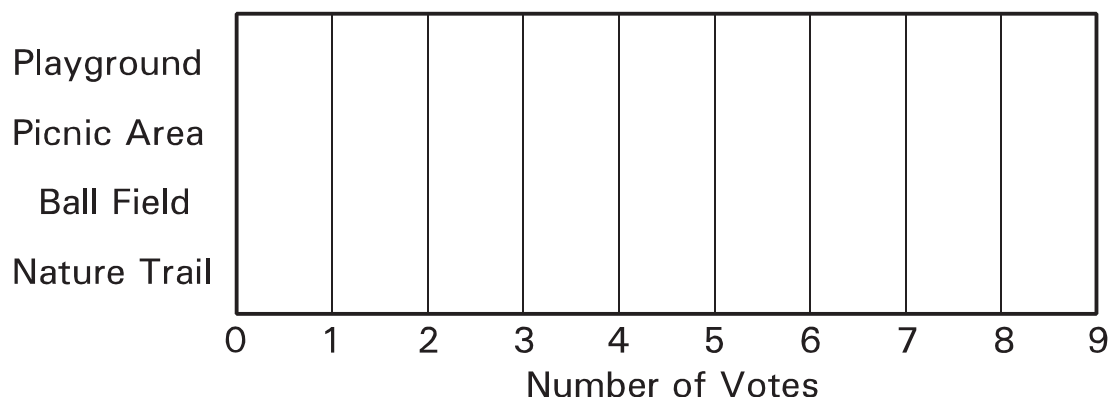
- ☐ F 1 centimeter cube
- ☐ G 5 centimeter cubes
- ☐ H 8 centimeter cubes
- ☐ J 16 centimeter cubes

- 7 Staci's class is going to the park. All the students must stay together at the park. The classmates vote on which area of the park they want to go to first. They record their votes in a table.

**TEKS 4/10A**  
**Process Skill 1D**

| Area of Park | Number of Student Votes |
|--------------|-------------------------|
| Playground   | 5                       |
| Picnic Area  | 9                       |
| Ball field   | 4                       |
| Nature Trail | 3                       |

Using the data from the table, fill in the bar graph.



Look at your completed bar graph. Which of the following is true?

- ☐ A The length of a bar equals the number of votes for an area of the park.
- ☐ B The length of a bar equals the length of an area of the park.
- ☐ C The length of a bar equals the number of letters in the name of an area of the park.
- ☐ D The length of a bar equals the number of teachers in an area of the park.

- 8 Mandy's mom took Mandy to the bank. She helped Mandy open a savings account. Mandy is going to put half of her allowance in the bank each month. She is also going to deposit half of any money she gets as gifts for her birthday or holidays.

Study the chart.

**TEKS 4/11A**  
**Process Skill 1A**

| Source of Income                                   | Deposit in Bank | Money to Spend |
|----------------------------------------------------|-----------------|----------------|
| Allowance<br>\$ 10 a month<br>× 12 months<br>\$120 | \$60            | \$60           |
| Birthday Gifts<br>\$200                            | \$100           | \$100          |
| Christmas Gifts<br>\$300                           | \$150           | \$150          |

How much did Mandy save by the end of the year, not including interest?

- ☐ F \$210
- ☐ G \$310
- ☐ H \$620
- ☐ J \$2,110

Student  
Name:

STAAR CONNECTION™  
Grade 2  
Diagnostic Series Math

Math assessment questions are listed below by reporting category and TEKS.  
Circle the number of any question that has been answered incorrectly.  
Next, circle the TEKS that needs additional reinforcement.

**Assessment 1**

| Question Number | Answer | Reporting Category | TEKS | Process Skill |
|-----------------|--------|--------------------|------|---------------|
| 1               | C      | 1                  | 2A   | 1D            |
| 2               | H      | 1                  | 3A   | 1A            |
| 3               | C      | 2                  | 4A   | 1C            |
| 4               | F      | 2                  | 7A   | 1E            |
| 5               | B      | 3                  | 8A   | 1D            |
| 6               | H      | 3                  | 9A   | 1C            |
| 7               | A      | 4                  | 10A  | 1D            |
| 8               | G      | 4                  | 11A  | 1A            |

**Assessment 2**

| Question Number | Answer | Reporting Category | TEKS | Process Skill |
|-----------------|--------|--------------------|------|---------------|
| 1               | C      | 2                  | 5A   | 1A            |
| 2               | J      | 2                  | 6A   | 1B            |
| 3               | B      | 1                  | 2B   | 1D            |
| 4               | F      | 2                  | 7B   | 1C            |
| 5               | D      | 3                  | 8B   | 1D            |
| 6               | F      | 3                  | 9B   | 1C            |
| 7               | B      | 4                  | 10B  | 1D            |
| 8               | F      | 4                  | 11B  | 1A            |