TEKSING TOWARD STAAR

MATHEMATICS®

GRADE 3

Open-Ended Problem-Solving Projections

Organized by TEKS Categories

TEKSING TOWARD STAAR MATHEMATICS®

OVERVIEW
Grade 3 Open-Ended Problem-Solving Projections

The Open-Ended Problem-Solving Projections were created with all students in mind and provide teachers with large print projections for problem-solving questions that address all TEKS, including the Process Standards TEKS and the TEKS not assessed on STAAR. Each Problem-Solving Projection is correlated to a specific Category and TEKS.

The Open-Ended Problem-Solving Projections document includes a general set of questions that should be addressed by students as they solve the problems and during class discussion of the solution process for each problem. Teachers should make a copy of these questions and distribute for each student to keep in their math notebook.

The Problem-Solving Questions include the following:

1. What is the main idea of this problem?
2. What are the supporting details in this problem?
3. What skills, concepts and understanding of math vocabulary are needed to be able to answer this problem?
4. Did this problem involve mathematics arising in everyday life, society, or the work place?
5. What is a good problem solving strategy for this problem?
6. Can you explain how you used any math tools, mental math, estimation or number sense to solve this problem?
7. Did this problem involve using multiple representations (symbols, diagrams, graphs, language)?
8. Did you use any relationships to solve this problem?
9. How can you justify your solution?
10. How can you check for reasonableness of your solution to this problem?

These Open-Ended Problem-Solving Projections can be utilized for instruction, guided practice or independent practice. These materials can be utilized with a whole class, small groups and/or tutorial settings.

NOTE: There is no answer key provided for the Open-Ended Problem-Solving Projections as the author's philosophy is that each teacher should create a personalized Solutions Manual so the teacher becomes more familiar with the Revised TEKS and assessment of the Revised TEKS, as well as formulates various solution strategies for each question. Teachers are encouraged to communicate with the author regarding discussion of any question in this document.

AUTHOR'S VISION FOR IMPLEMENTATION - PROBLEM-SOLVING PROJECTIONS

Students work with partner pairs to answer the Open-Ended Problem-Solving Projections. Students record their work on notebooks paper.

The teacher projects the problem, then sets a time limit prior to students' beginning their work. Partner pairs are given specific "share" questions from 1-10 on the Problem-Solving Questions page. The process that should be followed by students for all Problem-Solving Projections is to answer questions 1-3, then complete the solution to the problem, and finally answer questions 4-10.

The teacher calls time and the partner pairs guide class discussion on their "share" assignments. Students who did not complete the solutions to the problem prior to the time limit must complete their recording in a different color.

Problem-Solving Model

Step	Description of Step
1	Analyze the given information. •Summarize the problem in your own words. •Describe the main idea of the problem. •Identify information needed to solve the problem.
2	Formulate a plan or strategy. •Draw a picture or a diagram. •Find a pattern. •Guess and check. •Act it out. •Create or use a chart or a table. •Work a simpler problem. •Work backwards. •Make an organized list. •Use logical reasoning. •Brainstorm. •Write a number sentence or an equation.
3	Determine a solution. •Estimate the solution to the problem. •Solve the problem.
4	Justify the solution. •Explain why your solution solves the problem.
5	Evaluate the process and the reasonableness of your solution. •Make sure the solution matches the problem. •Solve the problem in a different way.

Grade 3 Problem-Solving Questions

Directions:

- **Work with a partner.**
- **Write your answers on notebook paper.**
- **Answer questions 1-3.**
- **Complete the solution to the problem.**
- **Answer questions 4-10.**

1. What is the main idea of this problem?

2. What are the supporting details in this problem?

3. What skills, concepts and understanding of math vocabulary are needed to be able to answer this problem?

4. Did this problem involve mathematics arising in everyday life, society, or the work place?

5. What is a good problem solving strategy for this problem?

6. Can you explain how you used any math tools, mental math, estimation or number sense to solve this problem?

7. Did this problem involve using multiple representations (symbols, diagrams, graphs, math language)?

8. Did you use any relationships to solve this problem?

9. How can you justify your solution to the problem?

10. How can you check for reasonableness of your solution to this problem?

TEKSING TOWARD STAAR
GRADE 3 PROBLEM-SOLVING PROJECTIONS
Table of Contents

TEKS Category 1: Mathematical Process Standards

These student expectations will not be listed under a separate TEKS category. Instead, they will be incorporated into questions across TEKS categories since the application of mathematical process standards is part of each knowledge statement.

(3.1) Mathematical Process Standards

The student uses mathematical processes to acquire and demonstrate mathematical understanding.

STAAR Standard	TEKS	STUDENT EXPECTATION
Incorporated into 1-4	**3.1(A)**	apply mathematics to problems arising in everyday life, society, and the workplace
Incorporated into 1-4	**3.1(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
Incorporated into 1-4	**3.1(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
Incorporated into 1-4	**3.1(D)**	communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate
Incorporated into 1-4	**3.1(E)**	create and use representations to organize, record, and communicate mathematical ideas
Incorporated into 1-4	**3.1(F)**	analyze mathematical relationships to connect and communicate mathematical ideas
Incorporated into 1-4	**3.1(G)**	display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication

TEKS Category 2: Number and Operations

(3.2) Number and Operations

The student applies mathematical process standards to represent and compare whole numbers and understand relationships related to place value.

STAAR Standard	TEKS	STUDENT EXPECTATION
Readiness	**3.2(A)**	compose and decompose numbers up to 100,000 as a sum of so many ten thousands, so many thousands, so many hundreds, so many tens, and so many ones using objects, pictorial models, and numbers, including expanded notation as appropriate
Supporting	**3.2(B)**	describe the mathematical relationships found in the base-10 place value system through the hundred thousands place
Supporting	**3.2(C)**	represent a number on a number line as being between two consecutive multiples of 10; 100; 1,000; or 10,000 and use words to describe relative size of numbers in order to round whole numbers
Readiness	**3.2(D)**	compare and order whole numbers up to 100,000 and represent comparisons using the symbols >, <, or =

(3.3) Number and Operations

The student applies mathematical process standards to represent and explain fractional units.

STAAR Standard	TEKS	STUDENT EXPECTATION
Supporting	**3.3(A)**	represent fractions greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 using concrete objects and pictorial models, including strip diagrams and number lines
Supporting	**3.3(B)**	determine the corresponding fraction greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 given a specified point on a number line
Supporting	**3.3(C)**	explain that the unit fraction 1/*b* represents the quantity formed by one part of a whole that has been partitioned into *b* equal parts where *b* is a non-zero whole number
Supporting	**3.3(D)**	compose and decompose a fraction *a*/*b* with a numerator greater than zero and less than or equal to *b* as a sum of parts 1/*b*
Supporting	**3.3(E)**	solve problems involving partitioning an object or a set of objects among two or more recipients using pictorial representations of fractions with denominators of 2, 3, 4, 6, and 8
Readiness	**3.3(F)**	represent equivalent fractions with denominators of 2, 3, 4, 6, and 8 using a variety of objects and pictorial models, including number lines
Supporting	**3.3(G)**	explain that two fractions are equivalent if and only if they are both represented by the same point on the number line or represent the same portion of a same size whole for an area model
Readiness	**3.3(H)**	compare two fractions having the same numerator or denominator in problems by reasoning about their sizes and justifying the conclusion using symbols, words, objects, and pictorial models

TEKS Category 2: Number and Operations

(3.4) Number and Operations

The student applies mathematical process standards to develop and use strategies and methods for whole number computations in order to solve problems with efficiency and accuracy.

STAAR Standard	TEKS	STUDENT EXPECTATION
Readiness	**3.4(A)**	solve with fluency one-step and two-step problems involving addition and subtraction within 1,000 using strategies based on place value, properties of operations, and the relationship between addition and subtraction
Supporting	**3.4(B)**	round to the nearest 10 or 100 or use compatible numbers to estimate solutions to addition and subtraction problems
Supporting	**3.4(C)**	determine the value of a collection of coins and bills
Supporting	**3.4(D)**	determine the total number of objects when equally-sized groups of objects are combined or arranged in arrays up to 10 by 10
Supporting	**3.4(E)**	represent multiplication facts by using a variety of approaches such as repeated addition, equal-sized groups, arrays, area models, equal jumps on a number line, and skip counting
Supporting	**3.4(F)**	recall facts to multiply up to 10 by 10 with automaticity and recall the corresponding division facts
Supporting	**3.4(G)**	use strategies and algorithms, including the standard algorithm, to multiply a two-digit number by a one-digit number. Strategies may include mental math, partial products, and the commutative, associative, and distributive properties
Supporting	**3.4(H)**	determine the number of objects in each group when a set of objects is partitioned into equal shares or a set of objects is shared equally
Supporting	**3.4(I)**	determine if a number is even or odd using divisibility rules
Supporting	**3.4(J)**	determine a quotient using the relationship between multiplication and division
Readiness	**3.4(K)**	solve one-step and two-step problems involving multiplication and division within 100 using strategies based on objects; pictorial models, including arrays, area models, and equal groups; properties of operations; or recall of facts

TEKS Category 3: Algebraic Reasoning

(3.5) Algebraic Reasoning
The student applies mathematical process standards to analyze and create patterns and relationships.

STAAR Standard	TEKS	STUDENT EXPECTATION
Readiness	**3.5(A)**	represent one- and two-step problems involving addition and subtraction of whole numbers to 1,000 using pictorial models, number lines, and equations
Readiness	**3.5(B)**	represent and solve one- and two-step multiplication and division problems within 100 using arrays, strip diagrams, and equations
Supporting	**3.5(C)**	describe a multiplication expression as a comparison such as 3 x 24 represents 3 times as much as 24
Supporting	**3.5(D)**	determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is either a missing factor or product
Readiness	**3.5(E)**	represent real-world relationships using number pairs in a table and verbal descriptions

TEKS Category 4: Geometry and Measurement

(3.6) Geometry and Measurement

The student applies mathematical process standards to analyze attributes of two-dimensional geometric figures to develop generalizations about their properties.

STAAR Standard	TEKS	STUDENT EXPECTATION
Readiness	**3.6(A)**	classify and sort two- and three-dimensional solids, including cones, cylinders, spheres, triangular and rectangular prisms, and cubes, based on attributes using formal geometric language
Supporting	**3.6(B)**	use attributes to recognize rhombuses, parallelograms, trapezoids, rectangles, and squares as examples of quadrilaterals and draw examples of quadrilaterals that do not belong to any of these subcategories
Readiness	**3.6(C)**	determine the area of rectangles with whole number side lengths in problems using multiplication related to the number of rows times the number of unit squares in each row
Supporting	**3.6(D)**	decompose composite figures formed by rectangles into non-overlapping rectangles to determine the area of the original figure using the additive property of area
Supporting	**3.6(E)**	decompose two congruent two-dimensional figures into parts with equal areas and express the area of each part as a unit fraction of the whole and recognize that equal shares of identical wholes need not have the same shape

(3.7) Geometry and Measurement

The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving customary and metric measurement.

STAAR Standard	TEKS	STUDENT EXPECTATION
Supporting	**3.7(A)**	represent fractions of halves, fourths, and eighths as distances from zero on a number line.
Readiness	**3.7(B)**	determine the perimeter of a polygon or a missing length when given perimeter and remaining side lengths in problems
Supporting	**3.7(C)**	determine the solutions to problems involving addition and subtraction of time intervals in minutes using pictorial models or tools such as a 15-minute event plus a 30-minute event equals 45 minutes
Supporting	**3.7(D)**	determine when it is appropriate to use measurements of liquid volume (capacity) or weight
Supporting	**3.7(E)**	determine liquid volume (capacity) or weight using appropriate units and tools

TEKS Category 5: Data Analysis

(3.8) Data Analysis
The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data.

STAAR Standard	TEKS	STUDENT EXPECTATION
Readiness	**3.8(A)**	summarize a data set with multiple categories using a frequency table, dot plot, pictograph, or bar graph with scaled intervals
Supporting	**3.8(B)**	solve one- and two-step problems using categorical data represented with a frequency table, dot plot, pictograph, or bar graph with scaled intervals

TEKS Category 6: Personal Financial Literacy

(3.9) Personal Financial Literacy
The student applies mathematical processes standards to manage one's financial resources effectively for lifetime financial security.

STAAR Standard	TEKS	STUDENT EXPECTATION
Supporting	**3.9(A)**	explain the connection between human capital/labor and income
Supporting	**3.9(B)**	describe the relationship between the availability or scarcity of resources and how that impacts cost
Not Tested	**3.9(C)**	identify the costs and benefits of planned and unplanned spending decisions
Supporting	**3.9(D)**	explain that credit is used when wants or needs exceed the ability to pay and that it is the borrower's responsibility to pay it back to the lender, usually with interest
Supporting	**3.9(E)**	list reasons to save and explain the benefit of a savings plan, including for college
Not Tested	**3.9(F)**	identify decisions involving income, spending, saving, credit, and charitable giving

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GRADE 3

Problem-Solving Projections

TEKS CATEGORY 2

Number and Operations

3.2D Problem-Solving 1

The table shows the number of students enrolled at four elementary schools.

School Enrollment	
School Name	Students Enrolled
Houston	984
Garcia	1,121
Milam	896
Crockett	1,107

Use >, <, or = to compare.

1. Compare the number of students enrolled at Garcia and Crockett.

_____ ___ _____

2. Compare the number of students enrolled at Milam and Houston.

_____ ___ _____

3. Compare the number of students enrolled at Garcia and Houston.

_____ ___ _____

3.2D Problem-Solving 2

Lindsey was making a population chart for social studies and gathered the information shown below. Her chart included 8 cities. Which city had the largest population?

Population Chart	
City	Population
Lincoln	975
Kennedy	1,492
Travis	1,967
Leeland	495
Garcia	1,975
Bexar	942
Conrad	1,679
Johnson	594

Make two charts using information from Lindsey's chart.

- Your first chart will list the names of cities with populations less than 1,000 from greatest to least population.

- Your second chart will list the names of the cities with populations greater than 1,000 from least to greatest population.

3.2D Problem-Solving 3

There were 35,817 visitors at an aquarium in March; 39,650 in April; 38,297 in May; and 33,254 in June.

1. In which month did the least number of visitors go to the aquarium?

2. In which month did the greatest number of visitors go to the aquarium?

3. What is the difference between the least number of visitors and the greatest number of visitors in a month? Show your work.

4. What is the order of months from the greatest number of visitors to the least number of visitors?

5. The museum had 39,475 visitors in July. What is the difference between the number of visitors in July and the number of visitors in April? Show your work.

6. What is the difference between the number of visitors in March and April together and the number of visitors in May and June together? Show your work.

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GRADE 3

Problem-Solving Projections

TEKS CATEGORY 3

Algebraic Reasoning

3.5A Problem-Solving 1

Cedric has 3 shoeboxes with baseball cards in them. The first box has 79 cards, the second has 236 cards, and the third has 109 cards.

Find the total number of baseball cards Cedric has in the 3 shoeboxes.

1. Model this problem using a pictorial model or a diagram.

2. Explain why your pictorial model or diagram is correct.

3. Model this problem using a number line.

4. Explain why your number line is correct.

5. Write an equation to model this problem.

6. Explain why your equation is correct.

7. What is the total number of baseball cards Cedric has in the 3 shoeboxes?

8. Explain why you know the total number of baseball cards Cedric has is correct.

3.5A Problem-Solving 2

On Saturday 167 customers bought a newspaper at Cooper's Corner store. On Sunday 195 customers bought a newspaper at the store.

Find the difference between the numbers of customers who bought a newspaper on these 2 days.

1. Model this problem using a pictorial model or a diagram.

2. Explain why your pictorial model or diagram is correct.

3. Model this problem using a number line.

4. Explain why your number line is correct.

5. Write an equation to model this problem.

6. Explain why your equation is correct.

7. What is the difference between the numbers of customers who bought a newspaper on these 2 days?

8. Explain why you know the difference between the number of customers is correct.

3.5A Problem-Solving 3

Mrs. Morgan sold 46 cucumbers, 55 tomatoes, and 24 peppers at the Farmers' Market.

Use properties and strategies to find the number of vegetables she sold.

1. Use place value to line up the number in the ones place to find the sum. Show your work.

2. Use the Commutative Property to help you find the number of vegetables she sold. Show your work.

3. Explain how the Commutative Property helped you find the number of vegetables she sold.

4. Use the Associative Property to help you find the number of vegetables she sold. Show your work.

5. Explain how the Associative Property helped you find the number of vegetables she sold.

3.5A Problem-Solving 4

PROBLEM 1

The table below shows the number of boys and girls that attended Garcia Elementary School last week.

Garcia Elementary School Attendance		
Day	Boys	Girls
Monday	104	92
Tuesday	96	101
Wednesday	93	105
Thursday	102	99
Friday	103	97

1. How many girls attended school on Thursday and Friday? Show your work.

2. How many boys attended school on Monday and Tuesday? Show your work.

3. How many students attended school on Tuesday and Wednesday?

4. Explain how you found your answer to Question 3.

5. The answer to a question based on the data in the table is 201 students. What could be the question asked?

6. Explain how you know the question you wrote for Question 5 has a solution of 201.

PROBLEM 2

The table shows the number of people who visited an art museum on Monday through Saturday this week.

Art Museum Visitors	
Day	Number of Visitors
Monday	345
Tuesday	306
Wednesday	415
Thursday	450
Friday	585
Saturday	526

1. How many more people visited the museum on Saturday than on Thursday? Show your work.

2. How many fewer people visited the museum on Wednesday than on Saturday. Show your work.

3. How many fewer people visited the museum on Monday and Tuesday than Wednesday and Thursday combined? Show your work.

4. Write a two-step subtraction word problem that can be solved using the data in the table.

5. Solve the problem you wrote for number 4. Show your work.

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GRADE 3

Problem-Solving Projections

TEKS CATEGORY 4

Geometry and Measurement

3.6A Problem-Solving 1

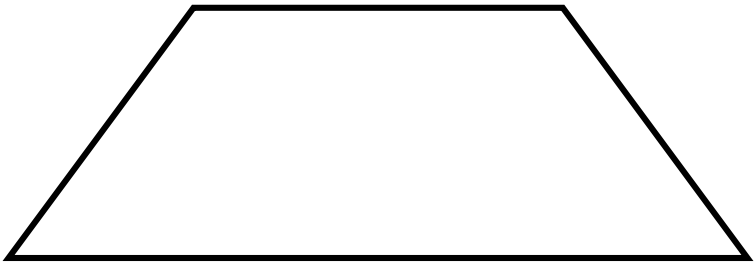


Figure 1

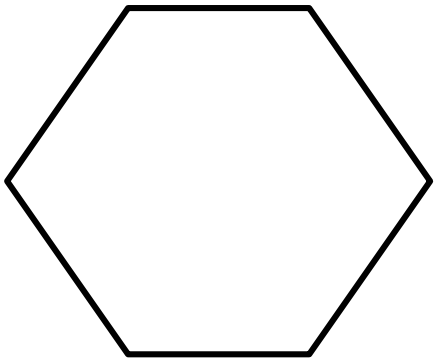


Figure 2

1. Write the classification of Figure 1.

2. Write the classification of Figure 2.

3. How many sides are in Figure 1?

4. How many vertices are in Figure 1?

5. How many angles are in Figure 1?

6. How many sides are in Figure 2?

7. How many vertices are in Figure 2?

8. How many angles are in Figure 2?

5. How are Figure 1 and Figure 2 alike?

6. How are Figure 1 and Figure 2 different?

7. Write 2 true statements about Figure 1.

8. Write 2 true statements about Figure 2.

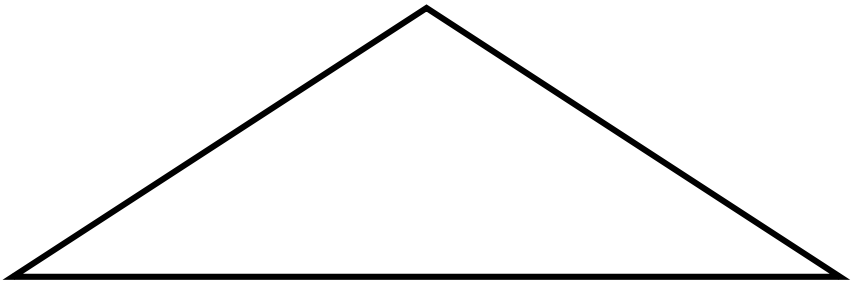


Figure 3

Figure 4

9. Write the classification of Figure 3.

10. Write the classification of Figure 4.

11. How many sides are in Figure 3?

12. How many vertices are in Figure 3?

13. How many angles are in Figure 3?

14. How many sides are in Figure 4?

15. How many vertices are in Figure 4?

16. How many angles are in Figure 4?

17. How are Figure 3 and Figure 4 alike?

18. How are Figure 3 and Figure 4 different?

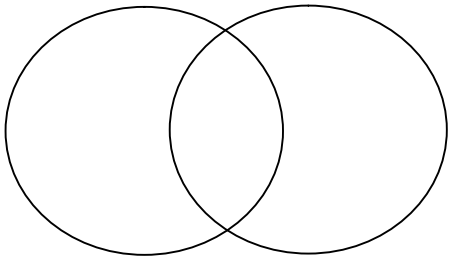
19. Write 2 true statements about Figure 3.

20. Write 2 true statements about Figure 4.

3.6A Problem-Solving 2

Create a Venn diagram to sort polygons with less than 5 or less sides from polygons with 5 or more sides.

1. Draw 2 large circles that overlap.



2. Title the left circle "Polygons With 5 or Less Sides". Title the middle circle "Polygons With 5 or More Sides". Title the overlap area of the circles "Polygons With 5 Sides".

3. In the left circle, draw 5 polygons that can **ONLY** belong in the left circle.

4. In the right circle, draw 5 polygons that can **ONLY** belong in the right circle.

5. In the overlap section, draw 5 polygons that belong in the left circle and in the right circle.

6. Why do the polygons belong in the left circle?

7. Why do the polygons belong in the right circle?

8. Why do the polygons belong in the overlap area of the two circles?

3.6A Problem-Solving 3

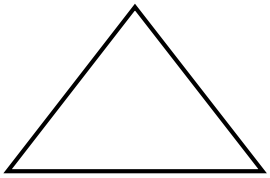


Figure 1

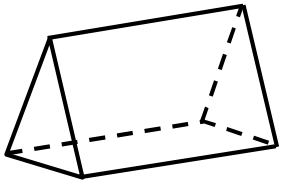


Figure 2

Figure 3

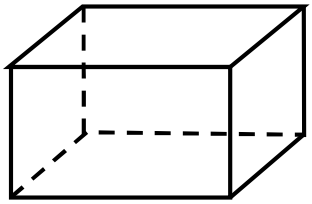


Figure 4

Copy and complete each statement to name each figure using formal geometric vocabulary.

1. Figure 1 is a _____.

2. Figure 2 is a _____.

3. Figure 3 is a _____.

4. Figure 4 is a _____.

Copy and complete each statement to describe each figure in terms of sides, vertices, and angles.

5. Figure 1 has _____ sides, _____ vertices, and _____ angles.

6. Figure 2 has _____ faces, _____ edges, and _____ vertices.

7. Figure 3 has _____ edges, _____ vertices, and _____ angles.

8. Figure 4 has _____ faces, _____ edges, and _____ vertices.

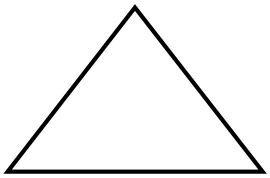


Figure 1

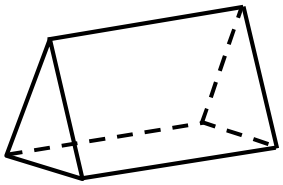


Figure 2

Figure 3

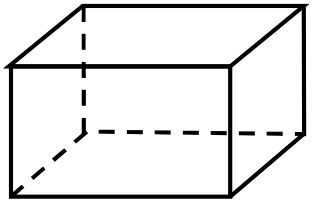


Figure 4

Compare Figure 1 and Figure 2.

9. How are they alike?

10. How are they different?

Compare Figure 3 and Figure 4.

11. How are they alike?

12. How are they different?

Compare Figure 1 and Figure 3.

13. How are they alike?

14. How are they different?

Compare Figure 2 and Figure 4.

15. How are they alike?

16. How are they different?

Teacher Notes: 3.6A Problem-Solving 4

Make 1 copy of this page for each pair of students. Cut along dashed line.

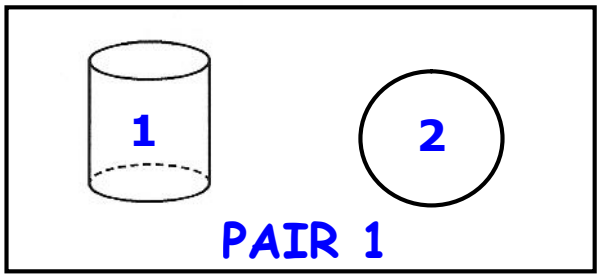
ATTRIBUTES OF TWO-DIMENSIONAL FIGURES				
Pair	Figure Number	Number of Sides or Curves	Number of Vertices	Name of Figure
1				
2				
3				
4				

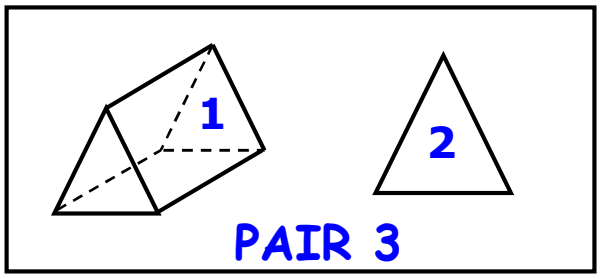
ATTRIBUTES OF THREE-DIMENSIONAL FIGURES						
Pair	Figure Number	Number of Edges	Number of Vertices	Number of Faces	Curved Surface	Name of Figure
1						
2						
3						
4						

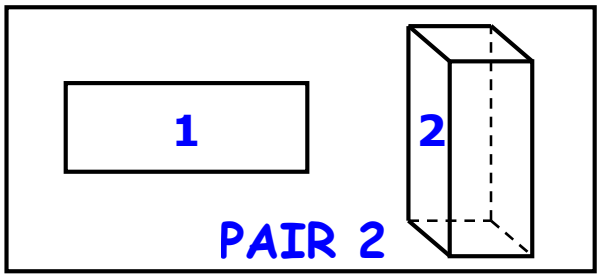
FIGURE COMPARISONS		
Pair	How are the Figures Alike?	How are the Figures Different?
1		
2		
3		
4		

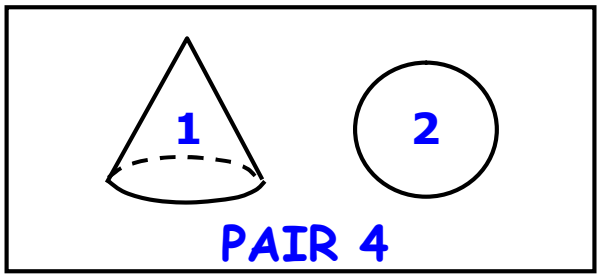
3.6A Problem-Solving 4

PART I







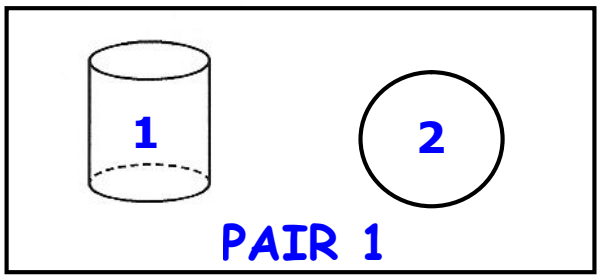


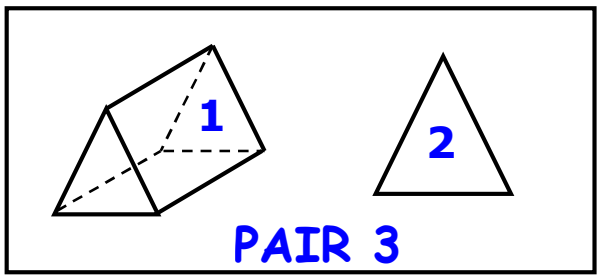
Your teacher will give you and your partner a page to record attributes for each figure. Be sure to record each figure on the correct table.

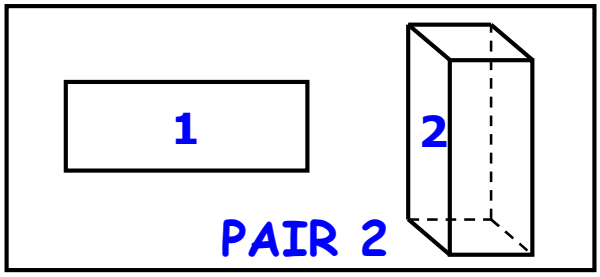
ATTRIBUTES OF TWO-DIMENSIONAL FIGURES				
Pair	Figure Number	Number of Sides or Curves	Number of Vertices	Name of Figure
1				
2				
3				
4				

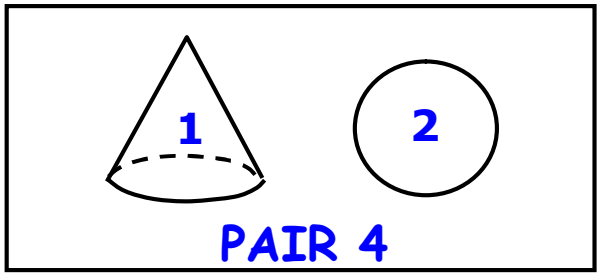
ATTRIBUTES OF THREE-DIMENSIONAL FIGURES						
Pair	Figure Number	Number of Edges	Number of Vertices	Number of Faces	Number of Curved Surfaces	Name of Figure
1						
2						
3						
4						

PART II









Your teacher will give you and your partner a page to record comparisons for the figures in each box. Be sure to record how the figures are alike and how they are different.

FIGURE COMPARISONS		
Pair	How are the Figures Alike?	How are the Figures Different?
1		
2		
3		
4		

3.6A Problem-Solving 5

PART I

Write **all** or **some** to make 1-4 true statements.

1. The opposite sides of _____ rectangles are parallel.

2. _____ rhombuses are squares.

3. _____ sides of a rhombus are the same length.

4. _____ trapezoids have 1 pair of opposite sides that are parallel.

PART 2

1. I am a quadrilateral that has no right angles and 4 sides that are of equal length. What figure am I?

PART 3

I am a polygon that has 4 sides and 4 angles. All of my angles are right angles.

1. Am I a rhombus? Explain your answer.

2. Am I a parallelogram? Explain your answer.

3. Am I a trapezoid? Explain your answer.

4. Am I a quadrilateral? Explain your answer.

PART IV

Write **all**, **some** or **none** to make 1-3 true statements.

1. _____ of the faces of a cube are squares.

2. _____ of the faces of a triangular prism are triangles.

3. _____ of the faces of a rectangular prism is curved.

PART V

1. I am a figure that has 5 faces, 9 edges and 6 vertices. Am I a rectangular prism or a triangular prism?

2. I am a figure that has 1 flat surface and 1 curved surface. Am I a cylinder or a cone?

3. I am a figure that has 6 faces, 12 edges and 8 vertices. Am I a rectangular prism or a triangular prism?

4. I am a figure that has 2 flat surfaces and 1 curved surface. Am I a cylinder or a cone?

TEKSING TOWARD STAAR

MATHEMATICS ®

GRADE 3

Problem-Solving Projections

TEKS CATEGORY 5

Data Analysis

3.8A Problem-Solving 1

The students in a third grade class voted for their favorite ice cream flavor. They recorded the data in this tally table.

Favorite Ice Cream Flavor	
Flavor	Number of Students
Vanilla	𝍸 ||||
Chocolate	𝍸 ||
Strawberry	||||

1. How many students chose strawberry?

2. Explain how you used the data on the tally table to answer question 1.

3. Which flavor did the greatest number choose?

4. Explain how you used the data on the tally table to answer question 3.

Favorite Ice Cream Flavor	
Flavor	Number of Students
Vanilla	𝍸 ||||
Chocolate	𝍸 ||
Strawberry	|||

5. Make a frequency table that matches the data shown on the tally table. Be sure to title and label your frequency table.

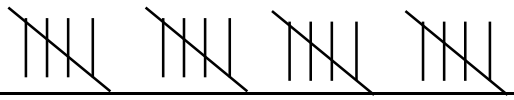
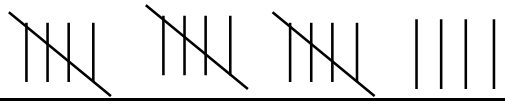
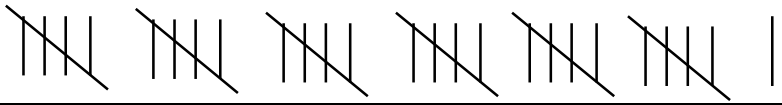
6. Explain why your frequency table is correct.

7. How many students are represented in the frequency table?

8. Explain how you used your frequency table to answer question 3.

3.8A Problem-Solving 2

The students in a third grade class at Bowie Elementary School made a tally table. The table shows the number of letters in the first names of third grade students.

Name Length	
4 letters	
5 letters	
6 letters	
7 letters	

Make a bar graph to represent the data.

1. Title the graph.

2. Draw and label the horizontal and vertical axes.

3. Choose and label a scale. The scale on this graph must be evenly spaced and greater than one.

4. Draw and label bars to represent the data.

5. Explain why your bar graph is correct.

Teacher Notes: 3.8A Problem-Solving 3

Per pair of students: Make 1 copy of 3.8A Problem-Solving Dot Plot data sheet,
1 number cube labeled 1-6

3.8A Problem-Solving 3 Dot Plot

Student 1 Name _____

Student 2 Name _____

Data Record

	Tally Count	
1		
2		
3		
4		
5		
6		

Dot Plot

3.8A Problem-Solving 3

Your teacher will give you and your partner a number cube labeled 1 to 6 and a data sheet for recording data and creating a dot plot. Keep this sheet to use for 3.8B Problem-Solving 3.

You and your partner will take turns tossing the number cube and recording tally marks for the number tossed on your data table.

1. Title your data table. Complete the missing titles on the columns.
2. You and your partner will take turns tossing the number cube 10 times and recording a tally mark in the table for each toss.
3. Total the tally marks in the table for each number.
4. Follow these steps to make a dot plot:
   - **Draw a number line.**

     The number line must include all the numbers in the first column of the data table.
   - **Draw dots above the number line to represent the data.**
   - **After all the data is recorded, title the dot plot.**

Answer these questions on the back of your data sheet.

1. What is the least number on the number line for your dot plot?
2. What is the greatest number on the number line for your dot plot?
3. Explain why these are the least and greatest numbers on your dot plot.
4. Explain how you decided how many dots to put above each number on your dot plot.
5. What number was tossed the greatest number of times?
6. What number was tossed the least number of times?
7. Explain how you know your dot plot is correct.

3.8A Problem-Solving 4

The data in the table shows how many students in a third grade class have owned a pet for different numbers of years.

Years as a Pet Owner	
Number of Years	Number of Students
1	5
2	6
3	5
4	3
5	2

1. Use the data in the table to make a dot plot.

2. How many dots did you put above 1 to show the number of students who have owned a pet for 3 years?

3. How many dots did you put above 5 to show the number of students who have owned a pet for 5 years?

4. Which number of years on your dot plot has the most dots?

5. How many more students have owned a pet for 2 years or less than for 3 years or more?

TEKSING TOWARD STAAR

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GRADE 3

Problem-Solving Projections

TEKS CATEGORY 6

Personal Financial Literacy

3.9B Problem-Solving 1

Evan collects baseball cards. He wants to buy a card that is very hard to find.

Look at the table to answer questions about Evan's baseball card collection.

Cards for Sale	Price
Player A	$39
Player B	$5
Player C	$135
Player D	$22
Player E	$3

1. What is the order of the cards from greatest to least price?

2. Which card do you think is the most plentiful?

3. Which card do you think is the most scarce?

4. Which card do you think is the one Evan wants to buy?

5. Explain why you think this is the card Evan wants to buy. Use the term **resource(s)** in your explanation.