

# PARCC READINESS

“LESSONS LEARNED”

**Presenter: Beth Unanue / Roosevelt 6th Grade**

# OBJECTIVES OF TONIGHT'S PRESENTATION:

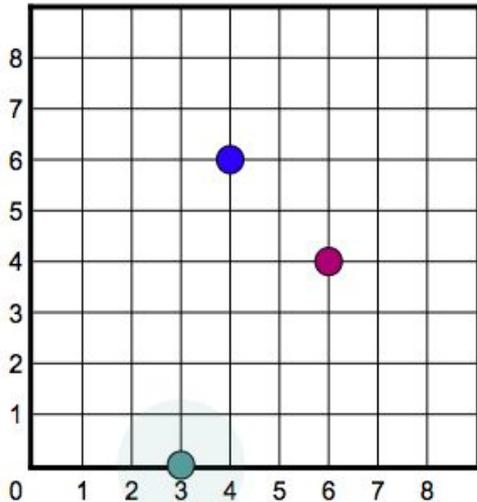
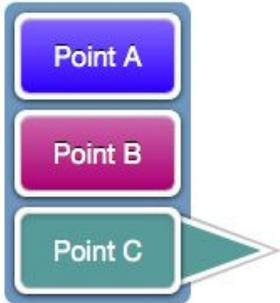
- 1) Identify key differences between NJASK and PARCC
- 2) Discuss PARCC Vocabulary - the 4 main components of PARCC
- 3) Review strategies for home and school to create higher mathematical thinking, reasoning, and fluency
- 4) Look at and dissect sample PARCC questions
- 5) Understand the strategies and processes used by students in the classroom

# NJASK VS. PARCC - WHAT ARE THE KEY DIFFERENCES?

NJASK	PARCC
<ul style="list-style-type: none"><li>- Paper-based</li><li>- Aligned to NJ State Standards</li><li>- Assesses content directly and skills in isolation</li><li>- Only one open-ended question at the end of each section</li></ul>	<ul style="list-style-type: none"><li>- Technologically based</li><li>- Common Core aligned (more emphasis on higher-order thinking and questioning)</li><li>- Assesses content and requires students to <i>apply</i> skills from one area to another</li><li>- Emphasis on <i>reasoning</i> and <i>modeling</i></li><li>- Students are more interactive with the test (click &amp; drag, fill in the blank, completing models, interpreting models, using computer tools, identifying 2+ answers)</li></ul>

# PARCC SAMPLE PROBLEM - HOW TECHNOLOGY IS INFUSED THROUGHOUT THE TEST

Graph points  $A$ ,  $B$ , and  $C$  on the coordinate plane. Point  $A$  should be located at  $(4, 6)$ , point  $B$  should be located at  $(6, 4)$ , and point  $C$  should be located at  $(3, 0)$ . Select the "Point A" button and plot the point. Select the "Point B" button and plot the point. Select the "Point C" button and plot the point. Be sure to graph all **three** points.



\* Students have to understand how to input their answer, navigate the page, and use the tools & resources provided in the test.

# THE 4 PARCC DOMAINS - WHAT DOES PARCC ASSESS?

- 1) MAJOR CONTENT
- 2) ADDITIONAL & SUPPORTING CONTENT
- 3) MATHEMATICAL REASONING
- 4) MODELING & APPLICATION

# (1) “MAJOR CONTENT” – BIGGEST TOPICS TESTED BY PARCC

## 5th Grade:

- **Fractions:** Adding, subtracting, multiplying, and dividing fractions — including fractions with different denominators (e.g.,  $1/3 + 1/2$ ) and mixed numbers (e.g.,  $2\ 3/4 + 1\ 1/2$ ).
- **Decimals:** Adding, subtracting, multiplying, and dividing decimals to the hundredths place (e.g.,  $0.62 - 0.41$ ).
- **Place value:** Multiplying and dividing using two-, three-, and four-digit numbers (e.g.,  $324 \times 24$  or  $4325 \div 12$ ).
- **Volume:** Understanding what volume means, knowing the formulas, and finding a 3-D shape’s volume.

## 6th Grade:

- **Fractions:** Dividing fractions.
- **Ratios:** Using ratios and percents to represent relationships between different quantities, sizes, and values.
- **Negative numbers:** Working with negative numbers and plotting them on number lines and coordinate planes.
- **Pre-algebra:** Working with variables to write and solve equations (e.g.,  $2x = 36 - x$ ) and inequalities (e.g.,  $x < 2$ ).

# HOW CAN I HELP? (5TH GRADE)

## Sprinkle math into everyday activities

- **Play with volume** — Experimenting with volume in everyday life is a great way to get your fifth grader to feel comfortable with the concept. Ask your child to find the volume of his lunch box to figure out how much food he can take to school.
- **1 / 2 the day?** — What fraction of the day does your child spend watching TV? Sleeping? Doing homework? Figure these out together and talk about how you arrived at the answers.
- **Go the distance** — Next time you're going somewhere, have your child be the navigator using your phone. Ask her to compare the distances in decimals (on the phone) to the fractions (on the freeway signs). Challenge your child by asking questions that get her converting fractions to decimals — and then back to fractions again.

# HOW CAN I HELP? (6TH GRADE)

## Sprinkle math into everyday activities

- **Is it on sale?** — Whenever there's an item on sale, ask your child to figure out what it will cost after the discount. Pose reverse questions, too. For those \$50 jeans your child wants, how much would they need to go on sale for the total price to drop to \$25?
- **Are we there yet?** — When you're going somewhere, ask your child how long it will take to get there if it's 15 miles away and you're driving at 60 miles an hour.
- **Pancake calculations** — Ask your child to figure out the ratio of flour to milk in your favorite pancake recipe. Then ask him to double (or halve) the recipe.

## (2) “ADDITIONAL & SUPPORTING CONTENT” – SMALLER CONTENT AREAS TESTED BY PARCC

### 5th Grade:

- **Measurements:** Converting units within the same measurement system (e.g., centimeters to meters).
- **Data:** Interpreting data and analyzing relationships by creating simple equations, tables, graphs, and line plots.
- **Geometry:** Classifying two-dimensional shapes into categories based on their properties.

### 6th Grade:

- **Area and volume:** Finding the area of two-dimensional shapes and the surface area and volume of three-dimensional shapes.
- **Factors:** Understanding factors (e.g., the factors of 12 are 1, 2, 3, 4, 6, and 12) and multiples (e.g., the multiples of 12 are 12, 24, 36, 48, etc.).
- **Word problems and the four operations (+, −, x, ÷):** Solving two-step problems involving multi-digit numbers and decimals.
- **Statistics:** Starting to understand the numbers behind statistics and plotting data on number lines, dot plots, histograms, and more.

### (3) “MATHEMATICAL REASONING”

#### Fifth graders are expected to learn:

- **Reasoning:** Defending their work with clear, detailed explanations.
- **Reviewing:** Critiquing (respectfully, of course) their classmates’ work.
- **Revising:** Figuring out what went wrong, correcting their work, and doing a problem over again.

#### Sixth graders are expected to learn how to:

- **Process:** Using mathematical reasoning to analyze word problems and map out the steps and procedures needed to solve them.
- **Justify:** Presenting a clear and logical explanation to defend their work and critique their classmates’ work using accurate vocabulary, diagrams that represent the relationship between important data, and the right calculations.
- **Evaluate:** Identifying errors in math, whether it’s that the answer is incorrect or that there are flaws in the reasoning, and offering solutions to correct the mistakes.

# WHAT IS MATHEMATICAL REASONING?

- **Deciding** when to use one procedure over another
- **Supporting** work and classmates' work with clear, logical arguments and models
- **Finding** mistakes and knowing how to fix them
- **Verbalizing** thinking processes
- **Explaining** why a strategy to solve a problem worked or did not work
- **Figuring** out different or more efficient ways of solving a problem

# (4) “MODELING & APPLICATION”

Fifth graders are expected to learn to:

- **Make a plan:** Analyzing real-world, multi-step problems and deciding what they need to do to find the solution.
- **Create a model:** Deciding the best way to model the important information in a problem, such as making a table or chart, drawing a picture, or writing an equation (or two).
- **Evaluate the answer:** Determining if their answer makes sense — and if it doesn't, revising their model and trying again.

Sixth graders are expected to learn how to:

- **Make a plan:** Analyzing real-world problems and developing a plan to solve them.
- **Create a model:** Making a model — which can be a diagram, chart, graph, table, or equation — to illustrate the problem and help solve it.
- **Evaluate and refine:** Determining whether or not answers make sense. If they don't, then modifying the model until it works.

# WHAT IS MODELING & APPLICATION?

- **Making sense** of a problem, determining what needs to be solved, and **persevering** to find a solution
- **Choosing the best model** to represent a relationship between two quantities
- Determining why a model did not work, or **determining how to fix a flaw** in a model
- Evaluating whether or not **a solution is reasonable**
- **Interpreting or creating** a *graph, table, chart, or equation* to show the relationship between two quantities
- **Evaluating** solutions/answers and **modifying** the process if it did not work out as planned

# ONGOING PRACTICES IN THE CLASSROOM:

- 1) Preparing for word problems by using the READ, PLAN, SOLVE, CHECK method
- 2) Creating models to represent word problems, or creating word problems to represent models
- 3) Justifying answers and strategies using logic and reason
- 4) Making sense of solutions
- 5) Critiquing and explaining classmates' answers
- 6) Identifying mistakes in our own strategies and processes and deciding how to change our plan
- 7) Persevering through word problems and difficult tasks
- 8) Explaining and elaborating using mathematical vocabulary

# (1) “MAJOR CONTENT” – SAMPLE PROBLEM 1

<http://parcc.pearson.com/practice-tests/math/>

Jim uses ribbon to make bookmarks. Jim has 9 feet of ribbon. He uses  $\frac{1}{3}$  foot of a ribbon to make each bookmark.

What is the total number of bookmarks Jim makes with all 9 feet of ribbon?

bookmarks

# (1) “MAJOR CONTENT” – SAMPLE PROBLEM 2

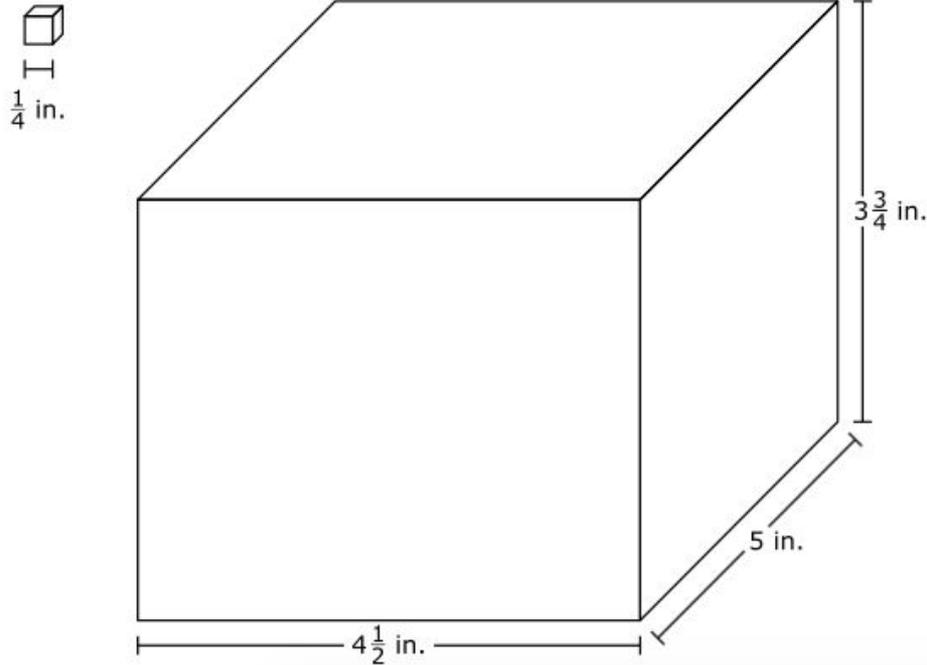
<http://parcc.pearson.com/practice-tests/math/>

Enter your answer in the box.

$$3 \times (8 + 16) \div 4 =$$

## (2) “ADDITIONAL & SUPPORTING CONTENT” - SAMPLE PROBLEM 1

Small cubes with edge lengths of  $\frac{1}{4}$  inch will be packed into the right rectangular prism shown.



How many small cubes are needed to completely fill the right rectangular prism?

Enter your answer in the box.

 cubes

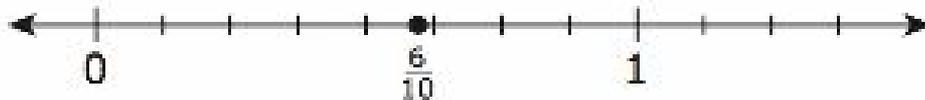
## (2) “ADDITIONAL & SUPPORTING CONTENT” - SAMPLE PROBLEM 2

Which question is a statistical question?

- A. How tall is the oak tree?
- B. How much did the tree grow in one year?
- C. What are the heights of the oak trees in the schoolyard?
- D. What is the difference in height between the oak tree and the pine tree?

### (3) “MATHEMATICAL REASONING” – SAMPLE PROBLEM 1

On Saturday, Craig rode his bike  $\frac{5}{8}$  of a mile. On Sunday, he rode his bike  $\frac{1}{2}$  of a mile. Craig added  $\frac{5}{8}$  and  $\frac{1}{2}$  to find the total distance, in miles, he rode his bike on the two days. Craig said  $\frac{5}{8} + \frac{1}{2} = \frac{6}{10}$  and plotted  $\frac{6}{10}$  on this number line.

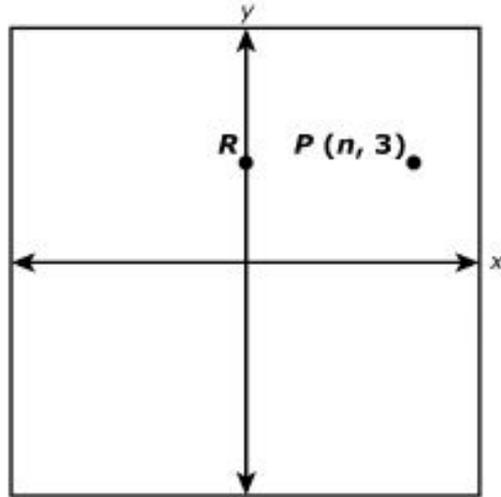


- Explain why Craig's answer is not reasonable.
- Find the total distance, in miles, Craig rode on his bike on Saturday and Sunday.
- Explain how to use the number line to show your answer is correct.

Enter your answer and explanations in the space provided.

### (3) “MATHEMATICAL REASONING” – SAMPLE PROBLEM 2

The graph shows the location of point  $P$  and point  $R$ . Point  $R$  is on the  $y$ -axis and has the same  $y$ -coordinate as point  $P$ .



Point  $Q$  is graphed at  $(n, -2)$ . The distance from point  $P$  to point  $Q$  is equal to the distance from point  $P$  to point  $R$ .

What is the distance from point  $P$  to point  $Q$ ? What is the value of  $n$ ? Explain how you determined the distance from point  $P$  to point  $Q$ , and the value of  $n$ .

Enter your answers and your explanations in the space provided.

### (3) “MATHEMATICAL REASONING” – SAMPLE PROBLEM 3

Select the **three** statements that correctly describe the coordinate system.

- A. The  $x$ - and  $y$ -axes intersect at 10.
- B. The  $x$ - and  $y$ -axes intersect at the origin.
- C. The  $x$ - and  $y$ -axes are parallel number lines.
- D. The  $x$ - and  $y$ -axes are perpendicular number lines.
- E. The  $x$ - and  $y$ -coordinates are used to locate points on a coordinate plane.

# (4) “MODELING & APPLICATION” – SAMPLE PROBLEM 1

During a sale, all pillows are  $\frac{1}{4}$  off the regular price.

Write an expression that represents the amount of money saved on a pillow that had a regular price of  $d$  dollars.

Enter your expression in the space provided. Enter **only** your expression.

# (4) “MODELING & APPLICATION” – SAMPLE PROBLEM 2

Kellie bought 8 towels and spent \$39.60. Each towel costs the same amount.

## Part A

Use the drop-down menus to create an equation that can be used to determine  $t$ , the price, in dollars, of 1 towel.

$$t \times 8 = 39.60$$

## Part B

What is the price, in dollars, of 1 towel?

Enter your answer in the box.

\$

FOR MORE INFORMATION, VISIT ...

<http://parcc.pearson.com/practice-tests/math/>

<http://www.greatschools.org/gk/common-core-test-guide/parcc-6th-grade/new-jersey/>