



State of New Jersey
DEPARTMENT OF EDUCATION
PO Box 500
TRENTON, NJ 08625-0500

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

DAVID C. HESPE
Acting Commissioner

PARCC ASSESSMENTS AND THE CCSS FOR GRADES 3-5 MATHEMATICS 2015 – 2016

<http://www.state.nj.us/education/assessment/parcc/resources/>



**Partnership for Assessment of
Readiness for College and Careers**

Agenda

- Overview of PARCC and development of items
- Claim Statements
- Evidence Statements
- Task Types and Test Blueprints
- Test Administration
- Sample Items and Student Technology Skills
- Calculator and Tools policy
- Other PARCC Information
- Glossary
- Resources
- Contacts



Partnership for Assessment of
Readiness for College and Careers

- Governing States in PARCC – CO, IL, MA, MD, NJ, NM, RI and DC.
- All governing states are involved in all aspects of the item development and assessment process.
- Contractors, PARCC Inc., MOWGs (Mathematics Operational Working Group), SEs (State Educators)

PARCC Assessment Priorities

1. Determine whether students are **college- and career-ready** or on track
2. **Compare performance** across states and internationally
3. Assess the **full range of the Common Core Standards**, including standards that are difficult to measure
4. Measure the **full range of student performance**, including the performance of high and low performing students
5. Provide **data for accountability**, including measures of growth
6. Incorporate **innovative approaches** throughout the system

Assessment Design

Mathematics, Grades 3-HS

BEGINNING
OF YEAR

END
OF YEAR

2 Optional Assessments/Flexible Administration

Diagnostic Assessment

- Early indicator of student knowledge and skills to inform instruction, supports, and PD
- Non-summative

Mid-Year Assessment

- Performance-based
- Emphasis on hard-to-measure standards
- Potentially summative

Summative Assessment

- Extended tasks
- Innovative, computer-based items
- Applications of concepts and skills
- Required

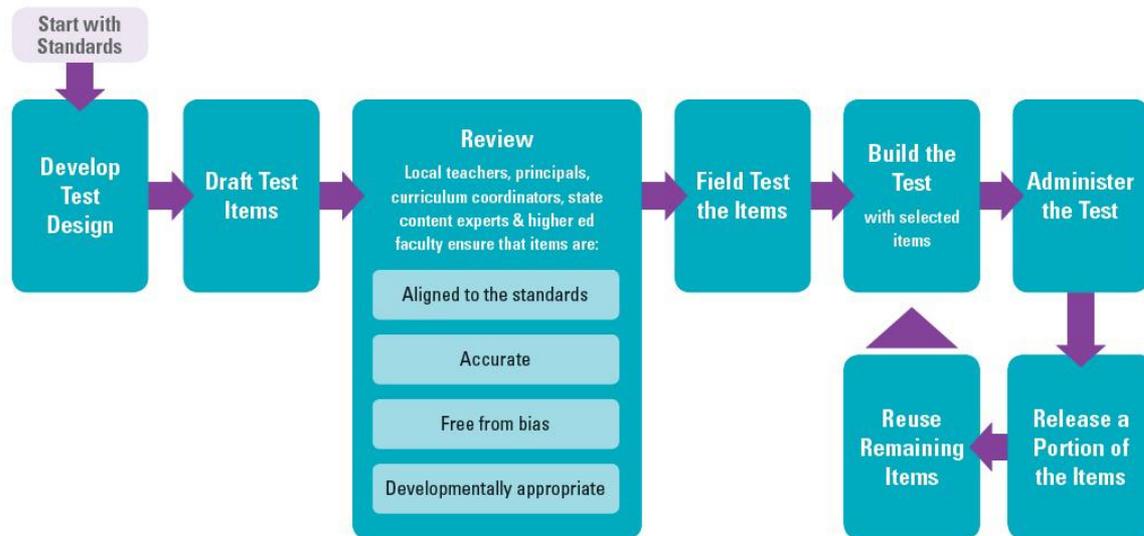


Partnership for Assessment of
Readiness for College and Careers

The construction of items go through an intensive and long process.

- Item Review
- Field-testing
- Rangefinding
- Scoring
- Data Review
- Test Construction

Life Cycle of a Test Item

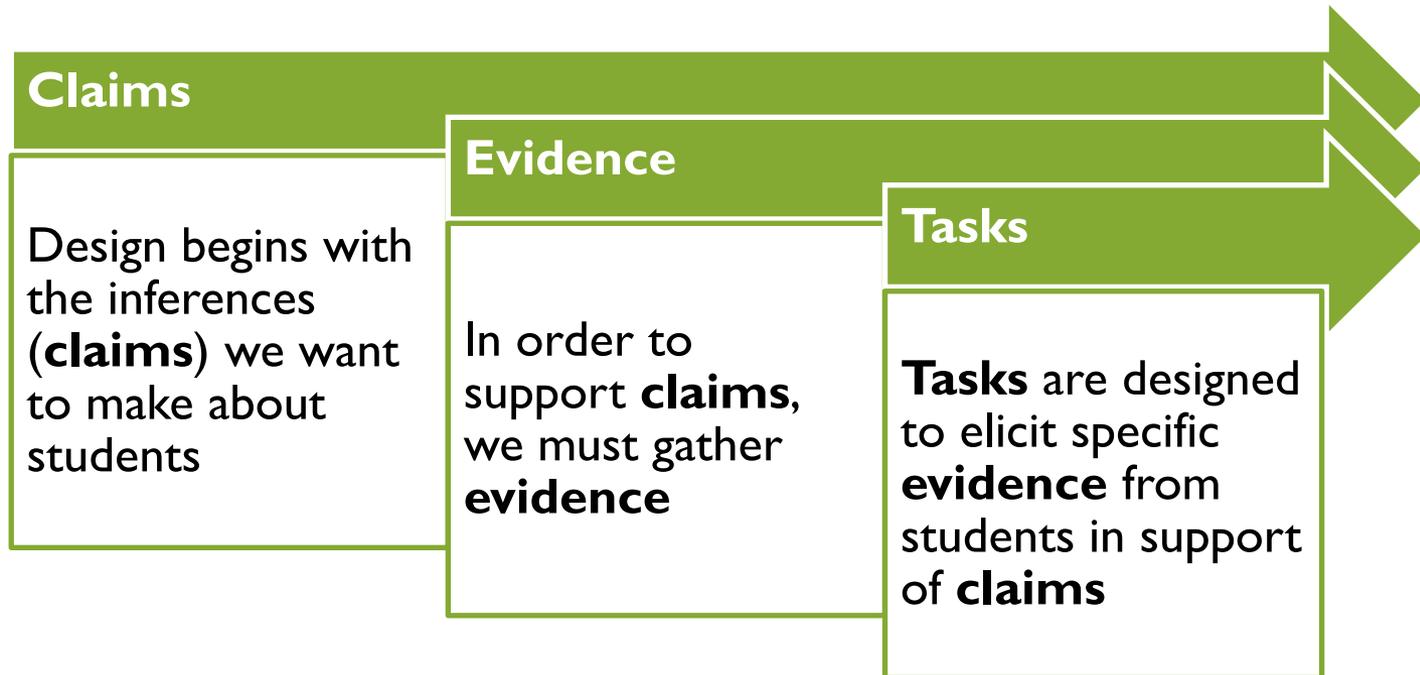


PARCC state educators and experts are highly selective!

Classroom teachers and other local educators are involved at every step, including test design. More than 30 educators and other experts review each item. The process of developing test questions is unprecedented for its level of rigor and inclusiveness.

At any point during the process, items may be sent back for revision or eliminated altogether if they do not meet the states' quality criteria.

Evidence-Centered Design (ECD) for the PARCC Assessments



ECD is a deliberate and systematic approach to assessment development that will help to **establish the validity** of the assessments, **increase the comparability** of year-to year results, and **increase efficiencies/reduce costs**.

Claims Structure*:

Mathematics Grades 3 - 5

Master Claim: On-Track for college and career readiness. The degree to which a student is college and career ready (or “on-track” to being ready) in mathematics. The student solves grade-level /course-level problems in mathematics as set forth in the Standards for Mathematical Content with connections to the Standards for Mathematical Practice.

Sub-Claim A: Major Content¹ with Connections to Practices

The student solves problems involving the Major Content¹ for her grade/course with connections to the Standards for Mathematical Practice.

Grade 3: 30 points
Grade 4: 31 points
Grade 5: 30 points

Sub-Claim B: Additional & Supporting Content² with Connections to Practices

The student solves problems involving the Additional and Supporting Content² for her grade/course with connections to the Standards for Mathematical Practice.

Grade 3: 10 points
Grade 4: 9 points
Grade 5: 10 points

Sub-Claim C: Highlighted Practices MP.3,6 with Connections to Content³ (expressing mathematical reasoning)

The student expresses grade/course-level appropriate mathematical reasoning by constructing viable arguments, critiquing the reasoning of others, and/or attending to precision when making mathematical statements.

Grades 3-5: 14 points

Sub-Claim D: Highlighted Practice MP.4 with Connections to Content (modeling/application)

The student solves real-world problems with a degree of difficulty appropriate to the grade/course by applying knowledge and skills articulated in the standards for the current grade/course (or for more complex problems, knowledge and skills articulated in the standards for previous grades/courses), *engaging particularly in the Modeling practice*, and where helpful making sense of problems and persevering to solve them (MP. 1), reasoning abstractly and quantitatively (MP. 2), using appropriate tools strategically (MP.5), looking for and making use of structure (MP.7), and/or looking for and expressing regularity in repeated reasoning (MP.8).

Grades 3-5: 12 points

Total Exam Score Points:
Grades 3 – 5: 66

¹ For the purposes of the PARCC Mathematics assessments, the Major Content in a grade/course is determined by that grade level’s Major Clusters as identified in the *PARCC Model Content Frameworks v.3.0* for Mathematics. Note that tasks on PARCC assessments providing evidence for this claim will sometimes require the student to apply the knowledge, skills, and understandings from across several Major Clusters.

² The Additional and Supporting Content in a grade/course is determined by that grade level’s Additional and Supporting Clusters as identified in the *PARCC Model Content Frameworks v.3.0* for Mathematics.

³ For Grades 3 – 8, Sub-Claim C includes only Major Content.

*Updated September 2014. All points from fluency items in Grades 3-6 were reallocated to Sub-Claim A or Sub-Claim B.

*Updated 2015 to reflect new point totals.

Evidence Statements

To assist teachers in understanding how the Common Core content and mathematical practice standards will be assessed, PARCC has released Evidence Statements for each grade.

Evidence Statements are descriptions of student work and are used by writers to guide their development of assessment tasks. Evidence Statements describe what within a student's work indicates that the student has mastered a specific standard.

The clarifications provide additional information (such as limitations on numbers or whether the task is to be a word problem) to ensure consistency across tasks written for the same Evidence Statement.

Evidence Statement Tables:

Types of Evidence Statements

Several types of evidence statements are being used to describe what a task should be assessing, including:

1. Those using **exact standards language**
2. Those transparently **derived from exact standards** language, e.g., by splitting a content standard
3. **Integrative evidence statements** indicate proficiencies that align to more than one standard and reinforce coherence reflected in the CCSS
4. **Sub-claim C evidence statements** puts MP.3 and MP.6 (Reasoning) as primary with connections to content
5. **Sub-claim D evidence statements** which put MP.4 (Modeling) as primary with connections to content

Evidence Statements using Exact Standards Language

I. Those using exact standards language

Evidence Statement Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to Mathematical Practices
<p>3.OA.1</p>	<p>Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each. <i>For example, describe a context in which a total number of objects can be expressed as 5×7.</i></p>	<p>i) Tasks involve interpreting rather than calculating products in terms of equal groups, arrays, area, and/or measurement quantities. (See CCSSM, Table 2, Common multiplication and division situations, p. 89.) For example, “the total number of books if 5 shelves each have 7 books” can be represented by the expression 5×7 rather than “Marcie placed 7 books on each of 5 shelves. How many books does she have?”</p> <p>ii) Tasks do not require students to interpret products in terms of repeated addition, skip-counting, or jumps on the number line.</p> <p>iii) The italicized example refers to describing a real-world context, but describing a context is not the only way to meet the standard. For example, another way to meet the standard would be to identify contexts in which a total can be expressed as a specified product.</p>	<p>MP.2, MP.4</p>

Where the ES connects to the CCSS. Tasks will assess 3.OA.1

For Type 1 tasks, “Evidence Statement Text” may represent all or part of CCSS. Description of what the tasks will require students to do.

“Clarifications” provide guidance on the depth and breadth of the tasks.

“MP” - Mathematical Practices provide guidance on how content should be connected to practices.



Evidence Statements Derived from Exact Standards

2. Those transparently derived from exact standards language, e.g., by splitting a content standard.

Tasks will assess 4.NF.4b This CCSS has been split into 2 Evidence Statements 4.NF.4b-1 and 4.NF.4b-2. The full text of 4.NF.4b is listed in the CCSS.

Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MP
4.NF.4b-1	<p>Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.</p> <p>b. Understand a multiple of a/b as a multiple of $1/b$. <i>For example, use a visual fraction model to express $3 \times (2/5)$ as $6 \times (1/5)$.</i></p>	<ul style="list-style-type: none"> i) Tasks do not have a context. ii) Prompts do not provide visual fraction models; students may at their discretion draw visual fraction models as a strategy. iii) Tasks involve expressing a/b as a multiple of $1/b$. iv) Results may equal fractions greater than 1 (including fractions equal to whole numbers). v) Whole number results are limited to 0 through 5. vi) Tasks are limited to denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100. 	MP.5, MP.7
4.NF.4b-2	<p>Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.</p> <p>b. Use the understanding that a multiple of a/b is a multiple of $1/b$ to multiply a fraction by a whole number. <i>For example, use a visual fraction model to express $3 \times (2/5)$ as $6/5$. (In general, $n \times (a/b) = (n \times a)/b$.)</i></p>	<ul style="list-style-type: none"> i) Tasks do not have a context. ii) Prompts do not provide visual fraction models; students may at their discretion draw visual fraction models as a strategy. iii) Tasks involve expressing a/b as a multiple of $1/b$. iv) Results may equal fractions greater than 1 (including fractions equal to whole numbers). v) Whole number results are limited to 0 through 5. vi) Tasks are limited to denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100. 	MP.5, MP.7

Integrative Evidence Statements

3. **Integrative evidence statements** indicate proficiencies that align to more than one standard and reinforce coherence reflected in the CCSS.

An Evidence Statement could be integrated across

- **Grade/Course** – Ex. 4.Int.2 (Integrated across Grade 4)
- **Domain** – 4.NF.Int.1 (Integrated across the Numbers and Operations - Fractions Domain)
- **Cluster** – 5.NF.A.Int.1 (Integrated across the grade 5 Numbers and Operations – Fractions Domain, articulated in Cluster A (5.NF.1 and 5.NF.2)

The extension numbers “.1, .2, 3-3” on all “Int” Evidence Statements are used for numbering/ordering purposes.

Integrative Evidence Statements

Grade/Course – Ex. 4.Int.1 (Integrated across Grade 4)

Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MP
4.Int.2	Solve one-step word problems involving multiplying two two-digit numbers.	<ul style="list-style-type: none">i) The given numbers are such as to require a general strategy based on place value and the properties of operations (e.g., 63×44).ii) Word problems shall include a variety of grade-level appropriate applications and contexts.	MP.1, MP.7

Draws on content from
ALL of Grade 4

Integrative Evidence Statements

Domain – Ex. 4.NF.Int.1 (Integrated across the Numbers and Operations - Fractions Domain)

Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MP
4.NF.Int.1	Solve one-step word problems requiring integration of knowledge and skills articulated in 4.NF. Content Scope: 4.NF	i) Tasks are limited to denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.	MP.1, MP.4

Draws on content from **ALL of NF** in Grade 4

Integrative Evidence Statements

Cluster – 5.NF.A.Int.1 (Integrated across the grade 5 Numbers and Operations – Fractions Domain, articulated in Cluster A (5.NF.1 and 5.NF.2)

Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MP
5.NF.A.Int.1	Solve word problems involving knowledge and skills articulated in 5.NF.A.	i) Prompts do not provide visual fraction models; students may at their discretion draw visual fraction models as a strategy.	MP.1, MP.4, MP.5

Draws on content from **ALL of Cluster A** in the Fractions Domain of Grade 5

Sub-claim C Evidence Statements

4. **Sub-claim C** puts MP. 3 and MP.6 (Reasoning) as primary with connections to content.

Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MP
5.C.8-2	<p>Present solutions to multi-step problems in the form of valid chains of reasoning, using symbols such as equals signs appropriately (for example, rubrics award less than full credit for the presence of nonsense statements such as $1 + 4 = 5 + 7 = 12$, even if the final answer is correct), or identify or describe errors in solutions to multi-step problems and present corrected solutions.</p> <p>Content Scope: Knowledge and skills articulated in 5.MD.5c</p>	i) Multi step problems must have at least 3 steps	MP.3, MP.5, MP.6

Sub-claim D Evidence Statements

5. Sub-claim D Evidence Statements puts MP. 4 (Modeling) as primary with connections to content.

Key	Evidence Statement Text	Clarifications, limits, emphases, and other information intended to ensure appropriate variety in tasks	Relationship to MP
5.D.1	Solve multi-step contextual word problems with degree of difficulty appropriate to Grade 5, requiring application of knowledge and skills articulated in this PBA Table excluding those standards listed in Evidence Statements for Subclaim C (i.e., 5.C.1-1 through 5.C.8-2)	<ul style="list-style-type: none"> i) Tasks may have scaffolding*. ii) Multi-step problems must have at least 3 steps. 	MP.4
5.D.2	Solve multi-step contextual problems with degree of difficulty appropriate to Grade 5, requiring application of knowledge and skills articulated in 4.OA, 4.NBT, 4.NF, 4.MD.	<ul style="list-style-type: none"> i) Tasks may have scaffolding if necessary in order yield a degree of difficulty appropriate to Grade 5. ii) Multi step problems must have at least 3 steps. 	MP.4

*Scaffolding in a task provides the student with an entry point into a pathway for solving a problem. In unscaffolded tasks, the student determines his/her own pathway and process. Both scaffolded and unscaffolded tasks will be included in reasoning and modeling items.

Using an Evidence Statement

As an example of how a teacher might use Evidence Statements, let's assume that a teacher has written the following task to include on a unit assessment. The teacher indicates the task is aligned to Evidence Statement 3.OA.4 which is provided below the task.

Johnny has 8 crayons. He wants to give an equal number of crayons to each of his 4 friends. He wrote the equation $4 \times ? = 8$ to find the number of crayons he should give to each friend. How many crayons should Johnny give to each friend?

Based on the information in Evidence Statement 3.OA.4, would this be considered a PARCC-like task?

Evidence Statement Key	Evidence Statement Text	Clarifications	Math Practice(s)
3.OA.4	Determine the unknown whole number in a multiplication or division equation relating three whole numbers. <i>For example, determine the unknown number that makes the equation true in each of the equations $8 \times ? = 48$, $7 = w \div 3$, $6 \times 6 = ?$.</i>	<ul style="list-style-type: none">i) Tasks do not have a context.ii) Only the answer is required (methods, representations, etc. are not assessed here).iii) All products and related quotients are from the harder three quadrants of the times table ($a \times b$ where $a > 5$ and/or $b > 5$).	-

Using an Evidence Statement

The answer is “no.” Clarification (i) indicates that problems with context are not to be used when writing tasks for Evidence Statement 3.OA.4. Since this is a real-life application presented in the form of a word problem, the task does not meet this clarification. The task should be simple and straight forward, such as “Find the missing number: $4 \times ? = 8$.” *Additionally, the task does not meet the content limits of clarification (iii) as 4 and 2 are both less than 5.*

Links to each Evidence Statement are provided below can be found at the following link:

[Grade 3
Informational
Guide](#)

[Grade 4
Informational
Guide](#)

[Grade 5
Informational
Guide](#)

Overview of Task Types

- The PARCC assessments for mathematics will involve three primary types of tasks: Type I, II, and III.
- Each task type is described on the basis of several factors, principally the purpose of the task in generating evidence for certain sub claims.

Overview of PARCC Mathematics Task Types

Task Type	Description of Task Type
I. Tasks assessing <i>concepts, skills and procedures</i>	<ul style="list-style-type: none">• Balance of conceptual understanding, fluency, and application• Can involve any or all mathematical practice standards• Machine scorable including innovative, computer-based formats• Sub-claims A and B
II. Tasks assessing <i>expressing mathematical reasoning</i>	<ul style="list-style-type: none">• Each task calls for written arguments / justifications, critique of reasoning, or precision in mathematical statements (MP.3, 6).• Can involve other mathematical practice standards• May include a mix of machine scored and hand scored responses• Sub-claim C
III. Tasks assessing <i>modeling / applications</i>	<ul style="list-style-type: none">• Each task calls for modeling/application in a real-world context or scenario (MP.4)• Can involve other mathematical practice standards• May include a mix of machine scored and hand scored responses• Sub-claim D



● PARCC BLUEPRINTS

Blueprints are a series of documents that together describe the content and structure of an assessment. These documents define the total number of tasks and/or items for any given assessment component, the standards measured, the item types, and the point values for each.

PARCC BLUEPRINTS

Items	Grade 3	Grade 4	Grade 5
Type I 1 point	32	26	26
Type I 2 point	4	7	7
Type II 3 point	2	2	2
Type II 4 point	2	2	2
Type III 3 point	2	2	2
Type III 6 point	1	1	1
Type I	36/40pts	33/40pts	33/40pts
Type II	4/14pts	4/14pts	4/14pts
Type III	3/12pts	3/12pts	3/12pts
	43/66pts	40/66pts	40/66pts

Test Administration

The table that follows provides a breakdown of the testing units by grade level, including an estimate of the amount of time the typical student will need to complete each unit.

Component	Format and Administration
Summative Assessment Hand- and Computer-Scored Items	Format Approximately 80% of the way through the school year 4 mathematics units, 60 minutes/unit Administration 30 day testing window from April 4 – May 13, 2016

PARCC SAMPLE ITEMS & TESTS

- <http://www.parcconline.org/assessments/practice-tests>
- <http://practice.parcctestnav.com/#>

Student Technology Skills

Students taking the PARCC online assessments have an opportunity to practice using the computer tools provided in PARCC's online testing system. These tools include both the enhanced-technology and accessibility features available to all students. PARCC has developed a Tutorial and Sample Tasks for the purpose of learning how to use these tools. Both are accessible <http://practice.parcc.testnav.com/#>

Technology-Enhanced Item Types in Online Assessments

The Summative Assessment will have computer-scored Type I tasks. Students will use computer-based enhancements such as:

- select (multiple choice)
- multiple select
- inline choices (drop down menus)
- drag-and-drop
- fill-in-the-blank
- hotspots
- combination equation builder and text editor
- equation editor only

Student Technology Skills

Select (multiple choice): Students choose only one correct answer.

The value of the digit 4 in the number 42,780 is 10 times the value of the digit 4 in which number?

- A. 34,651
- B. 146,703
- C. 426,135
- D. 510,400

Multiple Select: The multiple select is similar to multiple choice; however, students must choose the correct number of correct answers.

Which equations are true?

Select the **three** correct answers.

- A. $7 \div 7 = 0$
- B. $3 \times 4 = 12$
- C. $10 \div 5 = 5$
- D. $16 \div 2 = 8$
- E. $0 \times 6 = 0$

Student Technology Skills

Inline Choice (drop down menus): Students select correct responses from a drop-down menu to complete mathematical or verbal statements.

Which symbol belongs in each fraction comparison?

Select from the drop-down menus to correctly complete each comparison.

$$\frac{3}{4} \text{ Choose... } \frac{9}{10}$$

$$\frac{4}{12} \text{ Choose... } \frac{3}{4}$$

$$\frac{9}{10} \text{ Choose... } \frac{4}{12}$$

Student Technology Skills

Drag-and-drop: Students select and move information to provide correct responses.

Which fractions complete the number sentences shown to make true comparisons?

Complete each number sentence so that it is a true comparison.

Drag and drop a fraction into each box.

$\frac{20}{100}$

$\frac{6}{10}$

$\frac{1}{2}$

$\frac{2}{12}$

$\frac{2}{3}$

$\frac{40}{100}$

$\frac{2}{5} = \square$

$\frac{3}{5} < \square$

Fill-in-the-blank: Students provide a short, usually numeric, response in a provided box.

Jane bought 24 light bulbs. The light bulbs come in packs of 4.

How many packs of light bulbs did Jane buy?

Enter your answer in the space provided.

Student Technology Skills

Hotspots: Students provide correct responses by selecting an object such as a point on a number line, squares to show an array, or a point on a coordinate plane.

Where would a point be plotted to show $\frac{5}{3}$ on the number line?

Select the place on the number line to plot the point.



Student Technology Skills

Grades 3-5 Equation Editor only: This tool will also be used in Type I tasks when entering fractions and mixed number responses.

Diana works at a clothing store. She sold $\frac{1}{5}$ of the total number of green shirts on Monday and $\frac{3}{12}$ of the total number of green shirts on Tuesday.

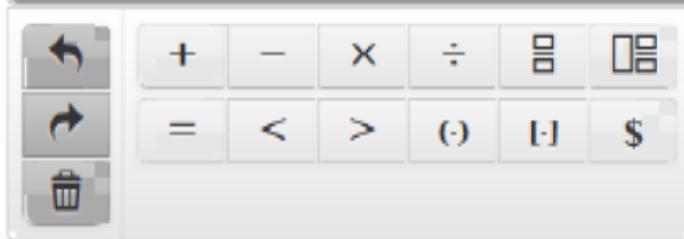
What fraction of green shirts did Diana sell on Monday and Tuesday?

What fraction of green shirts did Diana **not** sell on Monday and Tuesday?

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

Fraction of green shirts sold Monday and Tuesday :

Fraction of green shirt **not** sold Monday and Tuesday :



Student Technology Skills

Grades 3-5 Equation and Text Editor: Students use this tool in conjunction with the keyboard to provide detailed explanations or to show problem-solving methods used in Type II and Type III tasks.

Henry cut a piece of yarn that was $\frac{11}{6}$ feet long into two pieces. List two different pairs of fractions that could show the lengths, in feet, of the two pieces. Explain how you found your pairs of fractions.

Enter your fraction pairs and your explanation in the space provided.



▼ Math symbols

+	-	×	÷
$\frac{\square}{\square}$	$\frac{\square}{\square}$	(.)	[.]
=	<	>	≠
\$	°	?	

TYPE II ITEMS (Sub-claim C, Reasoning)

Mia placed point P on the number line.



- Give the value of the number P as a fraction.
- What does the denominator of your fraction represent on the number line?
- What does the numerator of your fraction represent on the number line?

Enter your answer and your explanation in the space provided.



▼ Math symbols



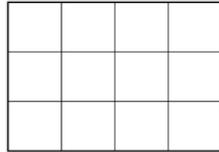
TYPE II ITEMS (Sub-claim C, Reasoning)

3.C.6-1/3.NF.2b

Score	Description
3	<p>Student response includes each of the following 3 elements:</p> <ul style="list-style-type: none">• Computation component: States that Point P represents $5/6$• Reasoning component: Correct explanation for what the denominator represents• Reasoning component: Correct explanation for what the numerator represents <p>Sample Student Response: Point P is at $5/6$ on the number line. The denominator represents the total number of equal parts between 0 and 1. There are six equal segments between 0 and 1 so each segment is $1/6$. The numerator represents the number of segments that the number is to the right of 0. So, if you count 5 segments of $1/6$, you end up at $5/6$.</p>
2	Student response includes 2 of the 3 elements.
1	Student response includes 1 of the 3 elements.
0	Student response is incorrect or irrelevant

TYPE II ITEMS (Sub-claim C, Reasoning)

Martin cut a pan of corn bread into equal pieces as shown in the model.



Part A

Martin gave $\frac{1}{3}$ of the corn bread to his neighbor.

Explain how you can use the model to show $\frac{1}{3}$. Then write a fraction that is equivalent to $\frac{1}{3}$.

Enter your explanation and your answer in the space provided.



▼ Math symbols

+	-	×	÷
$\frac{\square}{\square}$	$\frac{\square}{\square}$	(.)	[.]
=	<	>	≠
\$	°	?	

Part B

Martin gave $\frac{6}{12}$ of the corn bread to his teacher.

Write a comparison using $<$, $>$, or $=$ to compare the fractions $\frac{1}{3}$ and $\frac{6}{12}$. Explain how the model can be used to compare these fractions.

Enter your comparison and your explanation in the space provided.



▼ Math symbols

+	-	×	÷
$\frac{\square}{\square}$	$\frac{\square}{\square}$	(.)	[.]
=	<	>	≠
\$	°	?	

TYPE II ITEMS (Sub-claim C, Reasoning)

4.C.4-1/4.NF.1

Part A	
Score	Description
2	<p>Student response includes each of the following 2 elements:</p> <ul style="list-style-type: none"> • Computation component: $4/12$ or any equivalent fraction except $1/3$ • Reasoning component: Student explains how to use the model to represent the fraction, such as, “There are 3 rows, so $1/3$ is one row. There are 4 pieces in each row and 12 pieces in all, so $4/12$ would be equal to $1/3$.” <p>Note: A variety of explanations are valid, as long as it is clear that the student understands how to use the model to represent the fraction.</p>
1	Student response includes 1 of the 2 elements. If a computation mistake is made, credit cannot be given for the computation component, but 1 point can be given for a correct explanation.
0	Student response is incorrect or irrelevant.
Part B	
Score	Description
2	<p>Student response includes each of the following 2 elements:</p> <ul style="list-style-type: none"> • Reasoning component: $1/3 < 6/12$ or $6/12 > 1/3$ • Reasoning component: Student explains how to use the model to compare the fractions, such as, “ $1/3$ was 4 out of 12 pieces, and $6/12$ is 6 out of 12 pieces. 4 pieces is less than 6 pieces, so $1/3$ is less than $6/12$.” <p>Note: A variety of explanations are valid, as long as it is clear that the student understands how to use the model to compare the fractions.</p>
1	Student response includes 1 of the 2 elements.
0	Student response is incorrect or irrelevant.

TYPE II ITEMS (Sub-claim C, Reasoning)

Nick measured two crickets in science class. The lengths of the two crickets are shown.

- Cricket A: $\frac{3}{8}$ inch
- Cricket B: $\frac{5}{8}$ inch

The science teacher asked Nick to compare the length of each cricket to $\frac{1}{2}$ inch.

Part A

Nick claims that the length of each cricket is greater than $\frac{1}{2}$ because the numerator of each cricket length is greater than the numerator in $\frac{1}{2}$.

Compare $\frac{1}{2}$ inch to the length of each cricket using the $>$, $<$, or $=$ symbol. Then explain whether Nick's reasoning is correct.

Enter your comparisons and your explanation in the space provided.



▼ Math symbols

+	-	×	÷
$\frac{\square}{\square}$	\square^{\square}	()	[]
=	<	>	≠
\$	°	?	

Part B

Nick recorded the distance each cricket jumped.

- Distance for cricket A: $1\frac{3}{4}$ feet
- Distance for cricket B: $3\frac{2}{4}$ feet

Nick claims that cricket B jumped $2\frac{1}{4}$ feet farther than cricket A because the difference between the whole numbers is 2 and the difference between the numerators is 1.

- Explain why Nick's reasoning is incorrect.
- What is the correct difference, in feet, between the distance cricket A jumped and the distance cricket B jumped?

Enter your explanation and your answer in the space provided.



▼ Math symbols

+	-	×	÷
$\frac{\square}{\square}$	\square^{\square}	()	[]
=	<	>	≠
\$	°	?	

TYPE II ITEMS (Sub-claim C, Reasoning)

5.C.7-4/4.NF.2

Part A	
Score	Description
2	<p>Student response includes each of the following 2 elements:</p> <ul style="list-style-type: none">• Computation component: The student provides the inequalities "$3/8 < 1/2$" AND "$5/8 > 1/2$" OR other inequalities that are equivalent to these.• Reasoning component: The student explains that Nick's reasoning is not correct as he should have found a common denominator to compare $1/2$ to $3/8$ and $1/2$ to $5/8$. For example: "To compare the fractions, Nick should have changed $1/2$ to $4/8$." <p>Notes:</p> <ul style="list-style-type: none">○ A variety of explanations are valid. As long as it is clear that the student understands that only comparing the sizes of the numerators doesn't work when the denominators are different, credit should be awarded.○ The student does not need to use the terms <i>denominator</i> or <i>numerator</i> as long as the explanation is clear as to which portion of the fraction the student is referencing.
1	<p>Student response includes 1 of the 2 elements. Or, the student has an incorrect comparison(s), but provides a correct strategy.</p>
0	<p>Student response is incorrect or irrelevant.</p>

TYPE II ITEMS (Sub-claim C, Reasoning)

5.C.7-4/4.NF.2

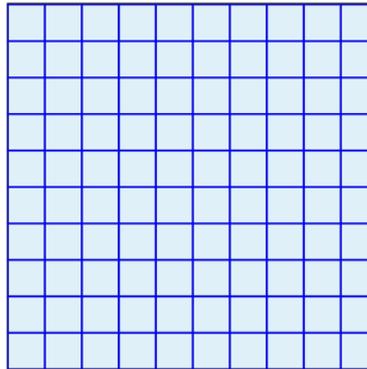
Part B	
Score	Description
2	<p>Student response includes each of the following 2 elements:</p> <ul style="list-style-type: none">• Computation component: The student indicates that the difference between the distances jumped by the two crickets is $1\frac{3}{4}$ feet.• Reasoning component: The student explains why Nick's reasoning is incorrect. For example, "Nick was supposed to subtract $1\frac{3}{4}$ from $3\frac{2}{4}$ which means he needed to change the numbers to $\frac{7}{4}$ and $\frac{14}{4}$ to be able to do that. <p>OR</p> <p>The student explains that Nick could use the relationship between addition and subtraction, such as, "Since addition is the opposite of subtraction, he can count up from $1\frac{3}{4}$ to get to $3\frac{2}{4}$ by counting up by fourths."</p>
1	Student response includes 1 of the 2 elements.
0	Student response is incorrect or irrelevant.

TYPE III ITEMS (Sub-claim D, Modeling)

Adam needs to put 19 pictures from Classroom A and 23 pictures from Classroom B on a bulletin board. He wants to display the pictures in an array.

Part A

Select a box for each picture to create an array to represent the pictures on the bulletin board.



Part B

Find the area of the array. Explain your answer using an equation or equations.

Enter your answer and your explanation using an equation or equations in the space provided.



▼ Math symbols

+	-	×	÷
$\frac{\square}{\square}$	$\square \square$	()	[]
=	<	>	≠
\$	°	?	

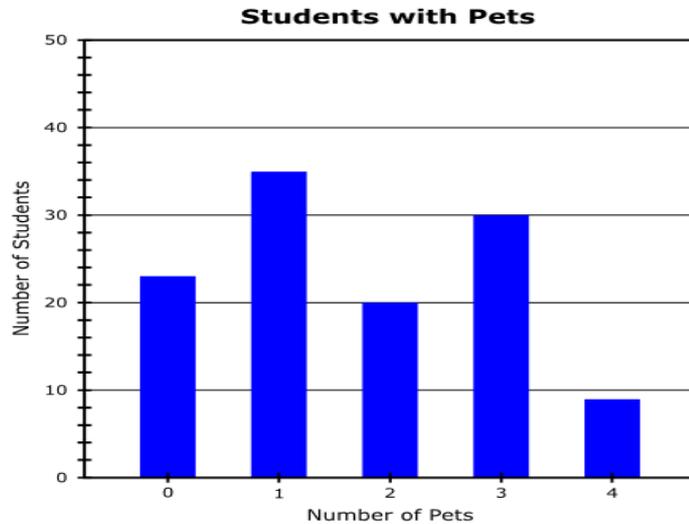
TYPE III ITEMS (Sub-claim D, Modeling)

3.D.1/3.OA.8

Part A	
Score	Description
1	Modeling component: Student shades a 6 x 7 array.
0	Student does not shade a 6 x 7 array.
#9 Part B	
Score	Description
2	<p>Student response includes each of the following 2 elements.</p> <ul style="list-style-type: none">• Computation component: 42• Modeling component: Student writes an equation showing how to find the area of the array. <p>Sample Student Response I shaded in an array of 6 x 7. I know $6 \times 7 = 42$, so the area of the array is 42.</p>
1	<p>Student response includes 1 of the 2 elements.</p> <p>OR</p> <p>The student provides a valid equation showing the correct process for finding the area but makes a computational error, such as $6 \times 7 = 48$.</p>
0	Student response is incorrect or irrelevant.

TYPE III ITEMS (Sub-claim D, Modeling)

Ms. Sloan asked 117 fourth-grade students the question, "How many pets do you have?" She displayed the data she collected in the bar graph shown.



Part A

How many of the students that responded have 2 pets?

Enter your answer in the box.

Part B

How many more students have 1 pet than students who have 3 pets? Explain your answer.

Enter your answer and explanation in the space provided.



Math symbols

+	-	×	÷
$\frac{\square}{\square}$	$\square \square$	()	[]
=	<	>	≠
\$	°	?	

Part C

Find the total number of pets the fourth-grade students have.

- Explain how you used the bar graph to solve the problem.
- Show your work using equations.

Enter your explanation, your work, and the total number of pets in the space provided.



Math symbols

+	-	×	÷
$\frac{\square}{\square}$	$\square \square$	()	[]
=	<	>	≠
\$	°	?	

TYPE III ITEMS (Sub-claim D, Modeling)

4.D.2/3.MD.3

Part A	
Score	Description
1	Computation component: Student enters 20.
Part B	
Score	Description
2	<p>Student response includes each of the following 2 elements:</p> <ul style="list-style-type: none">• Computation component: 5 students• Modeling component: Student explains how to use the bar graph to determine how many more students have 1 pet than 3 pets. <p>Sample Student Response:</p> <p>I looked at the height of the bar to find the number of students with one pet and saw it was 35. Then I looked at the height of the bar to find the number of students with 3 pets and saw it was 30. I subtracted $35 - 30$ and got 5. So, there are 5 more students who have 1 pet than 3 pets.</p> <p>Note: A variety of explanations are valid, as long as it is clear that the student understands how to use the bar graph to answer the question.</p>
1	Student response includes 1 of the 2 elements. If a computation mistake is made, credit cannot be given for the computation component, but 1 point can be given for stating a correct process in the explanation.
0	Student response is incorrect or irrelevant.

TYPE III ITEMS (Sub-claim D, Modeling)

4.D.2/3.MD.3

Part C	
Score	Description
3	<p>Student response includes each of the following 3 elements:</p> <ul style="list-style-type: none"> • Computation component: 201 • Modeling component: Student explains how to use the bar graph to solve the problem. • Modeling component: Students shows work using equations. <p>Sample Student Response:</p> <p>I read the height of each bar to know how many students had 1 pet, 2 pets, 3 pets, or 4 pets. I determined how many pets each bar shows by multiplying the number of students by the number of pets for each bar. Adding the numbers of pets for all the bars gives the total.</p> <p>35 students have 1 pet $1 \times 35 = 35$ pets 20 students have 2 pets $2 \times 20 = 40$ pets 30 students have 3 pets $3 \times 30 = 90$ pets 9 students have 4 pets $4 \times 9 = 36$ pets $35 + 40 + 90 + 36 = 201$ total pets</p> <p>Note: A variety of explanations are valid as long as it is clear that the student understands how to use the bar graph to answer the question and shows work using equations.</p>
2	Student response includes 2 of the 3 elements. If a computation mistake is made, credit cannot be given for the computation component, but points can be given for modeling.
1	Student response includes 1 of the 3 elements.
0	Student response is incorrect or irrelevant.

TYPE III ITEMS (Sub-claim D, Modeling)

An egg farm packages 264 total cartons of eggs each month. The farm has 3 different sizes of cartons.

- The small carton holds 8 eggs, and $\frac{1}{6}$ of the total cartons are small.
- The medium carton holds 12 eggs, and $\frac{2}{3}$ of the total cartons are medium.
- The large carton holds 18 eggs, and the rest of the total cartons are large.

Determine how many of each size of carton is needed each month. Then determine how many eggs are needed to fill the 264 cartons. Show your work or explain your answers.

Enter your answers and your work or explanations in the space provided.



▼ Math symbols

+	-	×	÷
$\frac{\square}{\square}$	$\frac{\square}{\square}$	(.)	[]
=	<	>	≠
\$	°	?	

TYPE III ITEMS (Sub-claim D, Modeling)

5.D.1/5.NF.4 and 5.NF.6

Score	Description
3	<p>Student response includes each of the following 3 elements:</p> <ul style="list-style-type: none">• Computation: Number cartons: 44, 176, 44; 3256• Modeling component: Correct work or explanation shown for determining the number of cartons of each size needed.• Modeling component: Correct work or explanation shown for determining the total number of eggs needed to fill the 264 cartons. <p>Sample Student Response:</p> <p>There are $264 \times \frac{1}{6} = 264/6 = 44$ cartons that hold 8 eggs. There are $264 \times \frac{2}{3} = 528/3 = 176$ cartons that hold 12 eggs. There are $264 - 44 - 176 = 44$ cartons that hold 18 eggs. The total number of eggs needed to fill all 264 cartons is $44 \times 8 + 176 \times 12 + 44 \times 18 = 3,256$</p>
2	<p>Student response includes 2 of the 3 elements. Or, the student has a computation error, but provides a complete and valid explanation or process.</p>
1	<p>Student response includes 1 of the 3 elements.</p>
0	<p>Student response is incorrect or irrelevant.</p>

PARCC CALCULATOR POLICY

Allowable Calculators

- Grades 3-5: **No calculators allowed**, except for students with an approved calculator accommodation

Calculator Accommodations:

- For students who meet the guidelines in the *PARCC Accessibility Features and Accommodations*
- *Manual for a calculation device, this accommodation allows a calculation device to be used on non-calculator section of any PARCC mathematics assessment. Test administrators are not required to collect calculators for items measuring fluency.*
- If a student needs a calculator as part of an accommodation in the non-calculator section, the student will need a hand-held calculator because an online calculator will not be available. If a student needs a specific calculator (e.g., large key, talking), the student can also bring his or her own, provided it is specified in his or her approved

PARCC MATHEMATICS TOOLS POLICY

- **Rulers/Protractors (required):**
- Rulers are used on PARCC items at all grade levels.
- Protractors are used on PARCC items for grades 4 and higher.
- For computer-based assessments, the grade-appropriate rulers and protractors are provided through the computer-based platform.
- For paper-based assessments, rulers and protractors are included in the PARCC-provided materials that are shipped to schools/districts.
- Schools are **not allowed to provide their own rulers or protractors during PARCC assessments.**
- To practice with the computer-based rulers and protractors, please visit the PARCC Practice Test at:
<http://practice.parcc.testnav.com/>

PARCC MATHEMATICS TOOLS POLICY

- Grade 3 ruler provided on the PARCC paper-based assessments (1/4 inch units)
- Grades 4 and higher ruler provided on the PARCC paper-based assessments (1/8 inch units and centimeters)
- Grade 4 and higher protractor provided on the PARCC paper-based assessments

PARCC MATHEMATICS TOOLS POLICY

Mathematics Reference Sheets:

- Students in grades 3 and 4 will not have a reference sheet because the Common Core State Standards for Mathematics for these grades do not require one. Students in grade 5 will be allowed to use the reference sheet posted. (See Informational Guide for Grade 5 for reference sheet.)
- For computer-based assessments, the grade 5 reference sheet is provided on the computer-based delivery platform. If desired, schools may also make printed copies available to students during administration.
- For paper-based assessments, the grade 5 reference sheet is provided in the PARCC-provided materials during shipment.

Scratch Paper:

- Blank scratch paper (graph, lined or un-lined paper) is intended for use by students to take notes and work through items during testing. If graph paper is used during instruction, it is recommended that schools provide graph paper as scratch paper for mathematics units. At least one sheet of scratch paper per unit must be provided to each student. Any work on scratch paper will **not** be scored.

OTHER PARCC INFORMATION –

Model Content Frameworks

- The frameworks serve as a bridge between the CCSS and guiding the development of the formative tasks and diagnostic tools.
- Help curriculum developers and teachers as they work to implement the standards in their states and districts
- Do not contain a suggested scope and sequence but rather provide examples of key content dependencies (where one concept ought to come before another), key instructional emphases, opportunities for in-depth work on key concepts and connections to critical practices
- clarify areas of emphasis in each grade and what changes in the standards from one grade to the next. It denotes which standards are Major content (sub-claim A), Additional content, and Supporting content (sub-claim B).

<http://www.parcconline.org/parcc-model-content-frameworks>

OTHER PARCC INFORMATION –

PARCC Learning Modules

- PARCC is developing a series of online professional learning modules to help teachers, counselors, school leaders, and school and district testing coordinators understand the new PARCC Assessment System and put the new high quality assessments to work for them and their students.
- These tools will help educators learn how to read results from the assessments, make inferences about the results, and identify learning gaps in time to make relevant instructional decisions and modifications.
- The first two completed online professional training modules focus on the PARCC Common Assessments Overview and the PARCC Accessibility System.
- Future professional online learning module topics include: Introductions to the PARCC Mid-Year Assessment, PARCC Diagnostic Assessment and the PARCC Speaking and Listening Assessment
- <http://www.parcconline.org/professional-learning-modules-parcc-assessments>

OTHER PARCC INFORMATION –

Performance Level Descriptors

- In mathematics, the performance levels at each grade level are written for each of five assessment sub-claims: (1) major content: (2) additional and supporting content: (3) reasoning; and (4) modeling
- The performance levels within each claim area are differentiated by a number of factors consistent with the Common Core's inclusion of standards for both mathematical content and mathematical practices and PARCC's Cognitive Complexity Framework for Mathematics.
- <http://parconline.org/math-plds>

OTHER PARCC INFORMATION –

PARCC Accessibility Features and Accommodations Manual

- a comprehensive policy document that provides guidance to districts and decision-making teams to ensure that the PARCC Mid-Year and Summative Assessments provide valid results for all participating students
- <http://www.parcconline.org/parcc-accessibility-features-and-accommodations-manual>

Glossary

Claim: A statement about student performance based on how students respond to test questions. PARCC tests are designed to elicit evidence from students that support valid and reliable claims about the extent to which they are college and career ready or on track toward that goal and are making expected academic gains based on the Common Core State Standards. To support such claims, PARCC assessments are designed to measure and report results in multiple categories called master claims and sub-claims.

Evidence Statement: Words or phrases that describe student work and support claims about students' mastery of particular standards. Evidence statements describe what one can point to in a student's work to show that the student has mastered a specific standard.

Local Education Agency (LEA) – An LEA is an agency or other organization responsible for administrative control or direction of a school.

Partnership for Assessment of Readiness for College and Careers (PARCC): PARCC is a consortium of 7 states working together to develop an assessment system for English language arts and mathematics anchored in what it takes to be ready for college and careers.

Glossary

Standard Setting: The process used to establish performance (achievement) level cut scores.

Summative Assessment: A summative assessment is designed to measure a student's knowledge and skills at the end of an instructional period or at the conclusion of a course.

Task: In mathematics, a task is an operational item that may either have a single prompt or multiple prompts. The PARCC mathematics tests contain three types of tasks:

Type I tasks assess concepts, skills and procedures.

Type II tasks assess students' ability to express mathematical reasoning.

Type III tasks assess modeling and applications.

Technology-Enhanced Items (TEIs): TEIs are tasks administered on a computer and take advantage of the computer-based environment to present situations and capture responses in ways that are not possible on a paper-based test.

RESOURCES

- <http://www.parcconline.org/>
- <https://prc.parcconline.org> (released items)
- <http://www.state.nj.us/education/sca/>
- <http://njcore.org/>
- <https://www.illustrativemathematics.org/>
- <http://achievethecore.org/>

NJ DOE CONTACTS

Name	Title	Email	Phone
Jeffrey Hauger	Director of Assessments	jeffrey.hauger@doe.state.nj.us	609/984-7761
Timothy Giordano	Mathematics – 3-5	timothy.giordano@doe.state.nj.us	609/633-8015
Mike Luke	Mathematics – 6-8	michael.luke@doe.state.nj.us	609/984-9637
Deidre Richardson	Mathematics - HS	deidre.richardson@doe.state.nj.us	609/984-7454
Orlando Vadel	PARCC 3-5 Coordinator	orlando.vadel@doe.state.nj.us	609/341-3456
Timothy Steele-Dadzie	PARCC 6-8 Coordinator	timothy.steele-dadzie@doe.state.nj.us	609/292-4363
Veronica Orsi	PARCC HS Coordinator	veronica.orsi@doe.state.nj.us	609/292-8739
Don White	PARCC Data Coordinator	donald.white@doe.state.nj.us	609/777-2051