

## INFORMATIONAL GUIDE FOR THE MATHEMATICS PORTFOLIO APPEALS PROCESS

The most important part of the PARCC Portfolio Appeal process is the evidence gathered to show the student's ability to demonstrate the mathematical practices of **reasoning** and **modeling** within the five high school content areas. The five high school mathematics content areas, which can be found in the Common Core State Standards (CCSS) starting on page 57, are:

- Number & Quantity (N)
- Functions (F)
- Algebra (A)
- Geometry (G)
- Statistics & Probability (S)

More importantly, the appeals process must provide evidence of the two mathematical practices as follows: (see pages 6-8 in CCSS)

- I. **Expressing Mathematical Reasoning:** Express appropriate mathematical reasoning by constructing viable arguments, critiquing the reasoning of others, and/or attending to precision when making mathematical statements.
  - Base explanations and reasoning on knowledge and skills articulated in the Number and Quantity, Algebra, Functions, Geometry, and Statistics & Probability content areas.
- II. **Modeling:** Apply knowledge and skills to solve real-world problems, engaging particularly in the Modeling practice and, where appropriate, making sense and persevering to solve them, reasoning abstractly and quantitatively, using appropriate tools strategically, and making use of structure.
  - Solve multi-step contextual problems requiring application of knowledge and skills articulated in the Number & Quantity, Functions, Geometry, and Statistics & Probability content areas.

The following FAQs will help guide you in creating the evidence needed for the student appeal process.

*What does the phrase “showing evidence of reasoning and modeling within the five high school content areas: mean?*

Within the student appeal, there must be two constructed response tasks (CRTs) that will demonstrate the student's ability to **reason** and two constructed response tasks that will demonstrate the student's ability to **model**.

*Do I have to develop two reasoning and two modeling tasks for each of the five high school content areas?*

No. You are to submit **one reasoning** task for **two** of the high school content areas, and **one modeling** task for **the remaining two out of three** high school content areas. If one reasoning task is developed from Algebra and one from Geometry, the two modeling tasks must be developed from two of the remaining three content areas (F & N, F & S, or N & F)

### *How many constructed response tasks should be submitted per student?*

A total of four CRTs: two reasoning tasks and two modeling tasks. Each task is from a different content area.

### *Is this similar to what we submitted when we had AHSA appeals and submitted PATs?*

Yes; however, these “PATs” or constructed response tasks will be developed based upon the CCSS and Evidence Statement (ES) Tables.

### *What do you mean by Evidence Statement Tables?*

With the PARCC assessment, the constructed response items are developed from what are called the Evidence Statement Tables. These tables actually show clarifications and specifications to help develop items.

### *Where do I find these Evidence Statement Tables?*

You can find the Evidence Statement Tables in the Informational Guides posted on the New Jersey Department of Education website. Here are direct links to the Informational Guides for Algebra I, Geometry, and Algebra II. These are the only Evidence Statement Tables to be used.

<http://www.state.nj.us/education/assessment/parcc/guides/math/AlgebraI.pdf>

<http://www.state.nj.us/education/assessment/parcc/guides/math/Geometry.pdf>

<http://www.state.nj.us/education/assessment/parcc/guides/math/AlgebraII.pdf>

### *How do I read the Evidence Statement Tables?*

The Evidence Statement Tables are broken down by Type I, Type II, and Type III items. You are to focus on the **Type II**, which are the ES that are used to develop **reasoning** items, and the **Type III**, which are ES used to develop **modeling** items. The Type II tables are in **purple** and marked with the letter C. The Type III tables are in **blue** and are marked with the letter D.

### **Example:**

Here is a Type II ES taken from the Algebra II Informational Guide

HS.C.5.4	Given an equation or system of equations, reason about the number or nature of the solutions. Content Scope: A-REI.2.	i) Simple rational equations are limited to numerators and denominators that have degree at most 2.
----------	--	---

The HS.C.5.4 is the coding that is used for the ES. This is important as you will be referencing that coding in the CRT that you develop.

The actual ES is “Given an equation or system of equations, reason about the numbers or nature of the solutions.” The most important part here is where the content must come from; that is, “Content Scope: **A-REI.2**”. This refers to the CCSS (page 65). The ‘A’ is for Algebra, the ‘REI’ is the domain (‘Reasoning with Equations and Inequalities’) and the ‘two’ is the standard. “Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.”

The other statement as part of the ES, is a clarification, which states that the ‘simple rational equations are limited to numerators and denominators that have degree at most two. Not all ES will have a clarification.

***What do the different notations in other ES mean? Such as:***

HS.D.1-1	Solve multi-step contextual problems with degree of difficulty appropriate to the course, requiring application of knowledge and skills articulated in 7.RP.A, 7.NS.3, 7.EE, and/or 8.EE.
----------	---

This is a modeling ES from Algebra I. It is a modeling ES as it is in blue and also has a letter D in the coding. This ES assesses previous knowledge from seventh and eighth grade as denoted by the statement:

“Solve multi-step contextual problems with degree of difficulty appropriate to the course, requiring application of knowledge and skills articulated in 7.RP.A, 7.NS.3, 7.EE, and/or 8.EE.”

***What is meant by 7.RP.A and 7.EE as noted in the above ES?***

7.RP.A is the seventh-grade list of CCSS, the RP is the domain of ‘Ratios and Proportions’ and the ‘A’ refers to the first cluster (the statement in bold under the domain); that is anything under “Analyze proportional relationships and use them to solve real-world and mathematical problems.” (page 48 of the CCSS)

7.EE is the seventh-grade list of CCSS, the EE is the domain of ‘Expressions and Equations.’ You will notice on page 49 of the CCSS, there are two clusters (those statements in bold). The clusters are: “Use properties of operations to generate equivalent expressions” (this would be known as 7.EE.A) and the other “Solve real-life and mathematical problems using numerical and algebraic expressions and equations” (this would be known as 7.EE.B). HOWEVER, since this ES just lists 7.EE, that means an item can assess **any** of those standards listed under the domain of ‘Expressions and Equations.’ If it were 7.EE.A, it would be limited to those standards in the first cluster.

8.EE would be the same as but for eighth grade. Any of the standards listed under the Domain of ‘Expressions and Equations’ (page 54-55 of the CCSS)

***Since these earlier grades have different domains than high school, under which content area would these ES fall?***

In grades 6-8 the domains are:

- RP (ratios/proportions in ONLY grades 6&7) would fall under Algebra (A)
- F (Functions, ONLY grade 8) would fall under Functions (F)
- NS (Number system) would fall under Number & Quantity (N)
- EE (Expressions and Equations) would fall under Functions (F)
- G (Geometry) would fall under Geometry (G)
- SP (Statistics & Probability) would fall under Statistics & Probability (S)

***Can I create a constructed response item that assesses knowledge from seventh or eighth grade?***

Yes. If you come across any reasoning or modeling ES among the Algebra I, Geometry, or Algebra II ES tables that have a content scope that starts with a number such as 6, 7, or 8, that is the grade (sixth, seventh, or eighth) from which the standards are taken in order to create a constructed response task.

***I see that the ES noted above in blue for HS.D.1-1 has four different areas of concentration. Do I need to write a constructed response item for each one?***

No. In HS.D.1-1, there is 7.RP.A, 7.NS.3, 7.EE, and/or 8.EE. You need to write a modeling constructed response task for only one of those content areas. However, since there are different content areas listed, you could write a modeling task focusing on 7.RP.A which would fall under Algebra and you could write another modeling task focusing on 7.NS.3 which would fall under Number & Quantity. You would then have your two modeling tasks to administer to your students.

***So now that I understand the ES tables, what do I need to do for my students?***

Besides filling out the forms for the appeal, you must create and administer four constructed response tasks for each of your students. Remember that each task comes from a different content area, and two tasks will assess reasoning, and two tasks will assess modeling.

***What should each task consist of?***

**Each** task should have the following:

1. A cover sheet that lists the following: (a blank cover sheet is in this document for your use)
  - the student's name
  - the Evidence statement to which the task aligns (use the coding found in the ES tables)
  - the actual evidence statement
  - the content scope in the ES that is being assessed
  - the content area being assessed (N, F, A, G, or S)
  - the type of item: Reasoning or Modeling
  - the student's score
2. The constructed response task
3. The student's response and score
4. The constructed response rubric

*How many points should the task consist of?*

The task must have three points. However, no more than 50 percent of the points may come from strict computation. That is, at least 50 percent or more of the points must come from either reasoning or modeling.

*Can you explain that further?*

In a three-point task, two of those points **must** come from reasoning/modeling and **only** one point can come from computation, **or** you could have **all** three points be for reasoning/modeling. If a student is asked to explain his/her answer in a task, that can be only counted as one reasoning point. There can be **only** one point assigned for each reasoning/modeling response.

*What is the ‘passing’ score on the constructed response task?*

For a student to ‘pass’ the constructed response task, he/she must earn at least two points.

*Can students use a calculator and formula sheet on the constructed response tasks?*

Yes. You can find the formula sheets at the end of each of the Informational Guides.

*Can I use the same constructed response tasks for different students?*

Yes, definitely.

*Can you please provide an example of a constructed response task?*

### **SAMPLE COVER SHEET**

**Student Name:** \_\_\_\_\_

**Evidence Statement Code:** **HS.C.6.1**

**Evidence Statement:** Base explanations/reasoning on the principle that the graph of an equation and inequalities in two variables is the set of all its solutions plotted in the coordinate plane.

Content scope: A-REI.D, excluding exponential and logarithmic functions.

**Content Scope:** **A-REI.D**

**Content Area Assessed:** **Algebra (A)**

**Type of Item:** **Reasoning**

**Student Score:** **3**

### Sample Constructed Response Task

Let  $|x| + |y| = c$ , where  $c$  is a real number.

Determine the number of points that would be on the graph of the equation for **each** given case:

Case 1:  $c < 0$

Case 2:  $c = 0$

Case 3:  $c > 0$

Justify your answers.

### Student Response:

*The student's response may be on separate pages from the task. Please make sure the student's name is on each page of his/her response.*

### Sample Scoring Rubric

Score	Description
<b>3</b>	<p>Student response includes each of the following three elements:</p> <p>One reasoning point: Correct justification of the number of points on the graph for <math>c &lt; 0</math></p> <p>One reasoning point: Correct justification of the number of points on the graph for <math>c = 0</math></p> <p>One reasoning point: Correct justification of the number of points on the graph for <math>c &gt; 0</math></p> <p>Sample Student Response:</p> <p><math> x </math> and <math> y </math> are each nonnegative for all real numbers <math>x</math> and <math>y</math>. So, the sum must be nonnegative for all real numbers. Therefore, the sum cannot equal a negative number.</p> <p>There are no solutions and no points on the graph when <math>c &lt; 0</math>.</p> <p>If <math>c = 0</math>, there is only one solution, <math>(0, 0)</math>. The graph consists of only one point.</p> <p>If <math>c &gt; 0</math>, there are infinitely many solutions, which means that there are infinitely many points on the graph.</p>
<b>2</b>	Student response includes two of the three elements.
<b>1</b>	Student response includes one of the three elements.
<b>0</b>	Student response is incorrect or irrelevant.

Note how this rubric shows where the points are coming from. In this case, there are no computation points, but all reasoning points. When putting a rubric together, it's important to show which points are for reasoning/modeling and which points are strictly for computation.

***Where can I find more examples of constructed response items?***

You can find more sample items at [www.parcconline.org](http://www.parcconline.org) and look under the Practice Tests for Algebra I, Geometry, and Algebra II. There will also be a released item guide coming out in November 2015 that will show more sample constructed response items from those subject areas. Please use these items as a guide and not as actual questions for your students.

***Where do I send the student appeal and constructed response items?***

The appeals and constructed response items should be sent to the following address:

NJDOE Portfolio Appeals  
Dr. Faye Ball  
100 Riverview Plaza  
PO Box 500  
Trenton, NJ 08625

***What do I do if I have further questions?***

If you have questions about math content, please contact Mr. Timothy Giordano via email at [timothy.giordano@doe.state.nj.us](mailto:timothy.giordano@doe.state.nj.us) or by phone at 609-633-8015.

If you have questions regarding the appeal process, please contact Dr. Faye Ball via email at [faye.ball@doe.state.nj.us](mailto:faye.ball@doe.state.nj.us) or by phone at 609-984-1970.

**PARCC PORTFOLIO APPEAL**  
**CONSTRUCTED RESPONSE ITEM COVER SHEET**

**Student Name:** \_\_\_\_\_

**Evidence Statement Code:** \_\_\_\_\_

**Evidence Statement:**

---

---

---

---

---

**Content Scope (found in ES):** \_\_\_\_\_

**Content Area Assessed (N, F, A, G, or S):** \_\_\_\_\_

**Type of Item (Reasoning or Modeling):** \_\_\_\_\_

**Student Score:** \_\_\_\_\_