

2021

SC Palmetto  
Assessment of State  
Standards (SC PASS)

Evidence of Alignment for  
Grades 4 & 6



**SC EDUCATION  
OVERSIGHT COMMITTEE**

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# Evidence of Alignment for South Carolina Palmetto Assessment of State Standards (SC PASS) in Science: Grade 4 and Grade 6

An Independent Alignment Study Conducted for the South Carolina Department of Education by Education Oversight Committee Staff for the Purpose of Peer Review

## Context of the SC PASS Alignment Study

The SC PASS Science tests are designed to measure student performance on the South Carolina Academic Standards and Performance Indicators for Science (henceforth “SC Science Standards”), which were approved for implementation by the State Board of Education (SBE) and by the Education Oversight Committee (EOC) in 2014. The SC Science Standards are comprised of integrated, grade-level science standards and performance indicators for Kindergarten through Grade 8 as well as for the high school science courses of biology, chemistry, physics, and earth science.

The standards document is organized into four or five Academic Standards per K–8 grade level, each of which is further subdivided into one or two Conceptual Understandings. In turn, each Conceptual Understanding is operationalized by up to eight Performance Indicators that specify what students can do to demonstrate knowledge of the intended conceptual understanding. Standards are identified by the grade level (“K” for Kindergarten, 1-8 for first through eighth grade, or “H” for high school), an indicator of the scientific domain (“B” for Biology, “C” for Chemistry, “E” for Earth Science, “EC” for Ecology, “L” for Life Science, “P” for Physical Science, or “S” for the Science and Engineering Practices), and a number for the standard itself. For example, Standard 6.P.3 is the third science standard in sixth grade, which is a Physical Science standard. Conceptual understandings are indicated by adding sequential letters to the standard (e.g., 6.P.3A and 6.P.3B) with the related Performance Indicators numbered sequentially as the final term in the identifier (e.g., 6.P.3A.1 through 6.P.3A.6 and 6.P.3B.1 through 6.P.3B.2).

Per the Consolidated State Plan that the SC Department of Education (SCDE) has submitted to and has been approved by the US Department of Education (USDE), the SC Science Standards are assessed via the SC PASS in Grade 4 and Grade 6. Items for the SC PASS are developed according to a development plan that is submitted to the Contractor, Data Recognition Corporation, by SCDE. The Contractor provides information about the standard that the item is meant to measure, the depth of knowledge (DOK) at which it is intended to measure it, and how each distractor was formulated.

After SCDE provides feedback, and requests and approves revisions, the items are presented for review at annual meetings of the Item Review Committees and Bias/Sensitivity Review Committees. Both committees are constituted of expert educators in the state. Content item committee members are provided with secure access to all items for review and trained on alignment, depth of knowledge, and item technical quality. Bias and sensitivity item committee members are provided with secure access to all items for review and trained on bias and sensitivity and universal design. During the meetings, committee members review each item and provide written feedback before items are discussed with the whole group. The Contractor facilitates training and documents all decisions, changes, and concerns

during the meetings. Following the committee meetings, the Contractor and the SCDE content specialist reconcile the recommended edits. The Contractor incorporates these changes and send final edited items to the SCDE.

After all the edits have been approved, the SCDE creates sets of field test items. Each field test set for grades four and six is comprised of six items. The items are embedded on the operational test form and administered to a representative sample of students. Items selected to appear on forms must not only meet psychometric qualities for excellence, but they must also meet technical quality in terms of content and conventions of good item writing and construction. The Contractor’s content specialists recheck to see that each item meets technical quality for well-crafted items, including having only one clearly correct answer, having wording that is clear and concise, having grammatical correctness, being appropriate for the range of difficulty, and being free of any content that might be offensive, inappropriate, or biased. The Contractor further ensures that items selected for operational forms meet psychometric guidelines of having  $p$ -values within the recommended range of 0.30 to 0.85, having positive item-total correlations (point-biserials) greater than or equal to 0.20, and having differential item functioning (DIF) flags better than “C” (items with a DIF flag of “B” should be considered carefully and, when included, balanced among favored gender and ethnicity groups).

The present study provides evidence of alignment for the SC PASS Science Grade 4 and Grade 6 assessments as described in *A State’s Guide to the U.S. Department of Education’s Assessment Peer Review Process* (USDE, 2018). The evidence presented within this report builds on the evidence collected by SCDE and the Contractor through the item development, review, and field testing processes described prior. Specifically, this report contains “results of an independent alignment study that is technically sound (i.e., method and process, appropriate units of analysis, clear criteria) and documents adequate alignment, specifically that each assessment is aligned to its test blueprint, and each blueprint addresses [the] depth and breadth of the State’s academic content standards” (USDE, 2018, p. 48).

## Research Questions

The present study seeks to answer the following research questions:

1. To what extent do the test forms and test items for the Science SC PASS reflect the test design and test blueprint?
2. To what extent do test forms show balance across the science domains used for Science SC PASS scoring and reporting purposes (earth science, life science, and physical science)?
3. To what extent do the test forms and test items reflect the depth and breadth of the SC Science Standards?
4. To what extent do Science SC PASS items integrate disciplinary content with science and engineering practices?
5. Do the Science SC PASS items range from low to high cognitive complexity (i.e., depth of knowledge or DOK) and provide enough items across the range of cognitive complexity?

## Alignment Review Methods

EOC Staff conducted and facilitated an alignment study workshop in Columbia, SC, on August 3, 2021. Fourteen teachers with experience teaching fourth- or sixth-grade science in one of 13 different South Carolina school districts were invited to participate in the alignment study as an expert review panel. Due

to unanticipated circumstances such as illness and travel delays, 12 teachers from 11 districts ultimately participated in the study in two teams, with one team reviewing the SC PASS Science Grade 4 assessment and one team reviewing the SC PASS Science Grade 6 assessment. Panelists possessed multiple years of experience teaching science. Ten members of the expert panel had experience teaching science at the grade level of that assessment items they reviewed, all but one of whom in the most recent school year. The other two panelists had experience in lead or supervisory roles over teachers at the grade level reviewed. All invited panelists were identified by SCDE or by district leaders as possessing suitable knowledge and experience to be well-qualified for participation in the alignment study.

Workshop participants were financially supported for 1.5 days of effort, which included participation in the alignment study workshop on August 3 and approximately four hours of effort in advance of the workshop. Participants' advance work included training videos and exercises designed to prepare them for their duties on the day of the alignment study (the text of the email containing advance materials has been included as Appendix A). To support participants' advance work, EOC Staff were made available for consultation by phone or email. The alignment study workshop also began with a brief discussion of and opportunity for questions about the advance work materials and concepts and skills addressed by them. Debriefing of items rated independently during advance work was used for initial calibration purposes. The alignment study was designed so that all items would be independently rated by two participants and initial discrepancies resolved through discussion before comparing the expert panelists' identified standards and DOK levels with those intended by the test developer.

SCDE prepared notebooks with printed copies of all reviewed test materials and had computers with secure access to live test items so that participants could see and interact with technology-enhanced items. Printouts of reviewed test items were arranged in random order and had the intended standard alignment and DOK removed so as not to bias participant reviews. EOC Staff prepared data collection forms (see Appendix B) on which participants were to record the aligned standard Performance Indicator and identified DOK, as well as comments to indicate the criteria and evidence on which they based their identifications. Expert panelists identified the Science Standard Performance Indicator that they believe is being assessed by each item reviewed, with an opportunity to identify a secondary Performance Indicator as the content area context for items that primarily measure one of the Science and Engineering Practices. Panelists also identified the DOK level of the item for comparison to the intended DOK.

Based on the Science Standard Performance Indicators and DOK levels identified by the expert review panel, EOC Staff compared the collection of items used by the test forms reviewed to the blueprint for those assessments (see Appendix C). Note that, although the items are created to align with specific Performance Indicators, the blueprint identifies the number of items that are meant to assess each Academic Standard. Therefore, the findings of this report will discuss agreement and alignment both at the Performance Indicator level, as well as at the Academic Standard level, which is more general. The Alignment Study Workshop consisted of the following stages:

### Stage 1 – Independent Review of Items

Expert panelists began by independently reviewing the specific items to which they had been assigned. Panelists were instructed to identify the Performance Indicator most directly assessed by the item and, if the item in question directly assesses a Science and Engineering Practice, a secondary Performance Indicator which represents the grade-level content that serves as the context within which the practice in question is assessed. Panelists also identified the DOK level at which the Performance Indicator is assessed

by the item reviewed. Participants were instructed to add brief notes in the comments area of the data collection form to record any specific aspects of the item’s design, phrasing, or the cognitive processes required to respond correctly to the item, that helped them select the specific Performance Indicator(s) and DOK level identified.

### Stage 2 – Discussion and Reconciliation of Ratings

After independent item review, pairs of panelists who had reviewed the same items met to compare the Performance Indicators and DOK levels that they identified and came to consensus on a final identification of aligned Performance Indicators and DOK levels. Each panelist was paired with three different fellow panelists during Stage 2 to expose them to multiple ways of analyzing items and to minimize the influence of any potential bias that could be introduced within the dynamics of a single dyad. During reconciliation, panelists referred to the notes they took during independent rating and discussed their interpretation of the items and the cognitive processes required for students to make a correct response until they found agreement. Pairs of panelists were asked to record the Performance Indicators and DOK levels on which they found agreement along with comments to specify the specific reasoning or evidence for the final decisions made.

Across all 95 items reviewed, pairs of expert raters demonstrated initial agreement on 57 items (or 60%) at the Performance Indicator level, and on 72 items (or 76%) when examined at the Academic Standard level. Pairs of panelists also demonstrated initial agreement on the identified DOK level for 74 items (or 78%). After discussion, pairs of panelists came to 100% agreement for all items on both the aligned Performance Indicator and DOK level. More detailed results are discussed forthcoming in the findings and discussion for each of the research questions.

### Stage 3 – Discussion and Reconciliation of Pair Ratings with Design Intent

After all pairs or panelists had found consensus on the aligned Performance Indicators and DOK levels, panelists were given the metadata for the items to indicate the Performance Indicator and DOK level intended for the items reviewed. Panelist pairs then examined any Performance Indicator or DOK level for which their consensus decision disagreed with the Performance Indicator and DOK level intended for the item. Panelists were instructed not to consider the information provided in the metadata as the “correct” alignment for the item. Instead, panelists were advised that discussions could lead them to one of three equally legitimate outcomes: (a) that the Performance Indicator and DOK level identified in the metadata is more appropriate for the item than those identified by the panelists, (b) that the Performance Indicator and DOK level identified by the panelists is more appropriate for the item than those identified in the metadata, or (c) that both sets of Performance Indicators and DOK levels are equally appropriate for the item.

Across all 95 items reviewed, panelists demonstrated initial agreement with SCDE and Developer intent on 61 items (or 64%) at the Performance Indicator level, and on 76 items (or 80%) when examined at the Academic Standard level. Panelists also demonstrated initial agreement on the intended DOK level for 62 items (or 65%). After consideration and discussion, pairs of panelists came to agreement with the intended aligned Performance Indicator for 87 items (or 92%), and with the intended Academic Standard for 90 items (or 95%). Panelists demonstrated final agreement with the intended DOK level for 89 items (or 94%). More detailed results are discussed forthcoming in the findings and discussion for each of the research questions.

## Stage 4 – Data Integration and Analysis

EOC Staff integrated and analyzed the data collected from the Alignment Study Workshop and from the documents and reference materials provided by SCDE to answer the five research questions of the present study. Panelists’ comments and notes were also qualitatively analyzed to contribute to the recommendations that follow. Findings are discussed next, organized by research question.

## Findings of the Alignment Study

### Research Question 1 – Reflection of Test Design and Blueprint

When comparing the Academic Standard and DOK level assessed by the reviewed items to the approved test blueprint, EOC Staff considered the final identifications made by the expert panelists after the conclusion of Stage 3 of the Alignment Study Workshop.

For the Grade 4 SC PASS Science test, the blueprint requires that from eight to eleven items assess each Academic Standard. Per the findings of the expert panelists (see Table 1), Academic Standard 4.E.2 is underrepresented by one item. This difference can be attributed to a single item that was intended to measure 4.E.2, but which the panelists identified as a more appropriate measure of the Science and Engineering Practices (4.S.1), though the panelists did identify 4.E.2 as the secondary Academic Standard representing the content area context of the item in question. The items also closely match the levels of cognitive complexity intended during the development of the Grade 4 SC PASS Science test, with one more item than intended being identified at DOK 1 by the expert panelists.

**Table 1.**  
*Grade 4 SC PASS Items per Academic Standard by DOK Level*

Academic Standard	DOK 1	DOK 2	DOK 3	Total Items
	# (%) <sup>a</sup>	# (%) <sup>a</sup>	# (%) <sup>a</sup>	# (%) <sup>b</sup>
4.S.1	1 (9%)	8 (73%)	2 (18%)	11 (24%)
4.E.2	2 (29%)	5 (71%)	—	7 (16%)
4.E.3	1 (13%)	7 (88%)	—	8 (18%)
4.P.4	—	8 (80%)	2 (20%)	10 (22%)
4.L.5	1 (11%)	5 (56%)	3 (33%)	9 (20%)
<b>Total:</b>	<b>5 (11%)</b>	<b>33 (73%)</b>	<b>7 (16%)</b>	<b>45 (100%)</b>

*Note:* Academic Standards and DOK levels indicated reflect those identified by expert panelists after final discussion and reconciliation. Panelists demonstrated almost perfect agreement with the intended Academic Standard of the item as measured by Cohen’s kappa ( $\kappa = 0.94$  for 4.S.1,  $\kappa = 0.92$  for 4.E.2,  $\kappa = 0.85$  for 4.L.5, and  $\kappa = 1.00$  for 4.E.3 and 4.P.4). Panelists demonstrated substantial agreement with the intended DOK level of items ( $\kappa = 0.88$  for DOK 1,  $\kappa = 0.62$  for DOK 2, and  $\kappa = 0.73$  for DOK 3).

<sup>a</sup> Percentages shown indicate the percent of the total items for the given Academic Standard (i.e., total items in the row) that were identified at the indicated DOK level. <sup>b</sup> Percentages shown indicate the percent of all items on the test that were identified to assess the indicated Academic Standard.

For the Grade 6 SC PASS Science test, the blueprint requires that from nine to twelve items assess each Academic Standard. Per the findings of the expert panelists (see Table 2), the items on the test form match the requirements of the blueprint. The complexity of the items on the Grade 6 test form do not match the distribution indicated by the blueprint, with DOK 1 being overrepresented and DOK 3 being underrepresented. It should be noted that the proportion of items at each of the DOK levels was not added to the blueprint until August 2020, suggesting that the items used on the test reviewed were developed, piloted, and selected before this requirement was in place.

**Table 2.**  
Grade 6 SC PASS Items per Academic Standard by DOK Level

Academic Standard	DOK 1	DOK 2	DOK 3	Total Items
	# (%) <sup>a</sup>	# (%) <sup>a</sup>	# (%) <sup>a</sup>	# (%) <sup>b</sup>
6.S.1	1 (8%)	8 (67%)	3 (25%)	12 (22%)
6.E.2	2 (22%)	7 (78%)	—	9 (16%)
6.P.3	3 (27%)	7 (64%)	1 (9%)	11 (20%)
6.L.4	2 (15%)	11 (85%)	—	13 (24%)
6.L.5	—	10 (100%)	—	10 (18%)
<b>Total:</b>	<b>8 (15%)</b>	<b>43 (78%)</b>	<b>4 (7%)</b>	<b>55 (100%)</b>

Note: Academic Standards and DOK levels indicated reflect those identified by expert panelists after final discussion and reconciliation. Panelists demonstrated almost perfect agreement with the intended Academic Standard of the item as measured by Cohen’s kappa ( $\kappa = 0.89$  for 6.S.1,  $\kappa = 0.95$  for 6.P.3,  $\kappa = 0.94$  for 6.L.5, and  $\kappa = 1.00$  for 6.E.2 and 6.L.4). Panelists demonstrated almost perfect agreement with the intended DOK level of items ( $\kappa = 0.84$  for DOK 1 and DOK 2, and  $\kappa = 0.85$  for DOK 3).

<sup>a</sup> Percentages shown indicate the percent of the total items for the given Academic Standard (i.e., total items in the row) that were identified at the indicated DOK level. <sup>b</sup> Percentages shown indicate the percent of all items on the test that were identified to assess the indicated Academic Standard.

Expert panelists and EOC Staff noted that the test forms reviewed contained the number of technology-enhanced items indicated on the blueprint (see Appendix C). In addition, panelists noted that test takers are required to employ the Science and Engineering Practices throughout the assessment and that use of the practices were not limited to the items designed to assess that Academic Standard (i.e., 4.S.1 and 6.S.1). Therefore, we conclude that the test items and forms reviewed adequately reflect the intent of the test design and test blueprint.

### Research Question 2 – Balance Across Science Domains

The science domains assessed by the Grade 4 and Grade 6 SC PASS are displayed in Table 3. The distribution of SC PASS items across the science domains seems appropriate given the relative focus put on these domains in the Science Standards at the grade levels assessed. The number and proportion of items for each Science Domain on the Grade 4 and Grade 6 SC PASS Science test forms are similar to the number and proportion of individual Performance Indicators listed for those domains in the SC Science Standards document. Therefore, we conclude that the test items and forms reviewed test forms show adequate balance across the science domains used for Science SC PASS scoring and reporting purposes.

**Table 3.**  
Number and Proportion of SC PASS Items and Performance Indicators by Science Domain

Science Domain	Grade 4 Items	Grade 4 Pls	Grade 6 Items	Grade 6 Pls
	# (%) <sup>a</sup>	# (%) <sup>b</sup>	# (%) <sup>a</sup>	# (%) <sup>b</sup>
Earth Science	15 (33%)	12 (33%)	9 (16%)	7 (18%)
Life Science	9 (20%)	7 (19%)	23 (42%)	14 (37%)
Physical Science	10 (22%)	8 (22%)	11 (20%)	8 (21%)
Science and Engineering Practices	11 (24%)	9 (25%)	12 (22%)	9 (24%)

Note: Pls = Performance Indicators. Assessed domains reflect Academic Standards identified by expert panelists after final discussion and reconciliation.

<sup>a</sup> Percentages shown indicate the percent of all items on the test that were identified to assess the indicated Science Domain.

<sup>b</sup> Percentages shown indicate the percent of all Pls listed in the SC Science Standards for the indicated grade level that are associated with the indicated Science Domain.

### Research Question 3 – Depth and Breadth of the SC Science Standards

As discussed, each Academic Standard listed in the SC Science Standards is further codified in multiple Performance Indicators that indicate what a student can do to demonstrate knowledge of the Conceptual Understanding under which they fall. If the SC PASS Science assessments reflect the depth and breadth of the SC Science Standards they are meant to measure, then the items are expected to be distributed somewhat evenly across the Performance Indicators and at DOK levels that reflect the complexity of the Academic Standards and Performance Indicators assessed.

**Table 4.**

*Number of Grade 4 Performance Indicators Assessed per Academic Standard by DOK Level*

Academic Standard	# of PIs	<u>DOK 1</u>	<u>DOK 2</u>	<u>DOK 3</u>	<u>Total PIs</u>
		# (%)	# (%)	# (%)	# (%)
4.S.1	9	1 (11%)	7 (78%)	2 (22%)	9 (100%)
4.E.2	5	2 (40%)	4 (80%)	—	5 (100%)
4.E.3	7	1 (14%)	6 (86%)	—	7 (100%)
4.P.4	8	—	5 (63%)	2 (25%)	6 (75%)
4.L.5	7	1 (14%)	5 (71%)	3 (43%)	6 (86%)
<b>Total:</b>	<b>36</b>	<b>5 (14%)</b>	<b>33 (92%)</b>	<b>7 (19%)</b>	<b>33 (92%)</b>

*Note:* PIs = Performance Indicators. The PIs, Academic Standards, and DOK levels indicated reflect those identified by expert panelists after final discussion and reconciliation. Percentages shown indicate the percentage of all PIs listed in the SC Science Standards for the indicated Academic Standard(s).

Table 4 indicates the number of Performance Indicators associated with each Grade 4 academic Standard as well as the number and proportion of Performance Indicators that are assessed by items identified at various DOK levels. The assessment form reviewed assesses 92% of the Grade 4 Performance Indicators (i.e., 33 out of 36 PIs are assessed). Each Performance Indicator was assessed by zero, one, or two SC PASS items ( $M = 1.3$ ,  $SD = 0.6$ ). Two of the Grade 4 Academic Standards (4.E.2 and 4.E.3), both in the Earth Science domain, were not assessed by any items at DOK 3.

**Table 5.**

*Number of Grade 6 Performance Indicators Assessed per Academic Standard by DOK Level*

Academic Standard	# of PIs	<u>DOK 1</u>	<u>DOK 2</u>	<u>DOK 3</u>	<u>Total PIs</u>
		# (%)	# (%)	# (%)	# (%)
6.S.1	9	1 (11%)	7 (78%)	3 (33%)	9 (100%)
6.E.2	7	2 (29%)	5 (71%)	—	7 (100%)
6.P.3	8	3 (38%)	7 (88%)	1 (13%)	8 (100%)
6.L.4	7	2 (29%)	7 (100%)	—	7 (100%)
6.L.5	7	—	6 (86%)	—	6 (86%)
<b>Total:</b>	<b>38</b>	<b>5 (14%)</b>	<b>33 (92%)</b>	<b>7 (19%)</b>	<b>37 (97%)</b>

*Note:* PIs = Performance Indicators. The PIs, Academic Standards, and DOK levels indicated reflect those identified by expert panelists after final discussion and reconciliation. Percentages shown indicate the percentage of all PIs listed in the SC Science Standards for the indicated Academic Standard(s).

Table 5 indicates the number of Performance Indicators associated with each Grade 6 academic Standard as well as the number and proportion of Performance Indicators that are assessed by items identified at various DOK levels. The assessment form reviewed assesses 97% of the Grade 6 Performance Indicators (i.e., 37 out of 38 PIs are assessed). Each Performance Indicator was assessed by from zero to up to three

SC PASS items ( $M = 1.5$ ,  $SD = 0.7$ ). Three of the Grade 6 Academic Standards (6.E.2, 6.L.4, and 6.L.5), which includes both standards in the Life Science domain, were not assessed by any items at DOK 3.

Based on these analyses, we conclude that although the test forms and test items adequately reflect the depth and breadth of the SC Science Standards, there are opportunities to improve the degree to which the SC PASS Science assessments reflect the higher levels of cognitive complexity implied by the Academic Standards assessed. It is recommended that each Science Domain assessed include at least one item that assesses students at DOK 3.

#### Research Question 4 – Integration of Science and Engineering Practices

The SC Science Standards include the Science and Engineering Practices (SEPs) as the first Academic Standard for each Grade Level and High School Course. In addition, each Performance Indicator has an aspect of the SEPs embedded within its description of what a student can do to demonstrate knowledge of the Conceptual Understandings and Academic Standards associated with the other Science Domains. This element of the design of the SC Science Standards reflects the document’s exhortation that “the Science and Engineering Practices are *not* to be taught in isolation” (p. 2, emphasis in original).

Review of the panelists’ notes and comments during the Alignment Study Workshop indicated that they paid particular attention to the SEPs in their analysis and review of items. Expert panelists considered the SEPs that students must use to respond correctly to the item as a basis for some of their final decisions about which Performance Indicator an item assesses. Analysis of their comments and notes taken during their discussions suggest that Science SC PASS items integrate disciplinary content with science and engineering practices very effectively. This integration is a strength of the SC PASS assessment system.

#### Research Question 5 – Range of Cognitive Complexity

Per the findings related to Research Question 1, SC PASS items adequately reflect the intended cognitive complexity represented by the test design and blueprint (see Table 1 and Table 2). Per the findings related to Research Question 3, the SC PASS sufficiently reflects the depth and breadth of the SC Science Standards with an opportunity to improve the degree to which items reflect the higher levels of cognitive complexity implied by the standards (see Table 4 and Table 5). The SC PASS Science tests do have items across the range of DOK levels, but care should be taken to ensure that Performance Indicators which describe more complex performances of understanding be assessed with more complex items. Based on our analyses, we conclude that Science SC PASS items range appropriately from low to high cognitive complexity, provide enough items across the range of cognitive complexity, and that an opportunity exists to match the cognitive complexity of items more closely to the cognitive complexity of the Performance Indicators and Academic Standards they assess.

### Conclusion and Recommendations

The Grade 4 and Grade 6 SC PASS Science assessments demonstrate adequate alignment. Specifically, the test forms reviewed are adequately aligned to their respective test blueprints, and each blueprint addresses the depth and breadth of the SC Science Standards.

- **Recommendation 1:** Work to ensure that each Science Domain includes at least one item that assess students at DOK 3.
- **Recommendation 2:** Match the cognitive complexity of items more closely to the cognitive complexity of the Performance Indicators and Academic Standards they assess.

The Grade 4 and Grade 6 SC PASS Science assessments integrate disciplinary content with Science and Engineering Practices (SEPs) very well. Specifically, the SEPs are integrated into both the SC Science Standards and their associated support documents to facilitate SCDE's goal that the SEPs be embedded into Science teaching and learning and not be taught in isolation. The SC PASS test items reflect this integration of SEPs and Science Domains appropriately.

- **Recommendation 3:** Continue efforts to integrate SEPs into Science teaching and learning throughout the State.

## Appendix A: Email Containing Advance Materials for Alignment Study Participants

Good day, SC PASS Science Alignment Study participants,

This email serves as the official kick-off for your participation in the Alignment Study. Before proceeding to the materials below, please check these quick logistical details:

- Please complete [this form](#) to place your lunch order no later than **Friday, July 23**.  
*(Note that if you do not place an order by the deadline, then a turkey sandwich will be selected for you.)*
- Remember that you must have a vendor number with the state to be compensated for your efforts on this project. If you have not yet done so, please do this as soon as possible.  
*(If you do not have a vendor number, then you would have received an email from the EOC Deputy Director, Dana Yow, with instructions. Please contact Dana at [danay@eoc.sc.gov](mailto:danay@eoc.sc.gov) if you have any questions about this.)*
- You will be eligible for reimbursement of milage for your travels to the alignment study if you live **more than 10 miles away** from the [Olympia Learning Center](#).  
*(Note that this is a change from what was mentioned in a previous email. We have received new guidance from the state that permits us to pay milage for shorter distance trips.)*
- On the day of the Alignment Study, you will be asked to sign a non-disclosure agreement since you will be reviewing secure test items. This agreement is very similar to the non-disclosure language you sign whenever you serve as a proctor for a state achievement test.  
*(Although none of the materials contained in this email are protected, the test items that you will review on August 3 are secure test items that have not been released to the public.)*



[watch this video introduction \(https://youtu.be/HBp1MU7TUL8\)](https://youtu.be/HBp1MU7TUL8) or read [this transcript](#) before proceeding.

## Advance Work Materials for Completion Before the Alignment Study

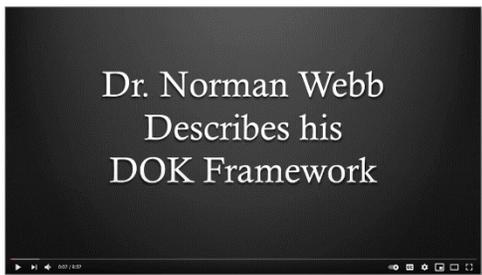


[linked here; https://youtu.be/7aiAmOthDHY](https://youtu.be/7aiAmOthDHY) that gives an overview of the alignment study



[linked here; https://youtu.be/\\_7FlobA8dnQ](https://youtu.be/_7FlobA8dnQ)) that gives an orientation to SC PASS Science items and how they align with the SC Academic Standards and Performance Indicators for Science. The additional items referenced in this video appear below:

- [Sample Item 1](#) – This is the first sample item presented in the video (at about 3:12)
  - [Sample Item 2](#) – This is the second sample item presented in the video (at about 5:32)
  - [Practice Item 1](#) – This is the first item presented for your independent practice (7:53)
  - [Practice Item 2](#) – This is the second item for your independent practice (10:15)
  - [SC Academic Standards and Performance Indicators for Science](#) – The Science standards to which the test items align
  - [SC PASS Grade 4 Science Released Items](#) – Fourth grade released items for additional practice
  - [SC PASS Grade 6 Science Released Items](#) – Sixth grade released items for additional practice
3. Refamiliarize yourself with the [SC Academic Standards and Performance Indicators for Science](#) and make any notes to support your work during the alignment study



[linked here, https://youtu.be/qFXU6\\_TYIjc](https://youtu.be/qFXU6_TYIjc), and [linked here; https://youtu.be/5u7hchcdTD0](https://youtu.be/5u7hchcdTD0)) for some decent explanations of Webb's Depth of Knowledge



[linked here; https://youtu.be/QobZ9kJwSFs](https://youtu.be/QobZ9kJwSFs)). While viewing this video, you may wish to refer to the following items:

- [WebbAlign Quick Reference Sheet](#) – This contains the official definitions of the four DOK levels used by the SC Department of Education
- [Sample Item 3](#) – The first sample item presented in this video (at about 0:45)

- [Sample Item 4](#) – The second sample item in this video (at about 1:43)
- [Practice Item 3](#) – The first independent practice item in this video (2:39)
- [Practice Item 4](#) – The second independent practice item (3:55)
- [SC PASS Grade 4 Science Released Items](#) – Fourth grade released items for additional practice
- [SC PASS Grade 6 Science Released Items](#) – Sixth grade released items for additional practice



[linked here; https://youtu.be/ tAuQkWDiUI](https://youtu.be/tAuQkWDiUI)) on how to reconcile discrepancies among raters and what evidence to record for the standard indicators and DOK you identify

## Contact Us

During your advance work, if you have any questions for us or would like something clarified, feel free to reach contact us.

- For general questions about the event or logistics, please contact Hope Johnson-Jones, Administrative Coordinator, at [hjones@eoc.sc.gov](mailto:hjones@eoc.sc.gov)
- For questions about the content of these videos or the tasks that you will be asked to do for this alignment study, please contact Matt Lavery, Director of Research, at [mlavery@eoc.sc.gov](mailto:mlavery@eoc.sc.gov)
  - You may also use [this link](#) to schedule a quick online meeting or phone call with me to discuss any questions that you might have.

Thank you all for all that you do for students,



**Matthew R Lavery, Ph.D.** (*he/him/his*)  
 Director of Research  
[SC Education Oversight Committee](#)  
 PHONE: 803.734.8827  
 CELL: 407.520.1240  
 E-MAIL: [mlavery@eoc.sc.gov](mailto:mlavery@eoc.sc.gov)

[reduce the carbon footprint of email communications](#), it is not necessary to send acknowledgement or thanks for this message unless specifically requested. Know that your comments or questions regarding the content of this email are always welcome. Thank you.

**Appendix B:  
Data Collection Forms**



**2019-20 4<sup>th</sup> Grade Science Standard  
Alignment Committee (August 3, 2021)**

*Reviewer: <Reviewer01>*

Initial: \_\_\_\_\_

**Items to Review:**

*1-5, 26-30, 36-40*

ITEM #	STANDARD ALIGNMENT	DOK	NOTES
	<div>Primary</div> <hr/> <div>Secondary</div>		
	<div>Primary</div> <hr/> <div>Secondary</div>		
	<div>Primary</div> <hr/> <div>Secondary</div>		
	<div>Primary</div> <hr/> <div>Secondary</div>		
	<div>Primary</div> <hr/> <div>Secondary</div>		



**GROUP - 1**  
**2019-20 4<sup>th</sup> Grade Science Standard – (Pairs)**  
**Alignment Committee (August 3, 2021)**

Reviewers: <Reviewer01>, <Reviewer02>

Initials: \_\_\_\_\_ / \_\_\_\_\_

**Items to Review:**

**1-5**

ITEM #	STANDARD ALIGNMENT	DOK	NOTES
	Primary		
	Secondary		
	Primary		
	Secondary		
	Primary		
	Secondary		
	Primary		
	Secondary		
	Primary		
	Secondary		



**GROUP - 1**  
**2019-20 4<sup>th</sup> Grade Science Standard – (PAIRS + SCDOE)**  
**Alignment Committee (August 3, 2021)**

Reviewers: <Reviewer01>, <Reviewer02>

Initials: \_\_\_\_\_ / \_\_\_\_\_

**Items to Review:**

**1-5**

ITEM #	STANDARD ALIGNMENT	DOK	NOTES
	Primary		
	Secondary		
	Primary		
	Secondary		
	Primary		
	Secondary		
	Primary		
	Secondary		
	Primary		
	Secondary		

**Appendix C:**  
**SC PASS Science Test Blueprint**

South Carolina Department of Education Office of Assessment

**South Carolina Palmetto Assessment of State Standards Science (SCPASS)  
Test Blueprint for Science Grades 4 and 6  
2020-2021**

- Items on the science assessments will cover a range of difficulty levels.
- The science assessments will have two to four technology enhanced (T.E.) items.
- The Science and Engineering Practices (Standard 1) items will be embedded throughout the assessment.

<b>Grade</b>	<b>Number of Standards</b>	<b>Number of Items</b>	<b>Item per Standard</b>
4	5	45	8 to 11
6	5	55	9 to 12

<b>DOK Level</b>	<b>Min/ Max (%)</b>
1	5 to 10
2	65 to 80
3	10 to 20

Updated August 2020