

Hybrid Scoring Key Questions

March 2024



This presentation is intended to address the key questions the agency has received about implementing hybrid scoring.

- What prompted the move to hybrid scoring?
- 2 How did TEA communicate these changes to stakeholders?
- 3 How does hybrid scoring fit into the assessment process?
- 4 Why are we seeing differences in ECR scores?



## **Key questions around hybrid scoring**



- 2 How did TEA communicate these changes to stakeholders?
- 3 How does hybrid scoring fit into the assessment process?
- 4 Why are we seeing differences in ECR scores?



# **1** In 2023, STAAR was redesigned to improve alignment to the classroom experience.

In effective classrooms, teachers are...

Coherently building students' background knowledge and vocabulary in all subject areas...

- 2 Asking students to write about what they read using evidence from text...
- Providing various open-ended formats for students to respond to questions...
  - Supporting the learning needs of all students by providing **appropriate accommodations**...

The STAAR redesign will...



Prioritize **cross-curricular passages** in RLA that reference topics that students have learned about in other classes



Include writing in all RLA tests, reflecting our updated TEKS, and having students write text-based responses



Add new, non-multiple-choice questions that are more like questions teachers ask in class



Move to online assessments that provide a **full suite of robust accommodations** for students with specific learning needs



4

Moving to **online assessments** supports all the changes above and provides faster test results to support accelerated learning.



# The STAAR redesign added more open-ended questions that are similar to the questions teachers ask in class.

By making the test more aligned with the classroom experience, this increased the number of constructed response questions students access.

Content Area	Item Type*	Pre-STAAR Redesign	Post-STAAR Redesign
STAAR RLA	SCR	-	1-2
(G4, G7, E1, E2)	ECR	1	1
STAAR RLA	SCR	-	1-2
(Remaining titles)	ECR	-	1
STAAR Science	SCR	-	1-2
STAAR Social Studies	SCR	-	1-2

\*SCR = Short Constructed Response; ECR = Extended Constructed Response



# The significant increase in written responses required the move to hybrid scoring to meet budget and timeline limitations.

With **6-7x more constructed responses** to grade annually for STAAR, maintaining full human scoring would have cost **\$15-20M more per year**.



## **Key questions around hybrid scoring**

What prompted the move to hybrid scoring?

2 How did TEA communicate these changes to stakeholders?

3 How does hybrid scoring fit into the assessment process?

4 Why are we seeing differences in ECR scores?



## 2 TEA communicated the transition with stakeholders in advance.



## **Key questions around hybrid scoring**

What prompted the move to hybrid scoring?

2 How did TEA communicate these changes to stakeholders?

3 How does hybrid scoring fit into the assessment process?

4 Why are we seeing differences in ECR scores?



### Creating high-quality state assessments is a rigorous process that includes educators across multiple steps.



<sup>\*</sup>Does not occur every year



# Field testing serves as a building block for assessment construction and is not related to the move to hybrid scoring.



<sup>\*</sup>Does not occur every year

![](_page_10_Picture_3.jpeg)

# <sup>3</sup> The purpose of field testing is to populate a bank that is diverse and free of bias.

To best measure student performance, TEA needs to build an item bank that represents all items from the least to most difficult spectrum:

![](_page_11_Figure_2.jpeg)

When we field test, we are testing the item, not the students.

![](_page_11_Picture_4.jpeg)

# Most field test items are embedded within the STAAR assessments, with the exception of extended constructed response (ECR) items.

A student typically interacts with field test items within their STAAR test. They would not know which items are a part of their assessment and which items are field test items. Field test items do not count towards a student's score.

![](_page_12_Picture_2.jpeg)

STAAR tests have embedded field test items.

Extended constructed response (ECR) items cannot be placed within a STAAR test due to its length.

Therefore, Stand Alone Field Tests (SAFT) have been established for ECRs. This is the same process for field testing ECRs before and after the STAAR redesign.

Selected students take an assessment that includes the ECR field test mixed in with other items. This is to simulate a testing environment and provide items that help link the field test items back to the STAAR scale.

![](_page_12_Picture_7.jpeg)

## After the field test event, each constructed response item is scored against a rubric by two humans.

![](_page_13_Figure_1.jpeg)

Rubrics are employed to ensure consistency in scoring for items that are open-ended. (See examples in the appendix.)

![](_page_13_Picture_3.jpeg)

# <sup>3</sup> All of the humans involved in the scoring process are highly trained and calibrated.

-M-	

To qualify as a rater, one must have a 4-year college degree and experience teaching at the assigned grade level.

![](_page_14_Picture_3.jpeg)

Raters undergo rigorous training to learn how to use the standardized rubric to score student responses.

![](_page_14_Picture_5.jpeg)

To pass training, they must accurately rate example responses that have already been scored.

![](_page_14_Picture_7.jpeg)

Each certified rater's performance is calibrated at regular intervals to ensure that all responses are graded consistently across Texas.

More on this later

![](_page_14_Picture_10.jpeg)

# Field test constructed response items continue to be scored against a rubric by two humans.

Scorer 1

Scorer 1

Scorer

### Short Constructed Response (SCR)

![](_page_15_Picture_2.jpeg)

Two humans score each response. Scorer 1's rating is the score of record.

Scorer 2's rating is used for the purpose of auditing / quality control.

### Extended Constructed Responses (ECR)

= 8

= 8

Scenario 1: If two raters
show exact or adjacent
(within 1 point) agreement
on a response, then the
scores are summed together
to create the score of record.

Scenario 2: If two raters show more than 1 point difference in rating a response, then a scoring leader takes over and assigns the score of record.

![](_page_15_Picture_8.jpeg)

Scoring Leader

Exact

Adjacent

Non-Adiacent

Scorer 2

Scorer 2

Scorei

x 7

# <sup>3</sup>Within an administration period, any rater that does not meet standard is removed from scoring.

![](_page_16_Figure_1.jpeg)

If a scorer does not maintain at <u>least at 65% exact agreement and 95% adjacent</u> <u>agreement</u> during the scoring window, they cannot remain as a scorer for that admin. If they fail re-calibrations, they will have to try again in the next administration.

![](_page_16_Picture_3.jpeg)

# Pre-equating is a part of the test construction process that occurs after field testing.

![](_page_17_Figure_1.jpeg)

<sup>\*</sup>Does not occur every year

![](_page_17_Picture_3.jpeg)

# <sup>3</sup> Equating ensures that the STAAR test is the same level of difficulty each year.

While individual items can be easier or harder in a given year, the mix of item difficulty is balanced across years by using field test results.

![](_page_18_Figure_2.jpeg)

# Scoring and reporting is the final process of the assessment lifecycle.

![](_page_19_Figure_1.jpeg)

\*Does not occur every year

![](_page_19_Picture_3.jpeg)

Prior to hybrid scoring, all constructed response items were scored the same way as field testing, but the process has changed.

### **Scoring Process Today**

ltem Type	Field Testing	Operational Scoring
Non-Constructed Response Items	Machine Scored	Machine Scored
Short Constructed Response (SCR) Items	<b>2 human scorers</b> (one score of record, one for auditing)	Hybrid Scoring All scores go through auto scoring engine; 25% are double human scored (one score of record, one for auditing).
Extended Constructed Response (ECR) Items	<b>2 human scorers</b> (scores are combined for total score)	Hybrid Scoring All scores go through auto scoring engine; 25% are double human scored (scores are combined for total score).

While this process has changed, TEA is ensuring that the quality of scoring remains the same.

![](_page_20_Picture_4.jpeg)

# <sup>3</sup> Up until the CR scoring event itself, each part of the CR scoring prep process relies solely on human input.

![](_page_21_Figure_1.jpeg)

![](_page_21_Picture_2.jpeg)

# The auto scoring engine (ASE) goes through a rigorous programming process that is led and checked by humans.

For each item being scored...

![](_page_22_Picture_2.jpeg)

- The engine uses a sample of ~3,000 human scored responses from the field test for programming.
- The engine analyzes the responses to identify common patterns and is programmed to emulate how humans would score.

![](_page_22_Picture_5.jpeg)

TEA evaluates the performance for each item and compares it to how humans would score.

![](_page_22_Picture_7.jpeg)

The engine is monitored throughout the scoring cycle to ensure that it remains calibrated to the anchor set.

Similar to human scorers who need to be constantly calibrated throughout the scoring window, there is a parallel process for the ASE.

![](_page_22_Picture_10.jpeg)

### **TEA conducted a proof-of-concept study with STAAR Spring 2023** operational data before implementing hybrid scoring.

- Spring 2023 constructed response items were scored entirely by humans. The study was conducted after score reports were sent out to districts.
- The study "re-scored" constructed response items with the automated scoring engine and compared how closely the engine performed to humans.
- Five subgroups were examined (Male, Female, Black, Hispanic/Latino, White).
- The proof-of-concept study was successful and found that the automated scoring engine met the performance criteria to be implemented operationally.
- A detailed technical report on the Spring 2023 study can be found on the <u>Assessment Reports and Studies</u> <u>webpage</u>.

\*Report can be found under "Additional Reports and Studies".

**Example:** Spring STAAR 2023 ECR Conventions – Exact Agreement for ASE Model 2

ltem	Human-Human	Difference	
1	72%	74%	2%
2	71%	72%	1%
3	67%	66%	-1%
4	67%	72%	5%
5	67%	73%	6%
6	71%	76%	5%

TEA analyzed a number of criteria, including exact agreement (shown here), adjacent agreement, and score distributions to ensure the engine performs as expected.

![](_page_23_Picture_10.jpeg)

## **3** Similarly, STAAR December 2023 data confirms the ASE performed as expected.

December 2023 SCR Exact Agreement Results

Grade	Item	Subject	Human-Human Exact Human-Engine Ex Agreement Agreement		Difference
9	1	Biology	96.5%	97.1%	0.6%
9	2	Biology	95.8% 95.1%		-0.7%
9	3	Read	82.6%	86.8%	4.3%
9	4	USH	86.2%	92.4%	6.2%
9	5	USH	95.1%	97.1%	2.0%
9	6	Write	95.6%	97.3%	1.7%
10	8	Read	76.2%	79.1%	2.9%
10	9	Write	92.2%	97.0%	4.8%

### December 2023 ECR Exact Agreement Results

Grade	Item	Subject	Human-Human Agreement	Human-Engine Agreement	Difference
9	7	Read	Convention 69.3% Ideas 66.5%	Convention 73.9% Ideas 70.5%	4.6% 4.0%
10	10	Read	Convention 78.4% Ideas 73.5%	Convention 87.9% Ideas 77.1%	9.5% 3.6%

- TEA used the hybrid scoring approach to score all constructed responses in December 2023.
- Constructed response items saw similar human-engine exact agreement to human-human exact agreement.
- TEA will continue to monitor hybrid scoring during every administration to ensure ASE produces accurate scores.

Lower exact agreement levels are expected with ECRs compared to SCRs due to larger range of possible points.

![](_page_24_Picture_9.jpeg)

### The Texas hybrid scoring model uses an automated scoring engine to augment the work of human scorers.

![](_page_25_Figure_1.jpeg)

Note: Any student responses that are routed for human scoring maintain the score assigned by humans as the score of record. Human scoring will also go through the adjudication process if needed. \*Condition codes that get sent for human scoring are those flagged for unusual patterns; low confidence responses are often those responses that are on the border between two score points.

## The ASE assigns condition codes to some responses, which are each routed to two trained human scorers.

Condition codes indicate that a response uses just a few words, uses mostly duplicated text, is written in another language, consists primarily of text from the passage, uses vocabulary that does not overlap with the vocabulary in the subset of responses used to program the ASE, or uses language patterns that are reflective of offtopic or off-task responses.

The purpose of this routing is to ensure that these unusual responses receive fair and accurate scoring. The score assigned by the human scorer is kept as the score of record for any student response that is routed for human scoring.

![](_page_26_Figure_3.jpeg)

At least 25% responses

Note: Any student responses that are routed for human scoring maintain the score assigned by humans as the score of record. Human scoring will also go through the adjudication process if needed

Automated scoring technology\* is over a decade old and is widely used, including in Texas.

10+

## years

amount of time technology for automated scoring engine has been around

# **180K+**

## **Texas students**

annually use the Texas Success Initiative Assessment (TSIA) to meet their graduation requirement, which relies on automated scoring technology

## 21+ states

currently employ auto scoring for their state assessments

\*This kind of technology is different from AI in that AI is a computer using progressive learning algorithms to adapt, allowing the data to do the programming and essentially teaching itself. Instead, the automated scoring engine is a closed database with student response data accessible only by TEA and, with strict contractual privacy controls, its assessment contractors, Cambium and Pearson.

### The Texas Assessment Program continues to strive for 3 assessment development transparency.

![](_page_28_Figure_1.jpeg)

It is uncommon for states to release all test items for primary spring test administrations on an annual basis, yet Texas has made that commitment.

June and December STAAR tests cannot be released annually because items are reused in later tests. To release June and December tests annually, TEA would need to develop and field test 3x the number of items.

\*Does not occur every year

![](_page_28_Picture_5.jpeg)

## **Key questions around hybrid scoring**

What prompted the move to hybrid scoring?

2 How did TEA communicate these changes to stakeholders?

3 How does hybrid scoring fit into the assessment process?

4 Why are we seeing differences in ECR scores?

![](_page_29_Picture_5.jpeg)

# There are two timelines and changes to account for when comparing ECR scores.

![](_page_30_Figure_1.jpeg)

![](_page_30_Picture_2.jpeg)

# STAAR Redesign: Based on stakeholder feedback, ECRs were redesigned to ask students to use evidence from text.

### **Pre-STAAR Redesign**

### *Writing responses to standalone prompts*

WRITTEN COMPOSITION: Expository	
ad the following quotation.	
The reason most people never reach their goals is that they don't define them, or ever seriously consider them as believable or achievable. Winners can tell you where they are going, what they plan to do along the way, and who will be sharing the adventure with them.	
—Denis Waitley	
uccessful people often set clear goals and understand the specific steps needed to achieve them. Think carefully out this statement.	-
rite an essay explaining the best way to achieve a goal.	
e sure to -	
clearly state your thesis	
<ul> <li>organize and develop your ideas effectively</li> </ul>	
choose your words carefully	
edit your writing for grammar, mechanics, and spelling	
B I U I, C + +   × C +   Ω	

Spring 2022 English 1 EOC Example

### **STAAR Redesign Implementation** *Writing responses using evidence from text*

#### Read the selection and choose the best answer to each question.

#### Back in Time: The National Road by Rickie Longfellow

The National Road, in many places known as Route 40, was built between 1811 and 1834 to reach the western settlements. It was the first federally funded road in U.S. history. George Washington and Thomas Jefferson believed that a trans-Applaachian road was necessary for unifying the young country. In 1806 Congress authorized construction of the road and President Jefferson signed the act establishing the National Road. It would connect Cumberland, Maryland, to the Ohio River.

In 1811 the first contract was awarded and the first 10 miles of road built. By 1818 the road was completed to Wheeling, and mail coaches began using the road. By the 1830s the federal government conveyed part of the road's responsibility to the states through which it runs. Tollgates and tollhouses were then built by the states, with the federal government taking responsibility for road repairs.

![](_page_31_Picture_10.jpeg)

As work on the road progressed, a settlement pattern developed that is still visible. Original towns and villages are found along the National Road, many barely touched by the passing of time. The road, also called the Cumberland Road, National Pike, and other names, became Main Street in these early settlements, earning the nickname 'The Main Street of America.' The height of the National Road's popularity come in 1825 when it was celebrated in song, story, painting, and poetry. During the 1840s popularity soared again. Travelers and drovers, westward bound, crowded the inns and taverns along the route. Huge Conestoga wagons hauled ordduce from frontier farms to the East Coast, returning

### Spring 2023 English EOC Example

![](_page_31_Picture_13.jpeg)

30		
GUEST, GUEST		
Read the article "Back in Time: The National Road." Based on the information in the article	, write a response to t	he following:
Explain why travelers enjoy using the National Road today.		

Write a well-organized essay that uses specific evidence from the article to support your answer

- Remember to -
  - clearly state your thesis
  - organize your writing
  - · develop your ideas in detail
  - · use evidence from the selection in your response
  - · use correct spelling, capitalization, punctuation, and grammar

Manage your time carefully so that you can -

- review the selection
- plan your response
- write your response
- revise and edit your response
- Write your response in the box provided.

#### B I <u>U</u> I<sub>x</sub> := := +≡ +≡ X ⊡ ⊕ ≪ ≫ Ω

# STAAR Redesign: In addition, the educator-approved new rubrics for writing prompts introduce a possible score of zero.

### Pre-STAAR Redesign

Lowest score that could be assigned to a response was a 2.

Zeros were only reserved for unscorable responses (i.e., blanks, random characters).

### **STAAR Redesign Implementation**

Students could earn a zero through the rubric or through a non-scoreable response.

English I Constructed Response Scoring Guide

![](_page_32_Figure_7.jpeg)

![](_page_32_Picture_8.jpeg)

# **4** To make a proper comparison, we isolated the scoring data to only include retesters who existed in each test administration.

		Pre-STAAR Redesign			Post-STAAR Redesign		
				Human Scoring	Hybrid Scoring		
		Spring '22	Jun. <b>'</b> 22	Dec. '22	Spring '23	Jun. '23	Dec. '23
	Zero on ECR	9%	10%	11%	50%	68%	72%
glish 1	Approaches or Above on EOC	21%	16%	22%	33%	20%	32%
Er	Number of Retesters	82,755	6,932	125,320	95,551	53,654	106,926
	Zero on ECR	7%	9%	9%	62%	68%	84%
English 2	Approaches or Above on EOC	28%	8%	25%	28%	19%	24%
	Number of Retesters	59,617	44,687	89,918	64,857	34,859	76,763

Percent of Retesters Who Received a Zero Score on the Extended Constructed Response Item, Percent of Retesters Who Achieved Approaches Grade Level or Better on the EOC as a Whole, and Number of Retesters

![](_page_33_Picture_3.jpeg)

### The STAAR redesign resulted in notably higher zero rates on ECRs 4 in 2023 but did not impact overall test performance.

		Pi	re-STAAR Redesig	şn	P	ost-STAAR Redesign
			Human Scoring			Hybrid Scoring
		Spring '22	Jun. '22	Dec. '22	Spring '23	Due to the change in ECR questions
	Zero on ECR	9%	10%	11%	50%	and introducing a new possible
nglish 1	Approaches or <b>21%</b> Above on EOC		16%	22%	33%	2023 has higher zero rates than
En	Number of Retesters	82,755	6,932	125,320	95,551	had occurred.
	Zero on ECR	7%	9%	9%	62%	However, our test equating process
English 2	Approaches or Above on EOC	28%	8%	25%	28%	individual items can be easier or
	Number of Retesters	59,617	44,687	89,918	64,857	item difficulty is balanced across years, so overall performance on the

Percent of Retesters Who Received a Zero Score on the Extended Constructed Response Item, Percent of Reteste Achieved Approaches Grade Level or Better on the EOC as a Whole, and Number of Retesters

test stayed the same or increased.

![](_page_34_Picture_4.jpeg)

# The variation in zero rates seen during the move to hybrid scoring are much smaller and are considered normal.

					Pc	ost-STAAR Redesi	gn
	I			Human Scoring			Hybrid Scoring
		Spring '22	Jun. '22	Dec. '22	Spring '23	Jun. '23	Dec. '23
	Zero on ECR	Individual items (like ECRs) can be			50%	68%	72%
Approaches of Above on EOC		expect to see some variation in ECR zero rates across tests			33%	20%	32%
Er	Number of Retesters	82 755 However, the	6 932 125 320 e mix of item difficulty is		95,551	53,654	106,926
~	Zero on ECR	balanced across years through		62%	68%	84%	
glish	Approaches or Above on EOC	equating (see slide 19). Overall performance on the test has stayed			28%	19%	24%
Ш	Number of Retesters	59,617	44,687	89,918	64,857	34,859	76,763

Percent of Retesters Who Received a Zero Score on the Extended Constructed Response Item, Percent of Retesters Who Achieved Approaches Grade Level or Better on the EOC as a Whole, and Number of Retesters

![](_page_35_Picture_3.jpeg)

### For transparency purposes, TEA provided LEAs with additional December 2023 English 1 and English 2 ECR results information.

Unlike Spring STAAR tests, which are released annually, June and December STAAR tests are not released so items can be re-used in later tests. To support transparency, TEA developed a two-step process in March to give districts more insight into student performance on December 2023 ECRs:

**Step 1 (444 LEAs):** Upon request, TEA provided frequency distributions of reasons for an ECR receiving a score of 0 within the requesting district –

### Statewide E1/E2 ECR Score of 0 Breakdown

**Received a score of 0 according to the rubric** (eligible for Step 2)

14% No response
 30% Not scored due to a condition code (not enough words, duplicated text, written in another language, consisting mostly of copied text from the passage, or writing is off-topic or off-task)

55%

Step 2 (109 LEAs): After Step 1, LEAs can also opt to schedule an appointment to view the responses in person

Only responses that receive a score of zero are made available for viewing;

Received positive feedback from district personnel on this process

![](_page_36_Picture_8.jpeg)

## Thank you!

- More details on the hybrid scoring study performed on 2023 STAAR data can be found in "<u>Assessment Reports and Studies</u>" under the section titled Additional Reports and Studies.
- If you have questions about hybrid scoring, contact TEA using the Student Assessment <u>Help Desk</u>.

![](_page_37_Picture_3.jpeg)

![](_page_38_Picture_0.jpeg)

### **ECR Rubric Example:** English 1

English I Constructed Response Scoring Guide

English I Constructed Response Scoring Guide

English I Passage with Extended Constructed Response

#### Informational Writing Rubric

![](_page_39_Figure_5.jpeg)

English I Constructed Response Scoring Guide

1	Student writing demonstrates inconsistent command of grade-level- appropriate conventions, including limited use of correct: sentence construction punctuation capitalization grammar spelling						
	The response has several errors, but the reader can understand the writer's thoughts.						
0	Student writing demonstrates <b>little to no command</b> of grade-level- appropriate conventions, including infrequent use of or no evidence of correct:						
	<ul> <li>sentence construction</li> <li>punctuation</li> </ul>						
	<ul> <li>capitalization</li> <li>grammar</li> <li>spelling</li> </ul>						
	The response has many errors, and these errors impact the clarity of the						

More RLA scoring resources can be found here: https://tea.texas.gov/student-assessment/testing/staar/staar-reading-language-arts-resources

![](_page_39_Picture_9.jpeg)

Controlling idea/Thesis is evident but not developed

A controlling idea/thesis is present but not developed appropriately in

## SCR Rubric Examples: US History and Grade 8 Science

### **United States History Prompt**

**Prompt:** What was President Theodore Roosevelt's Big Stick policy **AND** what was an example of this policy?

### **Item-Specific Rubric**

#### Score: 2

Response includes specific details in reference to a description and one example:

#### Description:

• The Big Stick policy used military readiness and diplomacy to protect the Western Hemisphere from foreign intervention.

#### Examples:

- Roosevelt used this diplomacy to restrain European countries from threatening Latin American countries.
- Roosevelt issued this policy to enforce the Monroe Doctrine and become the international police power of the Americas.
- The United States increasingly used force to justify intervention in several countries, including securing the Panama Canal Zone, Cuba, Nicaragua, Haiti, and the Dominican Republic.

#### Score: 1

Response provides only half of the correct details.

#### Score: 0

Does not provide a response, or the response is incorrect or irrelevant.

Grade 8 Science Short Constructed Response Scoring Guide

### Grade 8 Science Short Constructed Response

### Prompt

Sodium sulfate (Na<sub>2</sub>SO<sub>4</sub>) is used to produce many products.

Which elements are represented in the formula **AND** how many atoms of each element are represented in the formula?

Read the question carefully. Then enter your answer in the box provided.

### **Item-Specific Rubric**

#### Score: 2

The student response includes:

- There are a total of 7 atoms representing three elements in the formula AND
- The elements are sodium (2 atoms), sulfur (1 atom), and oxygen (4 atoms)

#### Score: 1

The student answers half of the question correctly.

#### Score: 0

The response is incorrect or irrelevant.

More social studies scoring resources can be found here: <u>https://tea.texas.gov/student-assessment/testing/staar/staar-social-studies-resources</u> More science scoring resources can be found here: <u>https://tea.texas.gov/student-assessment/testing/staar/staar-science-resources</u>

![](_page_40_Picture_32.jpeg)