

## 1. Introduction

### 1.1 Purpose

This document describes each item interaction type and each item-embedded accessibility feature for Smarter Balanced assessments. Refer to this document for examples of item types and accessibility features, including information about how accessibility features are made available.

## 2. Primary Item Types

### 2.1 Evidence-Based Selected Response (EBSR)

EBSR items combine two sets of stems and response options into a single item. Unlike MultipleChoice and Multi-Select item types, EBSR items cannot be displayed in horizontal or stacked layouts. EBSR items can only display response options vertically.

For Smarter Balanced, the first part of an EBSR item is multiple choice where only one answer can be selected. In the second part, multiple answers may be selected though the instructions may specify a limit to the student. In the example below, the student is only expected to select one answer from the second part.

This question has two parts. First, answer part A. Then, answer part B.

#### Part A

Which sentence **best** describes the lesson of the passage?

- ☐ (A) Animals should be protected.
- ☐ (B) Birds should only nest in trees.
- ☐ (C) Movers should listen to children.
- ☐ (D) Children should stay away from birds.

#### Part B

Which sentence from the passage **best** supports your answer in part A?

- ☐ "A bird's nest sat right in the middle of Mrs. Baxter's wreath."
- ☐ "Jessie and Mrs. Baxter talked about the birds for a while."
- ☐ "One morning, Jessie saw a pink head poking out of the nest."
- ☐ "'You can't use this door,' Jessie said, holding her arms out stiff."

## 2.2 Equation (EQ)

The Equation item response area consists of one or more entry boxes and an on-screen key panel containing mathematical characters. These items are 769 pixels wide or use 100% of the available response area width (whichever is smaller). The default height is 254 pixels. The item indicates which of 11 pre-defined layouts should be used for the math input key panel.

Create an equation to calculate the Massachusetts speeding fine,  $f$ , based on the number of miles per hour,  $m$ , over the speed limit when  $1 \leq m \leq 10$ .

← → ↶ ↷ ✕

1	2	3	$f$	$m$						
4	5	6	+	-	×	÷				
7	8	9	<	≤	=	≥	>			
0	.	-	$\frac{\Box}{\Box}$	$\Box^\Box$	$\Box_\Box$	( )	$\sqrt{\Box}$	$\sqrt[\Box]{\Box}$	$\pi$	$i$
sin cos tan arcsin arccos arctan										

## 2.3 Extended Response (ER) and Short Answer (SA)

The response areas for Extended Response (ER) and Short Answer (SA) item types essentially have the same appearance. Extended Response (ER) areas accommodate more text than Short Answer response areas. You can configure the character limit for both item types.

Summarize the central idea in the section “Ups and Downs.” Use key evidence from the text to support your summary.

## 2.4 Grid Item (GI)

Smarter Balanced uses three variations of the Grid Item type, each with a distinct appearance and interaction mode.

### 2.4.1 Grid Item (GI) - Graphing

The Grid Item - Graphing variant response area consists of a grid in which students plot points and/or lines. The available tools include a select, delete, add point, and connect line. Depending on the item, the point or line tool may not appear. A text box below the grid offers hints on what the student can do with each tool.

**6**

Maya says that a rhombus cannot also be a rectangle.

Show Maya that her statement is **not** true.

Use the Connect Line tool to draw a rhombus that is also a rectangle.

The response area may have a background image on which the student plots points or lines as in this example.

**7**

The graphs of  $y = g(x)$  and  $y = f(x)$  are shown.

Use the Add Point tool to add a point that will satisfy each given condition.

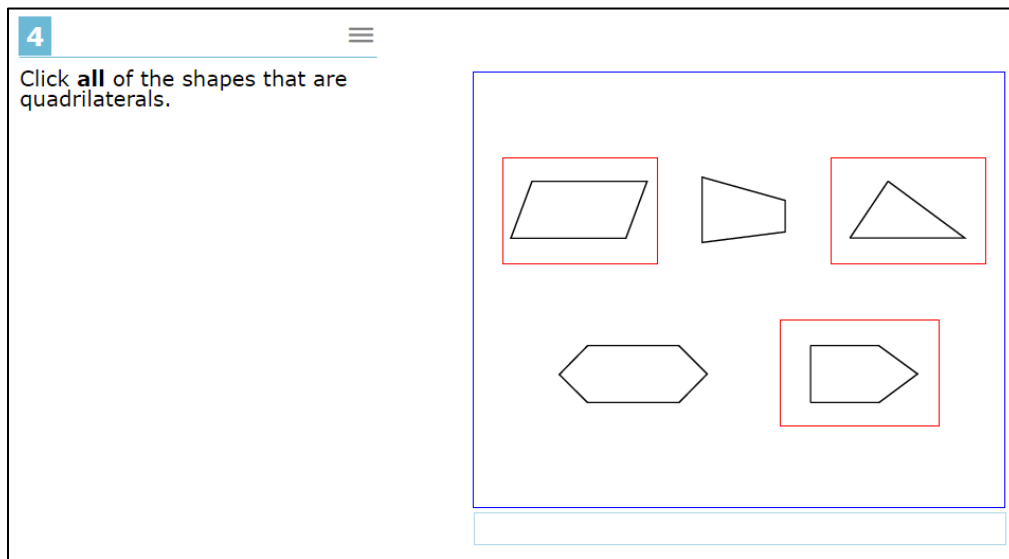
- A point on the graph of  $g$  where  $x = 0$
- A point on the graph of  $g$  where  $f(x) > g(x)$
- A point on the graph of  $f$  where  $f(x) = 0$

Grid Item – Graphing Variants may constrain points and lines; for example they may be constrained to a number line. The background, whether a simple grid, a graph with axes, or another image is simply a bitmap.

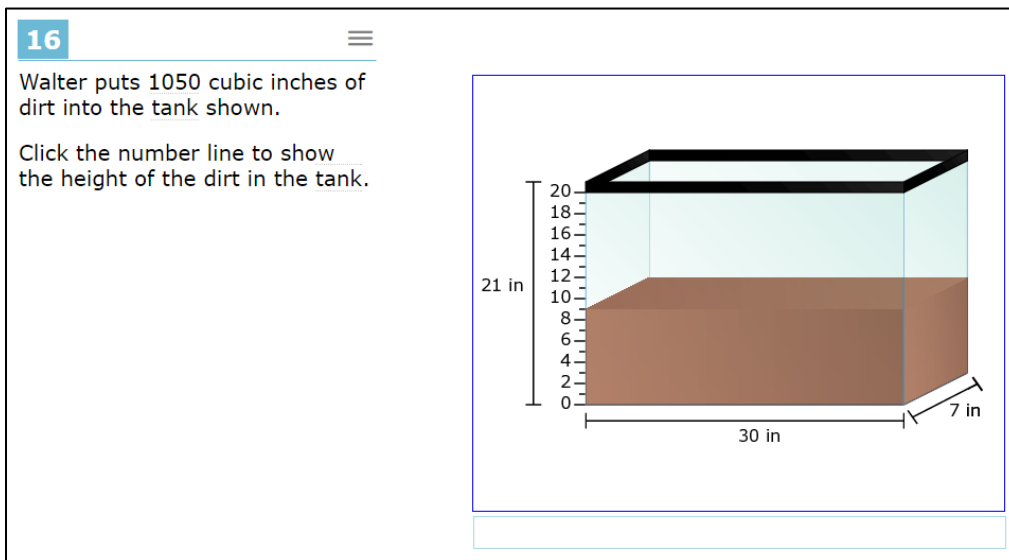
## 2.4.2 Grid Item (GI) – Hot Spot

The Grid Item – Hot Spot Variant response area consists of a space in which images are displayed. Clicking on certain hot spot areas causes images appear or disappear. Transparent sections of the images allow the background to show through.

In this example, the clicking on the shapes causes the selection box to appear around the shape.



This is another example of a Grid Item – Hotspot variant. In this case there is a different image representing each level and they are selectively displayed according to the hotspot where the student clicks. The same technique is also used to create bar charts that may be manipulated by the student.



### 2.4.3 Grid Item (GI) – Drag and Drop

The Grid Item – Drag and Drop variant has a workspace with a background image. Other images can be dragged and dropped into the workspace. The drop locations may or may not be constrained. When they are constrained, dropped images snap to nearby locations.

This example of the Drag and Drop variant includes a palette of items to the left that can be drag into the workspace. The same item may be used more than once. The student may use the delete tool can be used to remove an item from the workspace.

9
☰

Christy has \$60 to spend on plants.

She buys a peach tree for \$23 and a plum tree for \$19.

She wants to buy one more plant.

- Drag the numbers to the boxes and the symbols to the circles to create an equation to show how much money Christy has left to spend.
- Select one plant she **could** buy with the money she has left.

+

-

×

÷

18

19

23

37

41

60

102

Delete ✕

×÷=

☐ Grapevines, \$16

☒ Apple tree, \$18

☐ Pear tree, \$20

☐ Cherry tree, \$22

This example has images pre-located in the workspace that may be moved around by the student. They may be moved around but not added or deleted.

15
☰

Drag each fraction to the correct location on the number line.

$\frac{1}{4}$

$\frac{4}{4}$

$\frac{4}{1}$

$\frac{2}{4}$

## 2.5 Hot Text (HTQ)

The response area for Hot Text items consists of a section of text containing interactive words or phrases that students can either select (highlight) by clicking or rearrange by clicking and dragging. In the image below, the word 'stacked', outlined in light blue, is an example.

The author uses a word that means placed one on top of another. Click on the word in the paragraph that is **closest** to that idea.

Papermaking begins in the forest, where trees are marked to be cut down. Once the trees are cut, the biggest branches are removed. The logs, as they are now called, are **stacked** in huge piles at the edge of the forest. A logging truck takes them to the paper mill. At the mill, the logs go through many steps to be made into paper. After the bark is removed, the wood is chipped, then cooked with chemicals. This turns the wood into a mushy pulp. Next, the pulp is washed, bleached, and drained. Then it is sprayed onto big screens to dry. The finished sheets of paper are put onto giant rolls. Some of these rolls of paper weigh as much as 50,000 pounds! Finally, the paper is lined, cut, or folded for people to use.

## 2.6 Multiple Choice (MC)

For multiple choice responses, only one answer can be selected among several possibilities.

What is the author's **most likely** reason for including the "Isle Royale" section in the text?

- ☐ Ⓐ to explain why wolves are the island's only big predator
- ☐ Ⓑ to provide a related example of the information in the introduction
- ☐ Ⓒ to prove that plants in a food-chain are not an ideal source of food
- ☐ Ⓓ to demonstrate how much vegetation a moose can consume in a day

## 2.7 Match Interaction (MI)

For the Match Interaction (MI) types, text or images in rows are matched values in columns. The student selects the boxes where a match is valid.

Click on the boxes to match each source with the idea or ideas that it supports. Some ideas may have more than one source selected.		
	Source #1: What is an Astronaut?	Source #2: Life in Space
Astronauts feel weak when they come back from space.	<input type="checkbox"/>	<input type="checkbox"/>
Since objects are also able to float in space, astronauts can easily lift things in space that are heavy on Earth.	<input type="checkbox"/>	<input type="checkbox"/>
Astronauts have a special view of Earth from space.	<input type="checkbox"/>	<input type="checkbox"/>

## 2.8 Multi Select (MS)

For the Multi Select (MS) option, students are given a number of items to select to answer the questions. For the example below, two of the listed items will be selected.

What are the **most likely** reasons the author included the section “Living Links” before the sections “Isle Royale: Predators, Prey, and Producers” and “Ups and Downs”? Select **two** options.

- ☐ The section “Living Links” introduces carnivores, and carnivores are mentioned in the last two sections.
- ☐ The section “Living Links” identifies humans as consumers, and humans are addressed in the sections that follow.
- ☐ The section “Living Links” defines a food chain before the other sections give an example of a specific food chain.
- ☐ The section “Living Links” explains how the sun provides energy for all living things, and the sections that follow prove that this is the case.
- ☐ The section “Living Links” gives examples of food chains that are recognizable before the other sections introduce a possibly unfamiliar food chain.

## 2.9 Table Interaction (TI)

For Table Interaction (TI) item types, students are provided with a table that includes a separate area of cells in which students may enter text.

Jaleen also sold lemonade for 4 weeks in August. She compares her weekly sales in July to her weekly sales in August.

- For week 1, she sold 22 fewer cups in August than in July.
- For week 2, she sold 18 more cups in August than in July.
- For week 3, she sold 26 more cups in August than in July.
- For week 4, she sold 25 fewer cups in August than in July.

Complete the table to show how many cups Jaleen sold each week in August.

**August Lemonade Sales**

Week	Cups Sold
1	
2	
3	
4	

## 2.10 Writing Extended Response (WER)

Writing Extended Response (WER) item types provide more space for students to provide their written responses.

All of the sources provide information about financial literacy education. Which source would **most likely** be relevant to students researching new approaches to increasing people's financial literacy? Support your response with **two** details from the source. Justify your answer and support it with information from the source.

## 2.11 Supplementary Item Types

Supplementary item types are, *Passage* (Pass), and *Tutorial* (Tut), and *Wordlist* (Glossary).

### 2.11.1 Passage (Pass)

A passage is an extended stimulus that is referenced by multiple response items that follow. Typically a passage is an extended-length text in HTML format. However, it can include multimedia such as an audio listening passage or a video. As with response items, passages may have accessibility features such as ASL video and closed captioning.

### 2.11.2 Tutorial (Tut)

Like a passage, a tutorial is extended HTML text which may include multimedia and accessibility features. Each tutorial is associated with a particular response type and is used to inform students how to respond to that particular interaction type.

### 2.11.3 Wordlist (Glossary)

A wordlist is supplementary material to an item that provides glossary entries in English and other languages. Glossary information may include text, audio, and images.

## 3. Accessibility Features

Accessibility features are made available in one of three ways: *Item-Embedded Features*, *System-Embedded Features*, and *Non-Embedded Features*.

This document only describes the item-embedded features. Additional details about all accessibility features can be found in the Usability, Accessibility, and Accommodations Guidelines (UAAG) found on SmarterBalanced.org (<http://www.smarterbalanced.org/wp-content/uploads/2015/09/Usability-Accessibility-Accommodations-Guidelines.pdf>).

**3.1 Item-Embedded Features** appear *within* the assessment items and may be customized to match the item content. This category includes information that may not be visible in a conventional browser but interacts with assistive technology, such as alternative spellings for text-to-speech and braille screen readers.

- 3.1.1 Embedded American Sign Language (ASL) videos for math items, math performance tasks (PTs), and ELA listening sets (audio stimulus and associated items).
- 3.1.2 Closed captioning for ELA listening stimuli and other audio components in the test delivery interface.
- 3.1.3 Text-to-speech annotations (alternate text spelling to improve text-to-speech performance) – for use by assistive technology.
- 3.1.4 Braille emboss-on-demand attachments
- 3.1.5 Stacked translation into multiple languages



- 3.1.6 English glossary for specific words or phrases.
  - 3.1.7 Translated glossary for specific words or phrases
  - 3.1.8 Image glossary for specific words or phrases
  - 3.1.9 Audio clips attached to English and translated glossary entries
  - 3.1.10 Image glossary for specific words or phrases
  - 3.1.11 Braille transcripts of closed captions.
- 3.2 **System-Embedded Features** are offered online by the test delivery system but are not embedded in the item. Examples include a dictionary, or calculator. Availability of these features may be restricted according to item metadata.
- 3.3 **Non-Embedded Features** are provided by the test administrator or organization. Examples are a paper multiplication table, translated test directions, or a bilingual dictionary.