

**Update on the Virginia Assessment  
Program:  
Continuing to Maximize the Opportunities  
of Online Testing**

**Shelley Loving-Ryder  
April 23, 2014**

# History of the SOL Assessment Program

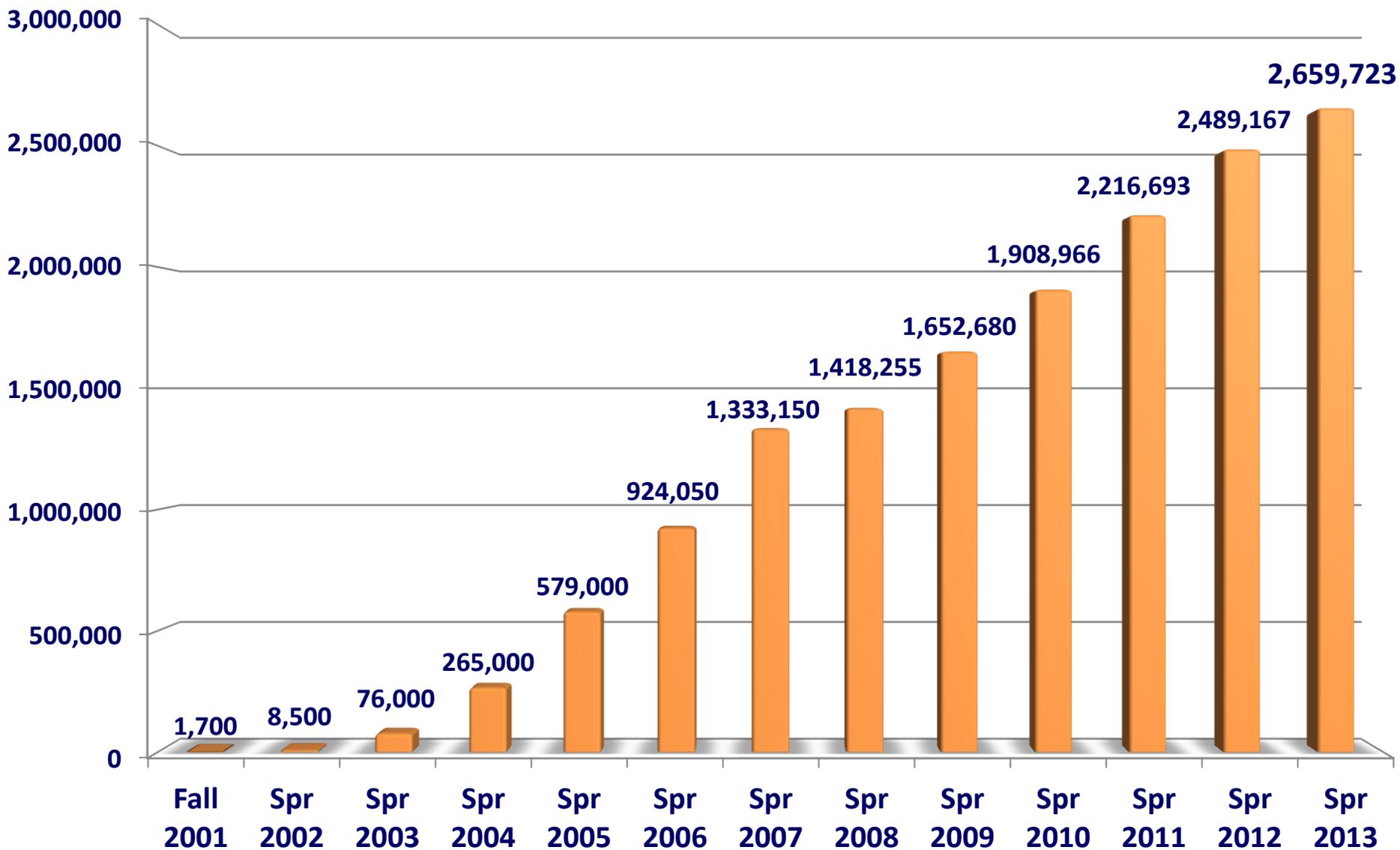
- 1983 – Initial development of SOL classroom assessments
- 1998 – Initial implementation of statewide SOL testing
- 2001 – Introduction of online testing
- 2006 – Introduction of reading and mathematics tests at grades 4, 6, and 7 to meet federal mandates
- 2012 – Introduction of technology-enhanced items
- 2013 – Introduction of operational online writing test
- 2014 – Computer Adaptive Testing (CAT) Pilot

# Implementation of New Tests

- History in 2010-2011
- Mathematics in 2011-2012
- Reading, Writing and Science in 2012-2013

# Online Testing in Virginia

## SOL Non-Writing Tests Administered Online



# Opportunities Available with Online Testing

- Technology-Enhanced Items:
  - increase ability to test higher order thinking skills;
  - allow assessment to more closely mirror classroom instruction ; and
  - permit addition of research-based supports to improve access for students with disabilities.
- Approximately 15% of the items on SOL tests in mathematics, reading, writing and science are Technology-Enhanced.

# Grade 3 Mathematics, 2001 SOL 3.13

Look at the table.

**Coins in Mike's Pocket**

| Type of Coin | Number |
|--------------|--------|
| Quarter      | 4      |
| Dime         | 4      |
| Nickel       | 3      |
| Penny        | 3      |

Older Item  
Example

**What is the total value of the coins in Mike's pocket?**

- F** \$1.78
- G** \$1.73
- H** \$1.58
- J** \$1.38

# Grade 3 Mathematics, 2009 SOL 3.8

Directions: Click and drag the correct units of money into the box. A unit of money may be used more than once.

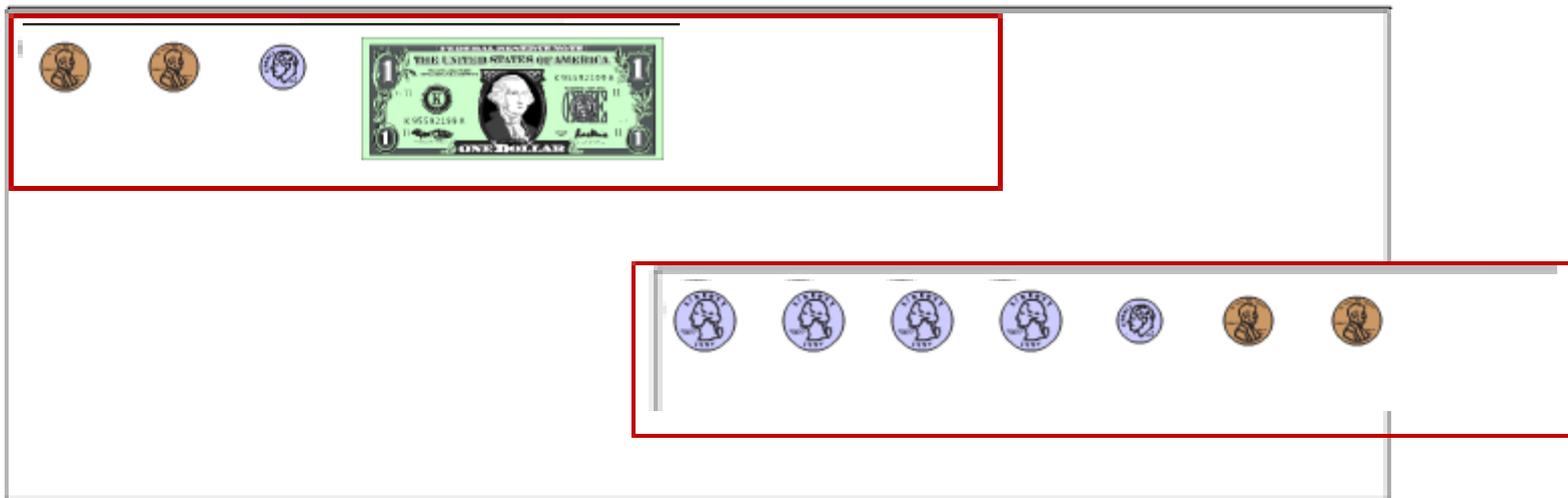
Noah went to a toy store.

- Noah bought a toy boat for \$3.88.
- He gave the clerk a \$5.00 bill to pay for the boat.

Newer Item  
Example

Exactly how much change should Noah receive?

Noah's Change

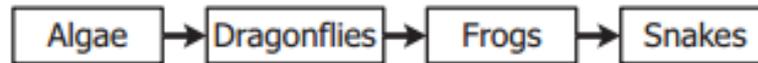


The image shows a large empty rectangular box with a red border, intended for placing the correct units of money to represent the change. Inside the box, there are two smaller red-bordered boxes. The top one contains a one-dollar bill, three pennies, and two nickels. The bottom one contains five dimes, one nickel, and two pennies.



# Grade 3 Science, 2003 SOL 3.5

Older Item  
Example



**These living things are in a pond food chain. Which of these are producers?**

- A** Algae
- B** Dragonflies
- C** Frogs
- D** Snakes

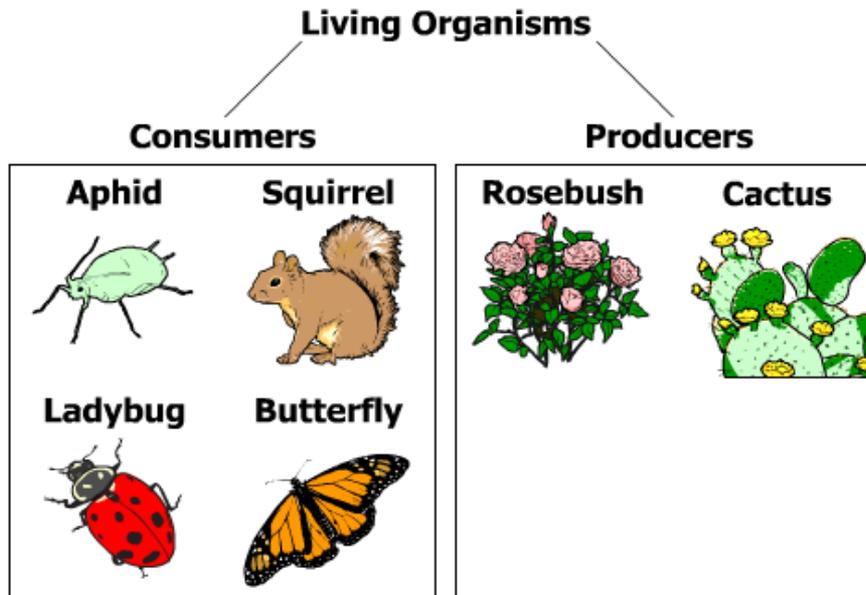
The content assessed by this question has been part of the grade 3 science SOL since 1995.

# Grade 3 Science, 2010 SOL 3.5

Directions: Click and drag each picture to the correct location in the diagram.

Newer Item Example

Sort each of these living organisms into the correct group.



While this item assesses same content as the previous slide, it requires higher order thinking and a greater depth of understanding.

# Traditional Grade 5 Writing Test Item Based on 2002 SOL

**4** In sentence 16, family including our dog Rex, should be written —

- F** family including, our dog Rex
- G** family, including our dog Rex,
- H** family including our dog Rex
- J** as it is



# Technology-Enhanced Grade 5 Writing Item Based on 2010 SOL

The screenshot displays a digital writing assessment interface. At the top, there is a toolbar with icons for a mouse, eraser, highlighter, red X, pencil, and a red circular icon labeled 'Help'. The user's name 'john h doe' and the document title 'Grade 5 Writing Practice Items (2010...' are visible in the top right corner, along with an 'X Exit' button.

The main content area is divided into two sections. The left section contains a reading passage with numbered paragraphs (25) through (37). The right section contains the task instructions: 'Directions: Click and drag the comma into the correct location within the sentence. There may be one or more correct locations.' Below the instructions, it says 'Punctuate sentence 34 correctly.' A text box contains the sentence: 'You and I could visit the Statue of Liberty the Empire State Building, and the Chrysler Building.' A small square icon with a blue slash is positioned below the text box.

At the bottom of the interface, there is a navigation bar. On the left, there is a 'Flag for Review' button. In the center, it says 'Page 4 of 4' with left and right arrow buttons. On the right, there are buttons for 'Section Review', 'Previous', and 'Next'.

# Focus on Readiness for College

# Adoption of “Advanced/College Path” Achievement Levels

- Algebra II
- End-of-Course Reading
- End-of-Course Writing

# Development of “Advanced/College Path” Achievement Levels

- Replaced the existing “pass/advanced” achievement level for these three EOC tests.
- The “proficient” achievement level continues to allow students to meet graduation requirements.

# Identification of Content for Tests: Survey of College Faculty

- Conducted survey with higher education faculty to determine to what extent the content standards are associated with success in introductory credit-bearing college classes
  - Algebra II content standards – introductory college mathematics classes
  - Reading and Writing content standards— introductory college classes with substantial reading and writing loads

# Identification of Content for Tests: Survey of College Faculty

- Asked to rate content standards in Algebra II, reading and writing as to whether the content was “essential,” “important,” “relevant,” or “not required” as prerequisites for success in introductory credit-bearing college courses
- Success defined as a “C” or better in the college course

# Standard Setting for New SOL Tests

- Committees of educators convened to review the new Algebra II, EOC Reading and EOC Writing tests and recommend “cut scores” for “proficient” and “advanced/college path.”
- Committees included high school educators and representatives from two-year and four-year institutions of higher education.

# Definition of “Advanced/College Path” for EOC Reading

- A student obtaining an “advanced/college path” score should have the necessary knowledge and skills for enrollment, without remediation, in an introductory credit-bearing college course with a substantial reading load, assuming that the student continues to demonstrate a comparable level of achievement in subsequent high school English courses prior to high school graduation.

# Next Steps for “Advanced/College Path” Achievement Level

- In the future, evaluate success of college students who took the new Algebra II, EOC reading and EOC writing tests to validate “advanced/college path” achievement level.

# Revision of List of Substitute Tests for Verified Credit

# Background: Substitute Tests

- Substitute tests for verified credit have been allowed since 1999.
- Policy initially instituted at the request of local school divisions to avoid “double testing” of students who were taking Advanced Placement (AP) or International Baccalaureate (IB) tests AND were also scheduled to take an SOL test.

# Review of Tests on the Current Substitute Test List

- Because new SOL have been implemented in all subject areas over the last few years, it was necessary to review the current substitute tests to ensure that they still incorporated or exceeded the content of the current SOL and that the adopted cut scores on the substitute tests for “proficient” and “advanced” were still appropriate.

# Substitute Test Review Process

- Virginia Department of Education staff evaluated the current substitute tests to determine if the content measured incorporated or exceeded the current SOL.
- Committees of educators were convened to review the tests and evaluate the previously adopted cut scores.
  - In some cases committee members verified the current cut scores.
  - In other cases they recommended revisions to the cut scores or recommended that a test be removed from the list.

# Substitute Test Review Process

- The committees also reviewed several new tests that school divisions had recently submitted for potential addition to the substitute test list.
- Revisions to the list of substitute tests were approved by the Virginia Board of Education on January 16, 2014.
- Communicated via Supt's. Memo 032-14, dated February 7, 2014.

# Revised Substitute Test List

- Existing list still in effect for 2013-2014.
- Newly approved list will go into effect at the beginning of the 2014-2015 school year.
- A few tests were removed from the list.
- Some tests have new cut scores.
- New tests were added to the list.
- Beginning in 2014-2015, the WorkKeys Writing test may only be used with students who need to pass the EOC writing test based on the 2002 SOL.
- All AP and IB mathematics and English tests will verify two credits.

# Assessment Resources Provided to School Divisions



# SOL Practice Items

- Developed and implemented prior to field testing to provide practice with technology-enhanced items and test items reflecting increased rigor
- Additional items developed and inserted as needed
- Developed Practice Item Guides for use with students to help teachers highlight the new information
- Developed audio versions of the Practice Items for students who receive that accommodation

# SOL Practice Items: On the DOE Web Site

VDOE :: Standards of Learning

www.doe.virginia.gov/testing/sol/practice\_items/index.shtml

Virginia.gov Agencies | Governor

VIRGINIA DEPARTMENT OF EDUCATION

Home » Standards of Learning (SOL) & Testing » Practice Items

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## STANDARDS OF LEARNING (SOL) & TESTING

### SOL PRACTICE ITEMS

These practice items provide examples of the new content and increased rigor represented by the revised Standards of Learning (SOL) and illustrate the new Technology-Enhanced Item types for the mathematics, reading, science, and writing SOL tests. Technology-Enhanced Items (TEI) require students to indicate their responses in ways other than a multiple-choice format.

### Science

**Science Practice Items**  
Clicking on a link for the Practice Items will launch the items in a browser window.

| Grade/Course  | Practice Items                 | Practice Items – Audio Version         | Practice Item Guides (PDF) |
|---------------|--------------------------------|--|----------------------------|
| Grade 3       | <a href="#">Practice Items</a> | <a href="#">Practice Items – Audio</a> | <a href="#">Guide</a>      |
| Grade 5       | <a href="#">Practice Items</a> | <a href="#">Practice Items – Audio</a> | <a href="#">Guide</a>      |
| Grade 8       | <a href="#">Practice Items</a> | <a href="#">Practice Items – Audio</a> | <a href="#">Guide</a>      |
| Biology       | <a href="#">Practice Items</a> | <a href="#">Practice Items – Audio</a> | <a href="#">Guide</a>      |
| Earth Science | <a href="#">Practice Items</a> | <a href="#">Practice Items – Audio</a> | <a href="#">Guide</a>      |
| Chemistry     | <a href="#">Practice Items</a> | <a href="#">Practice Items – Audio</a> | <a href="#">Guide</a>      |

 View a [narrated demonstration](#) with examples of various technology-enhanced item types that appear on the spring 2013 Science SOL tests. These new SOL tests may consist of approximately 15 percent technology-enhanced items. To download this narrated demonstration as a MOV file, [right-click here](#). MOV video files require the free Apple [QuickTime player plug-in](#).

# Practice Writing Tool

- Provides students with an opportunity to practice composing their short papers online in an application similar to what is used for SOL testing
- Implemented prior to online writing field test in spring 2012

# Practice Writing Tool

The screenshot shows the 'Practice Writing Tool' interface. At the top, a dark blue header contains navigation icons (mouse, pencil, list, eraser, document, help) and the text 'john h doe', 'Grade 8 Writing Practice Tool', and an 'Exit' button. Below the header, a prompt reads: 'After reading the prompt, type a response in the space provided. Click on the exhibit window [icon] to view the Checklist for Writers.' A red box labeled 'Writing tools' points to a toolbar containing icons for Bold (B), Italic (I), Underline (U), Bulleted List, Spell Check (abc), Cut (bo), Copy, Paste, Undo, and Redo. The main writing area contains six lines of placeholder text: 'This is where the student will type in the response to the prompt.' A red box labeled 'Current line location' points to the first line of text. A red box labeled 'Progress bar' points to a small green progress indicator at the bottom right of the writing area. Below the writing area, the text '7 of 52 lines' is visible. At the bottom of the interface, the word 'Response' is centered, and 'Previous' and 'Next' buttons are on the right.

john h doe  
Grade 8 Writing Practice Tool X Exit

After reading the prompt, type a response in the space provided. Click on the exhibit window [icon] to view the Checklist for Writers.

**Writing tools**

B I U [List Icon] Spell Check Cut Copy Paste Undo Redo

This is where the student will type in the response to the prompt.  
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This is where the student will type in the response to the prompt.

**Current line location**

**Progress bar**

7 of 52 lines

Response

Previous Next

# SOL Writing Prompts

- All writing prompts that may be used for the SOL writing assessments are posted on the Department's Web site.
- Updated as new prompts are added.

# SOL Writing Prompts: On the DOE Web Site

www.doe.virginia.gov/test

www.doe.virginia.gov/testing/sol/standards\_docs/english/2010/online\_writing/writing\_prompts/gr\_8\_writing\_prompts.pdf

## Grade 8 Writing Prompts

Where is one place in the world you would like to visit? Explain why you would want to visit this place, and what you would want to do or see once you arrive. Include specific details and examples in your response.

Write about someone who has shared wisdom and experience with you. Explain why it is important to learn from the experience of others. Include specific details and examples in your response.

Think about how daily life, from reading to playing games to communicating with others, has changed over the past hundred years because of technology. Using specific details and examples, explain how these advancements in technology have changed daily life.

Most schools offer a variety of activities, classes, and clubs. Identify one of these that students enjoy and explain why they enjoy it. Include specific details and examples in your response.

Community parks, state parks, and national parks provide a wide variety of interesting activities. Write about an enjoyable way to spend time outdoors. Using specific details and examples, explain why someone might find that activity enjoyable.

What are the advantages of earning your own money to purchase something special? Explain the advantages using specific details and examples in your response.

When people ask for advice, they sometimes talk to more than one person. Explain why seeking multiple opinions can help someone make a better choice. Use specific details and examples in your response.

# Understand Scoring

- Online application that provides teachers with training and practice in scoring the short paper component of the SOL writing tests.

# Understand Scoring

The screenshot shows a web browser window with the address bar highlighted by a red dashed box, containing the URL <https://perspective.pearsonaccess.com/perspective/appmanager/va/educator>. The page header includes the 'PERSPECTIVE' logo, navigation links for 'Support' and 'About Us', and two main buttons: 'Educator Home' and 'Understand Scoring'. Below the navigation is a featured section with a photo of a smiling woman in a classroom. To the right of the photo is a 'Welcome Virginia Educators' section with introductory text and a link to the user guide.

Virginia Educator

← → ↻ 🏠 🔒 <https://perspective.pearsonaccess.com/perspective/appmanager/va/educator>

Virginia Access Home > Educator Resources

[Support](#) [About Us](#)

**PERSPECTIVE™**

[Educator Home](#) [Understand Scoring](#)

 **Welcome Virginia Educators**

Welcome to Perspective and Understand Scoring. Understand Scoring provides you with valuable insight into the constructed response scoring process.

Understand Scoring has been revised with the Virginia 2010 Standards of Learning. In this module, you will gain a greater understanding of the essay scoring process by examining sample professionally scored papers. The domains and rubrics reflect the 2010 English Writing Standards. The system covers Learn About Scoring and Anchor Papers. Practice Scoring for practice sets and verification sets are now available.

[View the Educator's User Guide](#) for a comprehensive overview of Perspective.

# Understand Scoring— Anchor Papers with Annotations

https://perspective.pearsonaccess.com/perspective/appmanager/va/educator?\_nfpb: ... VDOE :: English Standards of L... Virginia Educator - Anchor ...

To view anchor papers select a grade and domain, then click a button to select and review anchor papers.

Select Grade:

Select a domain:  Composing / Written Expression  Usage / Mechanics

| Papers with Assigned Score |    |    |    |
|----------------------------|----|----|----|
| 1                          | 2  | 3  | 4  |
| 1A                         | 2A | 3A | 4A |
| 1B                         | 2B | 3B | 4B |
| 1C                         | 2C | 3C | 4C |
|                            | 2D | 3D |    |

[View rubric](#)  
[View reader bias](#)  
[View terminology](#)  
[Print the anchor paper](#)  
[Print the annotation](#)  
[View overview and help for anchor papers](#)

Score: 4  Annotation  Overlay

FOCUS ON A CENTRAL IDEA  
 About 7% of people were bullied sometime in their lives. Mahatma Gandhi once said "be the change you want to see in the world." If I could change one thing about the world, I would find an efficient way to stop those who bully. First, I will start off small like my neighborhood, and work my way up the top of the pyramid towards the entire world. I believe that change brings opportunity; getting rid of bullies can help shape our world to be more peaceful.

SPECIFIC AND DESCRIPTIVE WORD CHOICE  
 Bullying is a huge conflict that has to be dealt with. Bullies possess their victims' minds into mirroring their behavior and committing felonies. It also lowers their self-esteem. Sometimes they feel the urge to skip school and torture. An act like that can negatively influence their future. stop to the ... before they totally brainwash the children.

EFFECTIVE ELABORATION  
 Since I am a member of the Student Leadership Council, I have an advantage to bring about change and lead my fellow citizens towards peace and tranquility. My council could hold a public seminar in order to attract the attention of higher officials and the parents of the neighborhood. We can then present the "bullying challenge" their children have to face everyday. Our objective of this event is to round up all the kids who are victims of repetitive bullying. We can instruct the victims to be more dogmatic and say "STOP" to the bully. Each victim will be wearing a hidden camera to record the conversation with the target of this mission, the infamous bully. Most likely, being of the type Alpha he will proceed to harm them with no regrets. At that very moment, the victims will stand up to him and overpower him. A bully can be stopped by embarrassment. Embarrassment, in the past, transformed him into a bully; consequently embarrassment itself is the key to end his powerful reign.

TRANSITIONS USED  
 Peace can be achieved through many people coming together for a cause. To stop bullying means to bring change; a change that puts a smile on innocent, frightened victims. With the help of the higher authorities and the parents, it is possible to stop bullying. I am highly determined to enforce and implement these ideas to help rid the entire world of bullies.

SENTENCE VARIETY

**Composing/Written Expression - Score Point 4**  
 The writer demonstrates consistent, though not necessarily perfect, control of the Composing/Written Expression domain's features. This response demonstrates consistent focus on a central idea (*If I could change one thing about the world, I would find an efficient way to stop those who bully*) and fully and consistently elaborates through examples and details (*My council could hold a public seminar in order to attract the attention of higher officials and the parents of the neighborhood. We can then present the "bullying challenge"*).

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# Understand Scoring— Opportunity for Teachers to Practice Scoring

https://perspective.pearsonaccess.com/perspective/appmanager/va/educator?\_nfpb: VDOE :: English Standards of L... Virginia Educator - Practice ...

Educator Home Understand Scoring

Overview | Learn About Scoring | Anchor Papers | Practice Scoring

Educator Home > Understand Scoring > Practice Scoring

## Practice Scoring

Select a grade and set of papers.  
To Score: Read through the paper and assign scores. Click **Check Scoring** when you have completed this paper. Click **Finished scoring this set** when you are done with the entire set. You may return to Anchor Papers to review. You must finish scoring one set of papers before proceeding.

Select Grade: Grade 8 [Click here to login](#)

Select an Item: Practice 1 [Go to Scoring Summary](#)

| Select a paper |   |   |   |    |
|----------------|---|---|---|----|
| 1              | 2 | 3 | 4 | 5  |
| 6              | 7 | 8 | 9 | 10 |

Enter your scores below

|                                | 1                     | 2                     | 3                     | 4                     |
|--------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Composing / Written Expression | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Usage / Mechanics              | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

[View rubric](#)  
[View reader bias](#)  
[Print the paper](#)

[View overview and help for practice scoring](#)

**Paper set: Practice 1 / Paper: 1**

Teamwork is a very important concept to know how to apply. If one is placed with a group of others to achieve a common goal, then one must know how to cooperate and work as a team. If nobody in the group knows how to work together, then that group will never be able to achieve anything. If I were given the chance to share a lesson with elementary school students, it would be on teamwork. Although it would be difficult to teach, it would be worth it to give other kids an understanding of how to work together well.

To help elementary school students approach an understanding of how to apply teamwork, I would give them team activities to do. That way, they would have fun while also learning how to work as a team. Although outdoor activities such as running together with tied feet and soccer may be someone's idea of fun, these activities build teamwork, by forcing people to work together as a team. However, this alone would not give a powerful understanding of teamwork.

Furthermore, to help elementary school students understand teamwork, I would give them an actual lesson. During my time, I would say that teamwork is applied throughout our lives. It is important for our future to be able to work with others and to cooperate in teams. Even when we get jobs, many jobs require the use of teamwork, such as working in a restaurant and being on a sports team. Being independent for our entire life is not a good idea, as it can block us out from the real world.

Overall, to me, teamwork is one of the most important traits that a person can have. It is often applied throughout our daily lives without us even realizing it. If nobody knew how to work together, we would never achieve any major accomplishments, and we would live independent, dull lives.

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2:52 PM 4/11/2014

# Understand Scoring— Feedback on Accuracy of Scoring

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## Practice Scoring-Scoring Summary

View scoring summary and detail information.

[View overview and help for scoring summary](#)

Select Grade:

[Click here to login](#)  
[Back to Practice Scoring](#)

Below is the status and summary for each set of papers.

| Paper Set      | Status      | Domain | Exact | Adjacent | Non-adjacent | High Adjacent | Low Adjacent |
|----------------|-------------|--------|-------|----------|--------------|---------------|--------------|
| Practice 1     | Not Started |        |       |          |              |               |              |
| Practice 2     | Not Started |        |       |          |              |               |              |
| Verification 1 | Not Started |        |       |          |              |               |              |
| Verification 2 | Not Started |        |       |          |              |               |              |

Details for each paper are listed below. **Practice 1**

| Paper | Composing / Written Expression |              | Usage / Mechanics |              |
|-------|--------------------------------|--------------|-------------------|--------------|
|       | Assigned Score                 | Your Score   | Assigned Score    | Your Score   |
| 1     |                                | Not Answered |                   | Not Answered |
| 2     |                                | Not Answered |                   | Not Answered |
| 3     |                                | Not Answered |                   | Not Answered |
| 4     |                                | Not Answered |                   | Not Answered |
| 5     |                                | Not Answered |                   | Not Answered |
| 6     |                                | Not Answered |                   | Not Answered |
| 7     |                                | Not Answered |                   | Not Answered |
| 8     |                                | Not Answered |                   | Not Answered |
| 9     |                                | Not Answered |                   | Not Answered |
| 10    |                                | Not Answered |                   | Not Answered |

# Student Performance Analysis

- DOE staff reviews statewide SOL test results and identifies content that was challenging for students
- Narrated PowerPoint presentations that describe content and provide examples
- Designed as professional development tools for teachers

# Student Performance Analysis

VDOE :: Standards of Learning

www.doe.virginia.gov/testing/sol/performance\_analysis/index.shtml

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VIRGINIA DEPARTMENT OF EDUCATION

Home » Standards of Learning (SOL) & Testing » Using Statewide SOL Test Results to Guide Instruction

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## STANDARDS OF LEARNING (SOL) & TESTING

### USING STATEWIDE SOL TEST RESULTS TO GUIDE INSTRUCTION

Statewide results on mathematics and reading SOL tests were analyzed to determine specific content for which overall student performance was weak or inconsistent. The presentations below provide examples of SOL content identified by this analysis. Any sample questions provided in these presentations are not SOL test items and are not meant to mimic questions used on the SOL tests. Instead, they are intended to provide educators with further insight into the concepts that challenged students statewide.

#### Accessing Student Performance Analysis Presentations

Click on a link to either open or save the presentation file. After opening the file, click on the "Slide Show" tab and then click on the icon to start the slide show from the beginning. If the presentation does not display properly, or if you do not have access to Microsoft PowerPoint 2010, click [here](#) to download the PowerPoint Viewer. Also, you may use the arrow keys or mouse to pause, resume or advance through the presentation.

## 2013 Student Performance Analysis

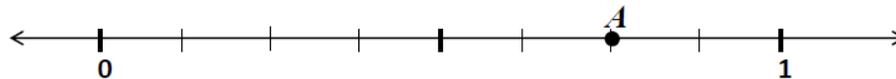
| Mathematics: An analysis of tests administered in spring 2013 |                              |                     |
|---|------------------------------|---------------------|
| Grade/Course  | Presentation                 | PDF                 |
| Grade 3   | <a href="#">Presentation</a> | <a href="#">PDF</a> |
| Grade 4   | <a href="#">Presentation</a> | <a href="#">PDF</a> |

# Student Performance Analysis Example

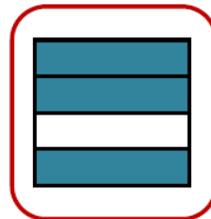
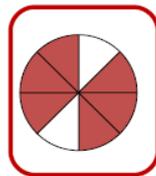
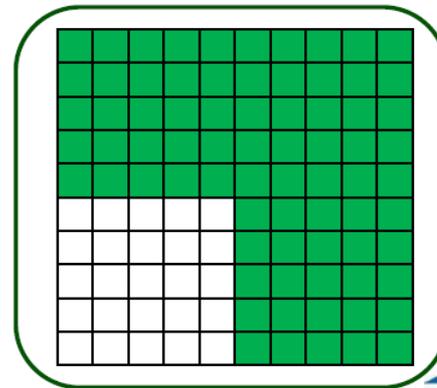
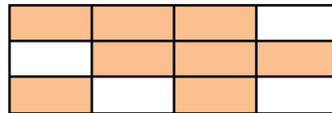
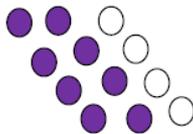
## Suggested Practice for SOL 4.2b

Students need additional practice identifying models that represent equivalent fractions and mixed numbers.

A fraction is represented at point  $A$  on this number line.



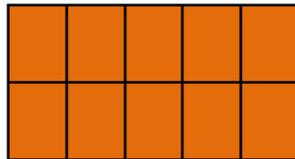
Select each model that is shaded to represent a fraction equivalent to the fraction represented by point  $A$ .



# Student Performance Analysis Example

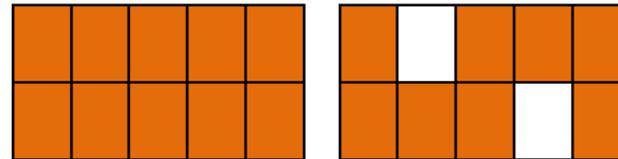
## Suggested Practice for SOL 4.2b

This model is shaded to represent one whole.

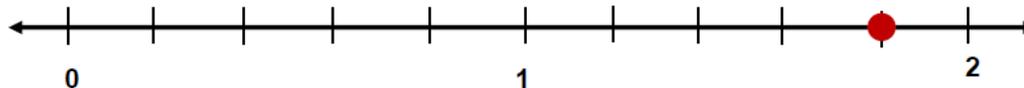


Model 1 is shaded to represent a fraction.

Model 1



Place a point on the number line to represent the number equivalent to the fraction shaded in Model 1.



Extension:

Write a fraction equivalent to the number represented by Model 1 and make a model of that fraction.

Connections:

What is the decimal equivalent to this number? (SOL 4.3)

Write the fraction using the least possible denominator. (SOL 4.5)



# Moving to Computer Adaptive Testing

# Current Testing System

- All students taking a particular test (e.g., grade 7 mathematics) are administered one of several versions of that test.
- Test forms are constructed by testing contractor staff and reviewed by Department staff and by committees of educators.
- All students must demonstrate the same level of achievement to be considered proficient or advanced regardless of the version of the test they take.

# Computer Adaptive Testing (CAT)

- As with the current system, all students must demonstrate the same level of achievement to be considered proficient or advanced.
- However, instead of each student responding to the same test items contained in a particular version of the test, the computer customizes the items administered to the each individual student.

# CAT

- In CAT, the computer scores the student's responses to a test item and selects the next item based on the student's response.
- CAT is iterative in that the process of choosing questions, scoring responses, and selecting new items is repeated throughout the test.

# Advantages of CAT

- Improved security since students in the same test session are responding to different items
- May allow for more flexible test administration windows
- May improve student motivation because content is administered at a more engaging level of difficulty, especially for struggling students

# Streamlined Test Development

- Detailed test construction requirements used for each test (e.g., grade 7 mathematics) are collected and programmed into the CAT algorithm prior to first CAT administration.
- With CAT, the computer automatically assembles tests that meet these requirements while also customizing the test for each individual student.
- Prior to the CAT administration, simulations of tests are run and test developers review them to refine the requirements in the computer to ensure the CAT forms being assembled by the computer meet the SOL content expectations.
- The need for manual test construction by test developers is eliminated.

# CAT Pilots

- Grade 7 mathematics in January 2014
- Grade 8 reading in May-June 2014
- Results of pilots will inform decision to move forward with the use of CAT for operational testing

# The Grade 7 Mathematics CAT Pilot

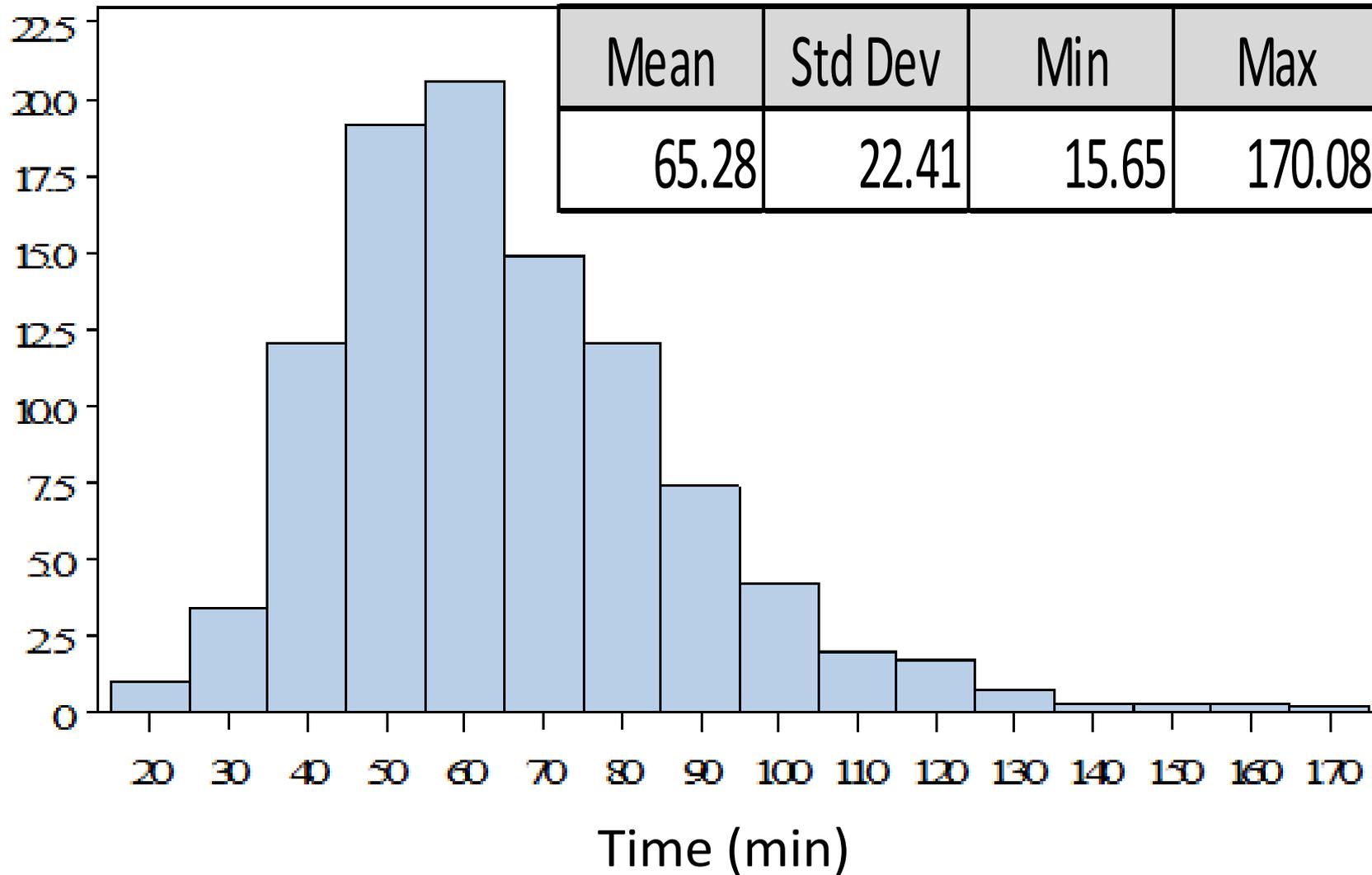


# Grade 7 Mathematics CAT Pilot

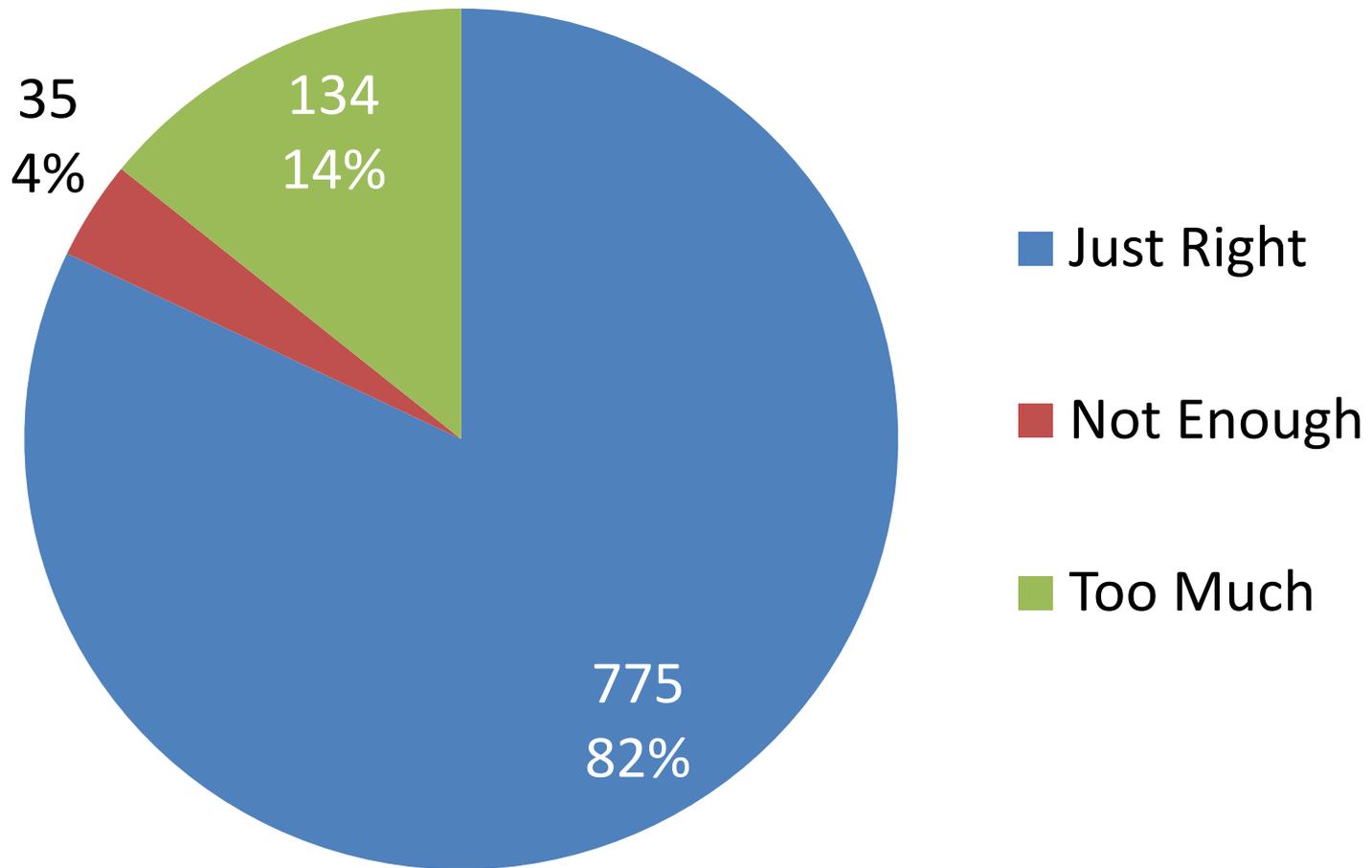
- Pilot conducted in January 2014
- Participants:
  - 8th grade students who took grade 7 Math in spring 2013
  - Sampled from schools who volunteered to participate

| Region | Number of Students |
|--------|--------------------|
| 1      | 83                 |
| 2      | 294                |
| 3      | 203                |
| 4      | 41                 |
| 5      | 213                |
| 6      | 136                |
| 7      | 189                |
| 8      | 36                 |
| Total  | 1195               |

# Testing Time (in Minutes)



# Student Survey Responses: “The amount of time I had to take this test was...”

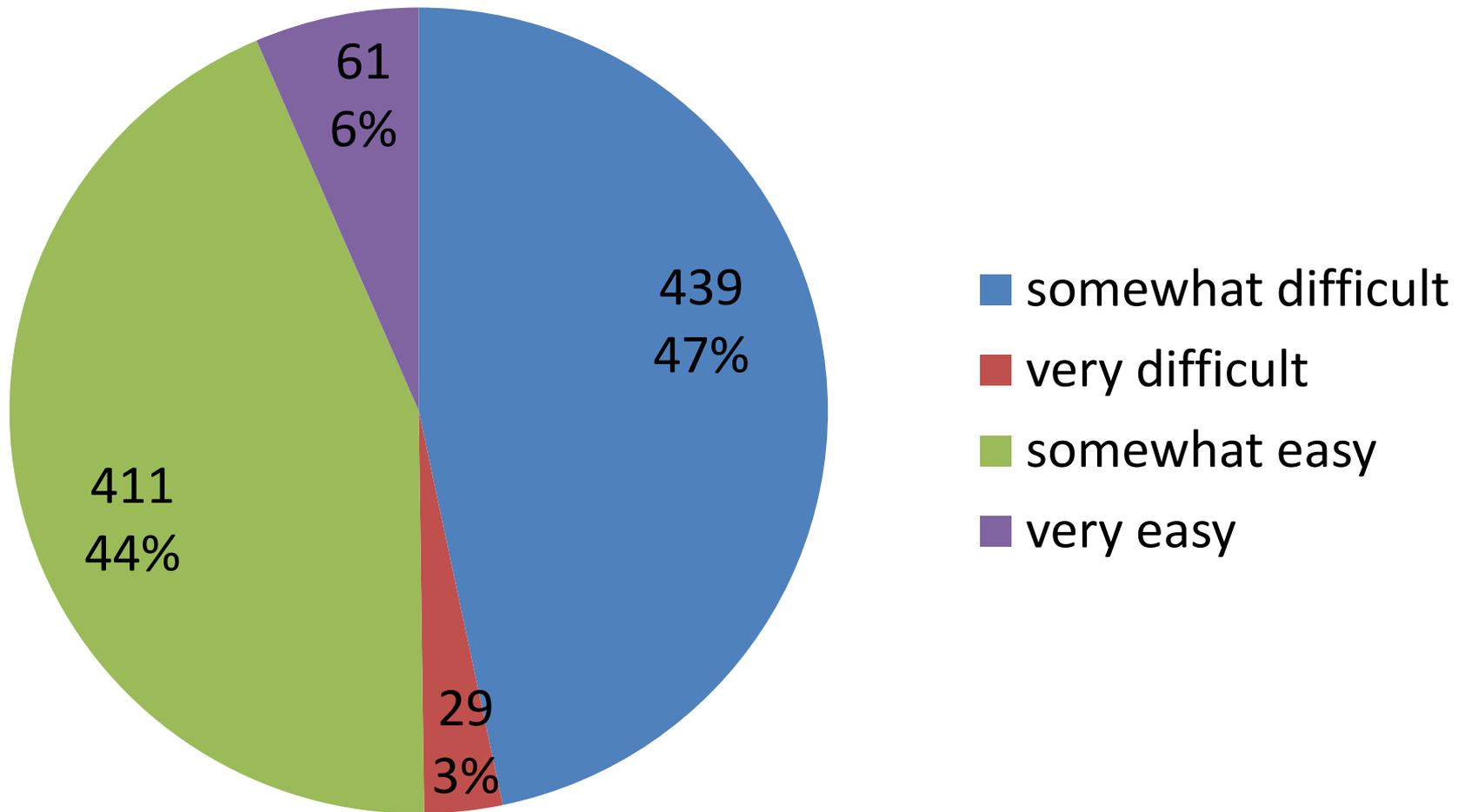


# Selection of Items for Students

- In general, CAT was able to match items to students very well.
- Additional “difficult” items should be developed for the SOL item banks for use with advanced students.

# Student Survey Responses:

## “Overall I think the questions on this test were...”



# How was this test different from other SOL tests you have taken?

- No ability to review a question or flag it for review
- No ability to go back to a question
- This test wasn't much different than previous tests
- No ability to skip a question

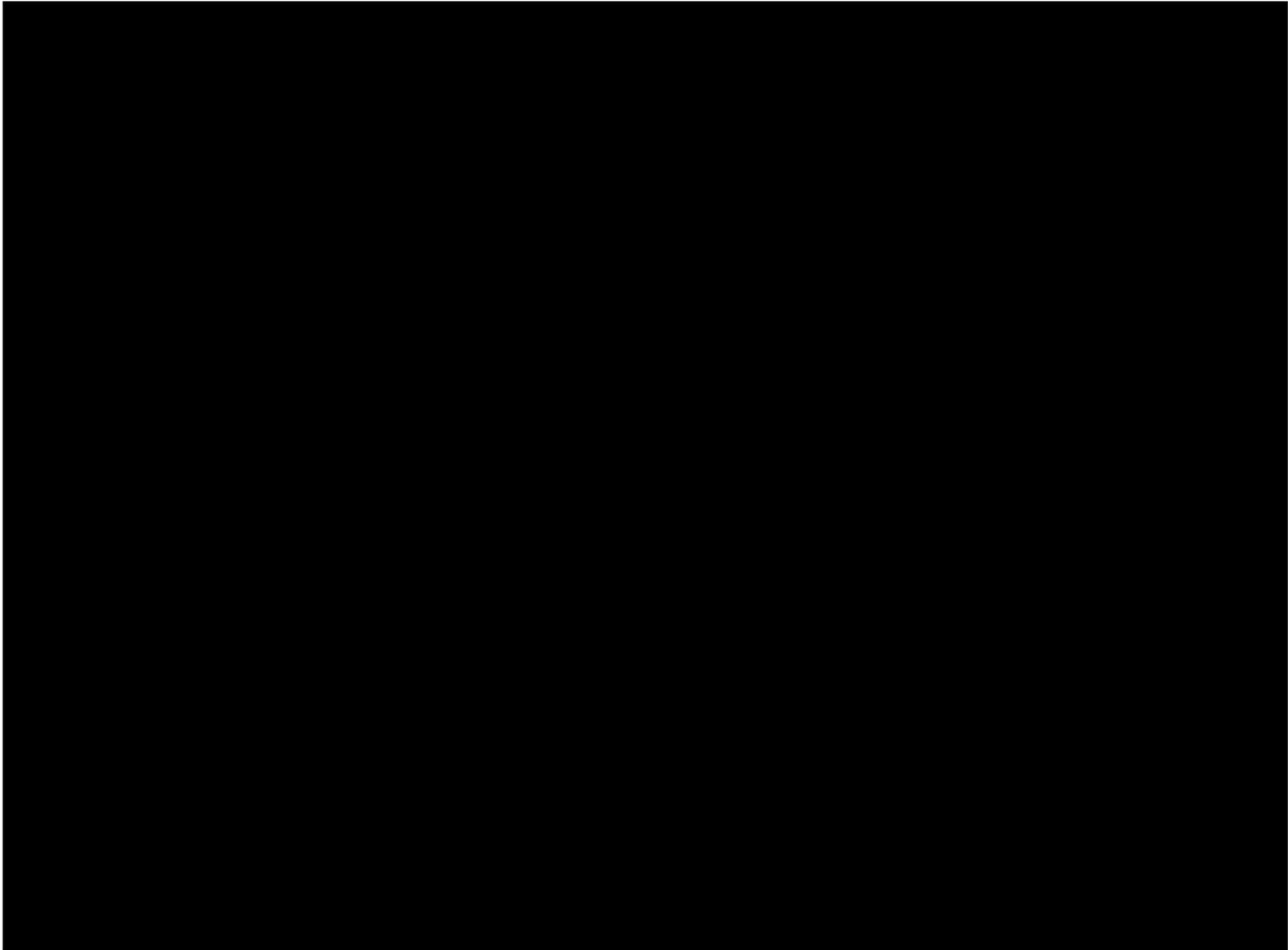
# Conclusions

- The CAT pilot test administration did not encounter any issues.
- The tests administered reflected the blueprints and other content requirements appropriately.
- The level of measurement precision for student scores was high.
- The exposure of items was maintained to appropriate levels for test security.
- It will be important to educate schools and students about how CAT works.

# Next Steps

- Based on pilot results, CAT delivery for mathematics can move forward as planned if sufficient funding is available.
- CAT will be further evaluated for reading -- Grade 8 Reading Pilot begins on May 5.
- Development of resources for school divisions.

# A Short Video on CAT



# Proposed Timeline for CAT Implementation

- Grades 6, 7, and 8 mathematics in fall 2014
- Grades 3, 4, and 5 mathematics in spring 2015 pending sufficient funds
- Plan is for full implementation in 3 years if funding is available

# Costs Associated with Moving to CAT

- Initial cost increase to implement CAT system
- Item/test development costs should decrease once CAT is fully implemented
- Test administration costs will depend on number of tests taken

# New Score Reports

- The SOL score reports for all tests except for writing are being significantly revised.
- New score reports will be implemented with the fall 2014 test administration.
- Training on using new reports will be provided for school division staff in late summer or early fall 2014.

# Potential Use of Automated Scoring for the SOL Writing Tests

# Potential Use of “Automated Scoring”

- Currently two human readers score each of the short papers that students write as part of the SOL writing tests.
- A benefit of moving the SOL writing test online was the potential use of computerized automated scoring to score the short-paper components.

# Use of “Automated Scoring”

- Studies to investigate feasibility conducted in summer 2013
- Studies were successful; scoring engine is trained on all current SOL prompts

# Use of “Automated Scoring”

- In fall 2014 the Department plans to use “automated scoring” as the second reader for grade 8 writing and EOC writing.
- Should reduce turnaround time for delivery of scores.

# Use of Additional Devices for Online SOL Testing

# Current Status

- Current test delivery system (TestNav™ 7) only supports SOL testing on Microsoft Windows®-based and Mac OS®-based hardware.
- Devices such as Google™ Chromebooks, Apple iPads®, Android™-based devices, or touch screen devices are not supported for testing with TestNav 7.
- TestNav 8 is a new test delivery system that will support additional devices but a transition to administering SOL tests with TestNav 8 will require significant time and effort.

# Movement to Test Nav 8

- Plans for transitioning to TestNav 8 are underway but the implementation will have to occur in phases; a firm timeline is not yet available.
- SOL test items need to undergo multiple conversion steps and verifications prior to being administered with TestNav 8.
- Research to evaluate differences in SOL item presentation on touch screen devices has been underway since 2012.

# Tablet Research in Virginia

Spring 2012 Online Writing Field Test Cognitive Lab

Report available at:

[www.PearsonOnlineTesting.com/Mar2012TabletCogLab](http://www.PearsonOnlineTesting.com/Mar2012TabletCogLab)

Fall 2012 Tablet Usability Research

Specific Technology-Enhanced Item Types

Report available at:

[www.PearsonOnlineTesting.com/Nov2012TabletUsability](http://www.PearsonOnlineTesting.com/Nov2012TabletUsability)

Spring 2013 Written Composition Study

Conducted with grade 5 and grade 11 students

[http://researchnetwork.pearson.com/wp-content/uploads/NCME\\_Assessing-Student-Writing-on-Tablets\\_040414-1.pdf](http://researchnetwork.pearson.com/wp-content/uploads/NCME_Assessing-Student-Writing-on-Tablets_040414-1.pdf)

# Tablet Research in Virginia: Findings

- Impact of touch screens on technology-enhanced items
  - The “dragger” or “hot spot” may be smaller than a student’s finger.

# Example of a “Dragger” Smaller than “Finger Size”

(5) Designing a robot that can function in reality and performing tasks is a challenging assignment for these students, who worked hard to prepare for the fiercely competitive event. (6) However, the competitive spirit was not the most important aspect of the event. (7) The focus was on the value of working with teammates to achieve a common purpose. (8) The gym was decorated in the colors representing the competing high schools. (9) The following five teams, each consisting of five members, were represented Lakeview MacArthur Greenwood Taft, and Hollow Creek. (10) Each team designed a robot to push a small, plastic ball through a maze, at the end of which was a cardboard shoebox. (11) Spectators cheered enthusiastically when the task was completed successfully. (12) The audience groaned and shouted encouragement when any of the robots struggled to complete the task. (13) The plastic balls had to be pushed into this box.

**Directions: Click and drag the punctuation marks into the correct locations within the sentence.**

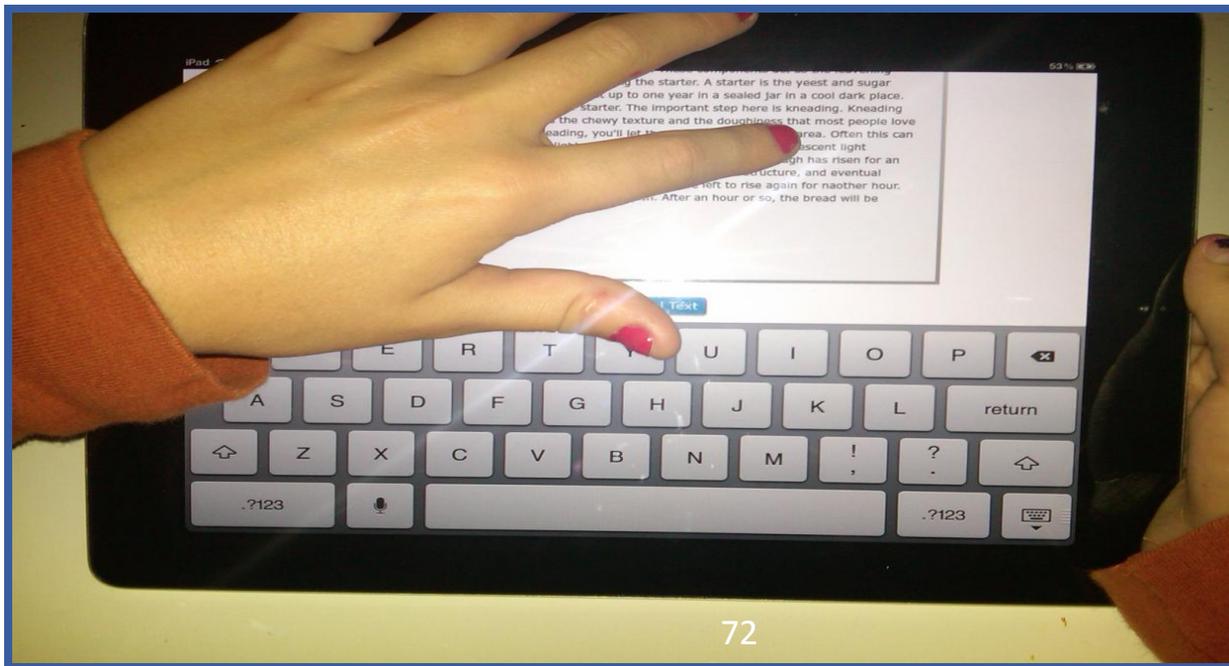
**Correctly punctuate sentence 9.**

The following  five teams, each consisting of five members, were represented  Lakeview  MacArthur  Greenwood  Taft, and Hollow Creek.



# Tablet Research in Virginia: Findings

- When typing a longer response, students found that the imprecision of their fingers to indicate location interfered with their ability to select text when trying to replace words or to fix spelling, punctuation, or capitalization.



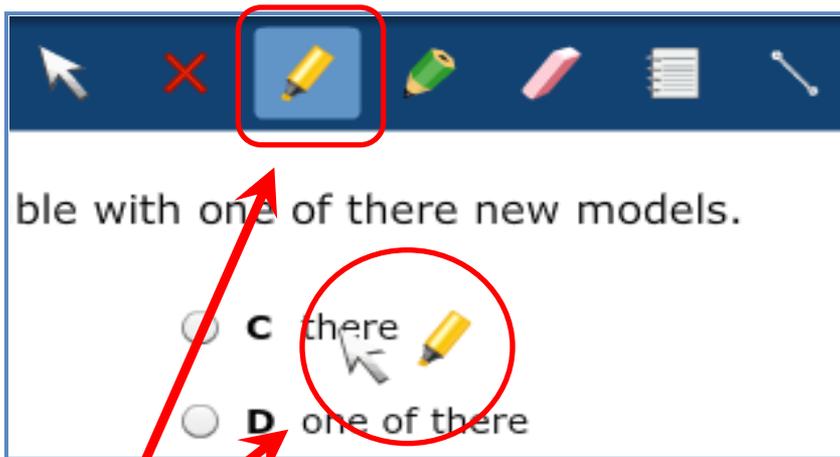
# Tablet Research in Virginia: Findings

- Students with typing/keyboarding skills were slower and less accurate with the on-screen keyboard and became frustrated with writing tasks.
- Younger students without typing skills often preferred the on-screen keyboard.
- Text selection and editing on a tablet was difficult even with the external keyboards; not all students used the keyboard's arrow keys to position the text cursor.

# Tablet Research in Virginia: Findings

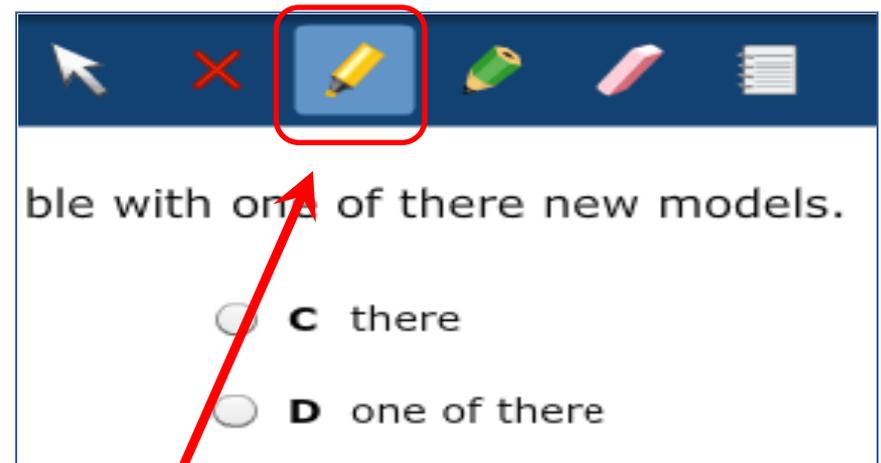
- Tools currently available to students in TestNav 7 may not be available on tablets (e.g., hover feature) or may be more difficult to use (e.g., highlighter, pencil tool).

**On a computer** with a mouse or track pad, the icon representing the cursor on the screen will vary depending on the tool that was selected.



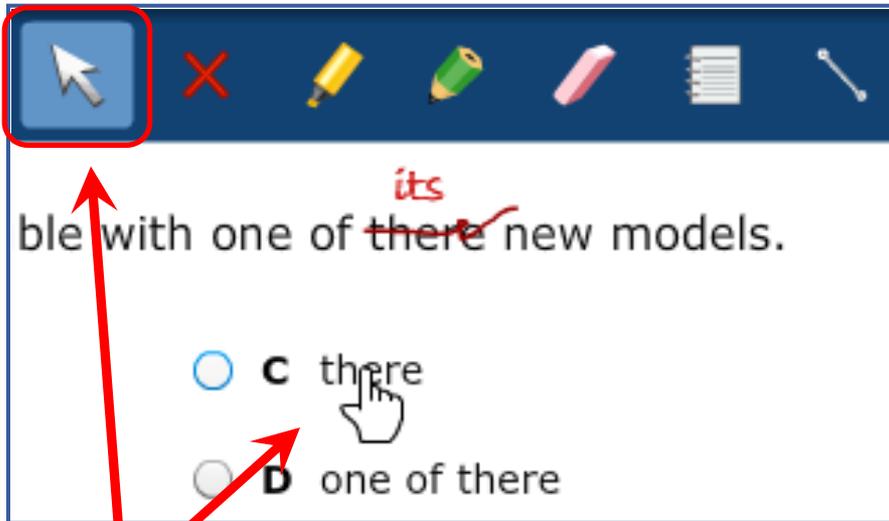
**Cursor is represented by the highlighter icon**

**On a tablet**, no cursor appears on the screen after a tool is selected. Users cannot rely on the appearance of different cursor icons.



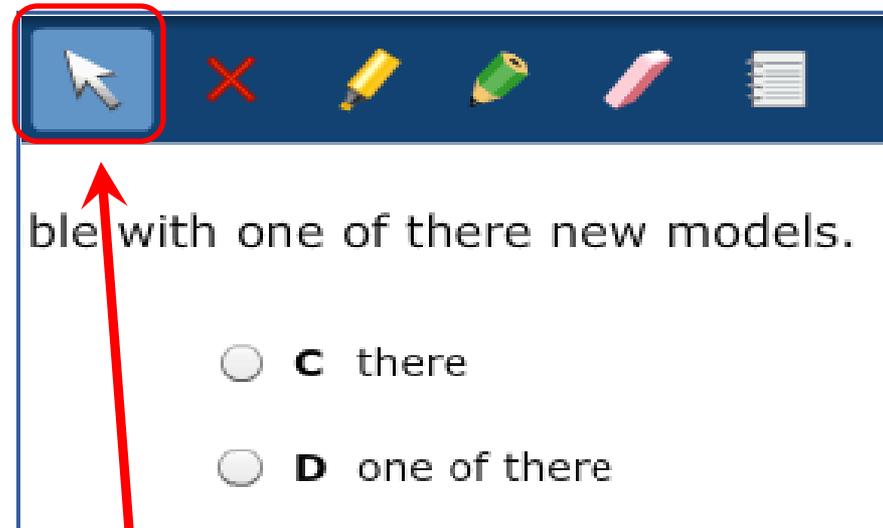
**No cursor appears**

**On a computer** with the pointer tool selected, the cursor appears as the hand/finger icon when hovering over text that can be selected.



**Cursor is represented by the hand/finger icon when hovering over an answer option indicating the option can be selected by clicking.**

**On a tablet**, no cursor appears on the screen after a tool is selected. Users cannot rely on the appearance of different cursor icons.



**No cursor appears**

# Tablet Research in Virginia: Findings

- Tools such as the calculator or the tablet's onboard keyboard “cover up” the test item when accessed.

Use the calculator in the toolbar to answer the question.  
The True Love Flower Shop has 236 bouquets of 12 dozen roses. How many individual roses must be delivered?

- A. 236
- B. 12,236
- C. 2,832
- D. 12,832

### Calculator

X Close

0.

|       |     |     |                |                |
|-------|-----|-----|----------------|----------------|
| shift | 1/x | log | ln             | x <sup>a</sup> |
|       | hyp | sin | cos            | tan            |
| M+    | Min | MR  | x <sup>2</sup> | √              |
| (     | )   | %   | CE             | AC             |
| EXP   | 7   | 8   | 9              | ÷              |
| π     | 4   | 5   | 6              | ×              |
| rand  | 1   | 2   | 3              | -              |
| ±     | 0   | .   | =              | +              |

zen roses. How many individual

# Considerations for Expansion to Tablet Use

- Logistical considerations in “locking down” or not allowing access to other applications on the tablet for secure testing
- Ensuring that items are developed to display on both computers and tablets
- Examining tools available within online assessment software (TestNav) and making adjustments for tablet delivery
- Continuing to evaluate onboard keyboard versus external keyboard

# Considerations for Expansion to Tablet Use

- Flexibility in tablet positioning versus security concerns

How to handle questions like: “May I finish my reading test while I sit in the bean bag chair?”

- Additional procedures to discourage students from “sharing” tablets during testing

# Timeline for Inclusion of Tablets in SOL Test Administration

- Additional research is ongoing. Pilot with high school students in progress now.
- “Sample items” in TestNav 8 will be provided in summer 2014 so that school division staff can experience the differences in how items are presented.
- Tablet implementation will occur in phases.

# Strategies for Expanding Allowable Devices Prior to TestNav 8

- DOE staff and Pearson are working aggressively to establish potential solutions that support secure and standardized test delivery on Chromebooks with the current TestNav 7 delivery system.
- Solution may require additional purchases of hardware and/or software and will likely require additional actions by division technology staff to implement successfully and securely.

# Strategies for Expanding Allowable Devices Prior to TestNav 8

- Targeting 2014-2015 for initial implementation of Chromebooks (non-touch screen only) with TestNav 7.
- School divisions must only administer SOL tests on hardware and software currently approved by Pearson for use with TestNav 7.
- Purchasing or relying on Chromebooks for SOL testing in 2014-2015 should be approached with caution until more details are known about the solution(s) and an implementation timeline is final.

# Development of Additional Measures of Growth

- Development of a vertical scale for the reading and mathematics tests to allow for additional measurement of growth
- Technical work to establish a vertical scale planned for spring 2015

# Implementation of House Bill 930/Senate Bill 306

Full text of legislation is found at  
[http://lis.virginia.gov/cgi-  
bin/legp604.exe?141+ful+CHAP0585](http://lis.virginia.gov/cgi-bin/legp604.exe?141+ful+CHAP0585)

# Implementation of House Bill 930/Senate Bill 306

Eliminated the following SOL tests:

- Grade 3 History
- Grade 3 Science
- Grade 5 Writing
- US History to 1865
- US History: 1865 to the Present

# Elimination of SOL Tests

Working with Pearson to reflect elimination of SOL tests by:

- adjusting test administration and test development systems
- revising affected test administration manuals
- revising scoring materials for alternate assessments to reflect elimination of related alternate tests

# Requirements for Local School Divisions

“Each school board shall annually certify that it has provided instruction and administered an alternative assessment, consistent with Board guidelines, to students in grades three through eight in each Standards of Learning subject area in which a Standards of Learning assessment was not administered during the school year...”

# Requirements for Local School Divisions (continued)

“Such guidelines shall (1) incorporate options for age-appropriate, authentic performance assessments and portfolios with rubrics and other methodologies designed to ensure that students are making adequate academic progress in the subject area and that the Standards of Learning content is being taught; (2) permit and encourage integrated assessments that include multiple subject areas; and (3) emphasize collaboration between teachers to administer and substantiate the assessments and the professional development of teachers to enable them to make the best use of alternative assessments.”

# Development of Guidelines for Local Assessments:

## Questions for Consideration

- How will school divisions certify that local assessments measure the SOL?
- Must the local assessments include all SOL for that subject?

# Development of Guidelines for Local Assessments:

## Questions for Consideration

- Must local assessments include “authentic performance assessments” or may they include primarily multiple-choice or technology-enhanced items?
- What is the definition of “authentic performance assessments”?
- Must the same assessment be used across a division or may decisions about assessments be made at the school level?

# Development of Guidelines for Local Assessments:

## Questions for Consideration

- Must local assessments provide a summative measure of student achievement or will interim assessments administered throughout the year be sufficient?
- Will the guidelines allow for group work? If so, will there will be guidance as to how the contribution of individual students will be captured?

# Development of Guidelines for Local Assessments:

## Questions for Consideration

- If performance tasks are used,
  - will students be permitted to attempt the same task again if they are unsuccessful on the first attempt?
  - will it be permissible to use the same tasks from year to year or will it be necessary to develop new tasks?
- If integrated assessments are used, will the requirements be different?

# Development of Guidelines for Local Assessments:

## Questions for Consideration

- What professional development must be provided to teachers?
- What support will be provided to small school divisions?
- How will “adequate academic progress” be defined?

# Development of Guidelines for Local Assessments: Issues for Consideration

- IDEA requires that alternate assessments be provided for students who are unable to participate in the regular district assessment.
- How will school divisions ensure that this requirement is addressed?

# Summary of Status and Future Plans

# Current Status of Testing Program

- New tests measuring more rigorous SOL implemented in all areas.
- Technology-enhanced items implemented in reading, writing, mathematics, and science tests.

# Current Status of Testing Program

- Advanced/college path scores established for the Algebra II, EOC reading and EOC writing tests.
- List of substitute tests approved for verified credit has been updated to reflect the requirements of the new SOL.

# Current Status of Testing Program

- Variety of resources provided to school divisions
  - SOL Practice Items and Guides
  - Understand Scoring
  - Data Presentations
  - Introductory CAT Video
  - New Score Report Training
- CAT Pilots in progress

# Next Steps

- Implementation of CAT as funds allow
- Implementation of Automated Scoring for the SOL writing tests
- Implementation of new score reports
- Plan to develop a vertical scale for SOL reading and mathematics tests

# Next Steps

- Continued focus on expanding allowable devices for testing
- Support of Board in developing guidelines for local assessments in response to HB 930/SB 306

# Questions?