

Introducing the New  
Iowa Assessments™  
Mathematics  
Levels 12 – 14

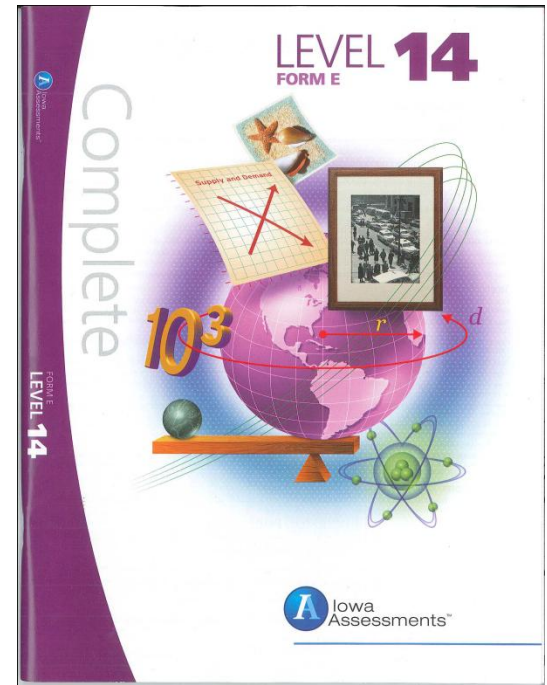
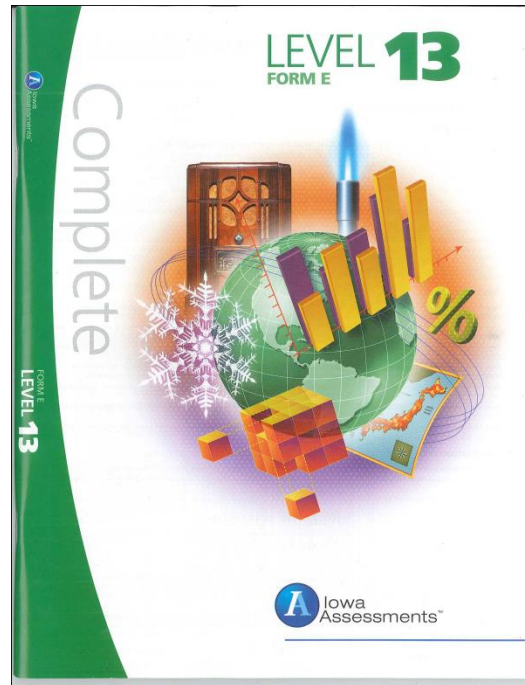
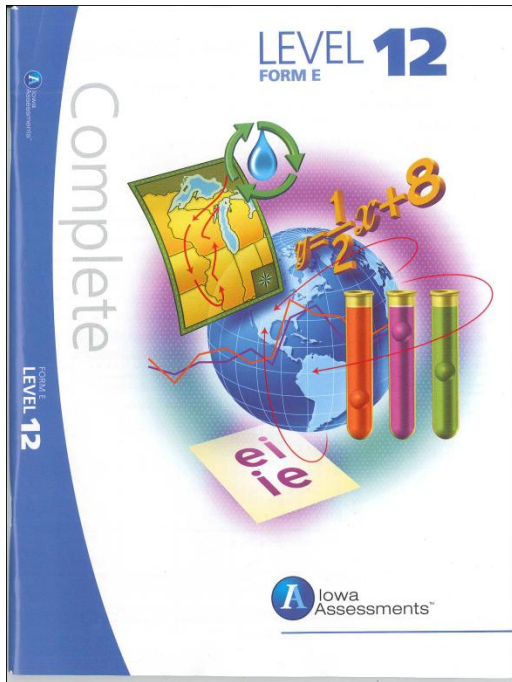


**Iowa Testing Programs**

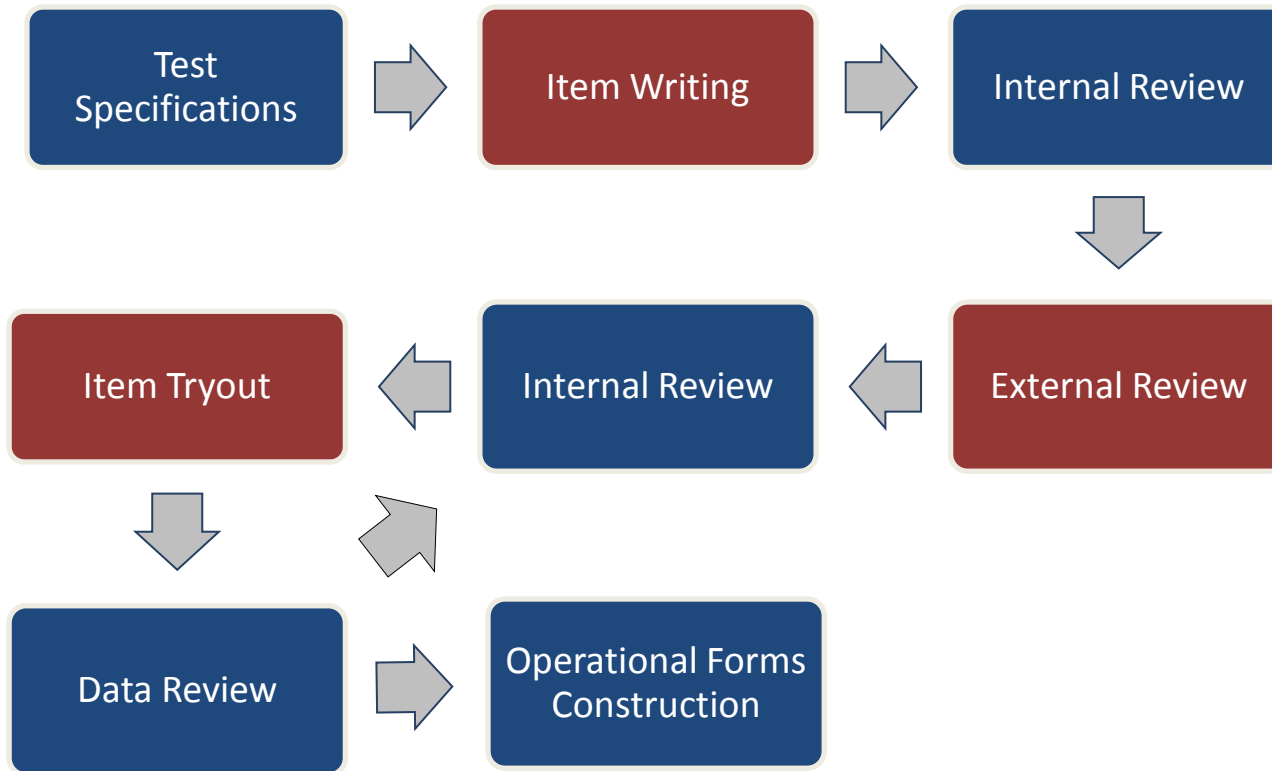
# ITP Assessment Tools

- Math Interim Assessments: Grades 3 – 8
  - Administered online
- Constructed Response Supplements
  - Reading, Language Arts, Mathematics at Levels 9 – 17/18
  - Available free of charge in fall 2011
- Iowa Algebra Readiness Assessment (IARA)
  - Administered online
- Iowa End of Course Assessments (IEOC)
  - Administered online
  - Algebra I, Algebra II, Geometry, Matrix Algebra, Probability & Statistics, English Language Arts, Physical Science, Biology, Chemistry, U.S. History, U.S. Government

# The Iowa Assessments™



# Test Development



# New Iowa Assessments™

- New forms
- All new items
- All items written and reviewed by Iowa educators
- All items field tested on Iowa students
- All items align to the Iowa Core

<http://www.corecurriculum.iowa.gov/>

# Major Changes from Current Forms

## All Levels

- New order of tests within the booklet
- Adjusted number of items and administration times
- New page layouts in full color

## Levels 9 – 14

- Maps and Diagrams and Reference Materials tests have been dropped.
- Mathematics test (two separately timed parts) has replaced Math Concepts & Estimation and Math Problem Solving & Data Interpretation tests.

# Mathematics: Levels 9 – 14

- Administered in two separately timed sessions that are approximately equal in length
- Includes both stimulus based and discrete items
- Each session includes items from all domains

# Administration Times: Levels 9 – 14

Subject Area	Administration Time
Reading <sup>†</sup>	30 + 30
Written Expression	40
Mathematics <sup>†</sup>	30 + 30
Science	35
Social Studies	35
Vocabulary	15
Spelling	10
Capitalization	10
Punctuation	10
Computation	20
Word Analysis*	20
Listening*	25

<sup>†</sup>Two separate sessions

\*Level 9 only



# Mathematics Domains & Standards

## **Number Sense and Operations**

- Represent, compare and order numbers
- Describe and apply properties of numbers
- Classify numbers by divisibility
- Demonstrate ways of performing operations
- Use place value and write numbers in standard, expanded and exponential form
- Estimate and round real numbers

## **Algebraic Patterns and Connections**

- Use and interpret operational and relational symbols
- Solve equations/inequalities
- Use expressions and equations to model situations
- Explore numerical patterns
- Apply functional relationships

## **Data Analysis, Probability and Statistics**

- Apply probability concepts and counting rules
- Understand and apply measures of central tendency and variability
- Interpret data and make predictions
- Understand sampling

# Mathematics Domains & Standards (cont.)

## **Geometry**

- Identify, classify and compare geometric figures
- Describe geometric properties, patterns, and relationships
- Apply concepts of perimeter, area and volume
- Estimate geometric measurements

## **Measurement**

- Measure length/distance, time, temperature, money, weight, mass and volume
- Estimate measurements with appropriate precision
- Identify and use appropriate units of measurement and measurement tools
- Understand and apply rate

# Mathematics Domain and Cognitive Levels

Domain	Level 12 Total Items	Level 13 Total Items	Level 14 Total Items
Number Sense and Operations	18	19	20
Algebraic Patterns and Connections	11	12	13
Data Analysis, Probability, and Statistics	10	11	12
Geometry	13	14	15
Measurement	13	14	15
<b>Total</b>	<b>65</b>	<b>70</b>	<b>75</b>

Cognitive Levels of Items Above	Level 12 Total Items	Level 13 Total Items	Level 14 Total Items
Essential Competencies	7	6	7
Conceptual Understanding	52	59	63
Extended Reasoning	6	5	5

# Cognitive Levels

- Essential Competencies: students recall information, facts, definitions; perform simple one-step procedure
- Conceptual Understanding: students make decisions of how to approach the problem; specify and explain relationships between facts, terms, properties, or operations; perform multiple-step procedure
- Extended Reasoning: students use reasoning, use planning, draw conclusions, or cite evidence to solve a problem; develop a strategy to connect and relate ideas to solve problems while using multiple-step procedures and a variety of skills

**Core: Ratios and Proportional Relationships – Understand ratio concepts and use ratio reasoning to solve problems**

**A Number Sense and Operations – Represent, order, and compare numbers**  
**Cognitive Level – Essential competencies**

**1** Six out of 20 seats are empty. **What percent of the seats are empty?**

**A** 6%

**B** 14%

**C** 30%

**D** 60%

Core: Functions – Use functions to model relationships between quantities

**A** Algebraic Patterns and Connections – Use variable expressions and equations to model situations

Cognitive Level – Extended reasoning

**2** Which equation represents the relationship between  $x$  and  $y$ ?

$x$	0	2	4	6	8	10
$y$	5	9	13	17	21	25

**A**  $y = x + 5$

**B**  $y = 2x + 1$

**C**  $y = 2x + 5$

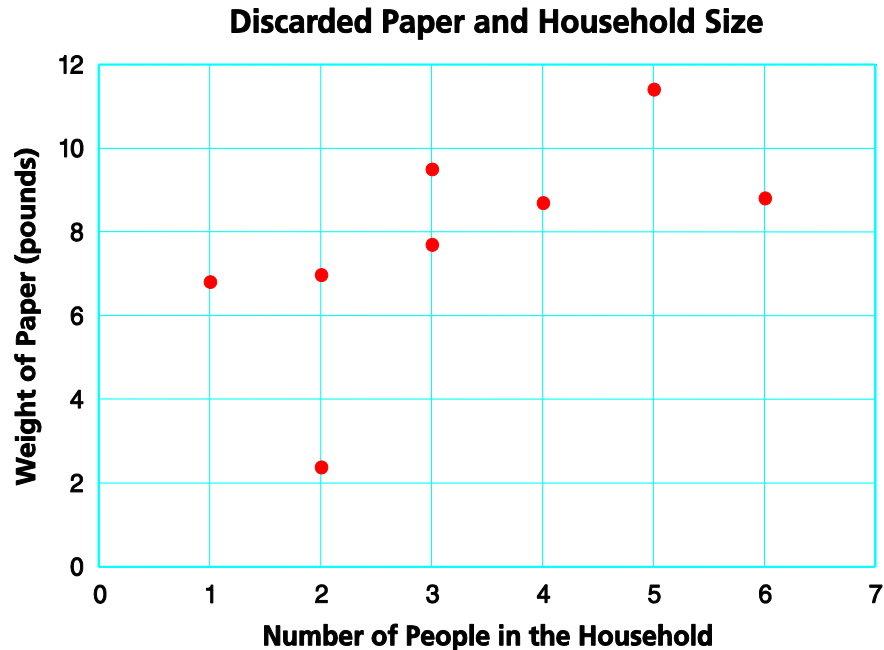
**D**  $y = 3x - 1$

## Core: Statistics and Probability – Investigate patterns of association in bivariate data

### A Data Analysis, Probability, and Statistics – Make predictions and interpret data

#### Cognitive Level – Extended reasoning

Use the scatter plot below to answer question 3.



- 3 According to the trend in the data, which weight of paper is most likely discarded by an 8-person household?
- A 4.5 pounds
  - B 12.5 pounds
  - C 25.0 pounds
  - D 50.0 pounds

# Computation Domains

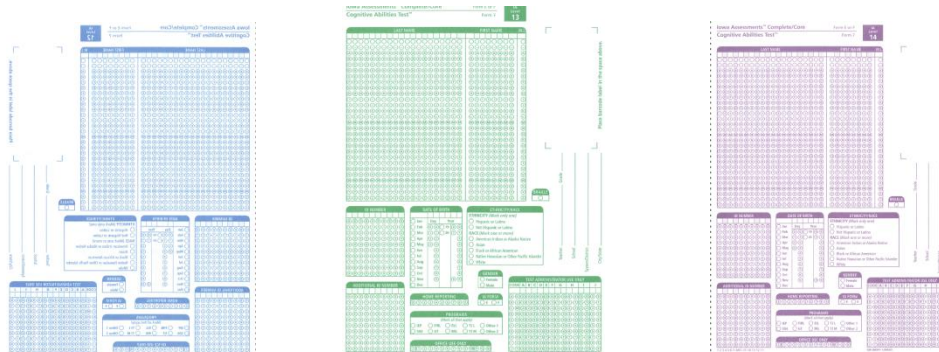
Domain	Level 12 Total Items	Level 13 Total Items	Level 14 Total Items
Compute with Whole Numbers	10	8	3
Compute with Fractions	11	12	10
Compute with Decimals	9	11	14
Algebraic Manipulations	0	0	5
<b>Total</b>	<b>30</b>	<b>31</b>	<b>32</b>

Cognitive levels are not defined within the mathematics computation tests.



# Answer Folder Changes

- Colors are being used to help teachers more easily verify that the correct form is being used.
- The optional section for Tryout Items is now located in the interior of the answer folders. Use the adjacent “Other Information” box to grid in the Tryout Form number.





# Calculator Use

- Calculators are **NOT ALLOWED** on the Computation Test.
- Calculators may be used on both parts of the Mathematics Test.
- The decision to use calculators should be made at the district level, and guided by aligning assessment with instruction.



# Scratch paper

- Each student should have a supply of scratch paper for all testing sessions.
- Collect all scratch paper after each session.
- Destroy all used scratch paper.

# Security

- Test Booklets are **SECURE** materials.
- **No** Booklets are to be retained at the district or school level.

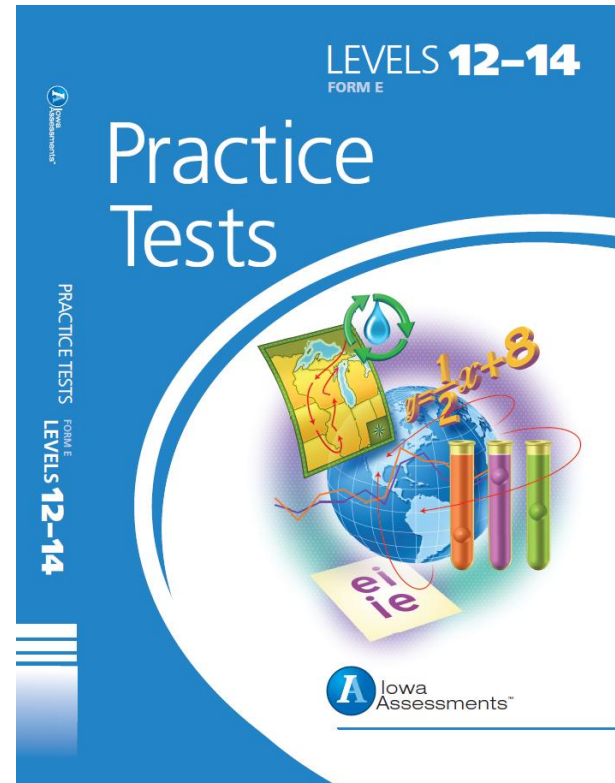
# Security

For security reasons, tests may be viewed on only two occasions:

1. When students are taking an assessment
  - Order only enough materials to test your students.
2. When educators are reviewing Item Analysis Reports (Item Response Record)
  - Contact ITP for review copies.

# Level 12 – 14 Practice Tests

- Reading
- Written Expression
- Mathematics
- Science
- Social Studies
- Vocabulary
- Spelling
- Capitalization
- Punctuation
- Computation



# Details

- Presentation will be available on the Iowa Testing Programs website at <http://itp.education.uiowa.edu>.
  - Contact your testing coordinator if you need assistance accessing materials.
- A Frequently-Asked-Questions (FAQ) is posted on our website and will be updated frequently.
- Contact [iowa-testing-programs@uiowa.edu](mailto:iowa-testing-programs@uiowa.edu) with any additional questions.