



2006 Science ISAT

Grades 4 and 7

Aligned to Illinois Assessment
Framework



Harcourt, Inc.


- Responsible for test development, printing, scoring, reporting
- Norm-referenced and criterion-referenced items
- Stanford 10 format with color
- Up to 10 min. extended-time for students actively engaged in testing
- Aligned to Illinois Assessment Frameworks




Harcourt (cont.)

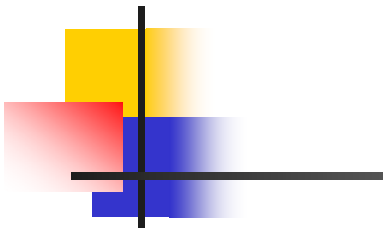
- More detailed reporting aligned to the Illinois Assessment Framework
- Sample items will be released

What does the school nurse use to measure body temperature?

-  **A** Thermometer
- B** Ruler
- C** Stopwatch
- D** Balance

What property of light waves can be observed as light waves pass from one medium to another and change speed?

- A** Diffraction
-  **B** Refraction
- C** Reflection
- D** Separation



	B	b
B	BB	Bb
b	Bb	bb

7

This is a diagram of a genetic cross. In guinea pigs, black hair color is dominant (B) and white hair color is recessive (b). What hair color are the guinea pigs' offspring?

- A. All black
- B. All white
- C. Mostly black with some white
- D. Mostly white with some black



NCLB and Science

- All states must assess science by 2008
- IL already had science test in place
- Legislature decided not to drop and restart in 2008
- Science not used for AYP
 - Math and Reading are used for AYP
 - Math and Reading--Grade 3,4,5,6,7,8,11 beginning 2005-2006 school year



Reporting

- Strengths and weaknesses listed for schools
- Student results for parents with more information
- More data information than previous ISAT
- Testing dates for 2006-March 13-24
- Test results online by June 1



2006 Science ISAT

- Aligned to Illinois Assessment Framework
- All items multiple choice
- 2, 45 minute sessions
- 80 items
- Performance levels remain the same: Exceeds, Meets, Below, Academic Warning



Content Categories-ISAT

- All Science Standards covered equally- 10% for each Standard
- 11A Science Inquiry, 11B Technological Design, 12A Life Science, 12B Environmental Science, 12C Chemistry, 12D Force and Motion, 12E Earth Science, 12F Astronomy, 13A Science Ethics, Safety, 13B Science, Technology, Society

Science Content Category Table

Grade	4	7
State Goal 11	20%	20%
Standard 11A – Scientific Inquiry	10%	10%
Standard 11B – Technological Design	10%	10%
State Goal 12	60%	60%
Standard 12A – Living Things ³	10%	10%
Standard 12B – Environment and Interaction of Living Things	10%	10%
Standard 12C – Matter and Energy ⁴	10%	10%
Standard 12D – Force and Motion	10%	10%
Standard 12E – Earth Science ⁵	10%	10%
Standard 12F – Astronomy	10%	10%
State Goal 13	20%	20%
Standard 13A – Safety and Practices of Science	10%	10%
Standard 13B – Science, Technology, Society ⁶	10%	10%
Total	100%	100%



Test Item Development

- Illinois teachers write and review test items
- EX. Items written in October '04, reviewed in Nov. '04, and piloted in schools in April '05.
- Data analyzed
- Some selected for 2006 ISAT



Test Preparation for Students

- Illinois Learning Standards used throughout the year
- Students should be familiar with testing formats
- Positive atmosphere for testing
- Integrate test-taking skills into regular classroom instruction



Using the Standards

- Follow guidelines provided by Illinois Learning Standards (ILS), Performance Descriptors, and Illinois Assessment Frameworks and other resources that align to the ILS for Science
- Science knowledge is cumulative!
 - Not just the responsibility of 4th and 7th grade teachers!
- Students with inquiry experience will perform better on inquiry test items on ISAT.



ISAT and IAF

- All test items on the 2006 ISAT will align to the Framework
 - 30-Norm referenced Stanford 10 items
 - Same items taken in other states for national comparison
 - 50-Criterion referenced items
 - Illinois-developed and only used in Illinois

Both contribute to the ISAT score.



Prohibitions

- Educators may not review, analyze, or copy secure test materials, at any time before, during, or after test administration.
 - Test administrators must use a Reader Script when an IEP calls for the test to be read to a student



Standardized Tests

- Must be administered uniformly across the state
- Teachers need to read and use Test Administration Manuals
- Keep the same testing schedule within schools and districts
- Supervise students during testing
 - Make sure answers are in the correct section



Standardized Tests

- Results must be comparable for all students across the state.
 - Do not read any part of the science test to students unless it is in their IEP. If it is in their IEP, then they should be tested in a separate room so as not to disturb other students.
 - Do not eliminate incorrect answer choices



11B Technological Design

- Classroom testing—Performance
- State testing—Multiple choice
- Example from Illinois Assessment Framework (IAF) Grade 4
 - 11.4.06 Assess given test results on a prototype (i.e., draw conclusions about the effectiveness of the design using given criteria). Analyze data and rebuild and retest prototype as necessary.



11B

- Classroom

- Given some clay, a drinking straw, and paper, design a sailboat that will sail across a small container of water.
- Students can test and retest their designs.



11B

- Multiple-choice test
 - Students are building clay boats with sails. They test their boats in a small container of water. Josh placed his boat in the water and it sank. What should he do?
 - A. Change the design and retest his boat.
 - B. Throw his boat away
 - C. Complain about the boat to his teacher
 - D. Give up and watch the other students



11A Inquiry

- Example #2, Grade 7
 - 11.7.01 Understand how to follow procedures relating to scientific investigations including formulating hypotheses, controlling variables, collecting and recording and analyzing data, interpreting results, and reporting and displaying results.



11A Inquiry

- Classroom

- Students are experimenting with plants. Some are controlling the amount of light. Some are controlling the amount of water. Some are controlling the kind of soil. They study their plants over a period of time and record the data. Later they present their findings to the class.



11A Inquiry

- Multiple-choice test
- A student wants to perform an experiment to test how much water bean plants need for the best growth. Which factor should be changed?
 - A. The temperature
 - B. The amount of light
 - C. The amount of water
 - D. The amount of soil



12A Living Things

- 12.4.03 Identify the life cycle of familiar animals and compare their various states: birth, growth and development, reproduction, and death. Understand that metamorphosis occurs in some animals (e.g., butterflies, frogs).



12A Living Things

- Classroom

- Students will study the life cycles of butterflies, using available resources.
- Students can observe real butterflies and discuss the stages of development
- Students may be asked to draw these stages and/or describe them as directed by their teacher.



12A Living Things

- Multiple-choice test
- Which stage of development occurs after the larva stage?
 - A. Egg
 - B. Pupa
 - C. Complete Metamorphosis
 - D. Incomplete Metamorphosis



12A Living Things

- 12.7.03 Identify the main differences between plant cells and animal cells, namely that plant cells have chloroplasts and cell walls (which provide rigidity to the plant, since plants have no skeletons). Identify the basic cell organelles and their functions.



12A Living Things

- Classroom

- Students learn about plant and animal cells with the resources provided. They learn to identify organelles.
- Students draw, make models, use microscopes, or devise other means to communicate their knowledge of cells.



12A Living Things

- Multiple-choice test
 - What is the purpose of the cell wall?
 - A. To give a rigid shape to the cell
 - B. To provide food for the cell
 - C. Chemicals are stored there
 - D. Genes are stored there



12B Environment and Interaction of Living Things

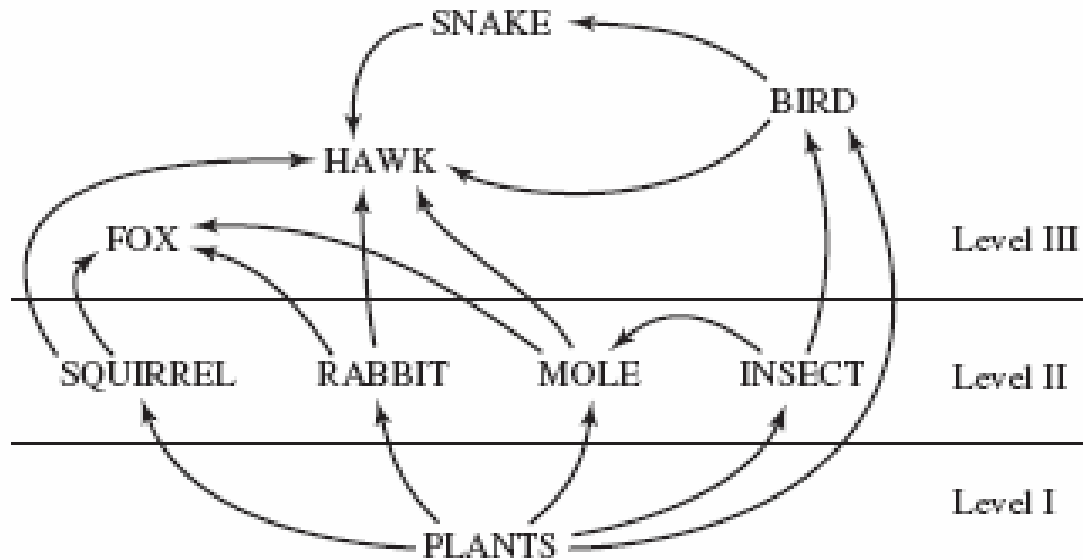
- 12.4.07 Understand the concept of food chains and food webs and the related classifications of plants or animals (e.g., producers, decomposers, consumers, herbivores, carnivores).



12B

- Classroom

- Students learn about food chains in various environments. If possible, they observe food chains on the school grounds, a park, or at home. (Ex. The sun provides energy to the grain that provides energy to the mouse that provides energy to the snake that provides energy to the hawk that provides energy to the decomposers)



13 Removing which organism will destroy the food web?

- A. Insects
- B. Snakes
- C. Hawks
- D. Plants



12B

- Multiple-choice test
 - Which food chain shows the organisms in the correct order?
 - A. Grain, mouse, snake, hawk
 - B. Hawk, mouse, grain, snake
 - C. Mouse, grain, snake, hawk
 - D. Snake, hawk, grain, mouse



12C Matter and Energy

- 12.4.14 Understand that matter is usually found in 3 states: liquid, solid, and gas and be able to identify the properties of each. Understand that water can be found in all three forms.



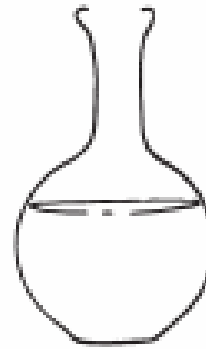
12C

- Classroom

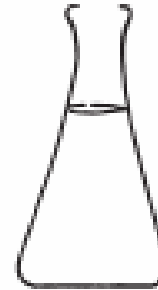
- Demonstrate and investigate the properties of solids, liquids and gases by using water to produce the 3 states of matter. Pour water into a plastic cup and note the properties of liquids. Heat water in a pan until it becomes a gas and freeze water in an ice cube tray and note the properties of each state.

47 The same amount of water is poured into each of the containers shown below, and they are left uncovered in a warm room. After a day, which container will have the least amount of water left in it?

A.



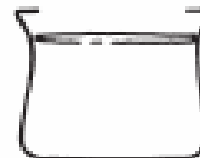
B.



C.



D.



**Illinois Assessment Framework
Objectives: 11.4.02, 12.7.36**



12C

- Multiple-choice test
 - Which state of matter has a definite volume but no definite shape?
 - A. Liquid
 - B. Solid
 - C. Gas
 - D. Steam



12C

- 12.7.43 Identify the 3 subatomic building blocks and their properties. Know that the electron has a negative charge, the proton has a positive charge, and the neutron is electrically neutral.



12C

- Classroom

- Make models or drawings of atoms showing or labeling the parts of the atom and their respective charges.



12C

- Multiple-choice test
 - A negatively charged particle in an atom is a (an)
 - A. Electron
 - B. Nucleus
 - C. Neutron
 - D. Proton



12D Force and Motion

- 12.4.26 Identify the basic forces, such as friction, magnetism, and gravity. Identify which force is operative in a simple scenario.



12D Force and Motion

- Classroom
- Students investigate how a toy car moves on different surfaces to understand the forces of friction and the role friction plays in our everyday lives.



12D Force and Motion

- Multiple-choice test
- A force that slows down or stops the motion of a bicycle is
 - A. sound.
 - B. heat.
 - C. friction.
 - D. electricity.



12 D Force and Motion

- 12.7.68 Understand how to calculate average speeds, given the distance traveled and the time taken.



12 D Force and Motion

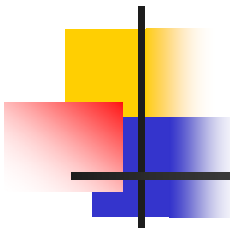
- Classroom
- Using a ramp, roll toy cars down the ramp and measure the time and distance each one travels. Have students calculate the speed with this formula:
 - $\text{Speed} = \text{Distance}/\text{Time}$



12 D Force and Motion

- Multiple choice
- A car travels 240 kilometers (km) in 3 hours. What is the speed of the car during that time?
 - A. 80 km/hr
 - B. 100 km/hr
 - C. 120 km/hr
 - D. 200 km/hr

12E, 12F, 13A, 13B Grade 4 and 7



- Select Assessment Objective
 - Identify topic/unit of study
 - Suggest activities for the classroom
 - Develop multiple choice question (s)



For More Information

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