



# Using Gold Seal Lessons to Improve Instruction



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# Introduction

*Using Gold Seal Lessons to Improve Instruction* is a collection of 360 performance tasks for grades K-12. These lessons were written by teachers who have used the activities in their classrooms.

## Lesson Sets

	<b>K - 4</b>	<b>5 - 8</b>	<b>9 -12</b>
English Language Arts	40	40	40
Mathematics	40	40	40
Science	40	40	40

The Gold Seal Lessons are based on state standards and matched to the high priority topics tested on state assessments. Teachers in every state should be able to find lessons that directly address state requirements.

In addition, the lessons are correlated to the highest rated topics in the International Center’s Curriculum Survey of Essential Skills, which identifies the skills and knowledge needed by all students in their post-school lives.

Teachers can use the Gold Seal Lessons to guide instruction. The lessons can serve as:

- resources to develop or expand lesson plans
- student activities
- performance assessments.

Gold Seal Lessons are not intended to be full-blown lesson plans. Rather, they are suggestions for real-world applications of the skills and knowledge that are frequently tested and that are considered essential for students to master.



## **Components of Gold Seal Lessons**

Every Gold Seal Lesson follows the same format and has the same components.

### **Title**

An attempt has been made to give the lesson interesting titles that may appeal to students.

### **Subject**

Every lesson is assigned to one of the three disciplines for organizational purposes and to assist in the correlation to standards and essential skills. At the same time, because the lessons involve real-world tasks, they are typically interdisciplinary.

### **Grade**

The lessons are grouped to cover a grade span. Teachers will need to review the lessons in the relevant group to determine which one are most appropriate for their students' ability level.

### **Instructional Focus**

The Instructional Focus statements describe the goals of the lesson. The statements correspond to the areas commonly found in state standards and help determine where the task fits within the curriculum. Lessons may relate to standards from more than one subject area because of the interdisciplinary nature of the tasks.



### Performance Task

The Performance Task is a clear and concise description of what the student is asked to do in the context of a real-world situation. The task may be written as instructions to either the teacher or student. It also includes any special instructions for the teacher regarding materials, setup, or other resources needed.

### Scoring Guide

Each lesson includes a scoring guide. The scoring guide is a “measuring stick” for teacher and student. Both of them can use it to determine how well the student has mastered the skills and knowledge covered. The teacher can also use it to determine how well the lesson has been taught as well as for diagnostic purposes.

In most cases, the scoring guide indicates what top performance, acceptable performance, and substandard performance will look like and be like. Many guides consider all aspects of student performance which are important.

Scoring guides can come in a variety of formats. There are three basic types: holistic, analytic, and checklist.

**Holistic** scoring guides rate the whole task with one score similar to the judging of athletic or musical performances.

**Analytic** scoring guides distinguish between the knowledge and skills the task involves and rates each separately.

**Checklist** scoring guides typically have a long list of characteristics to be judged. Each characteristic may be given a qualitative score or just checked off as completed.



## **Essential Skills**

The International Center believes that a curriculum needs to prepare students for the world beyond school, not just for the next level of education. Therefore, the curriculum must reflect what the community believes students should know and be able to do when they graduate from high school.

The International Center developed the Curriculum Survey of Essential Skills to help districts identify what educators and the community believe is the most important English language arts, mathematics, and science content in terms of the rigor and relevance needed to prepare students for post-school, real-world experiences. Since the Curriculum Survey was introduced in 1998, nearly 20,000 people have participated, generating a national database on the skills and knowledge deemed most essential for students to possess.

The Curriculum Survey asks participants to identify what they believe are the 35 most important topics in each of the three subject areas. The topics were compiled following a comprehensive review of the national standards established by the National Council of Teachers of Mathematics (NCTM), the National Science Teachers Association (NSTA), and the National Council of Teachers of English (NCTE) as well as various state standards. The topic lists then went through an intensive editing process by International Center staff, Master Teachers, and other leading educators. In all, 101 English language arts, 87 mathematics, and 113 science topics were identified and incorporated into the Survey. Three essential science topics (now numbered 114, 115, and 116) that had been inadvertently omitted were added after the Survey was disseminated.

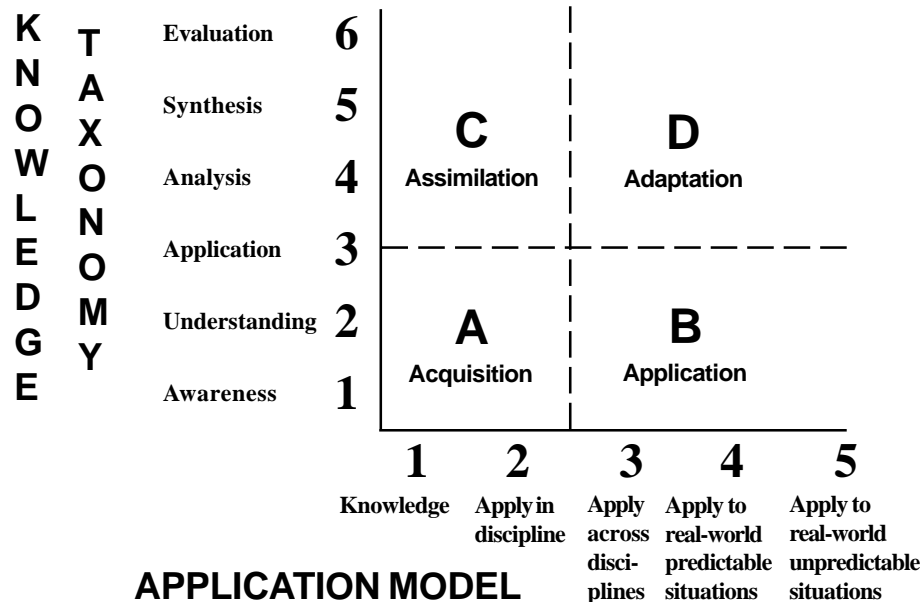


### Rigor/Relevance Framework

The Rigor/Relevance Framework graphic appears in the top right-hand corner of each lesson. It indicates the complexity of the knowledge and the level of difficulty of application of the knowledge and skills required by the task.

The Rigor/Relevance Framework is a tool developed by the International Center to examine curriculum, instruction, and assessment. The Framework is based on a continuum of knowledge (often called Bloom’s Taxonomy) on the vertical axis and a continuum of application (the Application Model) on the horizontal axis.

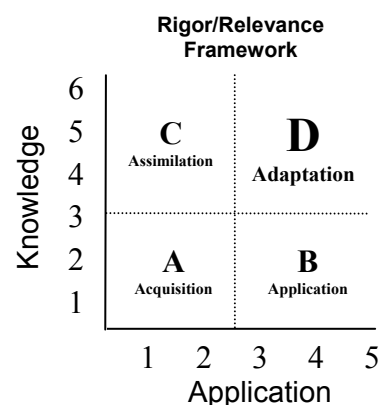
### Rigor/Relevance Framework





Gold Seal Lesson

# COOKIES ANYONE?



## Subject

MATHEMATICS

Grades K-4

## Instructional Focus

**Number Operation and Concepts:** Students use number, number sense, and number relationships in a problem-solving situation. Students communicate the reasoning used in solving these problems.

**Algebraic Concepts and Relationships:** Students use algebraic methods to investigate, model, and interpret patterns and functions involving numbers, shapes, data, and graphs in a problem-solving situation. Students evaluate and communicate the reasoning used in solving these problems.

**Measurement:** Students use a variety of tools and techniques of measurement in a problem-solving situation. Students communicate the reasoning used in solving these problems.

**Geometry:** Students apply geometric concepts, properties, and relationships in a problem-solving situation. Students communicate the reasoning used in solving these problems.

**Problem-Solving and Mathematical Reasoning:** Students apply a variety of problem-solving strategies to investigate and solve problems from across the curriculum as well as from practical applications.

**Writing:** Students write for a variety of purposes and audiences with sophistication and complexity appropriate to the grade level.

**Language Arts Integration:** Students synthesize individual language arts skills.

## Performance Task

Students will learn to make estimates and compare their estimates to actual results. They will estimate the number of circular cookies of a given size that can be cut from a given piece of rectangular cookie dough. They will then find out the actual number that can be cut and compare with their estimate.

1. Before beginning the activity, discuss the terms rectangles, circles, and area with the students to assess their level of knowledge of these terms. If knowledge of these terms is missing or sketchy, some teaching of the terms will be necessary. If students have a good understanding of these terms, you will be able to proceed directly to the task.

## Performance Task continued

2. Have students explore the number of circular cookies that may be made from a rectangular piece of cookie dough. Decide upon the size of circular cookies you will consider. This will be determined by what you use to "cut" the cookies. You might use a cookie cutter, a circular drinking glass, or any circular object that you have. Show the class the rectangular piece of cookie dough and the circular object you will use to cut the cookies. Have the students work in groups of two or three students each to estimate the number of cookies that they think can be cut from the dough.
3. Have each group of students simulate the activity by using the "cookie cutter" and a piece of construction paper the size of the cookie dough. The students will draw circles representing the cookies on the construction paper, maximizing the number of cookies they can "cut" out. Ask the students to compare the actual number to their estimates and discuss their findings.
4. After completing the simulation, let the students work with the real dough and the cookie cutter. Have the students one at a time cut a cookie from the cookie dough until there is no more dough.
5. Ask the students to answer the following questions.
  - a. How many cookies were you able to cut from the cookie dough?
  - b. How does this compare to the number of cookies that you drew on their "paper cookie" dough?
  - c. How does the area of the cookie dough compare to the total area of the cookies that were cut from the dough?
  - d. About what fractional part of the rectangular cookie dough does each cookie represent?
6. Have each student write an essay about what he/she learned while the cookies are being baked. At the conclusion of the activity, let the students eat the cookies as a reward for their hard work.

**Teacher notes:** If working with grades 5-8, students can find the area of the cookie dough and the area of each circle and investigate the relationship between them, using actual measurements. The students could work with fractional parts, percents, or decimal values. If the left over dough is rolled again and more circular cookies are cut, continuing until all the dough has been used or is too small to make a circular cookie, the total area of the cookies should just about equal the area of the beginning rectangular cookie dough. Students could be asked to write numerical statements showing this relationship.

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## Scoring Guide

RATING CRITERIA: 3 = Excellent, 2 = Satisfactory, 1 = Unsatisfactory, 0 = Does not attempt or does not understand task

CRITERIA	SCORE
Student contribution to the group	_____
Student worked seriously on the task	_____
Estimate was determined	_____
Conclusion summary was well-organized	_____
Summary was well written and grammatically correct	_____
Answers to questions a, b, c, and d	_____
<b>Additional criteria for grades 5-8:</b>	
Computation of areas	_____
Quality of numerical statements	_____

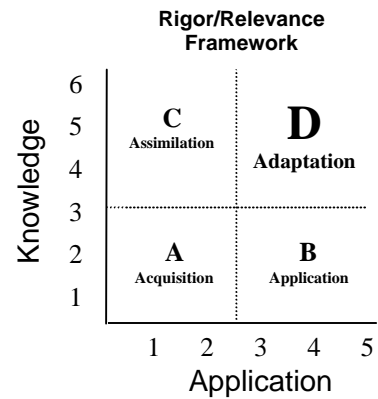
## Essential Skills

- Perform operations with signed numbers, including decimals, ratios, percents, and fractions. (m1)
- Understand the properties of circles (e.g., radius, arc, diameter, chord, secant, tangent, etc.). (m 10)
- Compute the perimeter and area of two-dimensional figures. (m13)
- Understand the properties and classification of quadrilaterals by orientation (e.g., parallelogram, rectangle, rhombus, square, and trapezoid). (m27)
- Know how to measure circle quantities (e.g. area, angle formed by two secants, circumference, length of segments, etc.). (m30)
- Use the technique of dimensional analysis to convert units of measure including drawing to scale and applying ratios. Understand and use various techniques for estimating, making and converting measure; and using these to perform dimensional analysis. (m33)
- Use writing as a tool for learning in formats such as learning logs, laboratory reports, note-taking, journals and portfolios. (ela40)



# WATER, WATER EVERYWHERE . . . ?

Gold Seal Lesson



## Subject

SCIENCE

Grades 5-8

## Instructional Focus

**Science as Inquiry:** Students demonstrate knowledge and skills necessary to perform scientific inquiry.

**Science in Personal and Social Perspectives:** Students apply scientific principles to personal and social issues.

**Communication:** Students communicate and apply scientific concepts.

**Measurement:** Students use a variety of tools and techniques of measurement in a problem-solving situation. Students communicate the reasoning used in solving these problems.

**Writing:** Students write for a variety of purposes and audiences with sophistication and complexity appropriate to the grade level.

## Performance Task

This Science/Technology/Society task engages students in monitoring their own water use as an entry into studying water supplies worldwide.

### Instructions to students:

**Task 1** - Water conservation is becoming increasingly important due to lowering of reservoir supplies of fresh clean water. Your task is to monitor the amount of water used at your house. Develop a suitable way to measure a single use of water. Some water uses are already measured. For instance, a standard toilet uses 5 gallons per flush. A full bath uses approximately 50 gallons. A washing machine uses 15-30-45 gallons depending upon a low, medium, or high wash. Other water uses will have to be measured.

Open a spigot and time how long it takes to fill a gallon jug. Then you can keep track of the time the spigot was in use to brush teeth, wash face, etc. and convert minutes to gallons. You can have little sheets of paper near each water source to record time or amounts of use. Talk this over with your family members and try it for one week. Keep a science journal and record all your data for each water source daily.

After one week of collecting data, meet with your group to share findings. Determine among your group how much is too much to use and formulate reasons why. Brainstorm and develop a list of ten ways that can help conserve water in your homes. Share these ten ways with your family members and ask for their opinions. Write up your data, group brainstorming, and family thoughts in your journal.

## Performance Task continued

**Task 2** - Have each member of your group pick one of the following to read about and share with the group. Discover how that water source became polluted and how serious the problem was. Find out what actions the controlling governments took to attempt a cleanup and if they solved the problem or not. As each member shares his/her topic orally, take notes in your journal. Depending upon time you may want to write to the Chamber of Commerce of these cities or countries on school letterhead to ask for more information.

1. Neva River near Leningrad in Russia
2. Thames River that flows through London, England
3. Lake Erie in the United States
4. Jamaica Bay in New York City

**Task 3** - Explore and discuss these thoughts and questions with your group. Use any resources available to you: encyclopedias, the Internet, and water supply people. Summarize your learnings in a third write-up that shows your conceptual understanding of water supply issues.

1. How much fresh water is available on Earth?
  2. Is there an endless supply of fresh water?
  3. Have there been water shortages in other cities or countries?
  4. How do catastrophic events such as fire, flood, or volcanos affect local water supplies?
  5. What are the arguments in favor of water conservation?
  6. Is there a source of water pollution in your community? Analyze and observe to try to find the cause. Share these findings with your class and parents. Decide as a class whether you want to pursue writing a letter to your city council making them aware of your findings and concerns.
  7. The Ogallala Aquifer is a vast underground lake sprawling from Wyoming through Nebraska, Kansas, Colorado, Oklahoma, New Mexico and Texas. Find out what this vast lake is used for and what has happened to that lake in the past 60 years.
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## Scoring Guide

RATE CRITERIA: 3=Excellent, 2=Satisfactory, 1=Unsatisfactory,  
0=Does not attempt or does not understand

CRITERIA	SCORE
Student develops a suitable method to measure the amount of water usage in his/her home	
Student keeps data well organized in his/her science journal	
Student lists ten ways of conserving water in his/her home	
First write-up is well organized and free from spelling and grammatical errors	
Student researches one of the water supplies, states the causes of pollution, and how the governments dealt with it	
Second write-up is well organized and free from spelling and grammatical errors	
Student researches the last seven questions and includes them in a third write-up	
Third write-up shows conceptual understanding of water supply issues.	
Student works on the projects and cooperates well with his/her group	

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## Essential Skills

- Make observations using senses and instruments. Inferences and interpretations are arrived at based on observations. Classify observable properties and organize observations in a meaningful and logical way. (s5)
- Understand how humans, through technology, cause environmental change by disrupting the equilibrium or balance of nature by introducing pollutants into the environment. (s6)
- Know the processes involved in the water cycle, (i.e., evaporation, condensation, precipitation, surface runoff, percolation) and their effects on climate patterns. (s7)
- Understand the human impact on the environment through pollution (air, water, and soil), and ways to improve it through education, research, laws, and conservation. (s10)
- Identify and comprehend the concepts involving the earth's water, i.e., ground water (infiltration, permeability, porosity, and capillarity), surface water (runoff), and pollution (sources, types, concentration, and long range effects). (s17)
- Know and apply the principles of scientific inquiry. (Implicit in this statement are the processes of prediction, estimation, developing hypotheses, drawing conclusions, evaluation, and following ethical principles and professional procedures.) (s114)
- Apply in writing the rules and conventions of grammar, usage, punctuation, paragraphing and spelling. (ela1)
- Gather information from a variety of sources, including electronic sources, and summarize, analyze, and evaluate its use for a report. (ela3)
- Use brainstorming, role playing, and standard problem solving strategies to define a problem and suggest solutions. (ela19)
- Use writing as a tool for learning in formats such as learning logs, laboratory reports, note-taking, journals, and portfolios. (ela40)
- Use expository writing skills in subjects other than English language arts. (ela58)

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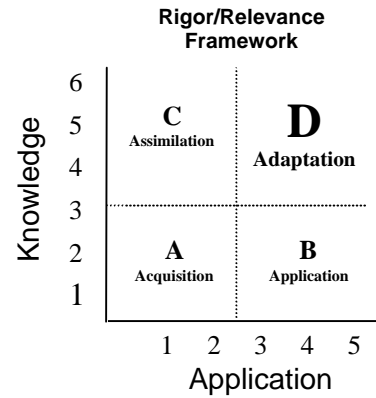
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Gold Seal Lesson

## ADOLESCENCE IN THE 1950s



**Subject**

ENGLISH

**Grades** 9-12

### Instructional Focus

**Reading:** Students read a variety of grade level materials, applying strategies appropriate to various situations.

**Writing:** Students write for a variety of purposes and audiences with sophistication and complexity appropriate to the grade level.

**Listening:** Students listen for a variety of purposes appropriate to the grade level.

**Speaking:** Students speak for a variety of purposes and audiences with sophistication and complexity appropriate to the grade level.

**Language Arts Integration:** Students synthesize individual language arts skills.

### Performance Task

No matter how advanced technology becomes, nothing will replace the human ability to communicate well, personally and professionally. Good communication is the key to human understanding and personal success. This task requires you to use a variety of communication skills to investigate the problems and coping strategies of adolescents in the 1950s.

The task is to be done in three parts.

Part I: The whole class will have a brainstorming session to generate ideas and questions about the kinds of problems that adolescents of that era might have had. A good class discussion will help you formulate questions that pertain to how adolescents cope in an adult world and the kinds of changes that individuals go through during adolescence. Keep notes of the class discussion. After the brainstorming session and class discussion, formulate individually a set of five to ten questions that you will use to interview three or more people who were adolescents in the 1950s.

Part II: Conduct interviews with at least three adults who were adolescents during the 1950s. Do not give the interviewees a questionnaire to complete. Rather, ask them questions, talk with them, discuss issues, etc. Try to interview a variety of people. Keep detailed notes as you conduct the interview. After completing all of your interviews, make a summary of the responses to each question you asked or topic that you discussed. Also make a list of any reactions that you had as you interviewed each person.

# Performance Task

continued

Part III: Now use your creative talents to develop an interesting piece of writing or visualization to show what you learned as a result of the survey. Some ideas to get you thinking are given below.

- letter to a friend
- newspaper story
- animated movie
- oral report
- bulletin board
- play or skit
- short story or composition
- radio program
- large-scale drawing
- transparencies

## Scoring Guide

Score each of the following characteristics on a 4 to 0 basis, where

- 4 = Surpasses Expectation
- 3 = High Quality Performance
- 2 = Satisfactory Quality Performance
- 1 = Minimum Quality Performance
- 0 = Does Not Meet Expectations

### Brainstorming and Discussion

Actively participates in the brainstorming and class discussion. Makes significant contribution. Enters good notes of discussion in notebook. \_\_\_\_\_

### Formulation of Questions

Formulates five to ten well-thought-out questions that are appropriate to the task. Proposed questions are interesting and not embarrassing or in poor taste. Notebook reflects an orderly and appropriate format for the interviews. \_\_\_\_\_

### Interviews with Adults

Interviews a minimum of three adults who were adolescents during the 1950s. Interviewees are from different backgrounds. Interview process is thorough student demonstrates respect for persons being interviewed. Information is in order and focused on original questions. Responses from interviewees are recorded thoroughly. Records reactions to what interviewees reveal. \_\_\_\_\_

### Writing or Creative Visualization Project

Project is well structured using good English grammar. It reflects answers to original questions, logically and clearly developed from responses. Demonstrates that significant learning has taken place. Student demonstrates effective communication skills. \_\_\_\_\_

### Task Management

Stays on task. Manages time well. Uses resources appropriately. Accepts suggestions/criticisms. Seeks help when needed. Strives for accuracy. \_\_\_\_\_

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## **Essential Skills**

- Present information in well-organized fashion that will be clear to the target audience. (ela11)
- Use brainstorming, role playing, and standard problem solving strategies to define a problem and suggest solutions. (ela19)
- Organize supporting detail in logical and convincing patterns. (ela54)
- Interview a classmate, neighbor, or public figure and write a character sketch. (ela85)

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