



# Gold Seal Lesson

<b>Author(s):</b> Marsha Kucker			<b>Lesson Title:</b> A Mathematical Scavenger Hunt			
<b>Grade Span</b>			<b>ICLE Application Model</b>			
K-4	5-8 x	9-12	A	B	C	D x

### Instructional Focus:

#### 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.

#### 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.

#### Geometry –

Students apply geometric concepts, properties, and relationships in a problem-solving situation. Students 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.

#### 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.

#### 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.

### Performance Task

1. Divide students into groups of 3. Tell them to select one person of the team as the recorder. Explain to students that they will be participating in a hunt. The location will be outside and within the school grounds.
2. Tell students that this lesson will be timed. Their challenge is to locate, count, compute, and measure and record the items listed on the attached sheet within the time period specified.
3. Have students create and prepare a report on the computer sharing the data and methods of measurement in computation.
4. Have students report and discuss their finds.

### ICLE Essential Skills

Gather information such as data, facts, ideas, concepts, and generalizations from oral sources. (ela 51)

Follow oral or written directions. (ela 4)

Present information in well-organized fashion that will be clear to the target audience. (ela 11)

Participate, sometimes leading, in group meetings by contributing, taking turns speaking, and working toward a common goal. (ela 20)

Understand and use graphs, charts, and visuals to enhance informational writing and oral presentations. (ela 29)

Understand the nature and purpose of and be able to word process a variety of formats including essays, business letter, memos, instructions, policy statements, technical proposals, user manuals, lab reports, etc. (ela 30)

**ICLE Essential Skills continued...**

Make informed judgments about the content, organization, and delivery of spoken communication. (ela 32)
Using writing as a tool for learning in formats such as learning logs, laboratory reports, note-taking, journals and portfolios. (ela 40)
Use a variety of media to gather information and to transmit information to specific audiences. (ela 43)
Understand and use graphics such as graphs, charts, visual aids, white space, bold print, headers and other graphics to enhance meaning. (ela 56)
Respond orally to fellow student's opinions during presentations by asking questions, asking for clarification, agreeing and/or disagreeing courteously. (ela 59)
Perform operations with signed (positive and negative) numbers, including decimals, ratios, percents, and fractions. (math 1)
Understand basic algebraic properties (i.e., commutative: $ab=ba$ ; associative: $ab(c) = a(bc)$ ; and distributive: $a(b+c) = (ab) + (ac)$ ). (math 3)
Understand the use of variables in expressions such as $4x$ , $x+2$ , and $2x-1$ , solve for the variable, and know how to represent expressions such as "twice the number" or "four more than the number" using variables. (math 7)
Understand the correct order of operations for performing algebraic computations. (math 8)
Compute the perimeter and area of two-dimensional figures. (math 13)
Know how to measure circle quantities (e.g., area, angle formed by two secants, circumference, length of segments, etc.). (math 30)
Use the technique of dimensional analysis to convert units of measure (e.g., convert km/hr to m/min) 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. (math 33)
Execute basic operations with complex numbers (i.e., addition, multiplication, and inverse), and graphically interpret complex numbers using the complex plane. (math 39)

**Scoring Guide:****4. ADVANCED/ EXCEEDING**

- An appropriate strategy is used effectively.
- The response is highly organized and well documented.
- Responses to all parts of the prompt are effective and appropriate.
- A correct solution is presented.
- Efficient, accurate use of mathematics is evident throughout.

**3. PROFICIENT**

- An appropriate strategy is used.
- The response is sufficiently organized and documented.
- Response is communicated and understandable.
- A basically correct solution is presented.
- Appropriate mathematics is applied with only minor flaws.

**2. BASIC**

- A strategy is attempted but is incomplete or poorly carried out.
- The response is poorly organized and insufficiently documented.
- Response is vague or reflects inadequate understanding.
- A partial or incorrect solution is presented.
- Some of the mathematics used is inappropriate or frequently flawed.

**1. MINIMAL**

- No strategy is attempted or it is unclear what the strategy is.
- The response is disorganized.
- Response reflects random thoughts or haphazard restatements of fact.
- Minimal to no response is presented.
- Little or no use of appropriate mathematics is presented.

**0. NOT SCORABLE**

- Not scorable.

**Keywords**

<b>English Language Arts</b>	<b>Mathematics</b>	<b>Science</b>
<b>Reading</b>	<b>Algebra</b> <b>Computation</b> <b>Math in daily life</b> <b>Equations</b> <b>Number theory</b> <b>Problem solving</b>	<b>Earth Science</b>
<b>Writing</b> <b>Technology</b> <b>Technical writing</b> <b>Organization</b> <b>Note taking</b>	<b>Geometry</b> <b>Area circumference</b> <b>Geometric shapes</b> <b>Problem solving</b> <b>Surface area</b>	<b>Life Science</b>
<b>Communications</b> <b>Discussion</b> <b>Listening</b> <b>Illustrations</b> <b>Oral presentation</b> <b>Communication</b>	<b>Statistics</b> <b>Data analysis</b> <b>Data collection</b> <b>Data display charts</b> <b>Measurement</b> <b>Problem solving</b>	<b>Chemistry</b>
<b>Literature</b>	<b>Calculus</b>	<b>Physics</b>
<b>Other</b>	<b>Trigonometry</b>	<b>Other</b>
	<b>Other</b>	

# A MATHEMATICAL SCAVENGER HUNT

1. The length of the largest school building.
2. Tree with the largest circumference.
3. The area of the school grounds.
4. Total number of trees.
5. Total number of flowers.
6. Area (sq. ft.) occupied by school buildings.
7. Number of cars surrounding the school yard.
8. Number of windows on the smallest building.
9. Draw an outline map of the school grounds.
10. Area (length x width) of space occupied by playground equipment.
11. Length of the sidewalk from the street to the front entrance of the school building.
12. Number of total doors on all buildings.
13. Number of people (other than classmates) seen during a 5 minute period.
14. Tallest bush.
15. Number of school busses.
16. Amount of square footage occupied by black top.
17. Number of trash cans.
18. What percentage of the entire school yard is playground area?
19. What percentage of the entire school yard is blacktop?