



**International Center
for Leadership
in Education**



Gold Seal Lesson:

Copernicus Education Gateway

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Grade Span			ICLE Application Model			
K-4	5-8	9-12 XX	A	B	C	D XX

Instructional Focus:

Algebra—use algebraic methods to investigate, model, and interpret.

Tools and Technology—Use appropriate tools and technologies to model, measure, and apply the results in a problem-solving situation.

Problem-solving—apply a variety of problem-solving strategies to investigate and solve problems.

Writing—write for a variety of purposes and audiences

Performance Task

At your school's next pep rally there will be a competition featuring representatives from each of the four grades. Participants will throw a tennis ball straight up in the air, and it must land within seven feet of where the participant is standing. The participant whose ball goes highest will win points for his/her grade. The pep rally sponsors are worried about judging the event. Is there some way to determine exactly how high each ball goes?

Your task is to conduct a trial test of this event. Then prepare a written recommendation to the pep rally sponsors about the event. Include an explanation of how data was collected in your trial events, and how the height and speed were calculated. Is this a good event to include in a pep rally competition? Why or why not?

ICLE Essential Skills

Understand the use of variables in expressions such as $4x$, $x + 2$, $2x - 1$, solve for the variable, and know how to represent expressions such as "twice the number" or "four more than the number" using variables. (m 7)

Know how to graphically sketch basic conic sections (e.g., circles and parabolas) using their equations, and graphically solve systems of equations. (m 86)

Understand the characteristics of maxima and minima and be able to mathematically determine maximum and minimum points on a graph or curve. (m 59)

Writing: Draft a report that engages an audience and is concise, clear, well-organized, accurate, and informative. (ela 24)

Scoring Guide:

Criteria	4	3	2	1
Independence	The student independently completes the problem.	The student requires some help in completing the problem.	The student requires considerable help in completing the problem.	Even with help, the student does not complete the problem.
Problem Solving	The student's work shows a thorough, methodical plan, for solving the problem.	The student's work shows an adequate plan for solving the problem.	The student's work shows a plan for solving the problem.	The student's work shows that there was no real plan for solving the problem.
Accuracy of Solution	The solution is completely accurate.	There are some minor inaccuracies.	There are many inaccuracies.	The solution is completely inaccurate.
Communication	The solution to the problem is communicated in a clear and appropriate manner.	The solution to the problem is communicated in a somewhat clear and appropriate manner.	The solution is communicated in a confusing manner.	The solution is not communicated.

Keywords

English Language Arts	Mathematics	Science
Reading	Algebra Parabola Equations Graphing Calculators Problem Solving	Earth Science
Writing	Geometry	Life Science
Communications	Statistics	Chemistry
Literature	Calculus Conics Maxima	Physics
Other	Trigonometry	Other
	Other	