Student Growth Objective Form

(DISTRICT-DEVELOPED SAMPLE SGO for Pre-Calculus)

Name	School	Grade	Course/Subject	Number of Students	Interval of Instruction
	Orange High School	11-12	Pre-Calculus		Sept. 2015-March 2016

Standards, Rationale, and Assessment Method

Rationale: The following CCSS Mathematical standards have been selected because they are major focus standards for the AP Calculus course or first year college calculus content cross nation. In addition, all eight mathematical practice standards are aligned to each standard listed on this SGO to support students develop their critical thinking skills as a preparation for students' college math courses.

Standards:

N.CN.3. Find the conjugate of a complex number; use conjugates to find moduli and quotients of complex numbers.

N.CN.8. Extend polynomial identities to the complex numbers. For example, rewrite $x^2 + 4$ as $(x + 2i)(x - 2i)$.

N.CN.9. Know the Fundamental Theorem of Algebra; show that it is true for quadratic polynomials.

A.APR.6. Rewrite simple rational expressions in different forms; write a(x)/b(x) in the form q(x)+r(x)/b(x), where a(x), b(x), q(x) and r(x) are polynomials with the degree of r(x) less than the degree of b(x) using inspection, long division, or, for the more complicated examples, a computer algebra system.

A.APR.7. Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication and division by a nonzero rational expression; add, subtract, multiply and divide rational expressions.

F.BF.1. Write a function that describes a relationship between two quantities.

F.BF.4. Find inverse functions.

F.BF.5. Understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.

F.IF.7. Graph functions expressed symbolically and show key features of the graph, by hand in the simple cases and using technology for more complicated cases.

F.LE.4. For exponential models, express as a logarithm the solution to $ab^{ct} = d$ where a, c, and d are numbers and the base b is 2-10, or e; evaluate the logarithm using technology.

F.TF.3. Use special triangles to determine geometrically the values of sine, cosine, tangent for $\frac{\pi}{3}, \frac{\pi}{4}, and \frac{\pi}{6}$, and use the unit circle to express the values of sine, cosines, and tangent for $x, \pi + x, and\ 2\pi - x$ in terms of their values for x, where x is any real number.

F.TF.4. Use the unit circle to explain symmetry (odd and even) and periodicity of trigonometric functions.

F.TF.9. Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems.

G.C.4. Construct a tangent line from a point outside a given circle to the circle.

<u>Focused Mathematical Practice Standards</u>:

MP 1: Make sense of problems and persevere in solving them

MP 2: Reason abstractly and quantitatively

MP 3: Construct viable arguments and critique the reasoning of others

MP 4: Model with mathematics

MP 5: Use appropriate tools strategically

MP 6 Attend to precision

MP 7: Look for and make use of structure

MP 8: Look for and express regularity in repeated reasoning

Assessment Method:
Authentic Assessments (Assessment Portfolio) will be used as a tool to measure students' growth. The assessment portfolio incorporates carefully selected practice-forward tasks that reflect higher levels of cognitive complexity.

Starting Points and Preparedness Groupings
Student tiers will be determined using a multiple data point system to develop a baseline index. Each tier will be assigned a target command level.

Data Measures used to Establish Baselines

- 2014-15 Average of unit assessments (40%)
- 2014-15 Average of SGO performance assessment (10%)
- 2014-15 Final grade (10%)
- 2015-16 current year diagnostic assessment (40%)
- 2015-16 (September 8 – October 10) class attendance (see Rubric)

Preparedness Group	Baseline Score
Tier 1	< 0.35
Tier 2	0.35 – 0.55
Tier 3	0.55 – 0.75
Tier 4	> 0.75

Student Growth Objective

By March 2016, 70% of students in each preparedness group will meet their assigned target command level for full attainment of the objective as shown in the scoring plan.

Preparedness Group (e.g. 1,2,3)	Number of Students in Each Group	Target Command Level on SGO Assessment Portfolio
Tier 1		PLD 2
Tier 2		PLD 3
Tier 3		PLD 4
Tier 4		PLD 4 or PLD 5

Scoring Plan
State the projected scores for each group and what percentage/number of students will meet this target at each attainment level. Modify the table as needed.

Preparedness Group	Student Target Command Level	Teacher SGO Score Based on Percent of Students Achieving Target Score			
		Exceptional (4) **>80%**	Full (3) **70-80%**	Partial (2) **50-69%**	Insufficient (1) **<50%**
Tier 1	2				
Tier 2	3				
Tier 3	4				
Tier 4	5				

Approval of Student Growth Objective
Administrator approves scoring plan and assessment used to measure student learning.

Teacher _____ Signature_____	Date Submitted_____
Evaluator _____ Signature _____	Date Approved _____

Results of Student Growth Objective
Summarize results using weighted average as appropriate. Delete and add columns and rows as needed.

Preparedness Group	Students at Target Score	Teacher SGO Score	Weight (based on students per group)	Weighted Score	**Total Teacher SGO Score**
Tier 1					
Tier 2					
Tier 3					
Tier 4					

Notes
Describe any changes made to SGO after initial approval, e.g. because of changes in student population, other unforeseen circumstances, etc.

Review SGO at Annual Conference
Describe successes and challenges, lessons learned from SGO about teaching and student learning, and steps to improve SGOs for next year.

Teacher _____ Signature _____ Date _____

Evaluator _____ Signature _____ Date _____

Class Attendance Baseline Rubric

Attendance Rate (September 8 - October 10)	Scores
≥ 94%	No score deducted from the student's original baseline score
< 94%	6% of baseline score will be deducted from the student's original baseline score

Note:
The attendance percentage of 94% was used as good average attendance for public schools, while 93-85 percent was used as needing improvement and 84 percent or below was used as poor attendance as defined by the No Child Left Behind Act (NCLB) 2001.

Reference:

1. Jones, J., (2006, April 7). The impact of student attendance, socio-economic status and mobility on student achievement of third grade students in Title I schools. Retrieved from: http://scholar.lib.vt.edu/theses/available/etd04202006154606/unrestricted/jonesapproveddissertationsapr7.pdf

2. Applegate, K. (2003). The relationship of attendance, socio-economic status, and mobility and the achievement of seventh graders (Unpublished doctoral dissertation), Saint Louie University, St. Louis, MO.

3. Ziegler, C. W. (1972). School attendance as a factor in school progress (Rev. ed.). New York, NY: AMS Press, Inc.