

## Algebra II, Grade 10-12

### Overview

The author of this Student Growth Objective teaches Algebra II (10-12<sup>th</sup> grade) in a traditional public school.

**Strengths:** a) The teacher has used a **variety of measures** to determine student starting points. This approach included information markers of future success as defined by an accompanying rubric. This information allows the teacher to group students by preparedness level and create a set of targets that are ambitious and achievable for each group. b) The **scoring plan is clear and aligned** to the SGO statement.

**Improvements:** a) The assessment method and scoring rubrics need to be defined more clearly. b) Providing more rationale for the standards chosen would enable stronger conversations with administrators and ensure important standards are not missed.

Name	School	Grade	Course/Subject	Number of Students	Interval of Instruction
		10-12	Algebra II	100/100	Sept. 2014-April 2015

The teacher clearly states her intent to capture a significant portion of the course instructional period in this SGO. This SGO includes all of her students.

### Standards, Rationale, and Assessment Method

Name the content standards covered, state the rationale for how these standards are critical for the next level of the subject, other academic disciplines, and/or life/college/career. Name and briefly describe the format of the assessment method.

**Rationale:** The following Common Core State Standards have been selected as critical areas for an Algebra II course because they are identified as prerequisite anchor skills for future coursework in Trigonometry, Pre-Calculus, and Calculus. Additionally, these algebraic foundational skills and reasoning have relevance and applications that are essential for success in college and career readiness in the STEM fields including, but not limited to biology, physics and technology.

#### Standards:

**CCSS.Math.Content.HSA-APR.A.1** Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials

**CCSS.Math.Content.HSA-APR.B.3** Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.

**CCSS.Math.Content.HSA-CED.A.1** Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions

**CCSS.Math.Content.HSA-CED.A.2** Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.

**CCSS.Math.Content.HSA-REI.B.4** Solve quadratic equations in one variable

#### **CCSS.MATH.CONTENT.HSF.TF.B.5**

Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.

**Assessment Method:** Students will take a department-created common summative assessment at the end of the year that will measure mastery of course concepts and standards.

**Standards:** The teacher clearly states the standards that will be taught in the course and provides rationale for how they set students up for success in future mathematics courses.

**Assessment:** The teacher clearly states the assessment method she will be using at the end of the SGO period. Using a common department assessment allows for cross-grading, thereby increasing the quality of the scores.

**Suggestions:** a) The teacher might want to provide more justification for why she prioritized this subset of content standards. It would be helpful to make this more explicit in order to enable stronger conversations with administrators and peers and facilitate next steps in curriculum planning/assessment. b) The teacher might consider describing the assessment format and scoring to enable a discussion about the depth of knowledge that students will need to master in order to succeed in the course. Attaching a copy of the assessment rubrics and an assessment blueprint to this form will be useful for the teacher and her administrator when they sit down to discuss the SGO before the submission deadline.

### Starting Points and Preparedness Groupings

State the type of information being used to determine starting points and summarize scores for each type by group. Add or subtract columns and rows as needed to match number of preparedness groups and types of information used.

Preparedness Group	Information #1	Information #2	Information #3
	Geometry/Algebra 1 Grades	Current Assessment Average	Markers of Future Success
High ( $x \geq 2.65$ )	B or higher (3)	Above 85% (3)	9 – 12 (3)
Medium ( $1.31 \leq x \leq 2.64$ )	C (2)	76% - 85% (2)	5 – 8 (2)
Low ( $x \leq 1.30$ )	D (1)	Less than 85% (1)	0 – 4 (1)

The teacher has used three different data points including grades from previous mathematics courses (Algebra I and Geometry), current grades and markers of future success. This provides a detailed picture of how well prepared her students are for learning in her class in terms of content knowledge and skills. She uses a system of points for each preparedness category to determine the appropriate placement of her students.

### Student Growth Objective

State simply what percentage of students in each preparedness group will meet what target in the space below, e.g. “75% of students in each group will meet the target score.” Describe how the targets reflect ambitious and achievable scores for these students. Use the table to provide more detail for each group. Add or delete group rows as needed.

85% of students in each preparedness group will meet their assigned target scores for full attainment of the objective as shown in the scoring plan.

Preparedness Group (e.g. Low, Medium, High)	Number of Students in Each Group	Target Score on SGO Assessment
High	29	$\geq 85\%$
Medium	53	$\geq 80\%$
Low	18	$\geq 74\%$

The teacher clearly states how many students will accomplish what by when. She recognizes that students start the year at different levels and looks to set reasonable targets for all students using a differentiated approach.

### Scoring Plan

State the projected scores for each group and what percentage of students will meet this target at each attainment level.

Preparedness Group	Student Target Score	Teacher SGO Score Based on Percent of Students Achieving Target Score			
		Exceptional (4)	Full (3)	Partial (2)	Insufficient (1)
High	85%	$\geq 90\%$	$\geq 85\%$	$\geq 80\%$	$< 80\%$
Medium	80%	$\geq 90\%$	$\geq 85\%$	$\geq 80\%$	$< 80\%$
Low	74%	$\geq 90\%$	$\geq 85\%$	$\geq 80\%$	$< 80\%$

The scoring plan is clear, logical, and aligns with the SGO statement and other information on this form. The teacher is using percentages of students that will attain a particular target to differentiated levels of success on the SGO. This will simplify calculations for an SGO score if students enter or leave her class through the year.

**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
High	93.1% (27/29)	4	.29	1.16	<u>3.46</u>
Medium	94.3% (50/53)	4	.53	2.12	
Low	72.2% (13/18)	1	.18	.18	

**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 \_\_\_\_\_