

Proficiency Grading

Building A Proficiency Model
From The Ground Up

My Goals

1

Increase
Writing

2

Path to
Improvement

3

Better
Data

4

Justification

My Three Year Process

- ❑ Year One - Research/Planning
- ❑ Year Two - Slow Roll Out
- ❑ Year Three - Expand/Refine

Year One - Research/Planning

- ❑ Reflected on my Grading Principles
- ❑ Wrote "I Can" Statements
- ❑ Created Rubrics
- ❑ Aligned assessments to "I Cans"
- ❑ Wrote new grading policy

DOUGLAS REEVES

FAST *Grading*

A Guide to Implementing
Best Practices

WHEN MATH HAPPENS

Concept Quiz

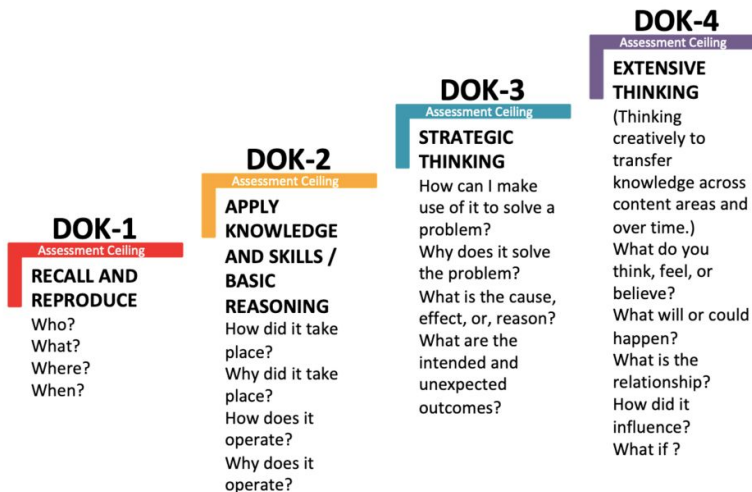
Multi-Step Equations & Equations with a Variable on Both Sides

80 Level

What is the value of x? **Explain.**

$$7 + 6(x + 3) = 43$$

Webb's Depth of Knowledge



Unit 1 - Constructions

- ❑ I can prove and use theorems about parallel lines, given the measure of angles
- ❑ I can use angle pairs to find the measure of angles that will ensure two lines are parallel
- ❑ I can prove and use theorems about perpendicular bisectors and right angles
- ❑ I can make and justify formal geometric constructions using straightedge and compass, paper folding, string, and reflective devices
- ❑ I can explore parallelograms and the relations between their sides, angles, and diagonals.

MATH

EQ: How do you solve real-world exponential and logarithmic problems?

Growth Function

Common Base

I can write and solve exponential growth and decay functions to solve real-world problems ✓

I can use the properties of logarithms to expand and condense logarithms ✓

Decay Function

Compound Interest

I can write and solve compound interest functions to solve real-world problems ✓

I can solve logarithmic problems ✓

Logarithmic Function

Logarithm Rules

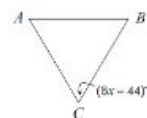
I can solve exponential functions using common bases ✓

I can solve exponential functions using logarithms ★

I can rewrite and evaluate logarithms ✓

5 - I can apply properties of equilateral and isosceles triangles to solve problems

A. $\triangle ABC$ is an equilateral triangle. Solve for x .



Show your work here.

Explain your math steps.

Justify your equation. Why does it make sense?

B. In $\triangle BCD$, if $\overline{BC} \cong \overline{BD}$, $m\angle B = (13x - 35)^\circ$, $m\angle C = (5x - 19)^\circ$, and $m\angle D = (2x + 14)^\circ$, find x and the measure of each angle.

Draw a picture here. Label it.

Solve for x here. Show your work. Explain your math steps.

Justify your equation. Why does it make sense?

0	1	1.5	2	2.5	3	3.5	4
No attempt	Incorrect or incomplete answer. Little to no work is shown.	Incorrect or incomplete answer. Work is shown. Problem solving error.	Correct answer with little or no work shown.	Incorrect or incomplete answer with precision errors. Work is shown.	Correct answer. Work is complete.	Correct answer. Work is complete. Steps explained in complete sentences using required vocabulary terms.	Correct answer. Work is clear and complete. Solution is explained and justified in complete sentences using required vocabulary terms.

Teacher Comments:

Math 252 Unit 1 Test

Name _____

1- I can use derivatives to solve real-world related rates problems

A conical tank with volume $V = \frac{1}{3}\pi r^2 h$ has a radius of 2 ft. at the top and a height of 3 ft. If a liquid flows in at a rate of $2 \text{ ft}^3/\text{min}$ how fast is the water level rising when it is 2 ft high? Make sure to give justification for your know, given and find.

0	1	1.5	2	2.5	3	3.5	4
No attempt	Incorrect or incomplete answer. Little to no work is shown.	Incorrect or incomplete answer. Work is shown. Problem solving error.	Correct answer with little or no work shown.	Incorrect or incomplete answer with precision errors. Work is shown.	Correct answer. Work is complete.	Correct answer. Work is complete. Steps explained in words.	Correct answer. Work is clear and complete. Steps and justification explained in words.

Teacher Comments:

Error Analysis Sheet

Name _____

"I Can" # _____

I made the following errors: (check all that apply) and then explain the error.

☐ Precision: _____

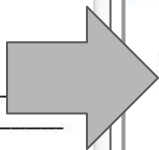
☐ Problem Solving: _____

☐ Explanation: _____

☐ Justification: _____

Correct the Error:

Reflection: Use one of the sentence stems.



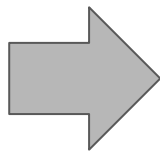
I made the following errors: (check all that apply) and then explain the error.

☐ Precision: _____

☐ Problem Solving: _____

☐ Explanation: _____

☐ Justification: _____



Reflection using sentence stems

Rubric 1.0

0

No attempt

1

Incorrect or incomplete
answer.
Little to no work is
shown.

1.5

Incorrect or incomplete
answer. Work is shown.
**Problem solving
error.**

2

Correct answer with
little or no work shown.

2.5

Incorrect or incomplete
answer with **precision
errors.**
Work is shown.

3

Correct answer.
Work is complete.

3.5

Correct answer. Work is
complete. Steps
explained in words.

4

Correct answer. Work is
clear and complete.
Steps and justification
explained in words.

Year Two - Slow Roll Out

- ❏ Once class at a time
- ❏ Student training
- ❏ Communicate to parents
- ❏ Sharing with colleagues
- ❏ Collecting Data/Adjusting

"I Can"s



Unit Structure



Assessment



Data



Response

Vocab

INB Org.

Word Walls

Study Guides

Rubric

Test Structure

Post-Test Analysis

Retake Policy

Parent Comm.

Grades

Find Patterns

Retake Updates

Writing Practice

Small Groups

Warm Ups

Reteach

I chose the
strategy _____
because _____.

I checked my
answer by
_____.

I know my
answer is
reasonable
because _____.

First I _____,
then I _____,
finally I _____

Retake Data	Percent
Students who have completed a retake this school year	0.95
Retakes that have resulted in a score increase	0.92

Course Pass Percentage Data	Percent
2020-2021	0.9
2021-2022	0.98

Student Attitude About Mathematics (All Students)	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
September 2021- I am good at math	0.18	0.32	0.27	0.18	0.05
September 2021- I like math	0.26	0.22	0.28	0.19	0.05
September 2021- I know how to get better at math	0.12	0.34	0.22	0.16	0.16

March 2021 - I am good at math	0.03	0.14	0.25	0.44	0.14
March 2021- I like math	0.07	0.26	0.28	0.3	0.09
March 2021- I am better at math now that I was at the beginning of the school year	0	0	0.16	0.47	0.37
March 2021- I know how to get better at math	0.05	0.02	0.14	0.37	0.42

Beginning of the Year	Not Confident	Somewhat Confident	Confident	Very Confident
I can write explanations of my work	0.23	0.56	0.18	0.03
I can write justifications of my work	0.74	0.21	0.05	0

End of Semester One	Not Confident	Somewhat Confident	Confident	Very Confident
I can write explanations of my work	0.04	0.18	0.53	0.25 (+.22)
I can write justifications of my work	0.08	0.24	0.47	0.21 (+.21)

I can participate in mathematical discussions	0.12	0.42	0.29	0.17
I can use mathematical vocabulary correctly	0.16	0.55	0.23	0.06
End of Semester One	Not Confident	Somewhat Confident	Confident	Very Confident
I can participate in mathematical discussions	0.05	0.16	0.5	0.29 (+.12)
I can use mathematical vocabulary correctly	0.12	0.21	0.45	0.22 (+.16)

Year Three - Expand/Refine

- ❑ Grading Scale - 100% Assessment
- ❑ Updated rubric
- ❑ Student training
- ❑ Communicate to parents
- ❑ Sharing with colleagues

Rubric 3.0

0

No attempt

1

Incorrect or incomplete
answer.
Little to no work is
shown.

1.5

Incorrect or incomplete
answer. Work is shown.
**Problem solving
error.**

2

Correct answer with
little or no work shown.

2.5

Incorrect or incomplete
answer with **precision
errors.**
Work is shown.

3

Correct answer.
Work is complete.

3.5

Correct answer. Work is
complete. Steps
explained in **complete
sentences using
required vocabulary
terms.**

4

Correct answer. Work is
clear and complete.
Solution is justified and
explained in **complete
sentences using
required vocabulary
terms.**

Student Training Day

- ❑ Why proficiency grading?
- ❑ Rubric overview
- ❑ Types of errors
- ❑ Explanation vs. justification
- ❑ Grading sample work in groups (calibrate!)
- ❑ Editing sample work (using sentence stems)
- ❑ Gradebook set-up
- ❑ Scenario practice

Dear parents/guardians,

Happy new school year! Your child is enrolled in one of my high school math classes this school year and I'm very excited for the chance to be their teacher! I am sending this letter home to let you know how grades will be calculated in high school mathematics courses this year.

I grade using a proficiency model in which I track student mastery of essential math skills. Students will be assessed on each skill through an assessment and/or project. They will receive a score of 0-4 on each essential skill based on their level of mastery. Students have gone through a rubric training so they understand exactly what is expected of them. The rubric is below:

0 No attempt	1 Incorrect or incomplete answer. Little to no work is shown.	1.5 Incorrect or incomplete answer. Work is shown. Problem solving error.	2 Correct answer with little or no work shown.
2.5 Incorrect or incomplete answer with precision errors . Work is shown.	3 Correct answer. Work is complete.	3.5 Correct answer. Work is complete. Steps explained in complete sentences using required vocabulary terms.	4 Correct answer. Work is clear and complete. Solution is explained and justified in complete sentences using required vocabulary terms.

Score	Mark	9/6/2022...	9/11/2022 through 9/17/2022				9/18/2022 through 9/24/2022				9/25/2022 through 10/1/2022				
		Proficiency Training due: 9/8/22, max: 10.00, pts: 10.00 In-Class	Interval WB... due: 9/13, max: 10.00, pts: 10.00 In-Class	WB Review due: 9/13, max: 10.00, pts: 10.00 In-Class	Interval Worksheet due: 9/15, max: 10.00, pts: 10.00 In-Class	Ordered Pairs... due: 9/19, max: 10.00, pts: 10.00 In-Class	Domain and... due: 9/21, max: 10.00, pts: 10.00 In-Class	Functions Boom... due: 9/21, max: 10.00, pts: 10.00 In-Class	Review Worksheet due: 9/23, max: 10.00, pts: 10.00 In-Class	1-1 I can represen... due: 9/27, max: 4.00, pts: 4.00 Assessm	1-2 I can determi... due: 9/27, max: 4.00, pts: 4.00 Assessm	1-3 I can determi... due: 9/27, max: 4.00, pts: 4.00 Assessm	1-4 I can graph a... due: 9/27, max: 4.00, pts: 4.00 Assessm	Test 1-1 Correction due: 9/29, max: 10.00, pts: 10.00 In-Class	
83.3%	B		10	10	10	5	10	10	10	4	2.5	4	3.5	10	
85.4%	B	10	10	10	10	10	10	10	10	4	4	3.5	2.5	10	
62.5%	D	10	10	10	10	5	10	10	10	2.5	1.5	3	1.5	5	
29.2%	F	10	10	10	10	10	10	10	10	2.5	1.5	1.5	1.5	5	
47.9%	F	10	0	0	10	10	10	0	0	2.5	2.5	0	1	0	
100%	A	10	10	10	10	10	10	10	10	4	4	4	4		
93.8%	A	10	10	10	10	10	10	10	10	4	4	4	4	10	
93.8%	A	10	10	10	10	10	10	10	10	4	4	4	4	10	
75%	C	10	10	10	10	10	10	10	10	4	2.5	2.5	2.5	10	
100%	A	10	10	10	10	10	10	10	10	4	4	4	4	10	

I Can Standards	Not Yet Proficient	Proficient	Mastered
I can determine if a relation is a function or a one-to-one function when given an equation, table or graph			
I can explain the meaning of functions that represent real-world situations			
I can evaluate and solve functions when given a graph, equation, or a real-world problem			
I can identify and describe all nine basic parent functions and their key attributes			
I can determine the domain and range of functions and write them as inequalities and in interval notation			
I can evaluate piecewise functions			
I can graph piecewise functions			
I can write an equation for a piecewise function when given a graph			
I can determine the AROC from a table, graph or equation			
I can describe attributes of a function from its graph			
I can evaluate composite functions when given a graph, table, or equation			

Bringing this to your school

- ❑ Step 1 - Grading Principles Discussions
- ❑ Step 2 - Write "I Cans" (Objectives)
- ❑ Step 3 - Create Rubrics
- ❑ Step 4 - Align Assessments
- ❑ Step 5 - Create New Grading Policy

Step 1: Discussions

- ❑ What does a grade in your class represent?
- ❑ What is the difference between an A student and a C student in your class?
- ❑ Is your grading policy equitable? How do you know?
- ❑ Is your grading policy transparent? How do you know?
- ❑ Are your grades based on compliance?

Step 2: "I Cans"

- ❑ Determine **essential skills**
 - ❑ State-standards
 - ❑ Curriculum
- ❑ Write in kid-friendly language "I Can..."
- ❑ What exactly should they be able to **do**
- ❑ Think about depth of knowledge

Step 3: Rubric

- ❑ 0 - 4 Scale
- ❑ Standard rubric or individualized per "I Can"
- ❑ Must be clear and concise
- ❑ Write "4" first
- ❑ Test, Adapt, Test Again
- ❑ Calibrate scoring!

Step 4: Assessments

- ❑ Assess each standard separately
- ❑ Build in prompts for students
- ❑ Rubric for each question
- ❑ Create variations for retakes
- ❑ Think about depth of knowledge
- ❑ Pull questions from SBAC, performance a tasks

Recommendations

- ❑ Commit to a 5 year roll-out
- ❑ Start with a small, passionate group
- ❑ Don't rush pre-work
- ❑ One class at a time
- ❑ You must train students
- ❑ Consistency

How I can help

- ❑ Come visit my classroom
- ❑ Training on:
 - ❑ Writing “I Can” Statements
 - ❑ Making Rubrics
 - ❑ Aligning Assessments
 - ❑ Classroom systems
- ❑ Resources

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Your Turn!

