

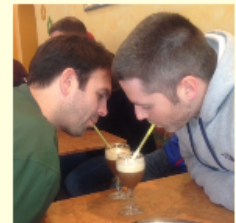
Flip it



Blend it



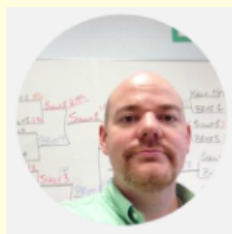
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[www.FlippedMath.com](http://www.FlippedMath.com)

# Department of Defense Dependent Schools

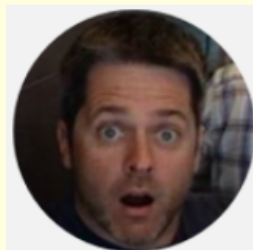
Flipped Mastery since 2010



"Common Core-y"  
Sullivan  
Kaiserlautern HS



Algebra



Mike Brust  
Ramstein HS



Geometry



Tim Kelly  
Baumholder HS



Algebra 2



Precalculus



## Flipped Learning

Direct instruction is  
done outside of class.

Versus

## Flipped Mastery

Individual instruction,  
progression based on mastery.



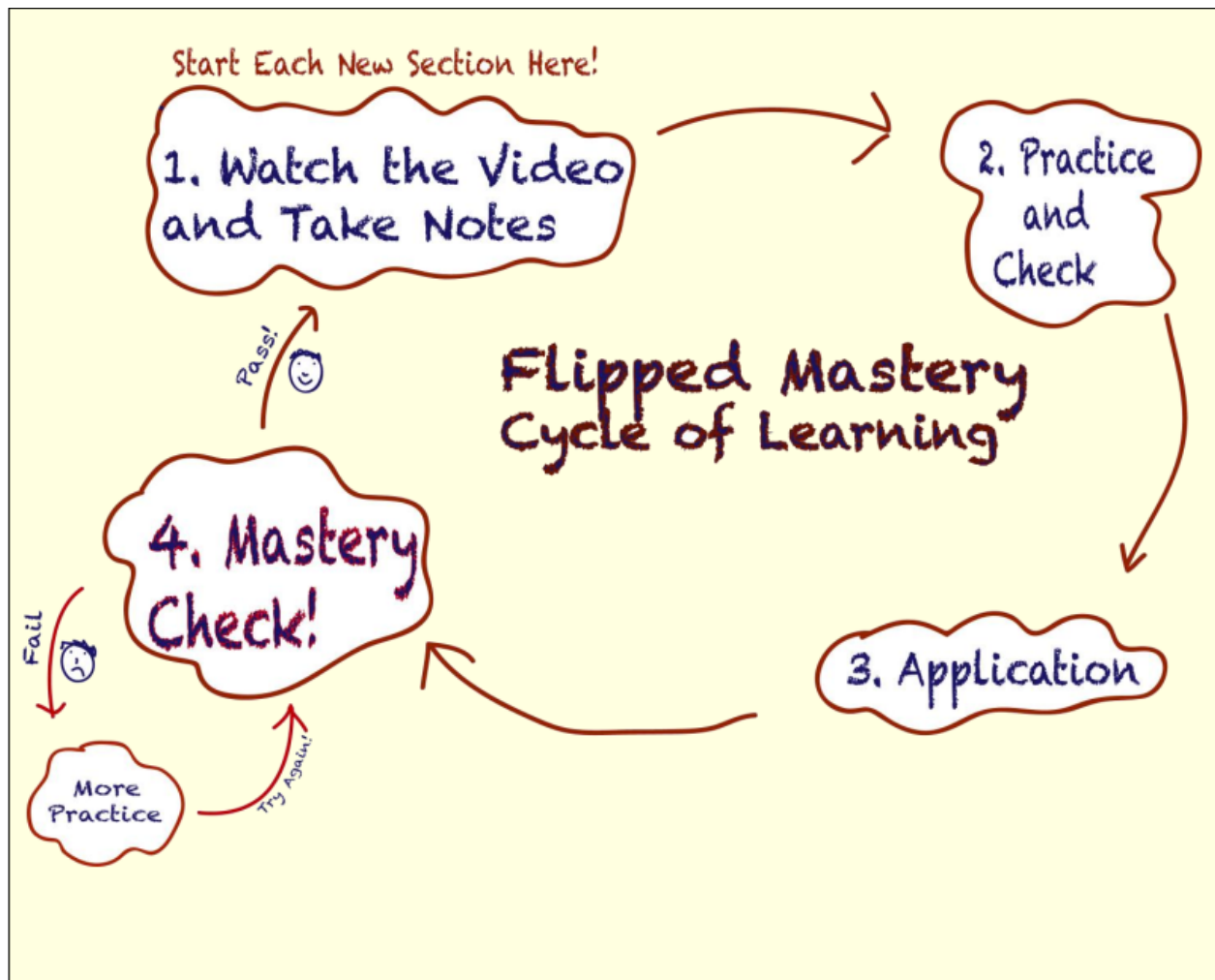
# "Mastery"

A	B	C	D	E	F	average
4	5	8	8	2	6	55
9	9	10	10	10	9	95
6	3	7	9.5	10	6	73
4	4	8	8	2	6	53
5	5	2	2	10	4	47
7	7	6	10	10	6	77
10	9	10	9	10	10	97
10	9	10	7	10	10	93
7	8	9	8	6	10	80
5	8	7	7	6	8	68
7	6	3	10	4	9	65
9	8	6	8	10	9	83
8	6	8	9.5	8	10	83
4	10	1	8	2	9	57
9	5	9	10	8	6	78
7	5	10	6	10	8	77
8	7	8	7	0	2	53
10	10	10	10	10	10	100
10	7	8	9	10	10	90
9	5	7	6	4	10	68
10	7	10	8	8	10	88
10	5	7.5	9	10	10	86
10	5	9	9	10	10	88
10	9	9	4	10	10	87
8	3	7	9.5	8	8	76

# "Mastery" Re-Test

A	B	C	D	E	F	average	diff
4	5	8	8	7	6	63	8.3
9	9	10	10	10	9	95	0.0
10	6	7	9.5	10	7	83	10.0
4	4	8	8	2	6	53	0.0
5	5	2	2	10	4	47	0.0
7	7	6	10	10	6	77	0.0
10	9	10	9	10	10	97	0.0
10	9	10	7	10	10	93	0.0
7	8	9	8	6	10	80	0.0
9	8	7	7	9	8	80	11.7
7	6	3	10	4	9	65	0.0
9	8	6	8	10	9	83	0.0
8	10	8	9.5	8	10	89	6.7
4	10	4	8	2	9	57	0.0
9	5	9	10	8	6	78	0.0
9	9	10	10	10	8	93	16.7
8	7	8	7	9	2	53	0.0
10	10	10	10	10	10	100	0.0
10	10	8	9	10	10	95	5.0
9	6	7	6	4	10	70	1.7
10	9	10	8	8	10	92	3.3
10	7	7.5	9	10	10	89	3.3
10	8	9	9	10	10	93	5.0
10	9	9	4	10	10	87	0.0
8	10	8	9.5	10	8	89	13.3

[illegible]



## Section 6.2 Operations on Complex Numbers

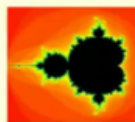
A2.1 Students analyze complex numbers and perform basic operations.

A2.1.1 Define complex numbers and perform basic operations with them.

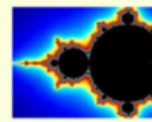
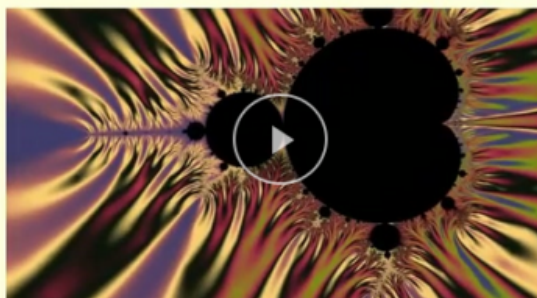
A2.1.2 Demonstrate knowledge of how real and complex numbers are related both arithmetically and graphically.

A2.1.4 Determine rational and complex zeros for quadratic equations

### 6.2 Operations on Complex Numbers



$$z_0 = C$$



$$z_{n+1} = z_n^2 + C$$

flippedmath.com

#### Packet



a2\_6.2\_packet.pdf  
[Download File](#)

#### Practice Solutions



a2\_6.2\_practice\_solutions.pdf  
[Download File](#)

#### Corrective Assignment



a2\_6.2\_ca.pdf  
[Download File](#)

#### Video



a2\_6.2\_video.mp4  
[Download File](#)

## **Blended Class**

- Online delivery of instruction with student control of pace

## **Algebra Blended Class**

- Algebra, Geometry, Algebra 2 in Units 1-12
- Multi-Age, Multi-Level Utopia
- Organized Chaos



## Quarter 3 Grades

Student Name	7.2	7.3	7.4	7.5	Unit 7 Test	8.1	8.2	8.3	8.4	8.5	Unit 8 Test	9.1	9.2	9.3	9.4	Unit 9 test
Algebra Student 1					87						85					78
Algebra Student 2					89						83					81
Algebra Student 3					83						89					
Algebra Student 4					91											
Algebra Student 5					99						90					78
Algebra Student 6																
Algebra Student 7					89						93					
Algebra Student 8					93						89					
Algebra Student 9					94						90					81
Algebra Student 10					73						89					84
Algebra Student 11					79						74					90
Algebra Student 12					81											
Algebra Student 13					73						72					
Algebra Student 14					87											

**CAUTION:** Fluctuating grades need to be addressed!

# "Cher" It



4 Teachers Collaborating

3 Demographically Different Schools

Several hundred students' feedback

# Sharing our...

**T**eacher Group

**I**nclude grades based on learning

**P**repare for FM

- Assessments

- Logistics

**S**upporting Students

- March Mathness

- Saturday Sessions

- Flipped Fridays

- Lab

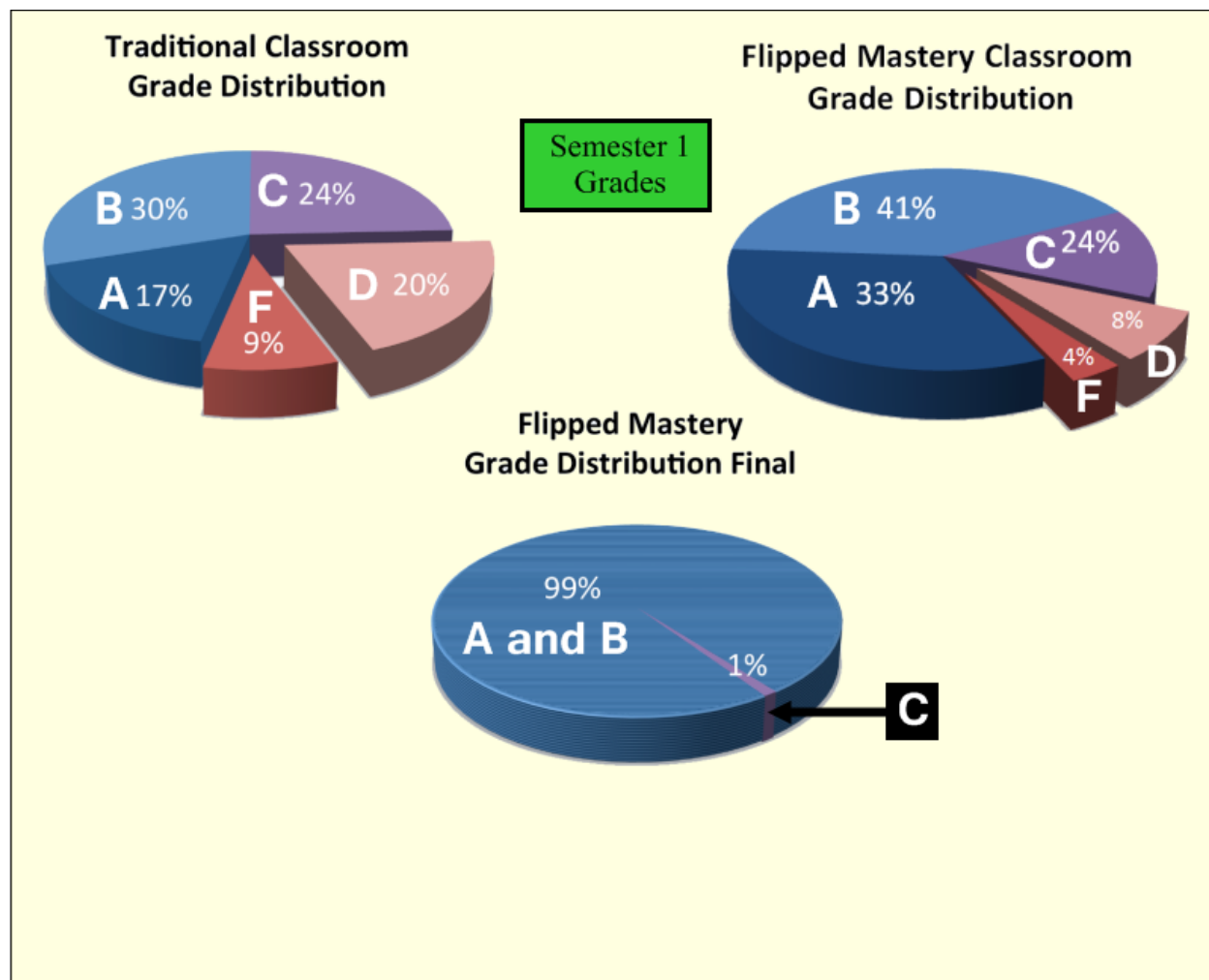
## STUFF WE USE



Questions?

@TheAlgebros





## Local Common Assessment

Flipped Mastery = 84%  
Traditional = 78%

## Standardized Test

### Terra Nova

Combined Results n = 154  
(BMHS, KHS, RHS)

Average NCE 2011	57.24
Average NCE 2012	60.26
Average NCE difference	3.02
P-Value	0.00000611

# Grade Book

## Quarter 3

1	14-Mar
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Minimum Pace

Student Name	7.1	7.2	7.3	7.4	Unit 7	8.1	8.2	8.3	Unit 8	9.1	9.2	9.3	9.4	9.5	Unit 9	10.1
Student 1	1	2	2	1	82	1	1	1	91	1	1	1	1	1	80	
Student 2	1	1	1	1	89	1	1	1	94	1	1	1	1	1	86	1
Student 3	1	1	1	1												
Student 4	2	2	1	1	76	1	1	1	96	1	1	3	1	2	85	1
Student 5	1	1	2	1	97	1	1	1	96	1	1	1	1	1	94	1
Student 6	1	1	1	1	71	1	1	1	92	1	1	1	1	1	72	2
Student 7	3	1	1	1	70	1	2	2	88	1						
Student 8	1	1	2	1	90	1	1	1	93	1	1	1				
Student 9	2	2	3	1	79	1	2	1	81	2	1	1	1	2	80	1
Student 10	1	1	1	1	97	1	2	1	90	2	1	1	1	1	94	1
Student 11	1	2	1	1	82	1	1	1	94	1	1	2	1	1	83	2
Student 12	1	1	1	1	91	1	2	1	92	1	1	1	1			
Student 49	2	3	2	1	72	2	3	4	86	2	2	2	1	2	80	2
Student 50	2	1	2	1	85	1	1	1	92	1	2	1	1	1	72	1

Average 1.4 1.1 1.3 1.2 82.6 1.1 1.3 1.2 91.1 1.3 1.2 1.4 1 1.2 82 1.2

## Impact

- all ability levels
- special education
- support class and services
- parents

	Baumholder HS (Kelly)	Kaiserslautern HS (Sullivan)	Ramstein HS (Brust)
Average NCE 2011	53.28	53.35	61.30
Average NCE 2012	57.59	56.55	64.16
Average NCE difference	+4.31	+3.20	+2.86
P-Value	0.0020	0.0088	0.0316

I

