

## **Growth Mindset Workshop**

FLEX Day 9/27/16

10:20 – 12:30pm

### **Overview**

"Growth Mindset - the idea that we can grow our brain's capacity to learn and to solve problems... There are two ways to think about a problem that's slightly too hard for you to solve. Are you not smart enough to solve it ... or have you just not solved it yet?" From employers, to athletics to education – everyone is talking about how it is important to identify and foster potential talent and not just identify talent. How do we recognize and foster our own potential? Our colleagues? Our students? Research clearly supports that having these discussions and short activities in Growth Mindset makes the difference in whether someone embraces challenge and struggle as an opportunity to learn or gives up.

Come experience and explore how we can do this as individuals and with students.

### **Agenda**

This will be an interactive session that explores the following themes:

- Introduction to Growth Mindset as an Individual
- How can we apply the Growth Mindset philosophy to our jobs at a Community College?
- How can we help students to apply a Growth Mindset to their lives?



**“When You Believe In Yourself  
Your Brain Operates Differently”**

**~ Jo Boaler**

**Flex day presentation on Growth Mindset (9-27-16)**

By Kristy Woods and Paula Schoenecker

**WARM UP with a Sudoku Puzzle**

Puzzle One

		2						
		5	8		2	9		
	8		4	6			3	
9				7		2		6
			9		1			
	6		1					
1	7			5			4	8
2			3	4	6			

Puzzle Two

8				9	3		1	
	4			6				
		6			8	7		9
		4		7		8		
	6				2			
1	2		6			4		
	8	9				5		
							3	
	3		1					7

## Basics for Solving a Sudoku Puzzle

- Puzzles are divided into 9 rows, 9 columns, and 9 regions. Regions are 3 x 3 squares that are usually bolded. There are three top group regions, three middle group regions and three bottom group regions.

4	1			7				5
	8				6		9	
			5					
		7	4		1	3		
5	3						1	2
		4	3		8	7		
					4			
	9		8				7	
7				6			2	8

- **Sudoku rules:** You are using only the numbers 1-9. Each number can only appear once in each row, once in each column, and once in each region square. *Complete the Sudoku puzzle so that each and every row, column, and region contains the numbers one through nine only once.* There is only one solution to a well-designed Sudoku puzzle.
- **How do you start?** You can start wherever you want. I will just describe what I do. First, I scan the top 3 regions, looking for any common numbers. In the puzzle above, there is the number 5 in both the center and the right hand region. In the center, the 5 is in the bottom row, while in the right region, 5 is in the top row. This tells me that in the left region, the 5 has to be in the center row. Second, I notice that there are two spots that are empty and possible spots for my center 5. However, closer examination shows me that there is already the number 5 in the first column (in what I will call region 4). This is the left region in the middle. So my 5 can't go into the first column. It has to go in the third column. That is—I will place the 5 in the first region (top group), center row (2<sup>nd</sup> row), and 3<sup>rd</sup> column.

Now I will scan the three regions in the center group, also looking for pairs. I notice that there are already all 3 number 3s in this group. Consider that a bonus. I also see that

there are already two 4s and two 7s. You can easily place the 4 by following the strategy I used above. However, the 7 that needs to go in the center region and the center row can go on either the left cell or the right cell of that row. The center column already has a number 7 in it. You can leave those cells blank for a while longer, or you can pencil in little 7s to show where the number will eventually go.

Repeat the same process for the bottom group of regions.

- **Now what?** You can follow the same process as above. However, this time, compare the three regions from top to bottom on the left side, then the middle, then the right side. (If I were numbering the regions, I would call them regions 1, 4, and 7, then 2, 5 and 8, and finally 3, 6, and 9. In the puzzle above there are two 4s (region 1 and 4) and two 7s on the left. There are two 4, two 6s and two 8s in the middle group of regions. Lastly, there are two 2s and two 7s in the right column of regions.
- **Next step?** On an easy puzzle, this should fill in quite a bit. Now, I would find rows, columns or regions that have all but 2-3 cells filled in. By counting the numbers you already have you can quickly figure out what is missing. By using the Sudoku rule, you can usually fill in more.
- **Finally.** As puzzles get more difficult, you will need more strategies, but time and practice will soon allow you to “see” possibilities you didn’t see before. There will be times you have to figure out patterns of sequence like, what will happen two steps from now if I put this number here now. There are lots of strategies on the web, so relax and

HAVE FUN!!



**Reflection:  
How your Brain Learns**

Name: \_\_\_\_\_

In small groups, summarize how everyone in your group learned their different skills or subjects. Create a table with this information.

Summarize: How did you learn?	How do you KNOW your skill well?

What kind of different things can you do when you are trying to understand something?

What can you do if you STRUGGLE?

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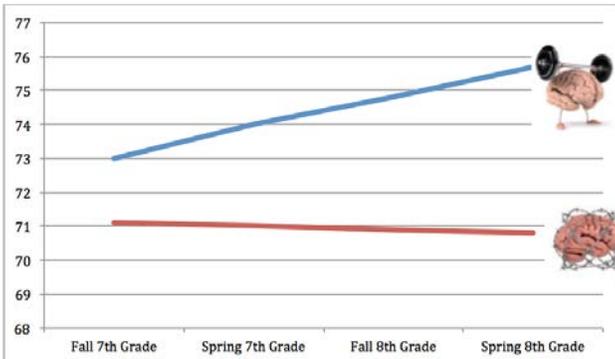
There are many strategies you can incorporate to help you succeed in learning a new physical skill or subject!  
The more you know about yourself as a learner, the better you will be able to capitalize on your strengths and learn from your weaknesses!

## Reflection: How your Brain Learns

Name: \_\_\_\_\_

### Mindsets

Research has shown that everyone has a mindset, a core belief about how they learn. People with a growth mindset are those who believe that smartness increases with hard work, whereas those with a fixed mindset believe that you can learn things but you can't change your basic level of intelligence. Mindsets are critically important because they lead to different learning behaviors, which in turn create different learning outcomes. When people change their mindsets and start to believe that they can learn to high levels, they change their learning pathways and achieve at higher levels.



### ***Growth mindset MATTERS!***

In one study, seventh-grade students were given a survey to measure their mindset. Over two years researchers monitored their success in math. Dramatic results! The achievement of the students with a fixed mindset stayed constant, but the achievement of those with a growth mindset went onward and upward.

***Students with a fixed mindset are more likely to give up easily, whereas students with a growth mindset are persistent and keep going even when work is hard.***

***Adapt a Growth Mindset NOW!***

*Want to know more?! This information and more can be found on [www.youcubed.org](http://www.youcubed.org)*

## DEVELOPING A **GROWTH MINDSET**

<b>INSTEAD OF.....</b>	<b>TRY THINKING....</b>
I'm not good at this	What am I missing?
I give up	I'll use a different strategy
It's good enough	Is this really my best work?
I can't make this any better	I can always improve
This is too hard	This may take some time
I made a mistake	Mistakes help me to learn
I just can't do this	I am going to train my brain
I'll never be that smart	I will learn how to do this
Plan A didn't work	There's always Plan B
My friend can do it	I will learn from them

# Fixed Mindset vs. Growth Mindset

Based on the work of Dr. Carol Dweck

I believe that my **[Intelligence, Personality, Character]** is inherent and static. Locked-down or fixed. My potential is determined at birth. It doesn't change.

I believe that my **[Intelligence, Personality, Character]** can be continuously developed. My true potential is unknown and unknowable.

Fixed Mindset



Avoid failure  
Desire to Look smart  
Avoids challenges  
Stick to what they know  
Feedback and criticism is personal  
They don't change or improve

Growth Mindset



Desire continuous learning  
Confront uncertainties.  
Embracing challenges  
Not afraid to fail  
Put lots of effort to learn  
Feedback is about current capabilities

<https://thecollegiatecall.wordpress.com/2015/09/22/fixed-vs-growth-mindset/>

## 10 Growth Mindset Statements



What can I say to myself?

INSTEAD OF:

I'm not good at this.  
I'm awesome at this.  
I give up.  
This is too hard.  
I can't make this any better.  
I just can't do Math.  
I made a mistake.  
She's so smart. I will never be that smart.  
It's good enough.  
Plan "A" didn't work.

TRY THINKING:

- 
- 1 What am I missing?
  - 2 I'm on the right track.
  - 3 I'll use some of the strategies we've learned.
  - 4 This may take some time and effort.
  - 5 I can always improve so I'll keep trying.
  - 6 I'm going to train my brain in Math.
  - 7 Mistakes help me to learn better.
  - 8 I'm going to figure out how she does it.
  - 9 Is it really my best work?
  - 10 Good thing the alphabet has 25 more letters!

## Growth Mindset In Our Jobs

Name: \_\_\_\_\_

**Scenario:** Your supervisor calls a staff meeting. She seems rather agitated and informs everyone that the department just had an audit from the state and we are out of compliance with the way we report on several mandates. She has identified three projects that will help your program get back in line with what is expected. She is looking for each of you to take on a project to make progress more quickly.

One project is similar to a task that you already perform and shouldn't take too long.

The second project is out of your comfort zone, but your supervisor assures you that you will receive complete instructions on how to proceed.

The last one is the most important, but you have never done anything like it before and it involves tasks outside of your comfort zone. It will take you a long time to complete and you will probably mess things up at first. However, your supervisor seems like she would be very appreciative of whomever takes on this assignment.

In this scenario you are guaranteed to get whichever project you choose; however, we can't assure you that you will succeed.

**Which one do you choose and why?**

### **How do you feel?**

Now that you have chosen, how do you feel?

Are you calm?

Do you feel confident?

Are you nervous, but excited?

Are you afraid?

Do you feel put upon?

## Growth Mindset In Our Jobs

Name: \_\_\_\_\_

Before we move on, do you think that your choice and thought process reflect a fixed or a growth mindset?

Fixed Mindset	Characteristic	Growth Mindset
Set. You have what you have	<b>SKILL/INTELLIGENCE</b>	Can be grown/developed
How they look – Performance focused	<b>MAIN CONCERN</b>	Learning-Getting better Process Focus
Something you do when you are not good	<b>EFFORT</b>	A necessary part of learning
Avoid- easily give up	<b>CHALLENGES</b>	Persevere-work through it Embrace it
Take it personal / Get Defensive	<b>FEEDBACK</b>	Use it to learn. Crave it
Try to avoid making them. See them as a personal failure.	<b>MISTAKES</b>	Treat them as a learning opportunity
Feel jealous. Look for fault in the other	<b>SUCCESS OF OTHERS</b>	Genuinely happy for the other. Ask for their advice.

**The previous information is from the website [trainugly.com](http://trainugly.com)**

Learning is ugly. Learning is hard.  
Learning involves some stumbles, mistakes and failures.  
Learning happens in the wild  
People equipped with a true growth mindset are able to deal  
with the struggle and difficulty of real learning.  
People with a fixed mindset are not.

**Check out the following link:**

<http://trainugly.com/the-growth-mindset-matrix/>

# Reflection: Your Struggle

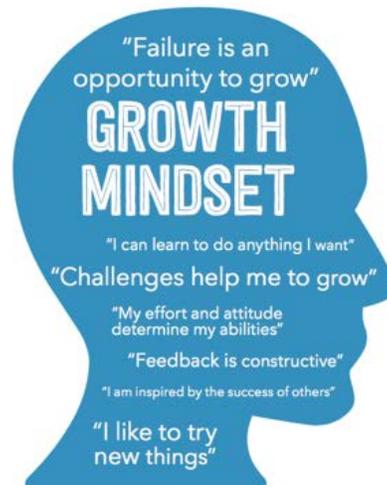
Name: \_\_\_\_\_

What is something YOU are struggling with right now? (Where are you fixed in your mindset?)



Key to having a Growth Mindset is to believe that with time, effort and good strategies, your ability to do something will grow and change.

What are some ways you can change your fixed mindset into a growth mindset around this struggle?





## How can we help students to apply a Growth Mindset to their lives?

**Embedding Growth Mindset into a Classroom is most effective when paired with...**

- **Brain Research** on how we learn - it is not a belief that your brain grows, it is a FACT.
- **Study Skills** - what are the best ways to maximize your effort and time to learn the material effectively?
- **Habits of Mind** – related to students’ academic dispositions and attitudes **FREE** 3CSN workshop at LPC January Friday, 1/27 12:30 - 4:00pm. **Tickets are free and need to be reserved individually by clicking on this link:**  
<https://homatlaspositascollege.eventbrite.com>
- **Hope** – goals, willpower (motivation) and way power (strategies/plans)

**EVERYONE can have access to a Blackboard course “Growth Mindset”.**

**Included:**

- Summary of “What is Growth Mindset”
- Images that illustrate the theory
- Research and Resources
- Growth Mindset Framing Document
- Growth Mindset Feedback and Grading Practices

**Also provided in this handout are PILOT DOCUMENTS that the Math Department has collaborated on, in an attempt to infuse math courses with Growth Mindset theory.**

## Growth Mindset Framing

Taken from “Mindset Works” [www.mindsetworks.com](http://www.mindsetworks.com)

*In order to create a “risk-free” classroom environment where all students are willing to take on challenges and push themselves, it is important to make the focus on learning clear, make it safe to risk mistakes, and communicate a high confidence in all students’ ability to rise to the learning challenges. Use the following statements when introducing a new topic, concept, skill, or assignment in class:*

### For Communicating a Learning Goal

- New material is an opportunity to stretch!
- Today’s learning objective will give everyone an opportunity to stretch.
- Today, your brain will get stronger.
- I am hoping that you all do not know this already; I wouldn’t want to waste your time!
- I really want us to stretch beyond our comfort zone on this!
- After you do this, I’m going to ask everyone to share one mistake so we can learn from it.
- I’d like everyone to share one thing that is really confusing with their partner.
- The point of the lesson is learning; I want to know what parts are unclear so we can all meet our learning target.
- Today’s target for learning is . By tomorrow our goal is .
- I do not expect you to know this already. I am here to help you learn challenging material.
- Today, I want you to challenge yourself. stretch to learn this challenging material.
- This is very dense reading/challenging material. I am not going to hold you accountable for understanding all of it right away, but I want you to give it a first try.
- This is just the first draft—you’ll have lots of chance to improve it.
- I want you to push yourselves to tackle this concept.
- You won’t be graded on this—it’s a risk-free zone!
- We’re in the learning zone today. Mistakes are our friends!

### For Communicating High Expectations

- I **know** that you (all) have the ability to do this, so I have set the bar high.
- This will be a challenging concept to learn, but all of us can reach the goal.
- Be sure to communicate with me about your progress so I can provide support to you.
- I am going to push you all because I know if I do you will all do amazing work!
- Our classroom is a place for everyone to learn challenging material. I am here to help you meet that goal.
- This is challenging, but rewarding!
- This may be difficult right now, but you will remember it for the rest of your life.
- When you master this learning, you can be proud because this isn’t easy.
- Here is my challenge for you. I know you can meet it. I want you to challenge yourself.
- As you learn this, mistakes are expected. Your mistakes help me support you. Let’s make mistakes together!
- I have seen you stretch and succeed in the past. Let’s do it again.

## Math 107: What are Mindsets?!

Name: \_\_\_\_\_



According to recent research by Carol Dweck at Stanford University, there are two types of students. Both types may show a lot of promise at first, but only one of the types typically goes on to achieve impressive results in their lives. The other type tends to achieve less and less over time.

What are these two types of students? Those with a fixed mindset, and those with a growth mindset.

**Go to the following website and answer these questions:**

<http://www.londonacademyofit.co.uk/learning-blog/learning/interactive-quiz-fixed-vs-growth-mindset/>

**What happens to a student with a fixed mindset?**

**What happens to a student with a growth mindset?**

"You're in charge of your mind. You can help it grow by using it in the right way." —*Carol Dweck, Mindset: The New Psychology of Success*

**Take the interactive test below to get started.**

<http://www.londonacademyofit.co.uk/learning-blog/learning/interactive-quiz-fixed-vs-growth-mindset/>

**What mindset are you? Did this surprise you?**

**This semester we will focus on developing a growth mindset around math, giving you the tools and resources you need to achieve your academic goals!**



# What do successful math students do?

**Effort + Good Strategies + Help from Others =  
INTELLIGENT PRACTICES**

**Productive Struggle + Intelligent Practices = SUCCESS**

Successful students know that when they are struggling, they are *learning*. To help you *productively struggle*, there are lots of FREE RESOURCES on campus to help you achieve your math goal!!

## **Tutorial Center, Room 2401**

The Tutorial Center in Building 2400 offers free one-on-one and group tutoring for all LPC math students. You can sign up to meet with a tutor regularly each week – a great way to get individualized attention and have someone continually monitor your progress! Make sure you sign up for a tutor at the beginning of the semester, as they can go fast!!

## **Open Math Lab, Room 601**

The Open Math Lab in Room 601 offers free drop-in, just in time assistance for all LPC math students. In this Open Math Lab you can receive help from a math faculty member. Students are encouraged to meet up with their fellow classmates and work together in the lab, asking for assistance when needed. The Math Department has provided lab assistance because we believe that the learning of mathematics is easier with the help of your instructors and fellow students.

**LAB HOURS**

DAY	Open Math Lab Hours
<b>Monday</b>	9:00 a.m. - 8:00 p.m.
<b>Tuesday</b>	9:00 a.m. - 8:00 p.m.
<b>Wednesday</b>	9:00 a.m. - 8:00 p.m.
<b>Thursday</b>	9:00 a.m. - 8:00 p.m.
<b>Friday</b>	9:00 a.m. - 12:00 noon

## **Your Math Instructor**

Math Faculty members have office hours specifically to give us a chance to get provide you with assistance in a more personalized way than class time can allow. We encourage you to approach your instructor during office hours and ask questions on a regular basis.

## **Your Fellow Students!**

90% of what you talk about you remember – so form a study group and support each other!

## Reflection: Mindsets

Name: \_\_\_\_\_

**Scenario:** Kameryn's day went from bad to worse. Her math teacher surprised the class with a quiz on material she was shaky on and she could not understand how to do 5 of the problems. She then left class frustrated, returned to her car only to find out she had a parking ticket because the parking pass had fallen onto the car floor. She called her friend to vent and her friend did not seem to listen or sympathize.

**How would a FIXED Mindset respond to this scenario?**

Fixed Mindset reaction to the math quiz:

Fixed Mindset reaction to the parking ticket:

Fixed Mindset reaction to her friend not seeming to listen or sympathize:

## Reflection: Mindsets

Name: \_\_\_\_\_

**How would a GROWTH Mindset respond to this scenario?**

Growth Mindset reaction to the math quiz:

Growth Mindset reaction to the parking ticket:

Growth Mindset reaction to her friend not seeming to listen or sympathize:

### DEVELOPING A **GROWTH MINDSET**

<b>INSTEAD OF.....</b>	<b>TRY THINKING....</b>
I'm not good at this	What am I missing?
I give up	I'll use a different strategy
It's good enough	Is this really my best work?
I can't make this any better	I can always improve
This is too hard	This may take some time
I made a mistake	Mistakes help me to learn
I just can't do this	I am going to train my brain
I'll never be that smart	I will learn how to do this
Plan A didn't work	There's always Plan B
My friend can do it	I will learn from them

## Reflection: Mindsets

Name: \_\_\_\_\_

**Scenario:** Henry is overwhelmed. His math teacher does not give any make up quizzes. One is announced for Wednesday, but Henry's work called and is making him come in that day or he loses his job.

**How would a FIXED Mindset respond to this scenario?**

Fixed Mindset reaction to the math quiz:

Fixed Mindset reaction to the job:

Fixed Mindset reaction to communicating around this situation:

## Reflection: Mindsets

Name: \_\_\_\_\_

**How would a GROWTH Mindset respond to this scenario?**

Growth Mindset reaction to the math quiz:

Growth Mindset reaction to the job:

Growth Mindset reaction to communicating around this situation:

### DEVELOPING A **GROWTH MINDSET**

<b>INSTEAD OF.....</b>	<b>TRY THINKING....</b>
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## Reflection: Time Management

Name: \_\_\_\_\_

**Scenario:** Zeke is stressed! He signed up for 12 units at Las Positas this semester. He also is supporting himself and is working at a local business a minimum of 30 hours a week. He is having a hard time keeping up with his school work, his job and his social life.

Zeke's Reality:	Hours each week
Zeke signed up for 12 units at LPC. This equates to 12 hours of class time each week.	12 hours in class
<u>Learning takes time</u> and it is assumed that for every hour in class, there are 2 to 3 hours of study and work <i>outside</i> of class in order to realize your potential to be successful in that class. It is known as the 2:1 ratio. This includes time for reading assignments, library research, homework assignments, writing essays and study groups. (Note: if you are enrolled in math, English or science classes increase the study time to 3 hours!) <b>How many learning hours does Zeke need to set aside each week?</b>	_____ hours learning
Zeke's job has him working a minimum of 30 hours each week	_____ hours working
Sleep and necessities of living	_____ hours
Social life	_____ hours
Zeke's total hours each week	_____ <b>total</b>
<b>Actual hours in a week</b>	<b>168 actual hours</b>

It sounds like Zeke is going to have a BUSY semester – there are reasons as to why he is stressed! Zeke wants to remain a full time student but also still needs to support himself. **How could Zeke approach his situation using GROWTH Mindset theory?**

### DEVELOPING A **GROWTH MINDSET**

INSTEAD OF.....	TRY THINKING....
I'm not good at this	What am I missing?
I give up	I'll use a different strategy
It's good enough	Is this really my best work?
I can't make this any better	I can always improve
This is too hard	This may take some time
I made a mistake	Mistakes help me to learn
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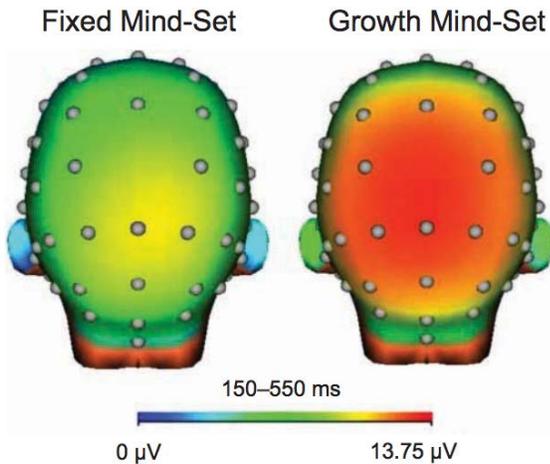
www.thinkinglink.com/scene/683845185515290625

# Math Lab Assignment Exam Corrections

Name: \_\_\_\_\_

From Stanford University: <https://www.youcubed.org/think-it-up/believe-brain-operates-differently/>

An important study showing the relationship between our beliefs and our brain activity found that when people with a growth mindset made a mistake, they experienced more brain activity than those with a fixed mindset. The brains of people who believed in their ability to improve acted differently when a mistake was made than the brains of those who did not. The study also found that individuals with a growth mindset had a greater awareness of errors than individuals with a fixed mindset, so they were more likely to go back and correct their mistakes.



These two brain images are voltage maps showing the activity in the brains of those with a growth and fixed mindset. The darker color of the growth mindset brains reflects the greater activity in the brain with more intensity and attention to error.

The relationship between our beliefs and the operation of our brains is clearly profound. If you believe in yourself, and do not think that your ability is fixed, your brain is more likely to spark and grow when mistakes are made.

The fact that brain activity is most intense when people have a growth mindset, shows just how important it is that people believe in themselves and they know that brains can grow and change with hard work.

## Exam Corrections

“The only real mistake is the one from which we learn nothing.” John Powell

You must correct your Exam and explain each step used towards solving the problem on a *separate piece of paper, diving it into two columns as shown below.* Turn in your corrections, explanations AND the original Exam in by the date above. This is worth one Math Lab Assignment Grade.

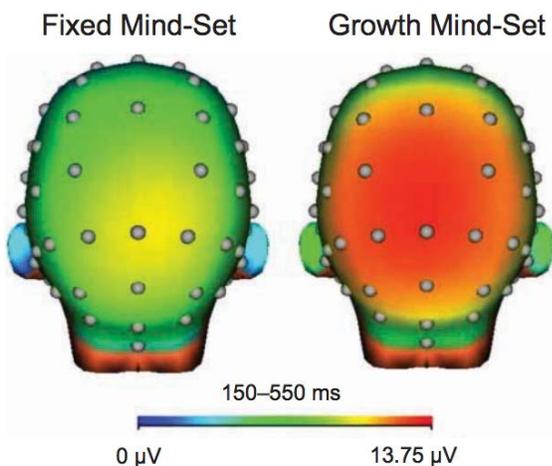
Missed problem from Exam	Explanation of each step used towards solving

# Math Lab Assignment Exam Corrections

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The fact that brain activity is most intense when people have a growth mindset, shows just how important it is that people believe in themselves and they know that brains can grow and change with hard work.

## Exam Corrections

“The only real mistake is the one from which we learn nothing.” John Powell



Since your brain lights up differently when you *verbalize your thinking*, create a video of yourself explaining and working through each of your mistakes. First, correct your Exam and explain each step used towards solving the problem on a *separate piece of paper, creating a script of the step-by-step explanation.* Then use your script to create a video of your thinking. Post the video on YouTube and send me the link. You must also turn in your corrections, explanations AND the original Exam in by the date above. This is worth one Math Lab Assignment Grade.

Missed problem from Exam	Script explanation of each step used towards solving

# Reflection: Your Struggle

Name: \_\_\_\_\_

What is something YOU are struggling with right now? (Where are you fixed in your mindset?)



Key to having a Growth Mindset is to believe that with time, effort and good strategies, your ability to do something will grow and change.

What are some ways you can change your fixed mindset into a growth mindset around this struggle?

