

**The World's Greatest  
Mathematics Teacher**

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*To my religion and mathematics teachers*

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## **Introduction**

Jesus is the world's greatest mathematics teacher. Some may be wondering where in the Bible does Jesus teach mathematics. Others may be thinking that this makes perfect sense because Jesus is all-powerful and can do anything. A few of you might have started to think about how you don't like math, but I hope I can change that view if that is the case. This book will describe characteristics of good mathematics teaching and how these relate to Jesus' ministry on earth. While the Bible does not specifically describe Jesus teaching mathematics, it is beneficial to see how the Christian faith is connected to any God-pleasing career. Through this book, you will learn more about what it takes to teach mathematics well and also grow in your Christian faith through seeing Jesus time on earth in a new perspective.

Take for instance the parable of the unmerciful servant in Matthew 18. Jesus teaches us how we can be motivated to forgive others given that God has forgiven our own sins, which are vast. Jesus also teaches us that mathematics is needed to understand the world. In the

parable, the unmerciful servant is forgiven of a debt of 10,000 talents but then would not forgive someone else that owed him 100 denarii. In this time, one talent equaled 6,000 denarii and one denarii equaled a day's wage. Ten thousand talents would represent 60 million days of work or 240,000 years of labor given a five day work week and two weeks vacation each year. This debt is obviously more than any person could repay.

Similarly, There is nothing that we can do to repay or make right for even one of our sins. It is only through Jesus' blood through His death and resurrection that we are made holy and perfect. Because of this love we should show His love to others and have mercy. The mathematics and the message of this parable are both beautiful.

Mathematics and Christianity have a natural connection. It is no coincidence that the first book to be printed was the Bible and the second book to be printed, The Elements, was by Euclid, the father of Geometry. Before diving into the main characteristics of good mathematics teaching, let's talk about some of the ways that mathematics should be learned.

## **Reasoning over memorization**

First off reasoning should be emphasized over memorization. From an early age students are too often taught to focus on procedures over reasoning. A study was done of 97 first and second graders with results that highlight a lack of reasoning skills. The students were given the following problem. "There are twenty-six sheep and ten goats on a ship. How old is the captain?" Seventy-six of the ninety-seven students tried to solve the problem using the numbers given in the problem. Their reasoning went along the lines of the following. "I could either take  $26 + 10 = 36$  or maybe  $26 - 10 = 16$ . Sixteen seems too young though. I could try to multiply 26 and 10 but that is way too old. Maybe I could do 26 divided by 10, but I don't know how to do that. So it must be  $26 + 10 = 36$  years."<sup>1</sup> While there is some level of reasoning taking place in determining an operation to perform, it does not take into consideration what is being asked.

Another example shows how students become more programmed to experience mathematics in certain ways as they get older in school. In this study the researcher told the

kids the following story. “Mr. Lorenz and three colleagues started at Bielefeld at 9am and drove the 360 kilometers to Frankfurt with a rest stop of 30 minutes.” Notice that there is no question asked. It is just a story. The researcher told this to kindergartners and they said thank you for the story; though it was not that interesting. Next, first graders are told the story. A few of them combine the numbers and provide an answer...to a question that does not exist. Second graders up to sixth graders are given the same story and as the students get older more of them combine numbers and provide an answer.<sup>1</sup> When students are taught to solve math problems without reasoning then students look to do math based on trying to remember procedures. This can lead to procedures being applied at the wrong time or in incorrect ways.

Similarly, Jesus found that the Pharisees had this approach with their faith. They were excellent at memorization of rules and procedures but they did not always have the reasoning skills based on showing God’s love to others. In Matthew 12, the Pharisees get mad when Jesus’ disciples were picking heads of grain to eat on the

Sabbath. Jesus reminds the Pharisees that He is the Lord of the Sabbath. The Pharisees still do not understand and ask Jesus, “Is it lawful to heal on the Sabbath?” Jesus responds, “*It is lawful to do good on the Sabbath.*” He then heals a man who has a shriveled hand. Instead of having joy for the man that was healed, the Pharisees leave and plot how they might kill Jesus.

The Pharisees were incredibly smart and were able to memorize the first five books of the Old Testament with some having the whole Old Testament memorized. However, they were missing the heart knowledge of how God’s love should be shown to others. Jesus showed in every way that He was the Messiah that the Old Testament had promised; but the Pharisees did not believe. In Matthew 9 Jesus forgives the sins of a paralytic, which the Pharisees felt was blasphemy. To show his power further, Jesus then heals the man and the crowd is filled with awe.

In contrast, John the Baptists’ disciples questioned Jesus to find out if He was the Messiah and had faith in Jesus’ words. Jesus had replied to the question, “*Go back and report to John what you have seen and heard: The blind receive*

*sight, the lame walk, those who have leprosy are cured, the deaf hear, the dead are raised, and the good news is preached to the poor.*" Matthew 7:23. Jesus does not come out and directly say that He is the Messiah but based on verses in Isaiah that predicted what the Messiah will do, He is saying, "Yes, I am the Messiah." *The Spirit of the Sovereign Lord is on me, because the Lord has anointed me to preach good news to the poor. He has sent me to bind up the brokenhearted. Isaiah 61:1a In that day the deaf will hear the words of the scroll, and out of gloom and darkness the eyes of the blind will see. Isaiah 29:18.* Still the Pharisees do not believe. It demonstrates the importance of God's love to guide our whole lives.

### **Multiple strategies should be encouraged**

There is a meme, a photo with a funny caption, of a teacher who appears to be pointing at a student. The photo contains the following caption. "All of your answers are right, but you didn't do it the hard way? ZERO POINTS." Often children and students think there is only one right to solve a problem in mathematics.

Two of my friends who are married and are both mathematics educators found this to be the case with their

daughter, Chloe's teacher. Chloe was given a problem,  $(7 + 13)$  to model using a number line. While the problem started with 7, she knew that  $(13 + 7)$  would give her the same answer. So she started on the number line at 13 and made 1 unit hops until she arrived at 20. She did this because she felt she would get tired of making the 1 unit hops if she started at 7. The teacher marked her answer wrong, but in fact she demonstrated greater understanding than what the problem asked for. She knew that addition was commutative, you can add numbers in any order, and still demonstrated how to model an addition problem on the number line. The teacher, parent, or textbook should not be the sole authority on what constitutes "correct" mathematics. Mathematics should involve multiple strategies that can be connected so students can see, like in life, there is often more than one way to approach a problem.

Jesus in Matthew 18 describes how to approach a problem in multiple ways when someone sins against you. First you should approach the person one-on-one and see if the conflict can be resolved. If this does not work then Jesus recommends bringing two or three more people into the

conversation to help. If this does not work then it is recommended to have someone from the church help the person to turn from his or her sin. It is important to note that in our dealings with other as we try to show God's love there are multiple approaches that we can take. However, in our eternal dealings there is only one way to heaven as Jesus stated, *"I am the way and the truth and the life. No one comes to the Father except through me."* John 14:6. Belief in Jesus as our Lord and Savior is the only way to eternal life in heaven.

### **Mathematics is not about speed**

One of the earliest moments in my life that I can remember also happens to be a mathematics memory. In 1<sup>st</sup> grade I remember doing math fact sheets. I would breeze through a sheet and feel great. The teacher always had another one though that would be more difficult that would follow. There was one other student in the class who could keep up with me on the number of sheets that we worked through. It felt like a great challenge between the two of us to see who would be fastest. While I like to think that I understood what I was doing, that is not always the case

when students see mathematics as a version of the Indianapolis 500.

Thinking back now I wonder how the students felt who would get stuck on a fact sheet and saw other students getting further along. I am sure that their math self-efficacy, belief in one's ability to succeed, was lowered. While standardized tests are timed, and students need to get used to this type of testing; timed fact sheets often do more damage than they help.

Stanford University mathematics education researcher Jo Boaler had students write down their thoughts after taking timed math facts tests. Some of the comments included. "I was really nervous." "When I don't do well on the tests, I feel really bad." "I guess I am not that good at math." Students can begin to internalize a feeling of inadequacy and dislike of math from these experiences, which can affect them the rest of their mathematics schooling. If students already are questioning if they can do mathematics, timed fact sheets or tests can only heighten this anxiety. Students can have negative experiences with mathematics that make them give up on mathematics.

Similarly, people can have negative life experiences in general or with the church that turn them away from Christianity. There are great benefits to living life with Jesus, though for some it takes them longer to come to faith. Just like mathematics should not be about speed, faith as well should not be about speed.

When Jesus was on the cross He told one of the thieves hanging on a cross next to him, "Today you shall be with Me in paradise." Earlier in his ministry in Matthew 20, Jesus had also emphasized that it is not too late for someone to repent and come to faith if they are still living.

In Matthew 20, Jesus describes in the parable of the workers in the vineyard how the reward of eternal life in heaven is the same for all who come to faith no matter how long they have believed. In the parable some workers work the whole day while others only work for one hour, but they are all paid the same. Believers know that there is great rejoicing in heaven and on earth for anyone who becomes a Christian. We also know from Philippians 1:6 *being confident of this, that he who began a good work in you will carry it on to completion until the day of Christ Jesus.* This means that those

who have been baptized can trust that God will lead them home to heaven. We also never know when the gospel message will take a hold of someone. Some may need to hear it once to believe, others ten times, some a hundred times. We are to witness to others and trust in the power of God and His Word to instill faith. Christians know that faith in God does not make life have less problems, but we are better equipped, comforted, and empowered to handle anything that life can bring knowing that God is always with us and helping us.

### **Discussion and exploration should be encouraged**

One of the most famous quotes from a mathematics educator is, “Mathematics is not a spectator sport!” Mathematics should not be solely learned by observing someone else do mathematics. In order for mathematics to be learned students must be active participants. They need to get in the game and learn from experience.

Imagine if you went to a week-long tennis camp. The instructor comes out and talks about the fundamentals of tennis and demonstrates effective techniques for different shots and approaches. After he talks for an hour, everyone is

wondering when they are going to be playing tennis and not just listen. However, the instructors tell the campers that for the next week they will just watch tennis and that they will not need their rackets. When they return home they can practice what they have learned. You would imagine that there would be some unhappy campers and parents. I am sure that many campers would not return and the tennis camp would have some very unpleasant ratings on Yelp, a website to rate businesses.

However, when it comes to learning mathematics this is often what students and parents expect. The teacher should explain to students how to do mathematics, the students should take notes, and then practice what they learned at home. While this approach is needed some of the time, if this is the only way that students experience mathematics then they are not really experiencing mathematics. There is an old saying that we remember 10% of what we read, 20% of what we hear, 30% of what we see, 50% of what we see and hear, 70% of what we discuss, 80% of what we experience, and 95% of what we teach others.

Research has shown that when mathematics is learned through discussion and explanation in a structured format then it leads to higher achievement, longer retention, more frequent use of higher level reasoning and meta-cognitive thought, more accurate and creative problem-solving, more willingness to try difficult tasks, more persistence toward reaching a goal, more intrinsic motivation, and greater on-task time.<sup>2</sup> If these sound like good benefits to you, then we can agree discussion and explanations should be a large part of mathematics learning.

Isidor I. Rabi, a Nobel Prize winner in physics, was asked how he became a scientist. Rabi replied that everyday after school his mom would talk to him about his school day. She wasn't so interested in what he had learned, but always asked, "Did you ask a good question today?" Rabi says, "Asking good questions, made me become a scientist." Asking good questions is a valuable part of the learning process and one of the most important abilities to develop in our world is to learn how to learn. Curious, passionate people are self-educators and self-motivators.

Jesus received many questions in his time on earth. The disciples often asked Jesus questions, though we can agree they were not always the greatest questions. Still Jesus discussed with others and often would return a question with a question to make the people think and learn more about their faith in God. Jesus also showed that he valued discussion. Though he already knew it, he wanted to hear what people think first before providing the best response.

In Luke 10 Jesus is asked by an expert in the law, “What must I do to inherit eternal life?” Jesus responds by asking the man what he thinks, “*What is written in the Law?... How do you read it?*” The man responds. “Love the Lord your God with all your heart and with all your soul and with all your strength and with all your mind and love your neighbor as yourself.” Jesus agrees with the response. Then the man questions Jesus further about who is his neighbor. This time Jesus decides to respond with a parable to teach; the well-known story of the good Samaritan. After the parable, Jesus still has a discussion with the man to ask who the neighbor was in the story; the Samaritan that had mercy and helped.

## **Mathematics should foster curiosity**

With the information that is available on the Internet now, curiosity and self-motivation can lead to students advancing their own knowledge and interests more than ever before. It is worthwhile for students to learn and be taught how to use the Internet to help them explore mathematical ideas. It is very natural for them and must be encouraged.

When I work with preservice and practicing teachers on open-ended mathematics problems I emphasize to them that they can use any resources that they have available to them. A few of them will end up using the Internet. However, when I teach 6<sup>th</sup>-8<sup>th</sup> grade students that come to UNLV for Saturday programs that we offer, all of the students will make use of the Internet in order to find answers to their questions. Sometimes students will find useful information that they do not understand and ask for clarification. Other times they are able to get new insights into solving the problem on their own. Through this process they are adding to their groups' knowledge and exploring new information.

Mathematics should lead students to want to learn more mathematics because they see it as interesting and powerful. Parents and teachers need to emphasize to students that it is okay to have incorrect thinking and fail because that is the process that leads to more powerful understanding. Take for example an activity that has students try to determine when a zombie population will reach 10,000 if the initial population is 1,000 and the population grows at 6% per hour. A class could set up the following equation but if students had not worked with natural logarithms yet they would not be able to solve it.

$$10,000 = 1,000(1.06)^x$$

They would have to guess and check by plugging in values for  $x$ . Students might ask, is there a quicker way to do this, and that is when natural logarithms could be discussed with students to help them solve this exponential equation. Through this problem students have explored a relevant exponential problem and have seen the power of how more mathematical knowledge leads to greater understanding.

Former U.S. secretary of state Colin Powell has said, "You know you're a good leader when people follow you

out of curiosity.” I would imagine that many people including Jesus’ disciples wondered what He might do next. Jesus was constantly teaching others and amazing them with His power and love. Like the disciples, the same can be true for all Christians. We follow Christ in our lives and we know He is the best leader ever. We can be curious about the things He has to teach us in our lives and where he will lead us. For example, knowing that God works all things out for our good (Romans 8) my mother always examines everything in life for “the fingerprints of God.” God always has a plan for even the worst of times to work them out for our good. Jesus fosters curiosity because of His power and love.

Zacchaeus, the tax collector, is a prime example of this. He was so curious to see Jesus and find out more about Him that he climbs a sycamore tree to get a better vantage point. Jesus sees him and calls him to come down so he can spend time with him. Zacchaeus becomes a Christian and changes his life as he gives half of his possessions to the poor. Non-Christians today can still be drawn to want to see and know more about Jesus through the lives of Christians.

Christians can live their lives with inner joy and show God's love to others so that non-Christians notice a difference in the way they live their life and want to find out more of the source of this difference.

The rest of this book will dive into characteristics of good mathematics teaching and relate them to Jesus, the master Teacher, and the Christian faith. The characteristics are real world connections, having good content knowledge, using formative assessment to inform teaching, integrating different representations, making quality use of available technology, focusing on vocabulary, and focusing on big ideas.

## **Chapter 1: Real World Connections**

Every effort should be made to convey to children that mathematics is useful in everyday life and develops ways of thinking that are beneficial to any career. The oft-asked question: “When are we ever going to use this?” is something that students should be able to answer while learning or discussing mathematics.

This question is over 2,000 years old; though the first answer was not the best. A student asked Euclid, often called the father of mathematics for his influential work, “When are we ever going to use this?” after being presented with a copy of Euclid’s masterwork, *The Elements*. In response, Euclid told a nearby person, “Give him three pence, since he must make a gain out of what he learns.” Even though this student got a couple pennies for his thoughts, he probably would have liked a better answer instead. Often students are told though, just learn it or you will need to know it because it is on the test. Such responses do not stir an inner passion for mathematics or display the power of mathematical thinking for students’ lives.

Not too surprisingly, Jesus was never asked the question “When I am going to use this?” during his ministry on earth. Jesus’ teaching was always tied into the real world. While there are tests and trials that humans have to endure on earth, there is no final test that we have to cram for in order to get into heaven. The Gospel message, *John 3:16, For God so loved the world that He gave His one and only Son, that whoever believes in Him will not perish but have eternal life*, is inextricably tied to the real world.

### **Realistic**

Mathematics, as well, when taught effectively should be tied to the real world. But real world mathematics is not always realistic. Only in a mathematics problem would one person buy 100 watermelons with no one questioning why. As much as possible mathematics should be realistic and students should be encouraged to draw on their real-world knowledge. One of the leading researchers in mathematics education, Richard Lesh, has numerous publications of mathematics activities that can engage students in what psychology professor Mihaly Csikszentmihalyi proposed as flow: a state of effortless concentration so deep that students

lose their sense of time, of themselves, and of their problems (here referring to the trials of everyday life not mathematics problems). It is this type of mathematics that does not have students counting the minutes until math class is over, but staying after class and rushing into the room the next day. One measure of the sign of good teaching is if the speed at which students enter the room is greater than the speed at which they leave at the end of class.

My own research has built on the work of Richard Lesh and the realistic mathematical modeling activities that he has developed. These activities prepare students with the needed 21<sup>st</sup> century skills and mathematical knowledge to be successful and adaptable in the changing job market. Students develop communication skills, become synthesizers of information, adaptable, and innovative through these activities. In these activities reasoning and justification of mathematical ideas are essential elements as these activities are open-ended and students work for a realistic client. When math is seen as relevant to students then it becomes intrinsically motivating to learn.

For example, which sounds more interesting:

Learning about ratios and proportions or trying to determine the height of the legendary creature Bigfoot from footprints that have been found<sup>1</sup>. What about comparing two data sets by creating dotplots, boxplots, and calculating the mean, median, range, and mean absolute deviation or determining which gold medal winning USA men's basketball team is the best of all time<sup>2</sup>. How about calculating experimental probabilities by performing simulations or exploring the question, "Are humans able to match dogs to their owners better than blind luck?"<sup>3</sup> Each of the contexts described can be used to have students develop the mathematical concepts that are described first.

Jesus had his own set of activities similar to mathematical modeling problems called parables; earthly stories with heavenly meanings. These stories were realistic and were used to teach. Jesus used parables as illustrations because people remember and take to heart illustrations more than if you were to just tell them something. In Luke 8 Jesus tells the parable of the sower. *"A farmer went out to sow his seed. As he was scattering the seed, some fell along the path; it*

*was trampled on, and the birds of the air ate it up. Some fell on rock, and when it came up the plants withered because they had no moisture. Other seed fell among thorns, which grew up with it and choked the plants. Still other seed fell on good soil. It came up and yielded a crop, a hundred times more than was sown” Luke 8: 5-8.*

I would imagine that after hearing this story the disciples talked about it among themselves.

The disciples eventually asked Jesus what this meant. They were familiar most likely with the basics of farming but knew that there was more to the story. Jesus explains that the parable is about the seed being the Word of God and what can be the result of hearing the Word of God. *“Those along the path are the ones who hear, and then the devil comes and takes away the word from their hearts, so that they may not believe and be saved. Those on the rock are the ones who received the word with joy when they hear it, but they have no root. They believe for a while, but in the time of testing they fall away. The seed that fell among thorns stands for those who hear, but as they go on their way they are choked by life’s worries, riches and pleasures, and they do not mature. But the seed on good soil stands for those with*

*a noble and good heart, who hear the word, retain it, and by persevering produce a crop. Luke 8:11-15.*

Jesus' teaching is always relevant because He knows everyone's thoughts, what everyone is going through, and what everyone will face in the future. He knew that there are things in this world that can cause people to fall away from their faith. That is why the importance of reading and retaining God's Word is emphasized. God's Word is powerful and transforming. Through reading the Bible, discussing God's Word with other Christians, and attending church we are able to persevere in our faith until we are called home to our eternal dwelling place in heaven.

### **Culturally Relevant**

I read a grant proposal recently that was focused on students writing their own real world mathematics problems using supported scaffolding. The main topics of the real world problems were sports, music, movies, video games, cell phones, food, social networking, computers, shopping, and television. During Jesus' time, only two out of this list, food and maybe shopping, would have been relevant to the people of that time. As times change,

students become interested in new things and it can be shown how mathematics is integrated with these. The mathematics is still relevant and real, no matter how times change. The parables of Jesus had real world contexts of farming, work, food, banquets, servants, and money. Similarly, while Jesus' parables were tailored to the time when they were written, the message is still real and relevant today.

### **Helpful for Current and Future Life**

When students learn mathematics through the ways that were described in the introduction, then not only is their mathematical knowledge developing but their life skills as well. Mathematical knowledge helps students make sense of the world. Life skills such as communication and teamwork help students make an impact in the world. Both mathematical knowledge and life skills are essential for college. Depending on the career that is pursued, more or less mathematical knowledge is needed, but many people change careers so mathematical knowledge provides options.

The motivation for wanting to make an impact in the world can come from Jesus. God's Word is useful for our current and future life. There is endless wisdom in the Bible for all of life's situations. By staying in God's Word we can grow in our relationship with God and our hearts' and minds' desires and actions will become more inline with Christ's. We know that life will have its ups and downs and that life will not have less troubles or problems because we are Christians. However, the way we face these troubles and trials becomes more manageable with Christ. We know through His strength, He will see us through. There is a great phrase to remember: If God brought you to it, He'll get you through it!

In the grand scheme of things our eternal destination in heaven is where Christians know that our future life will lead. Jesus, in His time on earth, talked often about heaven and Jesus died on a cross to pay for the sins of the world so believers can go to heaven. This gives believers in Jesus great hope, comfort, and joy. In Matthew 13 Jesus gives seven parables about the kingdom of heaven including the parable of the sower, the mustard seed, and the hidden treasure.

Through these parables Jesus teaches that we need to be firmly planted in his Word in order to persevere until we are called to heaven. We need to be aware of negative influences and focus on God's love to guide our lives. We know that at the end of the world, evil will be destroyed. Goodness, holiness, blessedness, perfection, and peace will be hallmarks of heaven. Heaven is a wonderful place, filled with glory and grace. Knowing Jesus and receiving the free gift of eternal life through faith in Jesus is the greatest treasure of all time. We know that our time on earth is just temporary and it will seem like a short nap in comparison to eternal life in heaven.

### **Fun**

Due to increased demands of standardized testing teachers may complain of not having the time to teach in ways that are relevant to students' interests. Helping students pass the test becomes the goal of many teachers instead of helping students learn life skills and have a conceptual and generative mathematical knowledge base that will help for the future. However, having taught in the classroom, I know that it is more than possible to make

mathematics relevant in your teaching and also have time to cover all the needed material. Students need the opportunity to explore, discover, conjecture, explain, discuss, and justify in a mathematics classroom. This can be done through interesting and engaging mathematics that energizes and enlivens students. Mathematics in this sense is like play for our brains.

An example of the fun and power of mathematics is a lesson I taught on dimensional analysis with 9<sup>th</sup> graders in which you convert between different measurement units. In the past my students had asked if they could race me so with this lesson I found the perfect opportunity for a little street racing...on foot. We measured off 100 meters and had students with stopwatches for everyone that wanted to race. It is at these moments when you appreciate that teaching is a great job. A student said, "on your marks, set, go" and we were off. I came out with a quick start, but soon felt my lead being shortened by a student on my left. I went into the reserve tank and took it up a notch to cruise in for the victory though. Back in the classroom we converted our speed from meters per seconds to miles per hour, which is

more familiar for students. We also converted Jamaican Olympic gold medalist Usain Bolt's time in the 100 meters for a comparison as well. Even though my students did not beat me, they had fun and realized another area where they could see math in everyday life.

Teachers can structure classes where students are supported with what they need to focus on learning. At the same time teachers can create a classroom environment in which students have fun, cooperate, have choices with their learning, and see mathematics as intense work with joy. A 2012 Raytheon survey found encouraging news in that 70% of middle school students surveyed said they liked math. However, 44% said they would rather take out the trash than do math homework.<sup>4</sup> In my street racing lesson the students saw how mathematics can be useful and were motivated to work on their homework. If teachers can similarly demonstrate to students how math can be fun and powerful than hopefully more would choose to do their homework first...and then take out the trash because you still can't skip out on chores.

We know that Jesus enjoyed being with people, talking with them and eating with them. After all Jesus' first miracle was turning water into wine at a wedding. Also, Jesus enjoyed a good feast as much as the next person. He enjoyed a lunch at Zacchaeus's house. The parable of the lost son ends with the father throwing a feast and celebration over the son who has returned. Similarly, there is rejoicing in parables when the lost sheep and lost coin are found. Jesus wants Christian to be happy and rejoice! *Rejoice in the Lord always. I will say it again: Rejoice!* Philippians 4:4. And in 1 Thessalonians 5:16-18 as well it states: *Rejoice always, pray continually, give thanks in all circumstances; for this is God's will for you in Christ Jesus.*

Keeping this in mind can help in all situations. Paul was in jail often, but still kept his inner joy in his faith in Jesus. In Acts 16:25 it states: *About midnight Paul and Silas were praying and singing hymns to God, and the other prisoners were listening to them.* In prison they witnessed to other prisoners and the jailer as well. The jailer became a Christian after an earthquake shook the jail but the prisoners did not escape. The jailer thought he would have to kill himself, but

Paul quickly shouted for the man not to harm himself for the prisoners were all there. The next day Paul and Silas were released from prison!

Another similar story involved Theodulph of Orleans who was in prison in 821 A.D. He wrote the song “All Glory, Laud, and Honor” and was singing it while in prison. The King, Louis the Pious, was passing by the prison when he heard the hymn. He ordered Theodulph to be released and for the hymn to be sung on every Palm Sunday.<sup>5</sup> God’s Word is powerful and it can bring great joy no matter what a person’s circumstances.

Jesus’ teaching was and is relevant for our times of trouble, joy or any emotion or experience. In one of my other books, *Wisdom for Life*, I list Bible verses and Christian quotes that are applicable for a range of times including direction, change, comfort, encouragement, love, service, and disappointment.<sup>6</sup> It is comforting and encouraging to know that God’s Word and discussing it with other Christians can provide wisdom and advice for our lives. Jesus lived a perfect life on earth as an example for us and through studying and discussing His teachings we can have our

thoughts, words, and deeds become more inline with what God would want for our lives.

## **Chapter 2: Pedagogical Content Knowledge**

There is a story of a man driving in a remote area of Europe when he comes upon a herd of sheep in the road being driven by a shepherd. Seeing that he would have to wait, he gets out of the car and starts to talk to the shepherd. He asked him how many sheep do you have? The shepherd responded that he did not know. The traveler was surprised and asked how he kept track of the flock and would know if one was missing. The shepherd replied, "I know each one and I know the flock, I would know if there was one gone." Teachers often, when asked at the beginning of the year how school is going, respond with the number of students that they have. Some teachers may know the number of students they have but they must get to know their students personally and show that they care.

As important as teachers knowing their students personally, teachers must know their students prior mathematical knowledge in order to build their instruction off of this. Mathematics, like no other subject builds on itself from year to year. For example if you do not know that  $x$  and  $4x$  are like terms, then it gets hard to solve an equation.

Teachers' must have the understanding to not only know students' prior knowledge but to move them beyond this with quality instruction. A math teacher in one of my classes told the story of how she was struggling with exponents in 7<sup>th</sup> grade and asked her teacher for help. Her teacher responded, "If you didn't get it the first time, you are not going to get it; that is as easy as I can go." This teacher besides lacking patience was also lacking needed pedagogical content knowledge to reach her students.

A large part of teachers knowing their students is teachers' content knowledge. It has been divided into 3 categories: subject matter knowledge, curricular knowledge, and pedagogical content knowledge. Subject matter knowledge involves knowing the facts, concepts, and processes of mathematics. Curricular knowledge is understanding the full range of resources, materials, and technology that can be incorporated in a lesson. Finally, pedagogical content knowledge draws on the previous two content knowledge categories for teachers to be able to explain ideas in different ways and to know students' capabilities and misconceptions. It is this form of content

knowledge that has increased in research and teaching focus in the past ten years as the importance of building on students' prior understanding is emphasized.

Take an example multiplication problem of  $(8 \times 8)$  to highlight the distinction in the categories of content knowledge. Subject matter knowledge would involve knowing the process of getting the answer to the multiplication problem. Curricular knowledge could involve examples given in the textbook, using a calculator to explore patterns, or using a website that has a game that could build understanding. Pedagogical content knowledge would involve understanding what strategies students try based on their prior knowledge of math facts. For example, students could do  $8 \times 4 = 32$  and then double 32 to get 64. They might do  $8 \times 10 = 80$  and then subtract  $8 \times 2 = 16$  from 80 to get 64. They could also multiply  $8 \times 5 = 40$  and then count up by 8's: 48, 56, 64. For all three strategies students would have conceptual understanding that a solution is to find 8 groups of 8. They go about this in different ways however and teachers must be prepared for different ideas. Teachers must have all three types of content knowledge and be able to

understand what students know and how to build on these ideas.

Jesus in His teaching showed that he possessed the most developed pedagogical content knowledge ever. He knows what everyone is thinking, what people have done, what they understand, and uses this to instruct people on how God's Word can change and guide their lives. Jesus always knew how to respond appropriately in order to best help others learn more about God. Take for example this humorous hypothetical story. There was a man that was quite inquisitive and asked Jesus, "How long is a million years to you?" Jesus responded, "A million years is like a second." Then the man asked, "How much is a million dollars to you?" Jesus said, "A million dollars is like a penny." The man smiled and said, "Could you spare a penny?" Jesus smiled back and said, "Sure, just wait a second."

### **Know students' prior knowledge/capabilities**

My first few years of teaching I learned that my students could teach me things about how to explain mathematics. Often through their students teachers will

learn about what methods their students prior mathematics teachers had taught them. For example, my students had a way of solving equations that I had never seen before. For a problem such as  $4x + 3 = 11$ , they would start with the  $x$  and then write out what was going on. It was multiplied by 4 then 3 was being added and it equaled 11. To solve this equation, they would then start with 11 and work backwards doing the opposite operation. They would subtract 3 and then divide by four to get what  $x$  equaled. This method was organized slightly different than what I would have taught them but I let them use it and we had a discussion about if it would always work. The students came to realize that when  $x$  appeared twice in an equation then this method would not work until the equation had been simplified to combine the  $x$ 's first.

Students will always have prior knowledge or capabilities that can be drawn on and that new knowledge can be tied to. Effective mathematics teachers are able to determine this knowledge and how to properly respond to it so that students see they are capable of learning new mathematical concepts.

In his book *The Dance of Hope*, Bill Frey tells the story of a blind student named John whom he tutored at the University of Colorado in 1951. John had become blind through an accident in his teenage years. The tragedy took not just the boy's sight but also his hope. The student was angry with God for letting it happen. He shut his bedroom door and refused to come out except for meals.

Bill had worked with John and knew that his anger was now gone and asked how the change happened. It was because of John's father. His father knew that John was still capable of doing many things and needed to get over his bleak outlook on life. Since winter was coming, he told John to mount the storm windows. "Do the work before I get home or else," John's dad insisted.

John was still angry but slowly made his way to the garage. He found the windows, stepladder, and tools and went to work. "They'll be sorry when I fall off this ladder and break my neck, he thought. Be he didn't fall. Carefully he worked around the house and finished the job.

This accomplished his dad's plan. John realized he could still work and began to have a better outlook on life.

Years later he learned something else about that day. When he shared this detail with Bill, his blind eyes misted. "I later discovered that at no time during the day had my father ever been more than four to five feet from my side."<sup>1</sup> The father had no intention of letting the boy fall. God has no intention of letting us fall either. John regained his confidence by the successful installation of the storm windows. He realized that he still had capabilities and knowledge to accomplish things. God, our heavenly Father has plans to not see us fall as well.

Just like a quality teacher can inspire students to take their capabilities and accomplish things they did not think were possible, so too with God we know that we can accomplish things only through Him. Jesus states in Matthew 19:26, "*With man this is impossible, but with God all things are possible.*" Christians can be confident that God can use us in ways that we might think are not possible and to accomplish things that we did not think we can do. When this happens it is important that God is glorified and these moments are used for that purpose. *Now all glory to God, who*

*is able, through his mighty power at work within us, to accomplish infinitely more than we might ask or think.* Ephesians 3:20.

The movie, "Woodlawn," is based on a true story and describes the football team at Woodlawn High School in the early 1970s in Birmingham, Alabama and how they used their success to give glory to God. During this time racial tensions were high as some people still felt that black people should be segregated. Woodlawn High School comes close to being closed because of the racial unrest and the inability of the black and white students to get along.

Local man Hank Erwin approaches the football coach and asks to talk to them about Jesus and how He can be the solution to the problems that the school and city are having. After talking to the team for an hour, almost the whole team becomes Christians. Hank continues to help the football team and holds Bible studies through Fellowship of Christian Athletes meetings. The football coach comes to see that the only white and black students at the school who get along are on the football team. He realizes that he needs to change as well and starts playing black football players

more. One player in particular, Touchdown Tony Nathan, energizes the team.

Before one of the football games in which Woodlawn is supposed to be a 6 touchdown underdog, Hank extols the team that they will win. He describes that God will use this opportunity for the team to share how their faith has brought them together and able to accomplish more than anyone would think is possible of them. Woodlawn goes on to pull off the upset! The team then shares their faith with the student body at the school, other nearby schools, and the community so that many people come to faith. Through it all they give glory to God for all of the good things.<sup>2</sup>

### **Know students' misconceptions**

Mathematics teachers must know what students' misconceptions are in order that they can be cleared up and conceptual understanding can be built. The more teachers know what common misconceptions are and effective ways of addressing these the better students will be at learning mathematics. Misconceptions that persist can certainly cause problems.

One of the teachers in my classes used to be in the Navy and told a story that highlights how it is important for misconceptions to be addressed. He was showing a new sailor around the ship and pointed out the bubble machine that would smother any fires. He pressed the button because he thought the machine was off, but quickly found that he had just dumped 200 gallons of bubbles through the ship and into the ocean. At the time it was not a funny situation but now he can look back on it and use it for a rate of change mathematics problem. Initially there were 200 square feet of bubbles and the bubbles spread at a rate of 15 square feet a second. How long till 10,000 square feet of the ship was covered in bubbles?

Jesus was constantly addressing misconceptions in His teaching by discussing how we can be motivated to share God's love to others. A frequent target of his teaching was the Pharisees and teachers of the law. They had power but were not using it in the right ways because they had misconceptions about God's Word.

In Luke 11:37-52 Jesus describes problems with the way that the Pharisees interacted with others. The Pharisees

do not practice justice and do not show God's love to others. They had to sit in the most important places and they made people burdened by the law without helping them or preaching them the gospel.

Jesus sets the Pharisees straight and in His teaching would always speak truth. In Matthew 5:43-44 Jesus states, *"You have heard that it was said, 'Love your neighbor and hate your enemy.' But I tell you: Love your enemies and pray for those who persecute you."* Jesus clears up a misconception and correctly interprets how we are to treat others. Jesus takes the conventional knowledge of the people and flips it on its head. Another example comes in Luke 14 when Jesus is at a Pharisee's house. Jesus explains that you should always take the seat of least honor. *"For everyone who exalts oneself will be humbled, and he or she who humbles oneself will be exalted."* Luke 14:11. Jesus further states the importance of how we are to treat others in view of humbling ourselves to be a servant to others in need. *Then Jesus said to his host, "When you give a luncheon or dinner, do not invite your friends, your brothers or relatives, or your rich neighbors; if you do, they may invite you back and so you will be repaid. But when you give a banquet,*

*invite the poor, the crippled, the lame, the blind, and you will be blessed. Although, they cannot repay you, you will be repaid at the resurrection of the righteous.” Luke 14:12-14.*

A song came to my mind when writing this that I remember from Sunday school, I just want to be a sheep. It highlights how we can rely on Jesus teaching and show His love to others.

*I just want to be a sheep. Baa Baa Baa Baa.  
I just want to be a sheep. Baa Baa Baa Baa.  
I pray the Lord my soul to keep.  
I just want to be a sheep.  
I don't want to be a Pharisee. A Pharisee.  
I don't want to be a Pharisee. A Pharisee.  
Because they're just not fair you see.  
I just want to be a sheep.<sup>3</sup>*

Sheep follow the good Shepherd and listen to His voice. On the other hand Pharisees treat people as inferior. We can follow the example set by Jesus, and be humble and a servant to others as Jesus states in Mark 10:45 *“For even the Son of Man did not come to be served, but to serve.”*

### **Know how to explain concepts in multiple ways**

A mathematics teacher should know multiple ways of explaining a concept so that there is the greatest chance that all students will have understanding. This could involve

a new method or just rephrasing a concept in a new way. An effective method for teachers is to have a student explain a concept and then have a few more students share how to do the mathematics in their own words. Sometimes if students hear from a different student's explanation it will click for them. The teacher can draw on the students' knowledge in order to reach more students.

Take for instance the concept of multi-digit addition, for which there are different ways of explaining the concept. The problem  $(149 + 386)$ , is solved on the following page with the standard algorithm. First the ones  $(9 + 6)$  are added to get 15. Then the 1 ten in 15 is moved to the tens column and the 5 ones are kept in the ones column for the answer. The tens digits are then added to get 13,  $(1 + 4 + 8)$ . Then the 1 hundred in 130 is moved to the hundreds column and the 3 tens are kept in the tens column for the answer. The hundreds digits are then added to get 5,  $(1 + 1 + 3)$  and kept in the hundreds column for the answer. While this is an elegant method, initially students may just follow steps and not understand what they are doing if this is the first method used.

$$\begin{array}{r}
 1149 \\
 + \underline{386} \\
 \hline
 535
 \end{array}$$

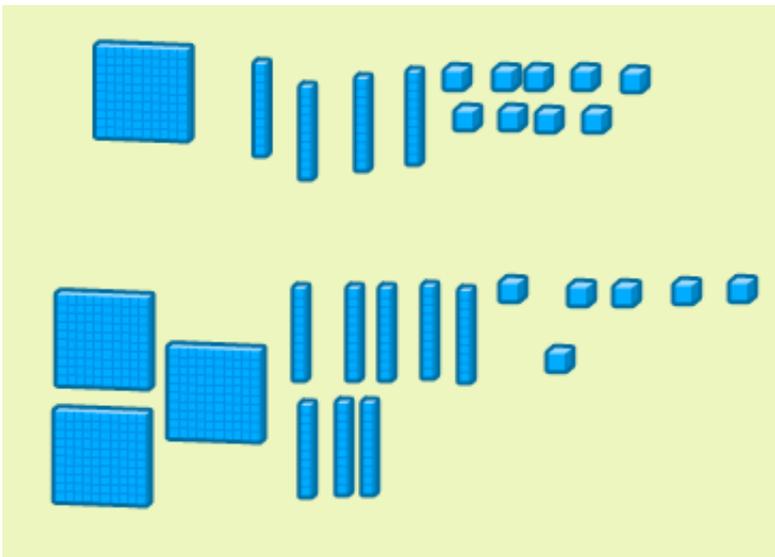
Standard algorithm

What other methods might students try? Can you figure out how the child solved the problem with the work below? What understanding does this demonstrate?

$$\begin{array}{r}
 149 \\
 + \underline{386} \\
 400 \\
 120 \\
 \underline{15} \\
 535
 \end{array}$$

In this case the child added the hundreds then the tens and then the ones before adding up these three totals for a final answer. The child has shown the actual place value of each number in this method and connected with their prior knowledge of place value. For another example what about a student that reasons the following: "Well 149 is 1 away from 150, so then 150 and 300 is 450, and 80 more is 530, and 6 more is 536. Then I have to subtract the 1 to get 535."<sup>4</sup> This is another solution that shows number sense and is often the type of addition that occurs when people do the work in their head. These are strategies that students can develop if also given the opportunity to work with concrete objects at the beginning. Look at the following picture and

see that the addition problem can be represented with hundred, tens, and ones blocks. Students can visually count the numbers and also see that 10 tens equals 100 and that 10 ones equals ten. It is this focus on the multiple strategies that ensure that students are able to retain concepts and see that there are multiple strategies for solving a problem that are in fact connected.



$$149 + 386$$

Jesus was excellent at explaining concepts in multiple ways in order to convey His ideas. In the book of John, Jesus states seven “I am” statements to describe who He is and what He does. In John 6:35 Jesus states, “*I am the bread of life.*”

*He who comes to me will never go hungry, and he who believes in me will never be thirsty.”* Jesus had recently feed the 5,000 when he made this statement. However, here He is talking about spiritual hunger and thirst which can only be satisfied and fulfilled through Christ. Jesus is our sustenance that keeps us going towards life everlasting in heaven.

Later Jesus states in John 8:12, *“I am the light of the world. Whoever follows me will never walk in darkness, but will have the light of life.”* Jesus in His time on earth radiated God’s light and love. *The Son is the radiance of God’s glory and the exact representation of his being, sustaining all things by his powerful word.* Hebrews 1:3. With the Holy Spirit working through Christians, we too can shine God’s love to others. This light that gives us hope and joy is God’s power at work within us. We are created to give Him glory. *“In the same way, let your light shine before others, that they may see your good deeds and glorify your Father in heaven.”* Matthew 5:16.

Jesus also stated that He protects us and is the only way to heaven as He is the gate. *“I am the gate; whoever enters through me will be saved. They will come in and go out, and find pasture.”* John 10:9. In Jesus’ time there was no real gate to

sheep pens. The shepherd would stand in front of the opening and guard the sheep against anything. Jesus is the good Shepherd. *"I am the good shepherd. The good shepherd lays down his life for the sheep."* John 10:11. He did what only He could do on the cross. He paid for the sins of the world and through this glorious act offers the free gift of eternal life to all as Jesus said in John 11:25-26. *"I am the resurrection and the life. The one who believes in me will live, even though they die; and whoever lives by believing in me will never die."*

Jesus further stated that only through Him can people come to faith in John 14:6. *"I am the way and the truth and the life. No one comes to the Father except through me."* Paul stated it this way in Acts 4:12, *Salvation is found in no one else, for there is no other name under heaven given to mankind by which we must be saved.* God loved the world and people so much that He did not give up on them. He sent His son to redeem us and atone for all of our sins. It is a beautiful message and thought that the all-powerful God cares for us that much and that Jesus was willing to suffer and die for us so that we might be saved.

The final “I am” statement affirms that only through Christ can we do good things and have the strength and power to make it in this world. *“I am the vine; you are the branches. If you remain in me and I in you, you will bear much fruit; apart from me you can do nothing.”* John 15:5. Christians know that we are saved and nothing can take that away from us. In response to God’s love then and through the power of the Holy Spirit we are able to bear fruit and do good works so that God can be glorified and that others can come to faith as well.

In total Jesus had the world’s greatest pedagogical content knowledge. We can look to his ministry on earth to see how mathematics teachers can build on students’ prior knowledge and capabilities, address misconceptions to work towards conceptual understanding, and also explain concepts in multiple ways.

### **Chapter 3: Formative Assessment**

Summative assessment is assessment *of* learning; while formative assessment is assessment *for* learning. The distinction is important. Formative assessment is done in order for teachers to guide their instruction based on the knowledge that is demonstrated by students. Teachers should convey the important ideas that students need to master and then assess them and provide feedback to them on how well they are meeting these goals. It is important for teachers to properly understand what their students know and are trying to convey.

Take for instance the lion that wanted to check for understanding with the rest of the animals as to who was the king of the jungle. The lion went first to the leopard and asked, "Who is the king of the jungle?" The leopard replied, "You of course." The lion next went to the zebra and asked, "Who is the king of the jungle?" The zebra replied, "You of course." The lion then strutted over to the elephant and asked, "Who is the king of the jungle?" The elephant grabbed the lion with her trunk and tossed the lion from side to side and then dunked the lion in the water a few

times. The lion picked himself up and responded, “Just because you didn’t know the answer doesn’t mean you have to get mad about it.”

While the lion was confused on what the elephant knew and understood, mathematics teachers that implement formative assessment properly can be better equipped to help their students be successful. There are several key points about formative assessment though that are vital and that Jesus demonstrated as well in His ministry.

### **Don’t focus on grades**

Formative assessment when done properly does not serve the purpose of assigning grades but is done to provide students feedback and to help them in their pursuit of mastering the main objectives. When grades are assigned with formative assessments it can actually have more of an adverse effect. A study described in the book *Assessment for Learning* looked at the effects of comments only marking, grades, and the combination of grades and comments. In the “comments only” marking group, students received written comments on their work without a grade assigned; in the “grades group”, students were told which problems were

right and wrong and received a grade; and in the “combination group”, students received written comments and a grade. On subsequent tasks, the students who received comments only performed better than the other two groups.<sup>1</sup> The study shows that feedback that focuses on ways to improve is more beneficial than feedback that passes judgment on students’ abilities.

An experimental study was done with hundreds of students in which students were given feedback on their work. Half of the students were given an extra sentence though. Those students with the extra sentence resulted in significant achievement gains a year later especially for minority students. Any guesses on the sentence? It is a simple but profound statement that makes a big difference when communicated effectively. On half of the students’ papers the teacher put this extra sentence: “I am giving you this feedback because I believe in you.”<sup>2</sup>

In Jesus’ ministry it was obvious that He would give feedback because He cared for and believed in people. It has been said that God doesn’t grade on the curve but on the cross. On the cross Jesus demonstrated how much He cared

and because of His sacrifice, all believers in Jesus are declared winners and receive the highest marks. We receive forgiveness and Jesus' righteousness and are seen as holy because Jesus took all our sins upon himself. I would wholeheartedly accept that feedback any day and it is a free gift from God.

The disciples did have one moment when they wanted to be graded and know who was the best, but Jesus quickly put that to rest. In Mark 10 James and John approach Jesus and ask if they can sit at His right and left in heaven. Jesus quickly sets the disciples straight with what His ministry on earth demonstrated. *"Whoever wants to become great among you must be your servant, and whoever wants to be first must be slave of all."* Mark 10:43-44. Jesus emphasized what made someone great was not their position or power but how they served others.

In total Jesus focused on development and gave needed instruction that would help his disciples. In Matthew 10, Jesus gives instructions to the twelve disciples. He reassures them that though they may face trouble and hardship, the most important thing to remember is they

have a place in heaven. Jesus cares for them and knows them even down to the number of hairs on each of their heads. He will continue to guide them and direct them with words to say.

### **Use the results to inform teaching**

Assessment is not formative unless the results of the assessment are used to guide teaching. If the assessment shows that students understand a concept, then less time needs to be spent on it. If the assessment shows that students have misunderstandings or lack prior knowledge, then this needs to be addressed.

John 8:5-13 tells the story of the faith of the centurion and demonstrates how Jesus changed his instruction based on what he heard from the centurion. The centurion approaches Jesus because his servant was in rough shape, paralyzed and suffering. Jesus has compassion on the servant and says that He will go and heal the servant. The centurion knew that this was not necessary though: *Lord, I do not deserve to have you come under my roof. But just say the word, and my servant will be healed.* Matthew 8:8. Jesus is astonished by these words and adjusts what he was going to

do. Instead of going to see the servant, Jesus heals the servant at that very moment. A true use of assessing the situation and changing instruction to meet the needs of His people.

### **Vary the use of formative assessments**

While there are some things in teaching that benefit from consistency such as discipline and daily routines, formative assessment is a concept that should vary. Students will become complacent and bored if they always do the same formative assessment. There are a variety of formative assessments to choose from. A good resource is the book, *Mathematics Formative Assessment: 75 practical strategies for linking assessment, instruction, and learning*.<sup>3</sup>

Some formative assessments take little planning and can be done quickly such as popsicle stick questioning or no hands questioning. In these formative assessments the teacher poses a question and then either randomly selects a popsicle stick with a students' name on it to respond or tells students not to raise their hands and selects a student to respond. Other quick formative assessments are fist to five and thumbs up, thumbs down. In fist to five students

display from zero to five fingers to self-evaluate how well they are understanding the material. In thumbs up, thumbs down students put their thumbs up if they are ready to move on and understand and thumbs down if they do not feel they are ready.

Jesus used formative assessments as well and used a variety of them. In Luke 9 Jesus uses the formative assessment technique of strategy harvest. For this formative assessment a problem solving task is posed and then students find and describe possible solutions and compare them. Jesus posed the task with a question of *“Who do the crowds say I am?”* The disciples had already harvested some possible answers to this question through their interactions with others. They replied, *Some say John the Baptist; others Elijah; and still others, that one of the prophets of long ago has come back to life.* An important part of this formative assessment is coming up with your own idea and comparing it to the others so Jesus asks, *“But what about you? Who do you say I am?”* Peter responds quickly, *God’s Messiah.*

Another formative assessment is “muddiest point” in which, after having been taught for a while students write

down and think about what the most difficult or confusing part of a lesson was for them. Matthew 16 has a very interesting interaction between Jesus and the disciples in which the disciples certainly had a “muddiest point” to clear up. Jesus tells the disciples to *“Be on your guard against the yeast of the Pharisees and Sadducees.”* The disciples took time to think about this and discuss it and came to a somewhat ridiculous conclusion that Jesus said this because they didn’t bring any bread. Jesus reminded them who He was and that He had feed the five thousand and the four thousand with very little food so He would not be worried about not having bread. After clearing up the confusion, the disciples then realized that He was warning them against the teaching of the Pharisees and the Sadducees.

One of the most commonly used formative assessments that Jesus used after the resurrection is think-pair-share. In this method, students have time to think individually, then share their thoughts in pairs, and then share with a larger group. On the road to Emmaus Jesus encounters two travelers who are discussing what has transpired recently with Jesus, though they do not recognize

Him. I would imagine that individually they would have been thinking about what had happened first before discussing it as a pair. In Luke 24:19-24 they explain to Jesus their thoughts and that the tomb was empty. Jesus goes on to discuss with them and share everything from the scriptures that was said about him.

In the movie, *A Knight's Tale*<sup>4</sup>, there is a character named William; a young squire who becomes a knight. He gets help from friends that he meets in his travels including having royalty papers forged in order to try to defeat his nemesis, Count Adhemar. Towards the end of the movie William has a jousting bout with Adhemar. Though Adhemar cheats, William still manages to achieve victory. Together with his team, William shares the following quote with Adhemar. "You have been weighed, you have been measured, and you have absolutely been found wanting."

In our own lives, we know that we do not have to be assessed as to our worthiness to be saved. Jesus has done all the work. He did not have any fancy degrees or titles, but showed why He is the King of the world. There was a post circulating on Facebook a few years ago that stated:

Greatest man in history, named Jesus, had no servants, yet they called him Master. Had no degree, yet they called him Teacher. Had no medicines, yet they called him Healer. He had no army, yet kings feared Him. He won no military battles, yet he conquered the world. He committed no crime, yet they crucified Him. He was buried in a tomb, yet He lives today!

Jesus has achieved victory for us for all time. He took down the devil once and for all and let the devil know that the devil's power was absolutely found wanting. God has always been in command and in control. It is through Jesus saving act that all Christians can be assessed as holy through belief in our Lord and Savior.

## **Chapter 4: Different Representations**

One of the most important parts of mathematics teaching is to give students experiences with different representations. Different representations involve symbols such as variables or numbers, verbal descriptions of mathematics concepts or procedures, realistic situations that model mathematics, pictorial representations which could include diagrams or graphs, and concrete representations which include hands-on or virtual manipulatives. Overall, for students to have well-developed conceptual understanding they should be able to demonstrate understanding in all five representations and move back and forth between the different representations. It takes more time upfront for this approach but over the long run it pays off as students will better be able to retain concepts.

For an example, take for instance the concept of fraction division. There are many different sayings or rhymes for students to remember a procedure. Think about how you learned to do fraction division or how you would solve a problem now. Most strategies do not have a focus on understanding the mathematics but instead just following

steps. One of the worst sayings that I have heard goes like this. “Dividing fractions. Don’t ask why. Just flip the second fraction and multiply.” Through this we convey to students to not ask questions but simply follow procedures, which leads to short term retention and the need for constant review. A video study of 8<sup>th</sup> grade mathematics teachers found that in the U.S. more than half of the class time is spent on reviewing content. Only twenty-three percent of the time was used for introducing and exploring new mathematics content; which was in contrast to 60% of the time in Japan.<sup>1</sup>

If more time is taken to develop conceptual understanding of concepts then in the long run less time will be spent on review. There is a study that looked at students learning fraction divisions for the first time. A video clip is used that shows a teacher working one on one with a student to show the student the steps for solving a fraction division problem such as 3 divided by  $\frac{3}{4}$ . The teacher writes the first number as a fraction,  $\frac{3}{1}$ , then changes the problem to multiplication and flips the second fraction to  $\frac{4}{3}$ . The teacher then shows to multiply the top and then the bottom

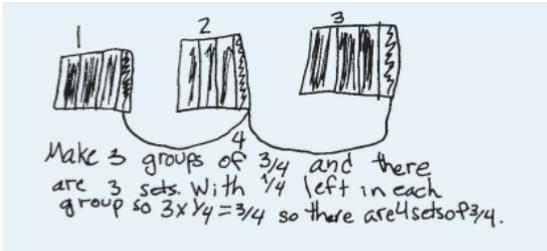
two numbers to get  $12/3$  and then reduce to get 4. The teacher goes over another example as well and then the child practices. Three days later the child is given another fraction division problem and has no idea where to begin because the procedure cannot be remembered.<sup>2</sup>

Contrast this with a focus on teaching for conceptual understanding through different representations and taking the time to develop the concept of fraction division. This time lets put the same problem, 3 divided by  $\frac{3}{4}$ , in the context of a real world situation.

*A scoop holds  $\frac{3}{4}$  cup. How many scoops of bird seed are needed to fill a bird feeder that holds 3 cups of bird seed?<sup>3</sup>*

In the context of this question could you estimate that the answer should be larger than 3? If students are encouraged to draw pictures as well of their solution strategy then, it can be easier to reinforce number sense. Look at the following picture. The child has drawn rectangles for the three cups of birdseed and marked off  $\frac{3}{4}$  three times. Each rectangle has a  $\frac{1}{4}$  left so she can tell that another  $\frac{3}{4}$  scoop is needed for 4 total scoops. This is the type of generative knowledge that students can develop with a focus on reasoning over

memorization.



Through different representations Jesus showed how much He loved all the people on the earth. His love is unending and is not based on how we feel or the things that we do. It is pure self-sacrificing love that Jesus desires for all to have. Let's consider the different representations Jesus used including: language, pictorial, realistic, concrete, and symbolic.

### **Language**

Through His words Jesus conveyed how much He loved and cared for the whole world. Jesus showed that He came here to help and save the world. *"For God so loved the world that he gave his one and only Son, that whoever believes in him shall not perish but have eternal life. For God did not send his Son into the world to condemn the world, but to save the world*

*through him.*" John 3:16-17. Jesus not only cares about our eternal destination, He also wants to help us in our earthly lives as well. *"Come to me, all you who are weary and burdened, and I will give you rest."* Matthew 11:28. At one time or another this is everyone. Everyone will have times when they are tired or in need of help. Jesus describes how we can trust in Him and God the Father to provide encouragement and strength.

I saw on the news recently a clip of a man telling a presidential candidate some of the things that have been going on in his life that have weighed him down. The man had lost his job, his parents had divorced, he was going through health problems, and had battled depression. But through trusting in God and listening to the encouraging words of this candidate, his outlook on life was turning around. The presidential candidate hugged the man and had a great simple message for him. "I guarantee God will you strengthen you to keep going. Keep trusting in Him." No matter what our circumstances in life we can draw strength from the fact that Christ loves us. He will never give up on us and wants us to stay encouraged and hopeful until our

time on earth is through. His love is powerful and transformative.

Jesus desired that this love be the source of our whole being. Jesus stated that the greatest commandment was to *“Love the Lord your God with all your heart and with all your soul and with all your mind and with all your strength.”* Mark 12:30. The second greatest commandment was to show this love to others. *“Love your neighbor as yourself.”* Mark 12:31. As Jesus has loved us, He wants us to love one another. It is difficult to do this all the time and no human has ever done this perfectly but Jesus because He is God. However, the more we focus on God’s love and God’s Word the better we will be able to share this love with others.

### **Pictorial**

Jesus often could paint a picture with his words as he would teach and preach. Jesus shows His concern for us by not wanting us to worry because even the flowers of the fields are taken care of and we are much more valuable to God than flowers. There are many beautiful wildflowers around Israel that would have invoked imagery in the people of the time.

Jesus knows that we need clothes, food, and water. He extols us though to focus first on what is most important. *“But seek first his kingdom and his righteousness.”* Matthew 6:33. God will work to meet our basic needs and certainly uses Christians to accomplish this for others. There is a great need for people in the world to have food, clean water, and clothes as nearly half of the world’s population survive on less than \$2 a day. There are quality organizations that Christians can support that help to provide these needs including World Vision and Compassion International.

There is no doubt that Jesus is for real and that heaven is for real but the power of a picture is that it is often worth a thousand words. In the movie, *Heaven is For Real*, a young boy named Colton Burpo visits heaven while having a near-death experience while in the hospital. Colton goes on to recover fully but shares with his family what heaven is like and says he met Jesus.

Colton’s dad is skeptical about what his son is telling him but shows him several pictures of Jesus to see if Colton will recognize him. It is not until the end of the movie that Colton sees a different picture of Jesus on his father’s laptop

and recognizes the face. The picture, called the Prince of Peace, was drawn by a young Lithuanian girl named Akiane Kramarik. Akiane grew up in an Atheist household but states that all of her work is influenced by her faith. She began seeing images of Jesus at a young age and at the age of three says that God told her that she can help people through her art. She states that her gift of painting is from God and has never questioned the existence of God.<sup>4</sup> Heaven is real and Jesus is real. There is no doubt about it.

### **Realistic**

Jesus teaching was always connected to the real world. He has promised that Christians will have what we need: first and foremost His love and also good things that are aligned with His purpose. Jesus lets us know that God wants to hear our requests and wants us to live boldly for Christ. *“Ask and it will be given to you; seek and you will find; knock and the door will be opened to you. For everyone who asks receives; the one who seeks finds; and to the one who knocks, the door will be opened.”* Matthew 7: 7-8.

Christian author and pastor, Mark Batterson, in his books talks about the growth of his church, National

Community Church in the D.C. area. The church started off with just a handful of members but now has multi-sites and also runs the #1 coffeehouse in the D.C. area. When the church started off they did not have much money but still invested \$50 towards missions each month. Last year they invested 1.7 million dollars in missions. They have had many instances where God has blessed them and donations have come through or situations have changed where they have been able to acquire property to continue to grow their ministry.

Their coffeehouse was started as a mission to share God's love with others and to raise money for missions work around the world. All of the profits go towards missions and they have given away \$750,000 towards this work. The coffeehouse is named Ebenezer's which is a reference to the altar that Samuel named and means "thus far the Lord has helped me." On each coffee cup there is the Bible verse 1 SAM 7:12 and the letters SFSG appear. SFSG stands for So Far, So God. It's a twist on the typical phrase So Far, So Good because God is in control.<sup>5</sup>

Batterson poses a question in his book, *The Circle Maker*<sup>6</sup>, what if Jesus were to ask: “What do you want me to do for you?” Many of us probably would have no idea what we would want God to do for us, but the growth of the church in the D.C. area shows that God-ordained passions can lead to great things. We just have to be willing to ask, seek, and knock to pursue things for God’s glory and through the help of God working through others, great things can be accomplished.

### **Concrete**

Jesus did not just show His love through words but also in concrete actions. The Gospels are full of accounts of Jesus healing people that are blind, sick, suffering from diseases, mute, and bringing back people from the dead. Jesus even cries over the fact that Lazarus had died and He knew what was going to happen next; that He would raise him back from the dead. Jesus cares for humans that much.

We know that while God certainly still works miracles today, that there are those who will continue to suffer from ailments and diseases that cause pain or even death. While this is the case, we can draw strength and

comfort from the fact that Christians know that when we die and get to heaven there will just be perfection. There will be no more pain, no diseases, no ailments, and no suffering. Our bodies will be made new and perfect. It is this fact that can give us endurance and strength to face whatever life brings.

Oklahoma City Thunder Basketball coach Monty William's wife, Ingrid, died in February 2016 when another car crossed over the median and hit her head on. Losing a spouse unexpectedly is a tragedy that could shake anyone, but Monty relied on his faith and gave a powerful testimony at Ingrid's funeral. He described how difficult this had been for him, but that he and the couple's five children, hold no ill-will against the driver of the car. He even requested prayers for the driver's family. He said, "We can't serve the Lord if we don't have a heart of forgiveness."

He went on to describe the importance of God's love, "We can't lose sight of the fact that God loves us...He loved me so much that He gave me a wife." Later he read Romans 8:28 *And we know that in all things God works for the good of those who love him, who have been called according to his purpose.*

Then he stated “All of this will work out...my wife would punch me if I stood up here and whined about what is going on. That does not take away the pain, but it will work out because God causes all things to work out...My wife is in heaven. God loves us. God is love. And when we walk away from this place, let’s celebrate because my wife is where we all need to be...I love you guys for taking time out of your day to celebrate my wife. We didn’t lose her. When you lose something you can’t find it. I know exactly where my wife is.”<sup>7</sup>

Monty’s speech and outlook on life epitomize the ending words from Chris Tomlin’s song, “Your Grace is Enough.” It is only through Jesus that someone can show so much strength. While there is sorrow that his wife left this earth unexpectedly, Monty knows that he will see her again. It is comforting to know when someone dies in the Lord it is not “Goodbye”, but “See you later.”

*Your grace is enough  
Heaven reaching down to us  
Your grace is enough for me.  
God I see your grace is enough  
I’m covered in your love  
Your grace is enough for me  
For me<sup>8</sup>*

## Symbolic

The greatest actions that showed Jesus' love were His death and resurrection which has given us the greatest symbol the world has and will ever know: the cross. It is because of Jesus' great sacrifice on the cross that eternal life in heaven is possible because all our sins have been paid for. If Christ had not been raised, then our faith is in vain, but we know that it is truth that Jesus was raised again. *For the message of the cross is foolishness to those who are perishing, but to us who are being saved it is the power of God.* 1 Corinthians 1:18. There are 31,102 verses in the Bible and all of them point to the cross somehow, some way. The cross is the reference point. The Old Testament points forward, while the New Testament points backward. The cross is such an important symbol of Jesus' victory that the disciple Andrew did not want to be crucified in the same manner as Jesus, so he was crucified on two wood planks in the shape of an x. This is often called the Saltire cross or otherwise known as the humility cross. It is seen on Scotland's, Great Britain's, and Jamaica's flag.

You could imagine that Sabine Baring-Gould had humility in mind as well when he wrote the hymn, “Onward Christian Soldiers” in 1865. Amazingly he wrote the hymn in 15 minutes, but apologized saying, “It was written in great haste, and I am afraid that some of the lines are faulty.”<sup>9</sup> The chorus of the hymn states the importance of focusing on the cross and Jesus’ victory over death and the devil as Christians lead their lives for Jesus.

*Onward, Christian soldiers!*

*Marching as to war,*

*With the cross of Jesus*

*Going on before.*<sup>10</sup>

Another beautiful hymn that describes the importance of the cross is “Lift High the Cross” which extols the goal of having the whole world know Jesus’ love.

*Refrain:*

*Lift high the cross,*

*The love of Christ proclaim*

*Till all the world adore*

*His sacred Name.*

*Come, brethren, follow where our Captain trod, our King  
victorious, Christ the Son of God.*

*O Lord, once lifted on the glorious tree, as Thou has  
promised, draw the world to Thee.*

*Let every race and every language tell of Him who saves our souls from death and hell.<sup>11</sup>*

Often this hymn is used as a processional with the cross held high at the front of the line for all to see. Jesus states in John 12:32 how God draws people of all nationalities or ethnicities to Him. *“And I, when I am lifted up from the earth, will draw all people to myself.”* The goal is for all people to look to the cross and the power of God that was on display, the victory that was won, and eternal life that is a free gift for all. The cross is the most recognizable symbol in the world and all should know the power of the message of the cross.

## **Chapter 5: Technology Integration**

Despite the fact that there are a growing amount of freely available videos for students to learn mathematics, technology will never replace teachers. Technology can be integrated into instruction so that mathematics can be better visualized, done quicker to get at other concepts, engage students in discovery and exploration, promote higher-level thinking, enable students to be engaged in real-life applications of mathematics, and prepare students with 21<sup>st</sup> century skills. There are a growing amount of programs like Khan Academy that track students' progress on concepts by giving them problems to solve after videos. The problems also contain hints and students can refer back to videos for further help. However, when any of these programs are used too often in a classroom, students will lose their motivation.

The same idea is often used in marketing when determining how many times to play a commercial. If a commercial is not played enough, the product will not be in consumer's minds. But if a commercial is played too often than consumers will tune it out and it will lose effectiveness.

Arby's took an interesting strategy in 2014 when it decided to air a commercial only once. The catch was that the commercial was 13 hours long, setting a Guinness Book World Record for longest commercial. To promote its Smokehouse Brisket Sandwich, Arby's filmed a single shot of a brisket being smoked for 13 hours at a smokehouse in Texas. The commercial only aired in Duluth, Minnesota but have no fear. The entire 13 hour commercial is available on YouTube or on DVD.<sup>1</sup> YouTube has only been around since 2005 and to think before then posting a 13 hour commercial would have been impossible.

Many of the technologies that can be integrated into a mathematics classroom now did not even exist when I was teaching seven years ago. Technologies like Desmos-an online graphing calculator, Geogebra-a dynamic application for geometry, algebra, statistics, and calculus, and ST math-a visual mathematics instruction program that is often used with English Language Learners. One of the most researched and most effective technologies is the calculator and graphing calculator. These technologies have been around

for a long time and have shown to be effective at increasing and deepening students' mathematics learning.

The work of Jesus is very related to technology integration. Two big questions for technology integration are: Will the technology allow students to do something they could not have done before? Will the technology allow students to do something they could have done before but in a better way? With Jesus, Christians know that they can do things that they did not think were possible and they will do things in a better way. The Bible is full of stories of God using ordinary people to accomplish extraordinary things through His power. There was nothing special about the 12 disciples that Jesus called. When the going got tough with Jesus being arrested, the disciples at first were not sure what to do. Peter denied Jesus three times by saying that he does not know him. After Jesus' death the disciples were hiding behind locked doors for fear of the Jewish leaders. However, Jesus appeared to the disciples and assured them that it is Him and that He had risen from the dead. The disciples later received the Holy Spirit and were empowered to spread the Gospel message throughout the world.

While technology has benefits, Jesus teaching and preaching had the greatest benefits. Some of the benefits tie into why technology is used: engagement, feedback, differentiation, and higher-level thinking.

### **Engagement**

It is a good thing that there was not a lot of technology available in Jesus' time on earth. There is a meme of Jesus talking to a disciple with the caption: "When I said to follow me, I didn't me on Twitter." You can imagine what would have happened if Jesus would have called the disciples on a cell-phone to tell them to follow Him. They might have hung up the phone or thought it was not Him.

However, before being called, the disciples knew who Jesus was. John the Baptist testified who Jesus is when he saw Him. *Look, the Lamb of God, who takes away the sin of the world! I have seen and I testify that this is God's Chosen One.* John 1:29, 34. When two of the disciples heard this they immediately wanted to spend the day with Jesus and called Him Rabbi which means teacher. Word would have quickly spread among the people as to who Jesus was. It is not surprising then when Jesus told Peter and his brother

Andrew to come follow me, that they at once left their nets and followed him. When Jesus, the Messiah, calls us, we don't hesitate but drop everything and follow.

## **Feedback**

While they may not seem much like technology today, salt and lamps were two important technologies in Jesus' time that He used to make a point about how Christians should live their lives and effect the rest of the world. Since there were no refrigerators, salt was used as a preservative to keep food lasting longer. Similarly, Christians can be seen as preservers when they interact with others and make them better by sharing God's love with them. By encouraging other Christians as well, Christians can help others persevere to get to heaven. Christians are meant to shine God's love to others. No one would light a lamp and then put a bowl over it as the song, "This little light of mine" states: "Hide it under a bushel? Oh, no! I'm going let it shine."<sup>2</sup>A lamp is made to give light to everyone in the house and so we can follow Jesus' words in Matthew 5:16 empowered by God's love. *"In the same way, let*

*your light shine before others, that they may see your good deeds and glorify your Father in heaven.”*

There is a YouTube video of a group that set up a microphone near a busy street in New York City with a set of simple instructions next to it on a sign that read, “Say something nice.” The video shows a number of people who are smiling and happy as they say something nice and the people around them start to smile more as well.<sup>3</sup> This is what happens when we share God’s love with others, we positively effect those around us and we as well are positively effected. When the feedback that we get is positive we are more likely to give positive feedback to others as well.

### **Differentiation**

Differentiation means that teaching meets students at the level where they are and helps them move forward. With technology, differentiation can be a great benefit as computer programs can tailor students’ instruction to their prior knowledge and what they need to learn next.

The most powerful form of communication that also allows for differentiated instruction is prayer. Jesus demonstrated in his time on earth the importance of prayer. *Very early in the morning, while it was still dark, Jesus got up, left the house and went off to a solitary place, where he prayed.* Mark 1:35. *Jesus went out to a mountainside to pray, and spent the night praying to God.* Luke 6:12. *Then Jesus told his disciples a parable to show them that they should always pray and not give up.* Luke 18:1. Jesus prayed throughout the day and we should have the same mindset.

Prayer grows our relationship with God and can provide us with insights into what our areas of need are and the needs of others that we can help fill. Only God can listen to everyone's prayers and provide the needed responses that tap into peoples' prior knowledge and what they need to learn next. Martin Luther once said, "The less I pray, the harder it gets; the more I pray, the better it goes." I have found this to be true in my life as well. The more I pray throughout the day, the more life is manageable and enjoyable.

Jesus furthered show the necessity of prayer in John 17 as he prays for himself that God may be glorified through His upcoming death and resurrection. He also prays for the disciples and for all believers. Jesus showed in his prayers how we can pray for our current and future circumstances, but we should also pray for others as well and their needs.

Jesus prayed that the disciples would be protected, that all believers would know God's love, and that all will get to see God's glory in heaven. After this Jesus is arrested and His prayers point to the reason why He must suffer and die so that all believers would be saved through His death and resurrection. Jesus knew where he was at, what needed to be done and why, and He prayed that all believers would know this fully as well.

Jesus would soon leave the earth, but He wanted the disciples and all believers to know that God is always with them. Years ago on a Sunday morning in Washington, D.C. a woman called the National Presbyterian Church. It was the home church of President Eisenhower. The caller asked, "Do you expect the President to be in church today?" The operator replied, "I cannot promise, but God will be here

among His people, and that should be incentive enough for anybody to come.”<sup>4</sup> God is certainly enough, and because Jesus met us at our level and took care of our need for a Savior we will spend eternity in heaven!

### **Higher level thinking**

Technology can certainly allow for higher-level thinking and it requires higher level thinking to work with technology. Sometimes though it is basic thinking that is required for a technology to be effective. Benno Muller-Hill who is now a professor at the University of Cologne in the genetics department remembers how one morning he stood last in a line of forty students to look through a telescope his high school physics teacher had set up. The first student stepped up to the telescope and remarked how he could not see anything. The teacher showed him how to adjust the focus and he soon said that he could see the planets and moons. One by one each student stepped up and saw what they were supposed to see. Finally, the second to last student stepped up to the telescope and announced that he could not see anything. “You idiot,” shouted the teacher, “you have to adjust the lenses.” The student tried but still

could only see black. The teacher, disgusted, looked through the telescope himself and a strange expression came over his face. The lens cap still covered the telescope. None of the students had been able to see anything.<sup>5</sup> It shows that technology is only as smart as its operator and sometimes the correct thinking is missed.

Building a house involves connecting many different technologies into one large structure that definitely requires expertise and higher-level thinking. For a new house the foundation must be leveled and tested so that it can support the weight of a house effectively. If the foundation is not solid then it can cause damage to the house. Jesus uses the foundation of a house as a metaphor for those that are foolish and those that are wise. The one who hears the Word of God and puts into practice are like wise people who built their house on the rock. No matter what happens in life, the foundation is strong so the house does not fall. However, those without a strong foundation are like a house on sand, which can be washed away when the rains come.

Christians know that we have a perfect house and dwelling place to look forward to in heaven. Here we will

get to experience God's glory face to face and spend our time praising God forever. We will get to experience the beauty of heaven which is beyond description or words! The words of the song, *Better is One Day*, describe it nicely.

*How lovely is Your dwelling place Oh Lord Almighty,  
For my soul longs and even faints for you.  
Oh, here my heart is satisfied within your presence.  
I see beneath the shadow of your wings.*

*Refrain:*

*Better is one day in Your courts.  
Better is one day in Your house.  
Better is one day in Your courts  
Than thousands elsewhere.*

*One thing I ask, and I would seek to see your beauty.  
To find You in the place your glory dwells.  
One thing I ask, and I would seek to see your beauty.  
To find You in the place your glory dwells.<sup>6</sup>*

## **Chapter 6: Focus on Vocabulary**

When I was at the University of Minnesota for my doctoral student work, I attended a donor dinner where students could interact with the donors that supported their work. For part of my doctoral work I was generously supported by John and Sharon Haugo. John grew up on a farm where people help people and believes very much in giving back to others.

John was one of the speakers for the event and told a story about an instance from his high school math teaching days. He had a student who would become the right hand man of Colin Powell who served in many roles for the U.S. including Secretary of State and Chairman of the Joint Chiefs of Staff. John was teaching him about trinomials. He said, “a bicycle has two wheels and a tricycle has three wheels so a binomial has two terms and a trinomial has?” The student thought for a second and then replied, “Three wheels.” This humorous story demonstrates the importance of students being able to understand and discuss mathematics using proper vocabulary.

A focus on vocabulary is essential for teaching mathematics. There are many words that have mathematical meanings and also other meanings outside of mathematics. Take for instance volume. In mathematics it is an amount of space but in everyday usage it is a noise level. Plot in mathematics means to graph a point but can also mean a piece of land to build a house. Product is the result in multiplying but also an item produced in manufacturing. There are math words that are homonyms as well: whole and hole; eight and ate; symbol and cymbal, sum and some, real and reel.

One of the schools that I taught at was a K-12 charter school. The year I was teaching there every grade level from K-12<sup>th</sup> grade came up with a vocabulary list for mathematics that students would focus on during that grade level. None of the lists overlapped so students could add to their vocabulary and focus on the new important terms each grade. The students had quality results on the state standardized tests that can be in part due to the focus on vocabulary that occurred in the mathematics classes. For every chapter that I taught I would give students a

vocabulary list of key terms that we would go over during the chapter. Also, I used a word wall that displayed the key terms on the wall of my classroom. Various activities were done with the word wall in order that the students would develop fluency with the terms.

Jesus had a focus on vocabulary in His teaching and preaching as well. He had key terms that He used quite often for others to get a better idea about what they meant. Some of these words include forgiveness, faith, and service.

### **Forgiveness**

Forgiveness was an essential concept in Jesus' teaching that He wanted all to know about. In the Gospel's Jesus uses the word "forgive" or "forgiveness" forty-three times. In his teaching and preaching Jesus demonstrated that He had the power to forgive sins. Some of the Pharisees had it right when they commented that only God could forgive sins. However, they ended up with anger because they did not connect that Jesus was God.

Another point that Jesus makes about forgiveness is that we are to forgive others because God forgives us. In the Lord's prayer Jesus includes an important part about

forgiveness. *“And forgive us our debts, as we also have forgiven our debtors.”* Matthew 6:12. While forgiveness of sins is something only God can do for eternal destination, all Christians can forgive others in our earthly interactions. Jesus even goes farther to point out that forgiving others is something that Christians will do. *“For if you forgive other people when they sin against you, your heavenly Father will also forgive you. But if you do not forgive others their sins, your Father will not forgive your sins.”* Matthew 6:14-15. Jesus points out further that if someone keeps messing up and sinning, but they repent, then forgiveness is still our response. *“Even if they sin against you seven times in a day and seven times come back to you saying ‘I repent,’ you must forgive them.”* Luke 17:4.

Sometimes it can be hard to forgive someone if they continue to mess up with the same thing. However, if we are honest with ourselves we all know that is like the pot calling the kettle black. We all have a lot of sin in our lives that we are in need of forgiveness. Since only Jesus is perfect, we can strive to sin less not to be sinless.

Thanks to the great exchange, Jesus took the consequences of our sins and we receive God’s holiness and

eternal life. Christian author Mark Batterson has two simple equations that show the power of grace in our lives and our response.

Sin – Grace = Guilt

Sin + Grace = Gratitude<sup>1</sup>

Since God freely forgives us our response is one of gratitude because there is nothing that we could do to pay for our sins. Then since we have been forgiven, we too forgive others.

Angela Ashwin has a beautiful prayer that shows how God’s grace and forgiveness can keep Christians persevering in this life.

How could I ever imagine,  
That I would cope without praying?  
How could I keep going unless I knew  
that I could return my heart to you  
and soak my darkness in your light?

Pour your mercy into my madness  
and your Spirit into my will,  
and make me know  
in my heart as well as my head  
that only in you am I found, forgiven, and free.<sup>2</sup>

## **Faith**

Faith was another key vocabulary word that Jesus used, lived out, and explained. “Faith” or “faithful” is used by Jesus 31 times in the Gospels. Faith is complete trust and

confidence in God and that His promises will not fail. It is described in Hebrews 11:1, *Now faith is confidence in what we hope for and assurance about what we do not see.*

There is a lot of evidence for the authenticity and trustworthiness of the Bible. There are the eyewitness accounts of the Gospels that tell of Jesus' life, death, and resurrection. There are countless prophecies in the Old Testament (written many years before the New Testament) that are fulfilled in the New Testament. The first book in this series, *The World's Greatest Engineer*<sup>3</sup>, describes how God is the world's greatest engineer because He created the entire universe. No one was present when this occurred but as Hebrews 11:3 states, *By faith we understand that the universe was formed at God's command.* The complexities of God's creation give us support for our faith because only God could have the wisdom to make something so intricate as the human eye or have the power to set all of the stars and planets in their courses in perfect harmony. In the Gospels, when Jesus uses the word faith it is to celebrate faith and what results from this or to let people know that they are lacking in faith.

There are multiple times in the Gospels when Jesus heals people and lets them know that it is because of their faith. We know that faith comes from God and all good things come from God so the healings and the faith were all Jesus' work. However, the people in the stories, motivated by their faith and belief in Jesus' power, sought Jesus out and asked boldly for what they would like Him to do. Blind Bartimaeus receives his sight in Mark 10 when he calls out to Jesus. Jesus specifically asks him, *"What do you want me to do for you?"* The man knows just what he would like and asks to see. Jesus states, *"Your faith has healed you,"* and Bartimaeus receives his sight.

Christians know that God does not always grant requests for healing on earth. There is sin in the world so death and diseases are a part of this. However, even through suffering, God can work good out of a bad situation. Someone might be able to encourage another person with a similar ailment to keep fighting. Also, through the way a person handles a disease they might be able to witness their faith to others. Pastor John Ortberg describes it this way. *"Find meaning in suffering. Maybe through your suffering*

you will be able to help someone else; maybe you will be able to grow stronger; maybe the meaning simply is a conviction that God will be able to bring good out of it that you cannot see.”<sup>4</sup> We never know what plans God has for us or what He has in store for us. So we have faith that God can work out everything for our good. *And we know that in all things God works for the good of those who love him, who have been called according to his purpose.* Romans 8:28.

My dad suffers from Parkinson’s disease and yet is a witness to his family, his church visitors, and his home health care workers. He was able to share the Gospel with his workers and one of them even was able to be baptized!

Through Jesus use of the word “faith” in the Gospels, He wants us to know that we can have complete trust in Him at all times. When Jesus walks on water and approaches the disciples who are in a boat, Peter asks Jesus to tell him to walk on the water. Jesus tells him to come and Peter begins to walk on the water. However, when Peter starts to focus on the wind and the waves and not on Jesus, he begins to sink. He cries out to Jesus to save him and immediately Jesus reaches out his hand to catch him. Jesus’

next words show the necessity of having complete trust in God. *“You of little faith,” he said, “why did you doubt?”* Matthew 14:31.

In our own lives if we focus on the negative influences or the bad things that are happening, we can begin to sink as well. But when we focus on Jesus, then we know that we can be safe in His arms and that He will see us through. By faith, when things seem difficult or impossible we can persevere.

There are numerous stories in the Bible when people acted on faith and God’s plan unfolded. By faith Noah built an ark. By faith Sarah, who was past childbearing age, was enabled to bear children because she considered Him faithful who had made the promise. By faith the Israelites passed through the Red Sea as on dry land. By faith the walls of Jericho fell, after the army had marched around them for seven days. These are fitting examples of Jesus’ words in Matthew 21:21, *“Truly I tell you, if you have faith and do not doubt...you can say to this mountain, ‘Go, throw yourself into the sea,’ and it will be done.”*

## Serve

While spoken only 17 times by Jesus in the Gospels, “serve” is an important word on which Jesus based His ministry. In response to faith and the fact that God has forgiven all our sins through Jesus’ death and resurrection, our attitude should be to show God’s love through service to others.

Jesus set the example of service in His time on earth through his words and actions. Jesus, truly man and truly God, had all power and did not need to serve but He did, out of His great love for us. He is the most important Person ever to have lived but described how we should live based on His example. *“For even the Son of Man did not come to be served, but to serve, and to give his life as a ransom for many.”* Mark 10:45. Jesus served others through healing, teaching, and preaching. One of the main lessons on serving He gave His disciples is when He washed their feet. He knew that His time on earth was coming to an end and wanted to show His love to them and also give them an example of how they should treat others. *“I have set you an example that you should do as I have done for you.”* John 13:15.

Through our service to others we serve God. Jesus explains this in describing how God will commend those as they pass into heaven for taking care of the needs of others. *“Then the righteous will answer him, ‘Lord, when did we see you hungry and feed you, or thirsty and give you something to drink? When did we see you a stranger and invite you in, or needing clothes and clothe you? When did we see you sick or in prison and go to visit you?’ “The King will reply, ‘Truly I tell you, whatever you did for one of the least of these brothers and sisters of mine, you did for me.’* Matthew 25: 37-40.

Like the faithful people described in the Bible verses of Matthew 25, Christians can be happy to serve others without having to think about it because it comes natural. I attended an international conference in England where there was a presenter from Japan that spoke very good English. Just in case, though, he had a translator with him who was happy to serve. After his presentations there was a time for questions in which he felt more comfortable answering in Japanese. After one question though, he responded in English and then turned to the translator to wait for her to translate. He had not even realized that he was speaking

English. The response just came naturally. As Christians we know we are serving God through taking care of the needs of others, but it is a natural response. At times we might not even think about it as service to God; but would quickly acknowledge this if someone pointed it out.

Vocabulary is a key part of mathematics teaching and Jesus' teaching. The more you hear Christian key vocabulary through studying and knowing the Word the more it will become a part of your everyday life and language. It will seem very natural. It is important though in mathematics teaching and Christian teaching to have a chance to get feedback on vocabulary usage.

Pastor and author, Max Lucado, tells the story about a Mom who was nervous about her first grader son, Timmy, who would walk to school. She would quote the 23<sup>rd</sup> Psalm to Timmy every morning. One day she got an idea and asked a neighbor who walked in the mornings with her baby to follow Timmy to school to make sure he made it safe. Timmy eventually noticed the lady and child. One day Timmy's friend asked him who followed him to school. Timmy responded, "That's Shirley Goodnest and her

daughter Marcy.” Timmy paused. “My mom reads about them everyday in Psalm 23.”<sup>5</sup>

As Christians, we won't always get it completely right. But if we remember that we are forgiven loved children of God, have our complete confidence in God, and empowered by God's love, serve others with joy, we will be all right and arrive safely to our destination.

## **Chapter 7: Focus on Big Ideas**

Big ideas are an essential focus for mathematics.

Students learn better when the information is presented within a framework of big ideas that students connect to their prior knowledge. In my doctoral work I taught a mathematics content class for preservice elementary teachers. One of the assignments was for students to demonstrate understanding of several course objectives through a written reflection. The objectives were based on big ideas and two of them are below.

*Students will be able to describe connections among tables, graphs, and algebraic rules for linear, quadratic and exponential functions, noting differences among the three types of functions.*

*Students will be able to list the mathematical characteristics of proportional situations and to use them to differentiate proportional from non-proportional situations.*

In high school the different types of functions that students learn are big ideas into which students can make connections into things they are familiar with: tables, graphs, and equations. Students can look at how the table is changing to let them know what function it is. They can also look at the shape of the graph and see the change of the function this way. Finally, connections can be made to the

equation to see how a function would operate. For example a linear equation would have a variable to the first power, meaning constant change; while an exponential function has a variable in the exponent meaning an increasing or decreasing rate of change. The characteristics of proportional situations can also be connected to tables (constant change), graphs (straight line through the origin), and equations ( $y = mx$ ).

Without focusing on big ideas, mathematics can just seem like a bunch of isolated facts and procedures. For example, read the narrative below and then look away and see how much you can remember.

*The procedure is actually quite simple. First you arrange things into different groups. Of course, one pile may be sufficient depending on how much there is to do. If you have to go somewhere else due to lack of facilities that is the next step, otherwise you are pretty well set. It is important not to overdo things. That is, it is better to do too few things at once than too many. In the short run this may not seem important but complications can easily arise. A mistake can be expensive as well. At first the whole procedure will seem complicated. Soon, however, it will become just another facet of life. It is difficult to foresee any end to the necessity for this task in the immediate future, but then one never can tell. After the procedure is completed one arranges the materials into different groups again. Then they can be put into their appropriate places. Eventually they will be used once more and the whole cycle will then have to be repeated. However, that is part of life.<sup>1</sup>*

I would imagine that it would have been difficult to remember the procedure that was described or to even tell what the procedure was describing. However, if I had told you a big idea into which you could connect this information then I would bet that the paragraph could be understood easily. The procedure being described is washing clothes.

There is a popularly used illustration to highlight the benefits of focusing on big ideas for the Christian life. Take four tennis balls that signify the most essential things in a Christian's life: God, people, calling, and joy. Then take sand to signify things that are less important and not the "big ideas" of life. This would include laundry, paying bills, cleaning, errands, shopping, and so on. If you want to fit everything into life or in this case a tennis ball can it does not work if you start with the sand. When you try to put the tennis balls in they will not fit. But if you start with the tennis balls, then the sand can fill in around the main things that life should be focused on.

Jesus demonstrated and discussed how focusing on big ideas can lead to a more fulfilling day and also on accomplishing what God would want for us in our lives. The

most important part of our day is to love God. We can then live out and show this love to others. Our calling as Christians is to share the Good News of the Gospel through our word and actions. We can do this by giving glory to God in all that we do. Finally, God wants us to be joyful for all that He has given us and often reminds us in the Bible to not be afraid.

### **Love the Lord your God**

The greatest commandment as shared by Jesus is to love the Lord your God with all your heart and with all your soul and with all your mind and with all your strength. Loving God is totally surrendering ourselves to him and being willing to be used how God sees fit. It is ensuring that God is the most important thing in our lives and is in all aspects of our life. It is not God then family, but God in our family. It is not God then career, but God in our career. This can be difficult to do though because our sinful nature wants to focus on what we want in life and not what God would have us do. There is a joke that two children are at the table waiting for breakfast. The first pancake is done and both of the boys want to eat first. The mother states, "Jesus would

let another person eat first.” So the younger brother says to his older brother, “That is a good idea, you should be Jesus.”

There are many things in life that can become idols that prevent us from loving God above all else. Pastor and author Timothy Keller describes an idol as “anything more important to you than God, anything that absorbs your heart and imagination more than God, anything you seek to give you what only God can give.”<sup>2</sup> An idol can be family or children, career, making money, social standing, romantic relationship, peer approval, competence and skill, comfortable circumstances, beauty or brains, and others.

What we focus on helps to determine what is most important. None of the things mentioned above will last. We can listen to Jesus and focus on what will last. *“Heaven and earth will pass away, but my words will never pass away.”* Luke 21:33. The more we spend time reading God’s Word and discussing it with others the more we will be able to push all of the idols that are possible in our life away. God’s love will permeate all aspects of our life and we will strive to love God with our heart, soul, mind, and strength.

Pastor and author, Max Lucado, states it this way, "And so it is with Christ. The longer we live in him, the greater he becomes in us. It's not that he changes but that we do; we see more of him. We see dimensions, aspects, and characteristics we never saw before, increasing and astonishing increments of his purity, power, and uniqueness."<sup>3</sup> God will bring about the change in our lives. His power is real and His love is unending. A simple prayer can be prayed throughout the day to help us keep God's Word in our hearts and minds. *"Lord, help me to keep my thoughts, words, and actions focused on You."* To love the Lord our God is the greatest commandment, but it is not all up to us. God will help us and has given Christians the Holy Spirit for guidance and direction.

### **Love Others**

Jesus states that the second greatest commandment is *"Love your neighbor as yourself."* Matthew 22:39. Our neighbor is all people that we come into contact with or who we are able to help. It is in response to God's love that we are able to show love to others. *"As I have loved you, so you must love one another."* John 13:34. In fact, if we truly love God with

our whole heart, mind, and soul then we will show love to others as it states in 1 John 4:19-21. *Whoever claims to love God yet hates a brother or sister is a liar. For whoever does not love their brother and sister, whom they have seen, cannot love God, whom they have not seen. And he has given us this command: Anyone who loves God must also love their brother and sister.*

In order to love others, we need to have the right mindset. If we keep the needs of others at the forefront of our mind then opportunities may present themselves where we can show God' love. *Do nothing out of selfish ambition or vain conceit. Rather in humility value others above yourselves, not looking to your own interests but each of you to the interests of the others.* Philippians 2:3-4.

Teachers have the difficult job of communicating to all of their students that they care for them and want them to succeed. Teachers must be very cognizant of the messages that they are sending to their students or to certain groups of students. Teachers must also internalize the belief that all students can do mathematics. If that does not happen then students can be affected and do worse at mathematics. Beliefs influence perception and can be thought of as

dispositions toward action. If a teacher believes that a student cannot do mathematics or gives a student this impression, he or she might stop trying.

In my own teaching I had a student that I would pull out of homeroom and work with on math during the 1<sup>st</sup> period of the school day. The student struggled with mathematics but we were making progress. The student did not have a positive attitude about mathematics, but this got worse when there were a couple of times where I had to work with other students. His effort immediately decreased in class. I realized later that he thought I was giving up on him when I was working with other students. He did not think that other students needed help as well. When I explained this to him his attitude and effort improved. Teachers have an amazingly difficult job, but must ensure that all students are empowered to learn mathematics.

We should never give up on others in our lives or let them think we have. When Christians show God's love to others through words and actions, people can notice the positive differences Christians make. It can then lead to opportunities to share about their church or how God is

working in their lives. The ultimate goal would be for all people to come to the saving faith that only can be found through Jesus Christ.

### **Share the Gospel Message**

A Christian's calling is to give glory to God in everything that we do and to share the Good News of salvation to others. The last words that Jesus spoke on earth were to impart this mission for Christians. *"Therefore go and make disciples of all nations, baptizing them in the name of the Father and of the Son and of the Holy Spirit, and teaching them to obey everything I have commanded you. And surely I am with you always, to the very end of the age."* Matthew 28:19-20. It was this work that Jesus had been doing in his time on earth. *Jesus went throughout Galilee, teaching in their synagogues, proclaiming the good news of the kingdom, and healing every disease and sickness among the people.* Matthew 4:23. Everyone can't heal diseases and sicknesses but we can use our gifts to serve others and in doing so have opportunities to share our faith.

No matter what our job is we can treat people the right way and value them and in doing so show God's love

to them. Retired basketball coach, Don Meyer, had over 900 wins in his career. He had a list of principles for how his players and coaches would treat each other. Coaches and players with great team attitudes: (1) listen to each other, (2) are courteous to each other, (3) show concern for each other, (4) help each other out and share the load, (5) say what they feel, but watch how they say it, (6) don't put each other down, (7) celebrate success, (8) don't talk behind each other's backs, (9) praise each other, and (10) treat everyone's opinions as important. They are simple principles that can be remembered and that can help build relationships with others.

In the world and in the U.S. there are opportunities to share God's love to non-Christians. Jesus noted this in His time on earth and it is still true. *"The harvest is plentiful, but the workers are few."* Luke 10:2. India and China have a combined 2.61 billion people. While the number of Christians is growing, there are around 2.51 billion people in these two countries that are non-Christians. There is certainly a great need for missionaries in these two countries and in other places around the world, but people can also

witness in the U.S. as the number of Christians in the U.S. is decreasing. Around 70% of the population in the U.S. is Christian while around 37% to 22% of the U.S. population are in church on a weekly basis. Christians need more opportunities to hear and discuss God's Word.

There is a sign used at my church near the exit that states, "You are now entering the mission field," as a reminder that we can be witnesses where we live. Sharing the Good News becomes easier with practice and doing it over time, and we do not need vast resources to do it. A long time Sunday School teacher, Mildred Lohse, and church organist, Mark Krause, wrote the following hymn. It shows that the first people to hear the Good News about the Savior's birth were people not held in high esteem in society. They could not contain themselves and had to spread the message. It is a great message to tell! As Christians we can keep this enthusiasm of the shepherds in mind for our own lives as we interact with others and look for opportunities to share God's Gospel message.

## *When Jesus Came from Heaven to Earth*

*When Jesus came from Heaven to earth, who were the first to hear?  
The humble poor and lowly folk, the shepherds watching near.*

### *Refrain*

*Glory to God the angels sang, good news to you we bring;  
All people on the earth should know about this Savior king.*

*The lonely people in surprise could hardly dare believe  
That God to them a lonely group this blessed message give. Refrain*

*They hurried on to Bethlehem to see this wondrous sight  
The angels told to them the place to find this Son of light. Refrain*

*They did not keep this to themselves but spread the news abroad  
As homeward they did go their way to folk along the road. Refrain*

*They noticed not to whom they spoke, one thing was on their mind  
To tell whoever that they saw their Savior they did find. Refrain.<sup>4</sup>*

## **Joy**

It has been said that joy is the serious business of heaven. God desires for Christians to have joy and happiness on earth. The pastor at my parent's church always ends each service with the words, "Serve the Lord with joy!" It is a great reminder that we can be joyful in all we do. The joy comes from the knowledge that we are saved and that eternal life awaits us in heaven. It causes inner joy despite the circumstances of life. A good way to remember the word "joy" is by focusing on what is most important: Jesus,

Others, You. If this is a perspective of a Christian than joy can be found and kept in one's heart throughout life.

Often what can keep us from joy is fear or worry in life. One phrase or a variation on it is used over a hundred times in the Bible: "*Do not be afraid.*" Matthew 14:27. It is a good reminder that we do not stand alone and that with God we can handle what life will bring.

There was a teacher that had high expectations for her students and constantly instilled in them confidence that they were intelligent. The teacher came to the middle of the year and wanted to make sure that her students felt that way. She told them, "Anyone who feels that you are dumb, stand up." No one moved and then finally one boy stood up. The teacher was shocked and inquired, "Why did you stand up?" The boy replied, "I didn't want you to be the only one standing." God will never berate us and always encourages us that we are intelligent. He has specially made each one of us, knows us, and cares for us. That is a great reason to be filled with joy!

This inner joy can bring peaceful living. Jesus' perfect love can expel all fear and worry. Max Lucado has written

about eight worry stoppers in order to live our lives with more inner joy and peace: (1) **Pray** first, (2) **Easy** now—slow down, (3) **Act** on it—don't procrastinate, (4) **Compile** a worry list—record anxious thoughts and then go back and see how many were really nothing, (5) **Evaluate** your worry categories—pray specifically about them, (6) **Focus** on today, (7) **Unleash** a worry army—share with others and ask them to pray, and (8) **Let God** be enough.<sup>3</sup> If you look back on the first letter of each worry stopper you will see that it spells PEACEFUL. It is a great recipe to live a life filled with joy.

There are Bible verses that can be remembered as well to help us go throughout our day with joy. *Rejoice always, pray continually, give thanks in all circumstances; for this is God's will for you in Christ Jesus.* 1 Thessalonians 5:16-18.

*Rejoice in the Lord always. I will say it again: Rejoice!*

*Philippians 4:4. Be joyful in hope, patient in affliction, faithful in prayer.* Romans 12:2. *Though you have not seen him, you love him; and even though you do not see him now, you believe in him and are filled with an inexpressible and glorious joy, for you are receiving the end result of your faith, the salvation of your souls.*

1 Peter 1:8-9. Through everything our joy comes from our

salvation and an active prayer life with God can help as we go throughout our day.

In my teaching, a big idea that I taught students when solving equations is to use the opposite or inverse operation. To undo multiplication, divide. To undo addition, subtract. To undo a square, square root. Each operation is paired together. In our own lives there is only one operation that can undo the punishment that we deserve for our sins. It is Jesus' death on the cross and resurrection that paid the price for all our sins. Because of His glorious redeeming act on the cross, the sentence of death is undone and eternal life awaits us in heaven. It is the biggest idea in the Bible and is the basis for the Christian life. Because of Jesus we live. Because of Jesus' love, we love others. Because the Gospel message provides life-saving faith, we tell it. Because we are saved and know Jesus, we are joyful!

## **Conclusion: The World's Greatest Mathematics Teacher**

The previous chapters have contributed to the case of how Jesus is the world's greatest mathematics teacher. This chapter will describe things that only Jesus is capable of that without a doubt make him the world's greatest mathematics teacher. There is nothing too difficult for Jesus and there is much to learn from His life and ministry. Take for instance the feeding of the five thousand from only five loaves and two fish in which twelve baskets of food were leftover. Only with Jesus does  $5 + 2 = 5,000$  remainder 12. With a normal mathematics teacher this does not make sense but with Jesus the math works perfectly.

A great teacher or leader makes a world of difference. Dick and Maurice McDonald started the McDonald's restaurant but could only sell their concept to fifteen people. Ray Kroc took over and in four years there were four hundred restaurants.<sup>2</sup> Leadership ability allowed the company to grow rapidly. A leader will only take a group as far as their skills in leadership will allow. With Jesus as our leader there is no limitations to who can be reached and what can be done.

Jesus was a great **motivational teacher** and leader. A **motivational speaker** makes you feel good but the next day you're not sure why. A **motivational teacher** also makes you feel good but the next day you possess something that will actually help you.<sup>1</sup> Jesus' message not only motivates but teaches us, providing help for our current and future life.

Jesus is the world's greatest mathematics teacher and goes beyond what any mathematics teacher could accomplish. Only Jesus could have all students succeed, know all students perfectly, have perfect content knowledge, and always know how to respond appropriately and move students forward.

### **All students succeed**

Based on No Child Left Behind legislation that is no longer in place, 2013-2014 was supposed to be the year that **all** students were proficient in mathematics. This lofty goal was never achieved, but that does not mean that some students are not able to do mathematics. A more important focus is, "What mathematics do students need to know to be successful in the 21<sup>st</sup> century world?"

The way students learn mathematics is just as important if not more than the content if we are to drive home the message that everyone can do mathematics. Students need more than just mathematical knowledge to be successful in the world. Take for example that the new middle class jobs require a person to be a good collaborator, adapter, explainer, synthesizer, or model builder. Mathematical experiences should help students learn how to learn and to instill a passion and curiosity for knowledge. We want to give students the option to pursue the careers that they want. However, it is obvious that not everyone will enter a field that requires a heavy dose of mathematics content. Everyone will enter a career, though, that can make use of social and life skills that can be developed when learning mathematics.

There are many great mathematics teachers in the U.S., but there is definite room for improvement based on student test scores and views on mathematics, with an estimate of 4 in 10 Americans saying they hate math. There is a need for more mathematics teachers as well. Since the early 1990s, the number of math and science teachers leaving

the profession has been greater than the teachers entering the profession by an ever increasing number. In addition, higher poverty schools have a greater incidence of math teachers without even a minor in mathematics or being a licensed mathematics teacher. In fact, students that attend schools with a high minority population have a 50% chance of getting teachers in both science and mathematics that do not hold both a license and a degree in the field they are teaching.<sup>3</sup>

While it takes a village—parents, community, family, friends, business, government—to raise a child, the goal for a mathematics teacher is to reach all students, but no teacher is perfect and it is difficult to have all students succeed. Only Jesus is capable based on what He has done to have all people succeed with the most important knowledge the world has ever known. That is the saving knowledge that Jesus Christ is our Lord and Savior. Jesus has made this gift available freely for all and desires for all to take a hold of it. *This is good, and pleases God our Savior, who wants all people to be saved and to come to a knowledge of the truth.* 1 Timothy 2:4.

When Christians know that their time on earth is coming to a close, there is no need for doubt or worry. We will soon be in heaven with Jesus and everything will be perfect. Those on earth have comfort that for those who die in the Lord, we will be reunited with them in heaven. It is an amazing promise and something that only Jesus could accomplish. There is no way for any human to have done what Jesus did. He paid the price for all of our sins so that in place of sinfulness we might inherit His holiness. There is no standardized test that is needed to determine proficiency. Jesus endured the tests and trials of His suffering on the cross for us. By believing in Jesus as our Lord and Savior, we succeed and have the greatest victory the world has ever known.

### **Knows students perfectly**

At the start of every school year I would have my students write a story about themselves. They could share anything that they wanted about themselves and I also told them to share anything that I could do to help them be successful in mathematics class. It is something that I still do in my college teaching and I learned it from my dad who

was a minister and religion professor. I took a class from him in my undergraduate degree called, “Our Living Faith”, and the first assignment of the semester was the story about ourselves so that my dad could get to know his students better. It was a great assignment that I have used in my own teaching because teachers do not just teach subjects, they teach students. In order to best teach a subject it is important to get know students first and build a classroom community where everyone knows each other and is willing to help each other.

While teachers cannot know all of their students perfectly, Jesus knows all of us perfectly. Jesus knows our wants and needs and even knows us down to the number of hairs on our head. In John 4 Jesus meets a Samaritan woman at a well. It is especially noted that he was tired at this time, but he takes the time to still share the Good News and demonstrates that barriers that were in place between people do not need to exist. At this time Jews did not associate with Samaritans. Jesus came to bring the Good News to all. Jesus tells the woman to *“Go, call your husband and come back.”* Jesus already knew what she was going to

say and that she currently had no husband, but gives her the chance to respond honestly. The woman tells Him that she has no husband. Jesus goes on to tell her, *“You are right when you say you have no husband. The fact is, you have had five husbands, and the man you now have is not your husband.”* The woman can tell from Jesus words that he might be the Messiah. Jesus confirms this and the woman goes and tells everyone that she can.

It is amazing to think that Jesus loves each of us as if there is only one of us. Jesus took the time at the well to tell the Samaritan woman about the most important life-giving water, salvation through belief in the Messiah. In our time spent talking to Jesus in prayer, we can be honest about our life and receive wisdom and direction from Him. God knows what we need and can put us in the right situation at the right time to accomplish something good.

When I was getting my doctoral degree in mathematics education I was planning on minoring in mathematics. My first mathematics class that I took was partial differential equations and I had not taken an advanced mathematics class in seven years. Needless to say

I was a little rusty and started off with a F in the class. I worked hard though, studying, attending office hours, and getting help from Internet websites and ended up getting a B- in the class. However, to get a minor in mathematics I needed to get at least a B in all my mathematics classes. It was disappointing at the time, but I decided to get a minor in statistics education instead because I had to take a few statistics courses already as part of my program. For one of my statistics classes I was able to work on an assignment of my choosing and I decided to write a children's book based on statistics, *Bears and Baseball*.<sup>4</sup> It ended up being a great thing as I have now written seven children's books and enjoy doing this. It is just another instance of God turning disappointment into something good.

There is an Old African folktale about a king and his friend who grew up together and did everything together. The king's friend had a saying. In every circumstance, he would say, "This is good." One day the king and his friend were out hunting. The friend loaded the firearm for the king, who fired it, but it exploded, blowing off the king's thumb. As was his habit, the friend said, "This is good."

The king replied, "This is *not* good," and had his friend thrown in prison. A year later, the king was out hunting without his friend, when he was captured by cannibals. The king was taken back to their village and tied at the stake. He thought to himself, "This is not good." But just before lighting the fire, one of the cannibals noticed that the king's thumb was missing. According to tribal tradition, they would never eat anyone who wasn't whole. So they untied the king and let him go.

When the king realized that his missing thumb was what spared his life, he immediately thought of his best friend whom he'd sent to prison. He said to his friend, "You were right. It is good that my thumb was blown off. I'm sorry for sending you to jail. This is not good." To which his friend replied, "No This *is* good." The king still didn't understand. "What do you mean, 'This is good'? I sent my best friend to jail for a year!" The friend insisted, "This is good. If I hadn't been in jail, I would have been with you. And my thumb's not missing!"<sup>5</sup>

The morale of the story is that we can trust God through all moments in life because He knows us perfectly.

What we think might be bad could lead to something good down the line. Jesus at the well demonstrated with the Samaritan women how he knows us all and what we need. As Christians we can trust in God and that his timing is perfect.

### **Perfect content knowledge**

My first year teaching, there was a lesson on probability and odds that I thought I had put in the needed time to be prepared. I gave quality instructions to the students on probability and then had them work on some problems. One of the students asked, "What are odds?" It was a term that I had not looked at closely because I believed it was another way of saying probability and told this to the student. It wasn't until after the class that I looked closer at the problems and realized that I had made a big mistake. Probability is the number of successes to the total number of outcomes. For example, for a standard die the probability of rolling a 5 is 1 out of 6. However, "odds" is the number of successes to the number of failures, so the odds of rolling a 5 are 1 to 5, because there are five numbers that are not a five on a dice. I felt bad about making the

mistake, but the next class period I was able to correct myself and the students learned the correct definitions and usages of the two terms.

There is never an instance in the Gospels where Jesus is not prepared or says the wrong thing. He never had to go back and think through a better way to explain a concept. The number of parables shows Jesus' perfect content knowledge. People relate to and remember stories and illustrations better and Jesus had them on hand for the right times.

**Always knows how to respond appropriately and move students forward**

Jesus was teaching and preparing his disciples throughout his ministry on earth. The disciples had many questions for Jesus and He answered them all appropriately and in a way that they would grow in their faith. One of the greatest gifts that you can give someone is thanking them for being in your life. When Jesus time on earth was coming to a close he washed his disciples feet. It was another instance when he was teaching them about living a servant lifestyle, but also I think it was a way to say thanks as well because

they had lived together closely for so long. Jesus knew he would leave the earth soon, but that He had prepared the disciples for what was to come.

The explosion of Christianity and the Gospel after Jesus' resurrection is evidence of how great a job Jesus did as a teacher. The disciples and early followers of Jesus were not stopped by persecution, poverty, prison, or martyrdom. Recently a survey of thousands of people was done in which people were asked what kept them from loving and knowing God better. The number one answer was, "I am too busy."<sup>6</sup>

Until we get to heaven we will not have the experience of living with Jesus, but now we still have the Holy Spirit within us and God's Word to guide us. It can be a similar close experience of abiding with God and learning more about Him. By studying God's Word we will grow our relationship with Him and everything else will be put in perspective. When we see God in all aspects of our life, we will take time to pray, read and discuss God's Word throughout the day.

A school district in San Francisco did a rather ingenious experiment. Three teachers were chosen to pilot a special program. They were told by the administrators, "You are the best teachers that we have. We want you to teach 90 high-IQ students. We want to see how much they can learn in a year." At the end of the year those students did 20 to 30 percent better than the rest of the students in the school district. That is when the teachers were told their students were randomly selected run of the mill students not high-IQ students. They were also told, you are not the three best teachers. You were just the first three names picked out of a hat.<sup>7</sup> The administration definitely knew how to get students to move forward and learn in this district. They knew the importance of high expectations.

Jesus always had the right mindset with his disciples and had high expectations of them. He knew that they were not perfect but that everyone had been given gifts that they could contribute and improve with. It is important to remember that Jesus never told people to clean up their act first and then they could talk with Him. He said, "Come to me and I'll clean you up." We all have issues that we are

dealing with in our lives or things that do not go as planned.

We can trust that just as Jesus got the best out of his disciples, that God wants the best for us as well. There is a great poem by Helen Steiner Rice that tells about how we can trust in God no matter what happens.

The Bend in the Road

*And together we stand at life's crossroads  
And view what we think is the end,  
But God has a much bigger vision  
And He tells us it's only a bend.*

*For the road goes on and is smoother,  
And the pause in the song is a rest.  
And the part that's unsung and unfinished  
Is the sweetest and richest and best.*

*So rest and relax and grow stronger.  
Let go and let God share your load,  
Your work is not finished or ended,  
You've just come to a bend in the road.<sup>8</sup>*

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Jesus is the world's greatest mathematics teacher because there is nothing that He cannot do. All of the key characteristics of a quality mathematics teacher Jesus displayed in his time on earth. Jesus' teaching is always connected to our lives and the real world. He displayed well developed pedagogical content knowledge to know everyone's capabilities and misconceptions. Jesus' often

would use questioning to inform his teaching. He used different representations for his teaching to have the most impact and for people to have the greatest understanding. Jesus made use of technology of the day in his parables and teachings but also used the most important means of communication, prayer. He knew the importance of vocabulary and also focusing on big ideas so that all people would know the most important information about God. With all of the connections to mathematics teaching in Jesus' ministry the greatest quality that goes beyond any mathematics teacher is that He is our Savior.

There is no formula, model, procedure, or method for how sinners can escape the grips of sin. It is only through Jesus' suffering and death on the cross and His glorious resurrection that we are able to be made alive in Christ Jesus. Jesus brought himself into the equation to solve our sin problem. We know that heaven awaits us and that is why Jesus name is to be praised and Christians have much hope and a guaranteed future!



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