

# **The World's Greatest Engineer**

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*In the beginning God created the heavens and the earth.*  
Genesis 1:1

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## Introduction

**What is engineering? What do engineers do? Making something that has not existed before (design) is central to engineering.**

**Henry Petroski**

**In the beginning was the Word and the Word was with God, and the Word was God. Through him all things were made; without him nothing was made that has been made. In him was life, and that life was the light of all mankind.**

**John 1:1,3-4**

God is the world's greatest engineer because He created the universe and everything in it. In general engineering can be thought of as design under constraint. For human engineers constraints can be time limitations, resources available including money and people, and the constraints of knowledge that is available. God does not have to worry about constraints though because with God nothing is impossible. He goes beyond any notion of human engineering, is all-knowing, and all-powerful.

Humans were created in God's image and with God's help and strength are capable of great things. God does not make junk and every person has God-given talents and abilities that can be used to glorify God. Know that you were created to be great, something special, something only you can be. Being great is not based on your job, possessions, power, or appearance though. It is based on what Jesus has done for us through His suffering and death on the cross for the sins of the world and His victorious

resurrection. Because of His love that gives us the free gift of eternal life, we are able to show God's love to others in whatever we are doing in life, wherever we might be, and with whom we interact with in our daily lives. It is quite amazing to think that the all-powerful creator God knows us, has a purpose for our lives, cares about us, and wants to help us. This book will help you to learn more about God as the ultimate designer, His purpose for your life, and grow in your relationship with Him.

### **God as the ultimate designer**

God's creation is a marvel to behold. Geese can fly 1,000 miles without stopping sometimes at 50 miles per hour. Polar bears can be released 300 miles from their home and instinctively find their way back. How animals survive in cold conditions is amazing by itself. Polar bears' hairs act like tiny fiber-optic tubes, trapping the warming ultraviolet rays and funneling them to the bear's body while the bear's outer temperature is the same as its surroundings.<sup>2</sup>

Giraffes are another example of an amazing creation due to their 18 foot height and the ability to sustain speeds of up to 31 miles per hour for multiple miles. The functioning of their circulatory system within their long necks is really remarkable though. In order to get blood from its heart up to its brain, about eight feet higher, a giraffe must have an enormous heart that can pump blood up to the brain while consistently working against the force of gravity. Indeed, giraffes were designed with a two-foot long, 20 plus pound heart. Even more remarkable is that



when a giraffe lowers its head, it has control valves in its jugular veins and a network of blood vessels in its head to keep blood pressure constant in the brain. This way giraffes do not pump too much blood when the force of gravity is in their favor when their heads are below their heart.<sup>4</sup> There are many more animals that could be discussed as evidence of the greatness of God's creation. Only humans were made in God's image though.

God has given us wonderful bodies and minds that we can use to glorify Him. This can give us confidence that we can take care of God's creation and creatively make new inventions. We should have the right mindset though, that our thoughts and knowledge will never ascend to God's heights. Our culture exalts self-sufficiency, self-esteem, and self-confidence. It can be conveyed that our greatest asset is our own ability. However, we cannot accomplish anything of value apart from God. Samuel Morse who invented the telegraph and Morse code stated, "I have made a valuable application of electricity not because I was superior to others but solely because God, who meant it for mankind, must reveal it to someone and He was pleased to reveal it to me." When we remember that all good things come from God we can remain humble and use these opportunities to praise God.

No matter what our accomplishments are, we matter because God cares for us and values us. Author Dale Carnegie once said, "We all have an innate, unquenchable desire to know we are valued, to know we matter. Yet

affirming this in each other is among the most challenging things to do in our day and age.”<sup>5</sup> We can remember the parable of the lost sheep. The shepherd searches for one lost sheep out of a hundred and rejoices greatly when it was found.<sup>6</sup> God wants all to be saved and share in the joy of heaven. We matter because God has created us and cares for us. Our purpose, to glorify God in all we do and share His love with others, is able to be accomplished through His power. We can keep this in mind throughout the day and at the start and end of each day. Dietrich Bonhoeffer states, “We are silent at the beginning of the day because God should have the first word, and we are silent before going to sleep because the last word also belongs to God.”<sup>7</sup>

In order to better appreciate how God is the world’s greatest engineer, some background knowledge on engineering and STEM (Science, Technology, Engineering, and Mathematics) education is helpful. Engineering is best understood as the integration of STEM knowledge. Engineers use applications of mathematics and science to design technologies. Technologies can be anything human-made that makes life easier. For example, something simple as a chair or a pencil is a technology as well as a more complicated technology as a laptop. Engineering is being included in more states K-12 science standards. While science is concerned with understanding nature and building up knowledge, engineering is focused on innovation and invention. Engineering is a highly

applicable, team-based, creative real world field and is essential to our health, happiness, and safety.

Scientists and engineers can see their work as an authentic calling to understand God's world and to use the resources He has provided us with to help others. Some of the greatest scientists and engineers were Christians. "They were greatly interested in theology, and they wanted a way to conceive of their scientific work as a God-pleasing activity." Johannes Kepler and Robert Boyle were Christian scientists and in the 16<sup>th</sup> and 17<sup>th</sup> century scientists were often described as natural theologians. Their purpose was in "Glorifying God by unveiling the ordering principles God built into nature and by serving our neighbor through discovering nature's secrets and developing beneficial technology." Physician and inventor Raymond Damadian said, "by God's grace and the devoted prayers of my Godly mother-in-law, I invented the MRI scanner." It is widely used in hospitals to diagnose and help people with a variety of health problems.

While people can create inventions to help society, no one can do what God has done. He is the ultimate designer because only He could create the entire universe and everything in it. There is no other plausible explanation for how the world came into existence. A good hymn to remember and sing is "This is My Father's World" by Maltbie Babcock. Maltbie would walk in the woods near Lockport, New York with amazing views of farms, orchards, and Lake Ontario. It is these walks that inspired the hymn.

When going out to start a walk, he would remark, "I'm going out to see my Father's world."<sup>10</sup>

This is my Father's world, and to my listening ears  
All nature sings, and round me rings the music of the spheres.  
This is my Father's world: I rest me in the thought  
Of rocks and trees, of skies and seas;  
His hand the wonders wrought.

This is my Father's world, the birds their carols raise,  
The morning light, the lily white, declare their Maker's praise.  
This is my Father's world: He shines in all that's fair;  
In the rustling grass I hear Him pass;  
He speaks to me everywhere.

This is my Father's world. O let me ne'er forget  
That though the wrong seems oft so strong, God is the ruler yet.  
This is my Father's world: why should my heart be sad?  
The Lord is King; let the heavens ring!  
God reigns; let the earth be glad!

## **STEM education in the Bible**

The main purpose of the Bible is to convey God's free gift of salvation, but there are some connections that can be made to STEM education. When I was getting my undergraduate degree in mathematics education at Concordia University in St. Paul, Minnesota I had to do an exit interview at the end of the program. One of the professors, Lonny Maly, asked me how could I use the Bible to teach mathematics. I don't remember the answer that I gave but have developed some ideas since then.

The first real world mathematics problem is presented in the Bible. I know many of you probably just groaned when I mentioned a mathematics word problem, but that is more a function of how word problems are taught

to students; which is a topic for a different book. Numbers 7:85 states, *Each silver plate weighed 130 shekels, and each sprinkling bowl 70 shekels. Altogether, the silver dishes weighed 2,400 shekels.* A natural question that follows is how many silver plates and sprinkling bowls were there? There are multiple answers to this question so I can provide more information in case you would like just one right answer. Altogether there were twenty-four total plates and bowls. Just like the odd problems in the back of most mathematics textbooks you can check Numbers 7:84 to see if you got the right answer.

One of the first STEM educators is described in the Bible. It is one of the wisest people to live, Solomon. *He (Solomon) described plant life, from the cedar of Lebanon to the hyssop that grows out of walls. He also taught about animals and birds, reptiles and fish* 1 Kings 4:33. Solomon also built the Temple which was a massive undertaking since there was no consistent measurement devices as there are today. Even still, there is an estimate of a famous mathematical number that is described in the description of the temple furnishing's in 2 Chronicles 4:2 *He made the Sea of cast metal, circular in shape, measuring ten cubits from rim to rim and five cubits high. It took a line of thirty cubits to measure around it.* Any guesses on the number described that is connected to all circles? In any circle the ratio of the circumference to the diameter is the number  $\pi$ . It is a number that does not repeat and does not end but begins 3.14159... If you look back in the verse the

circumference, distance around a circle, is 30 cubits and the diameter, the distance of a line segment through the center with endpoints on the circle, is 10 cubits. Taking the circumference divided by the diameter  $30/10$  gives an approximation of 3. In order to build the temple a great deal of mathematical and engineering knowledge would have been needed!

Another good mathematics problem with an important lesson is found in 1 Kings 18. The prophet Elijah shows God is the true God on Mount Carmel and that the prophets of Baal worshiped a false god. After this Elijah runs a distance of 17 miles to arrive at the town of Jezreel before King Ahab, who was in a chariot, arrives. A good mathematics problem would be to explore the average speed of a chariot to determine how fast Elijah had to run. The important lesson though comes from verse 46. *The power of the Lord came on Elijah and, tucking his cloak into his belt, he ran ahead of Ahab all the way to Jezreel.* With God anything is possible!

### **STEM education in my life**

Children are natural engineers because of their curiosity and feel good when they can be creative. Mathematician and Engineer Larry Genalo described it this way. "Young children are inherently active with strong impulses to investigate, to share with others what they have found out, to construct things, and to create. In other words, a child is a natural engineer."<sup>11</sup> Proof of this is that children ask around 125 probing questions per day, while adults only

six.<sup>12</sup> We should keep in mind that God created us to be curious and to continue to learn our whole lives.

When I was a young child my parents found that I did many things that were connected with STEM education; though some of the things they wish I wouldn't have done. I worked on one-to-one correspondence by putting a drop of glue in everyone's shoe. In order to explore perimeter I would take a stick of butter and run it all the way around the wall of a room. In order to explore gravity I took a pitcher of lemonade and dropped it down the stairs. To better determine volume I would dump out all of the cheerios from the box...or to just get the prize. Buoyancy was another topic I investigated when I would drop Legos in the tub to see if they would float. Though I am sure my parents wish I had not made so much of a mess to clean up, there can be a benefit from making mistakes as it helps us learn. Failure is an important part of engineering and in life so that it can be handled productively and improvements can be made.

Stories that many of us read while young emphasize that we can learn from failure and also the importance of perseverance. The story, *The Little Engine That Could*, conveys the importance of a positive attitude and the mindset, "I think I can." Building on this idea, I wrote a children's book called, *The Little Engineer That Could*. It tells the story of a young girl that learns about engineering and uses this knowledge to help a wounded veteran. She seeks

help from others and remembers the importance phrase, “I think I can” throughout the book.<sup>13</sup>

In my job now I help prepare teachers to implement high quality STEM education. I have published in the top engineering education journals and believe that engineering activities are a great way for students to learn mathematics and science along with important teamwork and communication skills that will benefit them no matter what job they have. Technology will continue to advance and the world will continue to change. However, the most important thing ever and our reason for living is unchanging. *Jesus Christ is the same yesterday and today and forever* Hebrews 13:8. God’s love is our motivation for wanting to help others and make a difference in the world. This love is unchanging and can be our motivation for wanting to learn more about His creation and make innovations to benefit society.

Some times we can think that we are above average or better than others. Ninety percent of all drivers think they are above average drivers. Ninety-four percent of professors at large universities think they are better than the average professor.<sup>14</sup> When I started my first year as a professor I wanted to make a big impact. I found I needed to shift my focus slightly so that my goal would be on God being glorified as I worked to help others. We can keep in mind Colossians 3:23 as we go about our daily life. *Whatever you do, work at it with all your heart, as working for the Lord, not for human masters.*



## Engineering design process

The chapters in this book are organized around one version of the engineering design process: ask, imagine, plan, create, and improve. It is the process that engineers use to identify and solve problems. In the *ask* step engineers learn about a realistic problem and also background information that will help them solve the problem. The *imagine* step involves generating different ideas. Next in the *plan* step, one design is decided on and detailed. *Create* is the next step which involves testing a design. Finally, the *improve* step is done to make changes in order to have a better design.

The *ask* chapter will explore the questions that Jesus asked in the Bible and what insights we can gain from this for what all of us must keep in mind when starting to solve a problem. In the *imagine* chapter we will look at the importance of dreaming big and keeping focused on the goal as we imagine different possibilities for our lives. God's beautiful creation is evidence of His great imagination and can offer us a small taste of what we have to look forward to in heaven. The *plan* chapter will look at God's seven-day plan for creation and how He has a plan for our lives as well. The *create* chapter will explore how God created the world and what we can learn from this. The *improve* chapter will explore how God designed his perfect creation with a plan for when failure or sin would occur. God did not give up on his creation but designed a way for improvement. The final

chapter will detail the characteristics of God that go beyond what any human engineer could know or accomplish.

## Chapter 1: Ask

Why did God create the universe? The first verse in the Bible delves right into creation without any explanation for why God decided to do it. Looking at God's creation and what He is capable of though, it can be a wonderful feeling to think that He cares for us. David had a similar thought. *When I consider your heavens, the work of your fingers, the moon and the stars, which you have set in place, what is mankind that you are mindful of them, human beings that you care for them?* Psalm 8:3-4. Abraham as well must have been marveled to communicate with God and be told to look at the stars in the night sky. *He took him outside and said, "Look up at the heavens and count the stars—if indeed you can count them." Then he said to him, "So shall your offspring be"* Genesis 15:5. Abraham went from his small tent to gazing at the vast expanse of the universe in the sky and believed that God, who is capable of creating the world, is more than capable of fulfilling his promises to us. *You know with all your heart and soul that not one of all the good promises the Lord your God gave you has failed* Joshua 23:14.

Through the Bible we can gain insight into why God created the world. God created the world for His glory. *The heavens declare the glory of God; the skies proclaim the work of his hands* Psalm 19:1. Empowered by God we can give glory to God through the things we do. *"This is to my Father's glory, that you bear much fruit, showing yourselves to be my disciples"* John 15:8. While we don't know what God was thinking

before He created the world, through the questions Jesus asked on earth we can gain insights into how the questions that engineers ask at the start of a new problem can be connected to our Christian faith.

What people ask is important as well as how it is asked. A grocery store in Sioux City, Iowa found this to be true with their signage to try to entice people to buy items. The store had a 10% off sale for Campbell's soup. On some days the sign said, "limit of 12 per person." On other days the sign said, "no limit." When the limit was enforced shoppers purchased on average seven cans each; which was double the amount when there was no limit. The grocery store asked the question of how to increase sales and found a creative answer.

### **Ask questions worth answering**

Engineers must ask questions that will lead to worthwhile and beneficial solutions. Someone could design a hotel elevator that could hold up to 100,000 pounds, but it would not be practical with the daily requirements of a hotel elevator. It also would cost more than hotels would be willing to pay. Asking good questions that lead to improvement is important. Isidor Rabi, a Nobel Prize winner in Physics was asked how he became a scientist. He replied that everyday after school his mom would ask him the same question: Did you ask a good question today? She knew that if he had asked good questions, he would be learning. Rabi says, "Asking good questions, made me become a scientist."

The ability to learn how to learn is essential for continual growth.

Jesus asked many good questions, but not because He did not know the answers but often to teach and to help others learn more about God. Jesus asked his disciples a question for them to remember that what is eternal is more important than what is temporary. *What good will it be for someone to gain the whole world, yet forfeit their soul?* Matthew 16:26. Salvation through Christ is the most precious thing a person can have. No amount of money, power, or prestige can compare. Engineers should be focused on answering questions that will help others by using processes and knowledge that will not harm human life. Any new innovations that result can be used to give glory to God. We will never know everything there is to know, so questions and problems will continue to be pursued. Scientific theories are subject to change based upon new discoveries, but we can be certain that God's free gift of eternal life for us is unchanging.

### **Understand the problem**

At the *ask* step engineers must have clear communication in order for the problem to be solved well. A census taker drove many miles down a remote country road to reach a mountain cabin. A woman sitting on the porch yelled, "We don't want any. We're not buying anything." "I'm not selling anything," the census taker said. "I'm here to take the census." "We don't have one," the woman said. "You don't understand," the census taker said. "We're

trying to find out how many people there are in the United States.” “Well,” she said, “you sure wasted your time driving out here to ask me, because I don’t have any idea.”<sup>2</sup> In this humorous fictional story, the census taker did not clearly communicate the task and the woman thought it was too difficult of a task. However, in the real stories in the Bible God often clearly asks people to do things, but they think the tasks are too difficult. Noah, build an ark. Moses, lead the Israelites out of Egypt. Gideon, defeat an army with just jars and torches. Esther, save the Jewish people. It is these times that His strength is shown.

The feeding of the five thousand in Mark 6 is another example of Jesus asking something difficult but then providing a solution. A large crowd had gathered and Jesus had compassion on them and began to teach them. It was getting late in the day and the disciples became concerned that they would not be able to feed all of the people. They told Jesus to tell the people to go find food, but He replies, “*You give them something to eat.*” The disciples certainly understood the problem and what would be required. *That would take more than half a year’s wages! Are we to go and spend that much on bread and give it to them to eat?*

Jesus is all-knowing and already knew what He was going to do, but often asked questions to teach and instruct. The question He asked next was to let the disciples better understand what was to come; God’s power at work. “*How many loaves do you have?*” Whenever you are faced with a problem it is important to get a handle on the resources and

knowledge you have. The disciples went and found that they had five loaves and two fish.

You probably already know what happens next and I imagine the disciples had an idea as well. They trusted Jesus when he told them to get the people to sit in down in groups on the grass. They did not question him or say that everyone would get less than a bite from that little amount of food. They had seen Jesus perform miracles and heal people. The disciples sometimes get a reputation as being slow to catch on even though they were with Jesus everyday. However, I think they came to realize that while they only had a few loaves and fish, they also had more than enough to meet their needs with Christ. Jesus gave thanks to God for the food and broke the five loaves and two fish, which ended up feeding over 5,000 people! Sometimes we think our own resources or ability is our greatest strength, but it is the strength and power from Christ that matters.

### **Be confident**

The start of a new task or problem can sometimes feel overwhelming. There can be much to learn and many questions to ask in order to ensure that a successful solution is reached. Many engineering students worry that their designs may be bad or fail causing negative impacts.<sup>3</sup> All of us including engineering students have made errors on our homework or in life so it is a natural concern. Many experience times of self-doubt about our abilities. While some designs are low-risk if they fail; others like bridges have greater consequences. Effective teamwork can mitigate

these risks. It is also important to remain confident that through thoughtful hard work a solution can be reached. We can be confident that God has given us the abilities and gifts to do a good job. There may be setbacks and failures along the way, but with God we do not have to fear. This is knowledge that can never be taken from us.

I tutored students from a church in Las Vegas that was mostly immigrants from Africa who had this idea instilled in them. The church's pastor lead a devotion at the end of the tutoring time focused on 2 Peter 3:18. *But grow in the grace and knowledge of our Lord and Savior Jesus Christ.* He shared with the students that no one can take their knowledge. God wants us to grow in our relationship with Him as well as in our knowledge of His creation. The pastor encouraged them to work hard. Though you might end up in a new place, Jesus and your knowledge of Him always goes with you.

The students gained confidence with successes and the same can be true for our lives when faced with difficult tasks. Sometimes we need reminders of this when it seems like there is more than we can handle. In Matthew 8:23-27 the disciples turned to Jesus in one of these times. Jesus asked a question to calm them and to teach. The disciples were in a boat when a furious storm came upon the lake. The disciples turned to Jesus in their distress and woke him since they were overwhelmed by the storm around them. Jesus calmly replied, *"You of little faith, why are you so afraid?"* Jesus calmed the wind and waves and the disciples were



amazed. Jesus had a good idea of why they were afraid but wanted to teach them that when He was with them there was no reason to be afraid. My brother, Pastor P.J. Stohlmann, has said, "Peace doesn't come from being in a lake without storms. It comes from having Jesus with you in the boat." No matter what life brings you, Jesus will be there to help you.

### **Guard against negative influences**

In any team as in life there can be negative influences that derail a project or lead us down the wrong path. Don Stephenson knows this well as he helps struggling hotels and resorts. Whenever his group takes over an organization, they always do two things. First they train staff to improve customer service and then they fire the leader. If he or she was a good leader the organization would not be in the trouble they are. The message conveyed is that communication and relationships matter. There is an old saying that all things being equal people will give their business to someone they like. All things not being equal people will still give their business to someone they like. Relationships matter and people want to spend their time with and work with others that value them as people.

Dr. Freeman Hrabowski, president of University of Maryland, Baltimore County (UMBC) learned this lesson from his mother who was a teacher. I heard him speak at a mathematics education conference. Hrabowski's research focuses on STEM education, with special emphasis on minority participation and performance. He shared that at

the end of his mother's life she had dementia but still held on to what was important. Some of the final things she said to Freeman were, "Relationships matter. Relationship with God. Relationships with students." He continues to carry these ideas with him.

Under Dr. Hrabowski's leadership UMBC has been ranked the #1 Up and Coming University in the U.S. for six consecutive years by U.S. News and World Report magazine. He also has been named one of the top ten university presidents. When Hrabowski was a teenager, he had the chance to listen to Dr. Martin Luther King Jr. preach which further instilled his God-given drive to help and encourage others. Who we listen to matters.

Jesus in Matthew 16 warns the disciples against the teaching of the Pharisees and Sadducees who focused on rules and not on relationships based on God's love. Jesus knew that there were those that used religion to condemn others by making them feel that they had not done enough good things. They often judged others instead of encouraging others through God's love. Thanks to God's grace and forgiveness our feelings of guilt can be replaced with gratefulness. God's love can motivate us to not listen to negative influences and to live a better life.

Not only can our actions sometimes make us feel bad but also what we have, if we hold the wrong mindset. My Dad preached a sermon one Thanksgiving that focused on a story of a person who sat down to enjoy a great thanksgiving meal with friends and family. All of the fixings

were laid out: hot turkey, mashed potatoes and gravy, stuffing, cranberry sauce, vegetables, pies, and much more. The person asked, "Where are the olives?" Sometimes we do not look at all of the blessings in our life and instead focus on the smallest detail of what we do not have.

In our own lives we can keep in mind that we should be thankful for what we have. Dietrich Bonhoeffer said it nicely, "We do not complain of what God does not give us; we rather thank God for what He does give us daily."<sup>6</sup> We can remember that we have the greatest gift ever, eternal life in heaven based on God's love for us that will never change. *The free gift of God is eternal life in Christ Jesus our Lord Romans 6:23.*

Engineers would be glad most of the time to have more time, money, or resources to do their job, but that is not reality. The team that helped with the successful re-entry of the Apollo 13 space shuttle, one of the great engineering feats of the 20<sup>th</sup> century, knew this well. The crew faced loss of cabin heat, limited power, and the need to fix the carbon dioxide removal system.

It took a full team to make the re-entry successful and demonstrated that every person on a team is important and has knowledge and contributions they can make. The three astronauts on the shuttle had to communicate with the mission control team in Houston. They also had to correctly employ the procedures for re-entry that were provided them while providing their own input as well. A team at NASA control worked on re-entry simulations that would be

possible with the limited power that was available in the shuttle. Another team worked on using available materials on the shuttle to design a solution to fix the carbon dioxide removal system. There were people who monitored the astronauts' vitals and health; as well as others who analyzed the flight data that was being transmitted so that accurate plans could be made to get the shuttle home safely. Communication was important between all people so that no mistakes would be made. When the shuttle arrived safely there was great celebration and relief.

Christians as well can benefit from community and all have gifts and talents that they can contribute to strengthen the body of believers. The well-known proverb describes this. *As iron sharpens iron, so one person sharpens another* Proverbs 27:17. We gain strength from community and resolve to persevere in the face of adversity. Just like every person's contribution was vital to ensuring the safe return of the astronauts on Apollo 13 so everyone is important and can share God's love with others. We should keep this focus in mind and avoid any thoughts that what we do is not making a difference. Martin Luther King Jr. said it this way. "If a man is called to be a street sweeper, he should sweep streets even as Michelangelo painted or Beethoven composed music or Shakespeare wrote poetry. He should sweep streets so well that all the hosts of heaven and earth will pause to say, 'Here lived a great street sweeper who did his job well.'"

We can take the motto of Apollo 13 mission control director Gene Kranz that failure is not an option. This does not mean that we will not experience failure in life. Christians can see this phrase in the light of what Christ has done for us and our eternal destination. Jesus defeated the devil once and for all on the cross making Christians part of the victorious team. We know that because of this, when our mission on earth is done our fate will not depend on what we have done, but on what Christ has done for us. We can look forward to a great celebration in heaven!

## Chapter 2: Imagine

The beauty of the world shows that God has quite the imagination. The diversity of plants and animals demonstrates a lot of creativity. Grand Teton National Park is one of the most beautiful places in the United States. I had the good fortune to visit there with my dad and one of my sisters when my younger brother was working there. We did some hiking and white-water rafting. The park was perfect just the way it was. Sometimes people feel though that improvements are needed in nature. There is a place for visitors to leave comment cards based on their experiences. Here are a few of the more humorous comments.

“Please install escalators on the steeper parts of the hill.”

“Can you put in chair lifts so we don’t have to hike to the most scenic places?”

“A deer came into our camp and ate a loaf of bread. Can we be reimbursed?”

“The coyotes kept us up all night. Can they be eliminated?”

“There are too many bugs and insects. Can the forest be sprayed?”

Sometimes in life we imagine that things should be another way or we find that the way we imagined our life is not the way it turned out to be. This does not mean that we should stop imagining, but at the same time we can be content with what we have and thankful for the many blessings that God has given us in life. *I know what it is to be in need, and I know what it is to have plenty. I have learned the*

*secret of being content in any and every situation, whether well fed or hungry, whether living in plenty or in want. I can do all this through Christ who gives me strength* Philippians 4:11-12.

When we realize that Christ is all we need then we know that our life can take many different paths that will still lead us to glorify God in all that we do. So we can imagine different possibilities while being certain of our final destination in heaven, which can bring us peace and joy throughout our life.

In order to develop a good solution or design, engineers have to imagine different possibilities. Engineers know that not all ideas will be possible, but the goal should be to develop the best possible solution given the constraints. The imagining step is vital to ensure that different viewpoints and ideas can be brought to the table. Everyone has a diversity of ideas, experiences, and knowledge bases so this can help lead to the best solution.

### **Dream big**

There is a rule in brainstorming that there are no bad ideas, just unspoken ones. This is done so that as many ideas as possible are presented to choose from. Even if a full idea is not used, part of the idea may be useful or may spark another idea. The best way to do brainstorming is to ensure that everyone understands the task to be accomplished and then give each individual time to think. Once the group comes together the ideas presented will be in greater number and of higher quality than if the group just did the process together the whole time. It is a quality teaching

technique often called: Think-Pair-Share. Without time to think, people can gravitate to ideas that are presented first or not be comfortable sharing their ideas.

This is important to keep in mind in our own life, as we need time to think and reflect. For Christians this can be done through prayer with God as we think about ways to help others or about decisions that we will make in our life. God wants us to dream big, as long as it is focused on showing His love to others. Success can be based not on possessions, power, or our profile photo but on what God has done for us.

John Ortberg tells the story of a time he heard motivational speaker Barbara Glanz. Glanz spoke about a story she received from Johnny, a nineteen year old bagger at a grocery store, who had Down syndrome. Johnny had heard Barbara speak about how one person can make a difference and at first did not think he could do anything, but he got an idea. He decided he would give a short positive thought of the day to the people he bagged for at the grocery store. His Dad helped him to type up the thoughts and Johnny cut them out. After bagging a person's groceries, Johnny would look them straight in the eye and say, "I've put a great saying in your bag. I hope it helps you. Have a good day. Thanks for coming here."<sup>1</sup> The lines at Johnny's checkout soon became three times longer than the others. People knew they would get one of the thoughts on a piece of paper and hear his kind words. Glanz's personal mission statement is, "I am here as the



Lord's helper to spread contagious enthusiasm and to lovingly and creatively help other people and myself to see the CHOICES we have to make a difference in the world."<sup>2</sup> Johnny certainly took these words to heart and is a fine example for all of us.

You can keep in mind that you were created by God to be something that only you can be. One of the children's books that I have written is called, *Only One of You*. It details things that come in groups from two up to ten and includes the following line at the end of every page: "But there is only one of you, and you are unique."<sup>3</sup> Our own experiences and God-given gifts and talents make us unique. We do not have to focus on our limitations, but instead on what God has given us. We can use these **thoughts** to make a difference with the people we meet.

Without dreaming big, many of the technologies we take for granted now might not be around. Cell phones, the internet, email, video chat, and the ability to quickly share photos and video are so ingrained in our lives now that it can be hard to believe that twenty years ago most people lived life without these technologies. I did not get my first cell-phone until I was twenty-one in 2002 and when I was a freshmen in college in 1999, I thought it was amazing to learn how to attach a file to an email.

Engineers are constantly making new things possible through innovations, which can change lives. Martin Pistorius knows this full well. Up till the age of 13, Martin was a perfectly healthy boy. One day he came home with a

sore throat. Within a year he had degenerated into a mute quadriplegic with the doctors baffled as to the cause. For ten years, Martin was completely aware and conscious in his body but just not able to move or communicate. His family thought he was not able to understand them. Change did not occur until one of the health aides that cared for Martin noticed a glimmer in his eyes when she talked to him. She was convinced that he could understand what she was saying. Martin's parents took him to a company that specializes in helping those with disabilities communicate. He learned to communicate using a keypad and a computer with a special program with built in words and phrases. Martin would select and sequence the words and phrases and the computer would speak them.

When Martin became able to convey his ideas again, he had trouble making decisions because for so long in his life everything was decided for him. During the ten years everyone believed him to be unaware someone would decide the clothes he wore each day, what he ate, when he slept, and what he did each day. He not only learned to communicate again, but he was able to eventually progress to working full-time to develop computer programs to help others with disabilities communicate.

He was encouraged to start working one day a week by special education professor Dr. Bryen. He attended one of her lectures and she asked him, "What does a person need to achieve his or her dream?" Martin replied, "People must help you work out what your dream is. They must enable

you to have one.” Dr. Bryen quickly responded, “Oh no! I don’t agree with you at all. Don’t you see, Martin? You can’t ask other people to give you permission to dream. You just have to do it.” She challenged him to dream big.

He came to realize that what he dreamed for in his life certainly changed over time. He stated, “All I wanted when I first asked myself the question was to be able to communicate more and go out into the world. Once I’d achieved that and started working, I dreamed of living a more independent life and finding someone to share it with.” And he did! While video chatting with his sister, Martin was introduced to one of her friends, Joanna. She asked to talk with him more. At first he was afraid to get his hopes up, but the more they communicated, the more their relationship grew and it finally led to marriage!

Martin’s Christian faith helped him to persevere during the ten years he was unable to move or communicate. He talked to God a lot during these times in prayer. He gives all credit to God for the progress he has made. “Surely this can only have happened by God’s hand. Joanna is another of my prayers that He has answered, just as He has always done. Maybe it wasn’t always in the exact way or time that I asked Him to.”<sup>4</sup>

With God at our side, we can do even more than we imagine. *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. Technology is a wonderful thing that can change lives and provide new opportunities.

Engineers should dream big and work towards new innovations in order that God may be glorified through the results of the work.

All of our dreams might not become reality, but we should pursue them anyway. Martina McBride has a song called, “Anyway” that talks about pursuing our dreams and trusting in God no matter what life may bring.

You can spend your whole life building something from nothing.  
One storm can come and blow it all away...  
build it anyway.

You can chase a dream that seems so out of reach  
And you know it might not ever come your way...  
dream it anyway.

God is great, but sometimes life ain't good  
And when I pray it doesn't always turn out like I think it should.  
But I do it anyway...  
I do it anyway.

My mom shared with me her wise saying: “In earthly matters, expectations exceeds realization. But in heavenly matters, realization definitely exceeds expectation!” We know that heaven will be greater than anything that we can imagine. This can give us great inner joy in our time on earth no matter what life may bring. It also brings encouragement that God who is Lord of heaven and earth cares for us and with Him anything is possible.

### **Keep focused on the goal**

Engineers must keep the client in mind when creating a design. They must understand what the problem is and what exactly the client wants. For example, the Apple

company has its engineers work with its sales and marketing department while coming up with new ideas to ensure that what will be developed will be things that customers will want.

An engineer could make a good design, but if it does not keep the client in mind it might end up not being useful. Incubators can be an important technology to keep newborns alive, and a new working incubator can cost up to \$40,000. In the year following the 2004 Indian Ocean tsunami, the Indonesian city of Meulaboh's hospital received eight incubators from relief organizations. In 2008 when MIT professor Timothy Prestero visited the hospital all eight were not working. Some studies suggest that as much as 95% of medical technology donated to developing countries breaks within five years of use. A Boston doctor, Jonathan Rosen, decided that he would do something about this, keeping in mind the client. He found that the people in the town were good at keeping their Toyota 4Runners running so he designed an incubator made out of the 4Runner parts. The incubator, called NeoNurture, did not need a long manual and could be repaired easily with available resources when broken.®

Sometimes we have the best intentions when we imagine how we can help others, but we need to make sure we understand another person's perspective and situation to best help them. God created us with a goal in mind, to glorify Him. Jesus demonstrated in His time on earth what a life focused on this goal entails. Jesus was all about

relationships, both with people on earth and with his Father in heaven. He spent his time helping others whether it was healing, teaching, or serving. His relationship with God and showing God's love to others was His focus.

Christians know that there are eternal and earthly benefits to keeping this in mind. In his book *Outliers*, Malcolm Gladwell tells the story of people from the town of Roseto, Italy who continued to live together when many in the town immigrated to Pennsylvania in the 1890s. It was found in the 1960s that the people from Roseto lived longer and had less heart disease than people just like them in the same area. Their secret was not diet as they did not eat healthy. They did not exercise more than others either. The cause was found to be a good church that fostered community. The poor were taken care of and the rich did not flaunt their money. Everyone helped each other and knew each other well.

In general, Christians live healthier and longer lives.<sup>8</sup> This is certainly not the motivation to become a Christian, but the result of living our lives according to God's Word. We know from research that eating healthy and exercise are important for our earthly bodies so we should definitely not give up these habits. The people of Roseto can be used though to illustrate the point that God's love and grace is the most important thing for our earthly lives and it gives us the most important blessing, eternal life in heaven. Because God loves and helps us, Christians are able to love and help others.

Jesus also spent his time in prayer with God and emphasized the importance of prayer. *Then Jesus told his disciples a parable to show them that they should always pray and not give up* Luke 18:1. Usually when we prepare for an important conversation, we imagine the direction we hope it will take. Prayer is the most important conversation in which we engage. It provides joy, comfort, and strength. Martin Luther said, "The less I pray, the harder it gets; the more I pray, the better it goes." Prayer keeps us focused on God, grows our relationship with Him, and gives us strength and direction for the day and our work.

The U.S. Army Corps of Engineers does a variety of work in different areas. Their mission is to, "Deliver vital public and military engineering services; partnering in peace and war to strengthen our Nation's security, energize the economy and reduce risks from disasters." They help design and construct locks and dams, flood protection systems, military facilities, and also do ecosystem restoration.<sup>9</sup> They have an official prayer that details how faith in God guides all they do. Part of the prayer is below. Essayons is French for, "Let us try."

Almighty God, creator of the universe, we praise You for spanning heaven and earth and holding the plumb line of the cosmos in Your gracious hand...Open our inner lives to know you better and receive Your gift of deliverance through salvation. Grant us wisdom in our efforts to improve, maintain, protect, and restore Your creation. Inspire us to also treat fairly all You entrust to our care. Help us to conform to Your will and be faithful in all our pursuits. Then may we mirror Your divine order, with leadership in engineering that builds a lasting legacy for every generation.

Essayons!

In Your Name we pray, almighty God, engineer of all eternity.  
Amen.<sup>10</sup>

By staying focused on God's love we can imagine different ways that God can be glorified through our actions. We can keep in mind the words of 17<sup>th</sup> century Christian author and mathematician Blaise Pascal. "Lord help me to do great things as though they were little, since I do them with Your power; and little things as though they were great, since I do them in Your name."



## Chapter 3: Plan

Plans are necessary so that designs have the best chance of being successful. Plans provide structure and confidence that everything has been thought through. Outside of engineering many people have plans for their day, week, month, year, or farther into the future.

For the past 46 years, Jon Sutherland has had part of his day planned out. It all started back in 1969 after he recovered from a tear of the peroneal nerve in his lower leg. He was worried about there being pain when resuming exercise and the possibility of getting injured again. Before starting his run, he prayed, "God, if you let me run today I'll run every day for the rest of my life." That day he went at a slow pace and was able to complete his run. He hasn't stopped running.

Every day since then he has run at least one mile. That is a streak of nearly 17,000 days and over 192,000 miles; more than 7 times the distance around the earth. He has not always felt great and ran through the flu, a broken hip, and nine other broken bones but he has kept to the plan. He was recently featured on the CBS evening news and explained how he has done it. "I'm a runner. I run. It's who I am."

God has a plan for everyday of our lives as well. *Trust in the Lord with all your heart and lean not on your own understanding; in all your ways submit to him, and he will make your paths straight* Proverbs 3:5. God's plan for us is to rely on His grace whatever life may bring and motivated by His

love to show this love to others. Each Christian can say with confidence. "I'm a Christian. I share Christ's love. It's who I am."

### **Go with your best idea**

After different solutions to an engineering problem are imagined it is important to decide on the best idea to proceed. There are always positives and negatives of each solution to weigh. One of the main parts of my research is engineering design activities that allow students to apply their mathematical knowledge in realistic problems that have multiple acceptable answers. In solving these problems, students have to work in teams, discuss, and come to consensus on the solution they will present to the class. I do these activities with teachers as well so that they can experience the activities themselves before trying them with students.

A conference presentation that I prepared for a group of teachers using one of these activities was called, "The Mathematics of Casino/Hotel Management." People thought it was a catchy title, especially since I was from Las Vegas. The activity had been done with students in the past and I had used the activity with preservice teachers. The problem is to set the price of a hotel room for maximum profit. If the price is set too high, then fewer rooms will be filled. If the price is set too low then the hotel may not make the most money.

The preservice teachers were able to work together towards their best idea. For example, one group had three

people who each set about solving the task in a different way. One person used a table, one a graph, and one an equation. When the team members shared ideas they used information from the table strategy to help them create an equation, which they chose as their best idea to present to the class.

How can we decide in our lives what the best decision is to make? People can be afraid of making the wrong decisions in their life. It is important to keep in mind that God will not lead anyone to violate His Word. We can be confident that through prayer and discussing decisions with other Christians we will have a good plan for our life. When big decisions have had to be made in my life, I have found the following verse helpful for confidence. *Be strong and courageous. Do not be afraid; do not be discouraged, for the Lord your God will be with you wherever you go* Joshua 1:9. When we make a decision based on how we think God is leading us, we can be confident that He will go with us.

When the CIA tracked down Osama Bin Laden to a compound in Abbottabad, Pakistan in 2010, despite their best efforts they could not be certain it was him. Bin Laden never left the compound and always stayed under a roof overhang when going outside so as not to be detected by satellites. There was no phone and Internet in the compound and the trash was burned. The main CIA agent that had tracked him down was sure that it was him though.

Different options were weighed before deciding on a final plan of attack on the compound. One option was to fly

helicopters to a spot outside of Abbottabad and let the team sneak in on foot, but they were more likely to be detected. This was especially a concern because the Pakistan military academy that was equivalent to West Point was within a mile of the compound. Another option was to drop bombs on the compound, but the amount needed to ensure that any bunkers under the house would be destroyed would cause too much damage to the surrounding area. It was decided that a direct landing in the compound with helicopters would be the best way to go, and finally Bin Laden was killed. One of the Navy SEALs radioed in, "For God and country." The mission was a success with all of the SEALs returning home safely.<sup>2</sup>

The elite Navy SEALs that went on the mission and risked their lives are heroes, but engineers also had a part to play in the successful mission. Technology was used during the mission that few at the time even knew existed. Stealth helicopters were used that evaded the radar detection capabilities of the Pakistani military and were fast enough to get the SEALs in and out quickly. The SEALs were also equipped with night vision goggles that allowed for a wider range of vision. After Bin Laden was killed biometric technology was used to quickly identify that it was in fact him.

The Navy Seals are the most well-trained, highly intelligent, elite fighting force in the world. When the time came to complete the mission they did not say that it was

too difficult. The final plan that was given to the SEALs was decided by someone else, but they got the job done.

In the Bible God often gave people plans to be carried out as well and with God's help they were accomplished. They were ready when the time came to take action. Dr. Paul Maier has given some examples of this, "It is a good thing that Moses did not say he did not do mass migrations. It is a good thing that Joshua did not say he did not do marching. It is a good thing that David did not say he did not do giants." We can be confident that God has a plan for our lives. *"For I know the plans I have for you," declares the Lord, "plans to prosper you and not to harm you, plans to give you hope and a future"* Jeremiah 29:11. In our lives, there will be different options. The best option is to go with God and let Him direct your life.

### **Be detailed**

The more the details of a plan are thought through, the better chance it will be successful. When God created the universe, He had a seven-day plan that He followed. There is evidence that He was very detail oriented in His creation. The complexity of a single cell is proof of God's handiwork.

DNA is a molecule that carries most of the genetic instructions used in the development and functioning of living things. Within cells in the human body, DNA is organized into long structures called chromosomes. In humans, each cell normally contains 23 pairs of chromosomes for a total of 46. If you unwound and tied together the strands of DNA in one cell it would stretch

almost six feet, but be only 50 trillionths of an inch wide. If you were to unwrap all of the DNA you have in all your cells, you could reach the moon 6,000 times. As amazing still, is that our entire DNA sequence would fill two-hundred 1,000 page telephone directories.<sup>3</sup>

Scientists used to believe that much of the DNA sequence was filler because they thought it was non-coding DNA meaning it did not contain instructions to create proteins in cells. Proteins in a cell are important because they determine a cell's health and function. However, the more DNA is explored the more scientists are finding that each part of the DNA sequence has a purpose.<sup>4</sup>

It has been enough to convince even some of the most outspoken atheist intellectuals to renounce atheism. Antony Flew was a well-known philosopher and atheist, but late in his life rejected atheism and said, "the findings of more than fifty years of DNA research have provided materials for a new and enormously powerful argument to design."<sup>5</sup> Only God could have designed that much complexity into cells. He is a God of the details and cares about all of the details in our life. *Indeed, the very hairs of your head are all numbered* Luke 12:7a.

When we communicate with God through prayer, we can keep in mind the importance of details as well. God wants to hear our requests. The Bible shows the power of a close relationship with God and being specific in communicating your requests as well. James 5:16 says, *the prayer of a righteous person is powerful and effective.*

Exodus 32 tells the story of the people of Israel at Mount Sinai and the golden calf. While Moses is on the mountain the people start to think he is not coming back and ask Aaron to make them a golden calf to be their god. God's anger burns as He knows what they are doing and tells Moses he will destroy them. Moses intercedes on behalf of the people and tells God that He brought the Israelites out of Egypt and promised to Abraham, Isaac, and Israel that their descendants would be as numerous as the stars in the sky. God's anger then relents.

Helen Roseveare was a missionary doctor who spent twenty years in the Congo at a clinic and orphanage and saw God work through detailed prayer. About four years into her time in the Congo, a mother died in labor leaving behind a premature baby. The clinic had no incubator or electricity so a nurse was sent to get a hot water bottle to keep the newborn warm. Unfortunately the bottle burst when the nurse filled it and to make matters worse it was the last hot water bottle. Dr. Roseveare could not figure out another solution and she mentioned her concern to some of the children at the orphanage who had heard what was happening.

A ten-year-old girl named Ruth decided on her own to take the problem to Jesus. "Please, God, send us a hot water bottle. It'll be no good tomorrow, God, as the baby'll be dead; so please send it this afternoon. And, while You are about it, would you please send a dolly for the little girl, so she'll know You really love her?" The doctor was stunned.

The prayer could only be answered by the arrival of a package from home because the clinic was in the heart of the jungle, many miles from anything else. Also, she had not received a package in the time she had been at the clinic. Miraculously though, later that afternoon, a twenty-two pound package was delivered to Helen's door. As she called the children, she felt tears in her eyes. They opened the package and found bandages, clothes, raisins, and a brand new hot water bottle. And at the bottom of the box was a doll for the little girl.

When God says "yes" to our prayers it is certainly a time to celebrate, but sometimes God says "no" or "wait" and that could cause us to be sad. In Deuteronomy 3, Moses pleads with God to allow him to cross in to the promised land of Canaan, but God lets Moses know that he will die without entering the land.

We all might be able to think of a time when prayers and pleas have been offered but the result was not what was hoped. A mom and dad at a church I attended know this all too well. The parents, other church members and myself offered many prayers for their two daughters Abbi and Sarah. Sadly, both died. Abbi at 19 months and Sarah at 25 months. Abbi had a rare undiagnosed motor-neuron disease that no cure could be found for and passed away in 2009. The parent's second daughter, Sarah appeared to be in good health, but then was also found to have the same rare disease of her sister and passed away almost a year later.



It can be hard to understand why bad things happen, but we can trust that for those who die in the Lord we will see them again in heaven. During the funeral service for Sarah, there was a bubble machine blowing bubbles from the balcony because Sarah loved bubbles. Also, everyone had their own bubbles they could blow. As people looked up to see the bubbles, the bubbles also served as a reminder of Sarah's place in heaven with her sister Abbi.

In times of great sadness, it can be difficult to find the right words to offer comfort. After the terrorist attacks on 9-11, Billy Graham said, "I have been asked on hundreds of times in my life why God allows tragedy and suffering. I have to confess that I really do not know the answer totally, even to my own satisfaction. I have to accept, by faith, that God is sovereign, and He is a God of love and mercy and compassion in the midst of suffering."

We can always keep in mind that in all moments of our life we can be in communication with God through prayer as 1 Thessalonians 5:17 states, *pray continually*, and He will provide us with strength. The words of Francis de Sales state this, "The same Everlasting Father who cares for you today will take care of you tomorrow and every day of your life. Either He will shield you from suffering (and sadness), or He will give you unfailing strength to bear it." We can trust that we will have strength for tomorrow because God is already there. As Max Lucado has said, "You don't have resources for tomorrow's needs. But you will

tomorrow. You don't have courage for tomorrow's challenges. But you will when tomorrow comes."

### **Be prepared to keep working**

A TV commercial for Prudential emphasizes the notion of imagining positive outcomes but also being prepared for setbacks and negative outcomes. In the commercial people share positive things that have happened in the past and put them on a wall with yellow magnets. Then they do the same thing with negative things and put them on the same wall with blue magnets. The process is then done with what people think will happen in the future, both positive and negative again. The results show that the past is a pretty even mix of positive and negative while the future was predicted to be mostly positive. The commercial ends with the sentence: "It's great to think optimistically, but let's plan for whatever the future might bring."

When I write up articles for publication, it takes a lot of work before the article can be submitted. Because of this it is a great feeling when the submission is sent in. While reviews may not come back for 3 to 6 months, I learned early on to be prepared for revisions. There will always be edits, deletions, and additions to be made. If you are not prepared to put more work into an article then it can be hard to get published. You cannot be satisfied with working hard just for submissions, but must be prepared to do more work. When a plan is selected for an engineering project, the same idea applies. Rarely will an idea or design work perfectly the

first time. Engineers must be prepared to put in more hard work.

In our lives we should be prepared to keep growing in our relationship with Christ and using our God-given gifts to God's glory. Oswald Avery was a physician and medical researcher born in 1877. He was the son of a Baptist minister and while in college he and a group of students asked a professor of philosophy to teach a class in metaphysics, examining the foundations of the Christian religion. The class made an impression on him and in the sciences he felt there was evidence of God telling his colleagues, "Fellows, you know there really is a God."\* While working for years in a small laboratory at the hospital of the Rockefeller Institute in New York City, he had a motto: "Whenever you fall, pick up something." He knew that plans can sometimes end in failure, but something can still be learned for improvement in the future. He had many initial ideas and hypotheses that turned out wrong. His friends found that he never turned argumentative or discouraged when others produced different findings. His hard work paid off as he discovered DNA in 1943.\*

A phrase is used a lot that, "we love it when a plan comes together." However, we don't know for sure how the plan will work out. We have to be ready for both successes and failures. Our whole lives we can continue to grow in our relationship with Christ. Through this we can better show His love to others. We can also draw hope from the fact that

God cares about us and has an ultimate plan for our life; to join Him in heaven when our time on earth is through.

## Chapter 4: Create

God created the entire universe. It is a feat that will not be matched, because no one can match God's power. In Genesis 1, it says that we were made in the image of God and given the responsibility to take care of the world. Since God is a creator, we too are made to create. In our lives we can create in many different ways: inventions, art, music, writing, speaking, families, farming, and more. However, we know that any good thing is from God and can use our creative work to give glory to God. Since we have free will, humans can also create negative things and we must be focused on God's love to overcome evil with good.

Engineers must be focused on creating inventions that positively benefit society. In the create step of the engineering design process, engineers can keep in mind three parts: best, test, and rest.

### **Best**

An engineering plan to create a design is based on the best idea so in creating the design it is important to follow the plan. Engineers know that they should be confident in what they create and be willing to stand behind their inventions. Sometimes, engineers have to stand under them though. The Roman army would make the person who designed the arches stand under each arch while the scaffolding was being removed. That would certainly be a time when you need to get it right the first time.

How confident are you in the things that you create in your life? Are you confident that you can produce good work in your profession? Do you create positive, loving relationships with your family and friends? Do you create joy, hope, and motivation through volunteering at church or in the community? Some of us are able to have a well-thought out plan for all areas of our life and others based on circumstances may have to live day to day and be less sure of what the future holds. Life is harder for some than others. Also, in the different aspects of our life, we can be more confident in some than others. An important lesson to learn, however, is that everyone is insecure. Being grounded in God's love for us can help alleviate our insecurities and give us confidence in who we are and the things we do. We can use this knowledge to create positive, encouraging relationships in our lives by letting others know that their confidence can come from God.

Paul in 1 Thessalonians 5:11 describes how we can interact with others knowing we are saved children of God, *Therefore encourage one another and build each other up.* The 30-Second Rule can be used to accomplish this. John Maxwell is a leading expert on leadership, an author, and a speaker who began his career as a Pastor. He learned the 30-Second Rule from his father who was a college president. When talking to someone within the first 30 seconds of the conversation you should say something to a person that will encourage them.<sup>1</sup> This can uplift them, give them more

energy, and motivation. It is a simple way to share God's love by affirming the value that other people have.

Taking care of the bodies that God has given us can also help us to have more confidence, more energy, and help us better be able to share God's love with others. Engineers are increasingly having more of an impact on sports and exercise. Exercise equipment that better helps athletes be stronger, faster, and free from injury has been designed.

The clothes that athletes use are more efficient as well. In the 2008 summer Olympics an astonishing 25 swimming world records were broken. The athletes were certainly in great shape for the races. However, there was an explanation for the increase in speed. One specific swimming suit, the Speedo full-body LZR Racer suit was worn by swimmers for 23 out of the 25 new world records. Even more amazing is that swimmers wearing the suit won 98% of all swimming medals at the Beijing Olympics. The suit allows for better oxygen flow to the muscles, repels water, increases flexibility, reduces drag, and increases buoyancy. Truly a great engineering feat! However, the suit gave swimmers such an advantage that it has since been banned from competition. The reason was that not all athletes could wear it due to contracts with other swimsuit makers. Also, the governing body felt that swimming should be all about the physical performance of the athlete.<sup>2</sup>

Swimming athletes have continued to work hard and have not just relied on suits that have been created. They know that they have to follow the plan of hard work and

training. In fact, while they were not all world records, 25 Olympic swimming records were broken at the 2012 Olympics. We should follow the best plan that God has for our lives as well. It is for us to continue to grow in our relationship with God and rely on His grace and love to direct our lives.

## **Test**

Engineers must test and evaluate their designs in order to judge each design's strengths and weaknesses. After each day of creation, God looked at what He had created, evaluated it, and called it good, which means perfect. For further emphasis after the sixth day of creating, God saw all the He had made and called it very good. God's creation was something that only He could accomplish: perfect.

There is a basic engineering activity that I like to do with students and teachers because it is a fun challenge and shows the importance of teamwork and communication skills. The activity is called the marshmallow challenge.<sup>3</sup> Each team gets eighteen minutes to create the tallest free-standing structure using only twenty sticks of spaghetti, one yard of tape, one yard of string, and one marshmallow. At the end of eighteen minutes the structure needs to be free-standing with the marshmallow on top.

The challenge has been done with various people from teachers, students, lawyers, CEOs, to architects and engineers. You might guess that architects and engineers do the best on the challenge because they have the necessary background knowledge and skills to make a plan that they



are confident will create a stable structure. However, it is surprising that kindergarten students do better than all others. They spend more time playing, imagining, and testing their structures with the marshmallows on top. For this task, the eighteen minute time limit is important. Most other people spend a good amount of time planning, then creating the design, and finally at the very end of the time limit putting the marshmallow on top to test without knowing if the structure will stand. Too often the marshmallow on the top causes the structure to fail and the team to have a height of 0. The kindergarteners show the importance of evaluation and getting feedback early on when we are new to a task.

Even experts still make mistakes and need evaluation and feedback. City Center on the Las Vegas strip is an \$8.5 billion complex of hotels, casinos, high-end shops and luxury condominiums. One of the buildings in the complex, The Harmon Tower, was supposed to be a luxury hotel until construction was halted in 2008 at floor 26 out of a planned 49 stories. It was found that there were structural deficiencies in the building that would cause it to collapse in an earthquake. Until recently the Tower was still standing. The Tower was used as evidence as a trial waged on in the courts for who was to blame for the flawed design. All together the building, trial, court-ordered payments, and the dismantling of the tower cost hundreds of millions of dollars.<sup>4</sup> Thankfully though, the tests that were done on the building prevented any catastrophe from happening.

In our own lives there are many times when we undergo tests. We are evaluated based on work we create in school and at our job. We have to undergo tests at the doctor's office or hospital. There can also be trials and trouble that we endure in life that test our resolve or even our faith. The relationships we develop with others can be tested based on disagreements or bad communication. Sometimes it may seem like one test after another!

Jesus knows what we are going through, because He also had many tests He had to endure. He was born into poverty, was tempted by the devil, faced hostility from Pharisees, was deserted by his friends, was unjustly nailed to a cross, and was forsaken by His father on the cross.<sup>s</sup> *My God, my God, why have you forsaken me?* Matthew 27:46. Jesus endured all the tests, however, and died and rose again so that we might have the free gift of eternal life in heaven. *But these are written that you may believe that Jesus is the Messiah, the Son of God, and that by believing you may have life in his name* John 20:31. That is how in times of tests or crises we can remember the tremendous love of God to secure our salvation, and that He continues to care for us and will never leave us.

## **Rest**

After God had finished creation, He rested on the 7<sup>th</sup> day. In life if we do not get enough rest, we will not be as productive and probably not able to help others as well as we could. Working the equivalent of six days of the week is actually average in the U.S. now. On average, adults who

work full-time reported working forty-seven hours per week.<sup>6</sup> In the U.S. forty percent of people get six hours of sleep or less, where the recommended amount is seven to nine hours for adults.<sup>7</sup> Statistics is becoming increasingly important in the world as there is more data available than ever before and computer programs are able to quickly analyze the data and produce results. Two of the children's books that I have written focused on statistics.

In the books two panda bears use statistics to help the Minnesota Twins become a better baseball team.<sup>8</sup> In the second book, the panda bears decide that they should get some rest at the end of a long season before starting to work again and so they go on a Hawaiian vacation.<sup>9</sup> It can be hard for some people to be able to rest enough though. In the first book, the panda bears are recent immigrants to the United States. While other bears are hibernating, the panda bears continue to work through the winter months. A single parent or recent immigrant who has to work many hours a week to make ends meet may not be afforded the luxury of much rest. People that do have enough downtime should remember this and look for ways to provide a break for these hard-working people.

Millard Fuller was a driven businessman who was a millionaire by the age of 29. He had enough resources to live a comfortable life and had bought his wife everything she wanted. However, one day he came home and saw a note that his wife Linda had left him. She wanted a divorce. He tracked her down to talk. Linda said that she was dead

inside and the possessions meant nothing to her. They decided to stay married and make a big life change.

The Fullers sold everything they had and dedicated themselves to helping the poor.<sup>10</sup> Though they had little experience in construction, they felt they could help those in need of housing. In 1976, they founded Habitat for Humanity, which has now built or renovated over 400,000 homes worldwide for more than 2 million people.<sup>11</sup> We all do not have to start our own organization, but can volunteer or help those in need in our lives and communities.

Our bodies need rest, which can come easier if we put everything in God's hands. My mom is an author of Christian books and children's books. In one of her books she summarized it nicely. "Peaceful living comes from close communion with Jesus in whatever we do."<sup>12</sup> We are God's creation and function best in His care.

My mom grew up on a farm with her parents, three sisters, and brother. The farm has dairy cattle and a variety of crops. My grandpa ran the farm, and then my uncle, and now my cousin. Farmers must have a lot of STEM knowledge to ensure that crops grow well, livestock are taken care of, equipment runs properly, and the finances are managed. Many farmers are innovative and creative as well. My cousin, Donald B., and my uncle, Ed Z., designed an invention called the Easy B-Z calf restraint. It is a device that allows calves to be quickly and safely held in place if a procedure needs to be done on them.

Farmers know first-hand the importance of hard work and good stewardship in their work. In 2013 there was a commercial that ran during the Super Bowl that described what it takes to be a farmer. The text is from part of speech that radio broadcaster Paul Harvey gave at the 1978 Future Farmers of America convention.

And on the eighth day, God looked down on his planned paradise and said, "I need a caretaker." So God made a farmer.

God said, "I need somebody willing to get up before dawn, milk cows, work all day in the field, milk cows again, eat supper, then go to town and stay past midnight at a meeting of the school board." So God made a farmer.

God said, "I need somebody willing to sit up all night with a newborn colt and watch it die, then dry his eyes and say, 'Maybe next year.' I need somebody who can shape an ax handle from an ash tree, shoe a horse with a hunk of car tire, who can make a harness out of hay wire, feed sacks and shoe scraps. Who, during planting time and harvest season will finish his 40-hour week by Tuesday noon and then, paining from tractor back, put in another 72 hours." So God made the farmer.

God said, "I need somebody strong enough to clear trees and heave bales, yet gentle enough to yeap lambs and wean pigs and tend the pink-comb pullets, who will stop his mower for an hour to splint the leg of a meadowlark.

It had to be somebody who'd plow deep and straight and not cut corners. Somebody to seed, weed, feed, breed, and brake, and disk, and plow, and plant, and tie the fleece and strain the milk and replenish the self-feeder and finish a hard week's work with a five-mile drive to church.

Somebody who'd bale a family together with the soft, strong bonds of sharing, who would laugh and then sigh, and then reply with smiling eyes, when his son says that he wants to spend his life 'doing what Dad does.'" So God made a farmer.<sup>13</sup>

It is a fitting description of the qualities that farmers possess and their commitment for caring for God's creation.

At every meal that we sit down to eat, we can be thankful for the farmers who helped make the meal possible.

Sadly, my Uncle Ed passed away in 2006 after a battle with cancer. Just like in his farming he gave his best effort to beat cancer. When diagnosed with cancer he was given three months to live but lived for five years. He received various treatments including medicine through IV's to combat the cancer. When one of the nurses was getting the IV setup she commented, "Now these are the hands of a hard working man." About a month before he died, Ed shared that he really wanted to live, but if God called him home, that was O.K. too!" He was a steadfast Christian his whole life.

Christians know that through God's love we have the free gift of eternal life in heaven. Motivated by this we can do our best in life to create positive things through our work and interactions with others. When we put in a hard day's work rest is more satisfying and comes easy. Heaven is our eternal rest and we can look forward to hearing the words, *"Well done, good and faithful servant"* Matthew 25:23.

## Chapter 5: Improve

The improve step is important in the creation process to ensure the best design possible. In reality, engineers might go through several iterations of the engineering design process in the creation of a product or they might go back and forth between different steps. When God made creation it was perfect. There was no need for improvement. When Adam and Eve sinned the world was changed forever. God did not need to go back through the design process though. He already had a plan in place for when failure would occur. When He created the world, He knew that sin would occur. He knew that He would have to send His Son Jesus to come to earth and endure suffering, pain, shame, and ultimately death. But He created the world anyway. That is how much He loves each and every one of us. He also knew that death would not be the end and that three days later Jesus would rise victorious having defeated death and the devil for all time.

While the beauty of this world seems at times to be tremendous, it is nothing compared to the pure joy that will be experienced in heaven for all time. Heaven is the final product of a perfect design. Because of what Jesus has done, we are no longer seen as sinners but holy. All of our sins are forgiven. Belief in Jesus as our Lord and Savior provides eternal life. *For the wages of sin is death, but the free gift of God is eternal life in Christ Jesus our Lord Romans 6:23.*

Improving designs is a goal for engineers and improvement should be a goal for our lives as well. When we develop the gifts that God has given us, we are better able to share His love by helping others. Sometimes we may even discover gifts that we did not know that we had. In my grandpa Stohlmann's early teenage years he was monotone and did not know how to sing. At age sixteen he went to Concordia College, Seward, Nebraska for teacher's college and had some excellent teachers. At the age of 18 he could sing and play the organ. He even went on to direct Handel's Messiah. We do not know what we are capable of if we are not willing to improve.

Engineers have had a large role to play in improving how we listen to music and the quality of it as well. We are quite used to listening to music on our phones, computers, or MP3 players and we can thank engineers for this technology. Musicians now do not even need to be in the same room to record a song or even be playing on the same day. Due to technology the different recordings can be merged into one and the quality of how it sounds can be improved. This technology has developed over time due to improvements that have been made. There are several insights that engineers keep in mind during the improve step that are relevant for our Christian lives.

### **Learn from mistakes**

Engineers often will not get it right with the first design so they need to learn from things that do not work after creating their designs. Sometimes mistakes occur when



creating or improving designs and new ideas can be learned. In 1839 Charles Goodyear was attempting to design a way to use rubber for practical purposes. He knew that when rubber was hot it melted and when it was cold it shattered. Goodyear attempted to mix the rubber with various substances to combat this, but none were useful. Then one day he accidentally dropped some rubber mixed with sulfur on a hot kitchen stove. The heat made the rubber firm and flexible which led to its use in many products today including car tires.<sup>1</sup>

There are other products as well that are the results of mistakes. Penicillin was developed when researcher, Alexander Fleming, accidentally introduced mold into the flu culture in one of his petri dishes. Ivory soap was invented when a worker forgot to turn off the mixing machine when he went to lunch. During this time air was whipped into the soap. The worker did not want to waste the soap, so he cut it, packaged it, and sent it out for sale. Soon the company, Proctor and Gamble, received many letters from customers who wanted more of this soap.<sup>1</sup>

These people were able to learn from mistakes that occurred and this led to improvements that have helped others. Stanford professor of Psychology, Carol Dweck, calls this a growth mindset. It is the belief that our knowledge and abilities can grow through effort. Failure or mistakes are viewed as learning opportunities. The other end of the spectrum is a fixed mindset where people believe that their

knowledge and abilities are fixed in stone. They believe that they should only do things that come easy to them.<sup>2</sup>

God has given us wonderful bodies and brains that are capable of learning and growth. He made us to continue to learn and grow our whole lives. With Christ this is possible. Peter conveys this message, *But grow in the grace and knowledge of our Lord and Savior Jesus Christ. To him be glory both now and forever!* 2 Peter 3:18.

Peter experienced how growth was possible from mistakes that he made in his own life. Peter had learned much from Jesus' teaching and seen him perform many miracles. He knew and confessed that Jesus was the Christ, the Son of the living God. But when he was in the courtyard, he denied knowing Jesus three times. Pentecost was a different story though. Here Peter fearlessly proclaimed the Good News of Jesus Christ. He went from wimp to warrior in fifty days. What had gotten into Peter? It is the power inside all Christians, the Holy Spirit.

Many of us have things in our past that can and do affect our future: relationships that are damaged, addictions we can't shake, bills we can't pay, sorrow that will not fade. We can take the example of Peter and trust in God's power to bring about change in our life. Max Lucado states it nicely, "The same hand that pushed the rock from the tomb can shove away your doubt. The same power that stirred the still heart of Christ, can stir your flagging faith. The same strength that put Satan on his heels can, and will, defeat Satan in you life. Just keep the power supply open. Who

knows, you may soon hear people asking, ‘What’s gotten into you?’”<sup>3</sup>

### **Make Modifications**

In order to improve designs, modifications have to be made. The development of the printing press involved several inventions that already were in existence with some slight modifications. Johannes Gutenberg invented it around 1440. Initially, Gutenberg was just exploring other uses for wine presses. As he gained more knowledge about them, he realized they could be used for a printing press. Movable type, ink, paper, and the press itself were already invented. He just had to put all the components together in a working manner to make something new. Similarly, YouTube was able to be developed in only six months because it was built using existing platforms of the Web, Adobe Flash Player, and Javascript.<sup>4</sup>

We might need to make modifications in our lives as well. There are aspects of our lives that are positive and healthy and other aspects that are not. We can look to Galatians 5:22-23 for how our lives can be focused. *But the fruit of the Spirit is love, joy, peace, patience, kindness, goodness, faithfulness, gentleness and self-control.* The more time we spend in God’s word discussing it and meditating on it the more God will cause us to grow. Pastor and author Milt Rudnick says it this way, “God will cause you to grow. His purpose when He leads you into His word is never just to inform or entertain. He means to change you.”<sup>5</sup> Gutenberg took something, a wine press, that could be used to get

people drunk and turned into something positive that printed copies of the Bible. God can transform our lives, too!

Humans like to be able to contribute and do things on their own. A large food company in the United States developed and then released what they thought was the perfect cake mix. It required no ingredients that had to be bought. No eggs. No milk. Just mix it with water and put the pan in the oven and enjoy! No one bought the product though. It was then released again with a slight modification that you have to add an egg. The sales then went through the roof.<sup>5</sup>

In different areas of our life we can and like to make contributions. However, there is nothing that we have to contribute for our salvation. It is only through God that we are saved. It is not the result of any of our good works. As sinners we are in need of God's grace. Only God can offer forgiveness of sins and it is only through Him that we are able to improve and live more God-pleasing lives.

People used to believe that everything in the universe rotated around the earth and it was the center of the solar system. That can sometimes be our attitudes as well, that we are the most important thing in the world. In 1543 Copernicus came along and changed everyone's minds to the idea that the sun was the center of the universe. In our own lives this should be the idea that we remember; that the Son, Jesus, should be the center of our lives.<sup>6</sup>

## No design is perfect

Engineers understand that no design will ever be perfect. It has to be improved until it is considered good enough. Limitations of time, money, resources, and knowledge can require designs to be finalized without further improvement. With the big-budgets of many blockbuster movies it seems like many of these limitations have less of an effect.

Some of the most popular movies of all time reinforce the notion though that no design is perfect. *Star Wars* was a movie that many have said revolutionized the way films were made due to the creative use of technology. I am guessing most have seen the movie. Luke Skywalker fights on the good side with the rebels while Darth Vader is on the dark side with the Empire. The empire has managed to build a Death Star, which is a gigantic spherical spaceship capable of destroying planets. The ability to create the death star is impressive enough as one estimate puts the cost to build it at \$852 quadrillion dollars.<sup>7</sup>

But for all of the engineering know-how and resources it would take to build, the design has one fatal flaw. With one well-placed shot of proton torpedos by Luke Skywalker the entire Death Star is blown up. Similarly, in *The Lord of the Rings: the Two Towers* the people of the Rohirrim are defending the stronghold of Helm's deep from an evil horde of orcs. The fortress was carved into the side of a mountain with walls so strong that they had never been penetrated. However, there was a small culvert at the base of

the wall that was the one weakness. An orc manages to get explosives into the culvert and blows up a large section of the wall.

Do we have design flaws as well? What are the weaknesses in your life? No one but Jesus lived a perfect life on earth, so we all commit sin and we will eventually die. Based on our power and abilities that would be the end, but it is not. Christian author, Ravi Zacharias, has said that, “Jesus did not come to make bad people good, he came to make dead people alive.” That is what Jesus’ death on the cross and resurrection has paid for.

There is a story of an Englishman who bought a Rolls-Royce; a car known for its luxury and quality. It had been advertised as a car that would never break down. The man was driving far away from home when one day, sure enough, it did stop working. He called the company and was mad because this was not supposed to happen. A mechanic was sent in by helicopter to fix the car. The man expected to have to pay for the bill and decided to call the company just to get the payment out of the way. When he inquired about the bill, the employee responded, “Sir we are deeply sorry, but we have absolutely no record of anything ever having gone wrong with your car.”<sup>s</sup>

The same is true for our lives. We were designed to be perfect, but sin entered the world and changed that. God did not leave us stranded, however. Jesus took the punishment for our sins and we receive the **free** gift of forgiveness and eternal life. All of our sins have been

removed and forgotten. There is no record of our wrongs. We are seen as holy.

It is something that God wants for all humans. Rick Warren has said, "God wants everybody in His family. God has never made a person He didn't love. God has never made a person He didn't have a purpose for. God has never made a person that Jesus Christ didn't die for so God wants us to share that good news." God alone has the power to improve us from sinners to saints. He alone had the power to create the universe and He does not give up on His creation.

## **Conclusion: The World's Greatest Engineer**

Look at the following list of eight things and put them into two categories.

1. God
2. People
3. Angels
4. Animals
5. Heaven
6. Earth
7. Body
8. Soul

There are different ways that you could have decided to do this. Perhaps you put God, angels, heaven, and soul in one category since they will all be in heaven. Maybe you felt that there should be more than two categories. The take-away message though is that God is all by himself in one category and everything else is in a separate category. God is distinct from creation. No thing or person comes close to the majesty, wisdom, power, and glory of God. He created all things. This chapter explores characteristics of God that are beyond what any engineer could ever be or accomplish.

### **All-knowing**

Engineers must have a lot of mathematics and science knowledge to create useful technologies. Even the most elementary principles upon which certain technologies such as computers, phones, and televisions are built are unknown to many people. We are able to use technology but not necessarily know how it works. Specialized knowledge



is important though in order to best meet the needs of people in society. It can feel good to know something that no one else does.

When I was a freshmen in high school in 1995, I attended a basketball camp at a local high school. On the last day of the camp, Voshon Lenard, one of the basketball players from the University of Minnesota came to talk to us. He started his talk by saying he would give five dollars to anyone who could name the 1989 NCAA men's basketball champion and the person who was the most outstanding player on the team. He was trying to make the point that nobody remembers the individual accomplishment, but someone might remember the team accomplishment. At the time I was a Michigan basketball fan. When no one answered, I raised my hand, said, "Michigan and Glen Rice," and left the camp five dollars richer.

While we are able to remember things we have learned or things that have happened in the past, only God knows what the future holds. *Before a word is on my tongue you, Lord, know it completely* Psalm 139:4. He not only knows the future but holds all knowledge. *Great is our Lord and mighty in power; his understanding has no limit* Psalm 147:5.

Mathematics is often used to try to make predictions for the future. Bill James is a writer and statistician who helped popularize the use of sabermetrics: using statistics for decision making in baseball and other sports. For basketball, he developed a program where you enter the number of points a team is ahead by, the time left in the

game, and which team currently has the ball. The program then gives you a percentage that the team leading will win the game. In March 2011 Virginia was up by 10 over Miami with only 42 seconds left in the game. The Bill James lead calculator said that the game was over at this point. No one told this to Miami though. Virginia missed two free throws and turned the ball over four times in the last 42 seconds. Miami tied the game and won it in overtime!

We must keep in mind that human predictions may fail, but God's promise to us does not. We can believe in God's Word and that our future is secure in heaven. God is the only one that knows all things and what the future holds. We can certainly do our best to use the knowledge that God has given us to make predictions to help society. But the most important knowledge we will ever have is God's Word. Fyodor Dostoyevsky completed studies to become a military engineer but became an author instead. He said, "One day man's wisdom will come not out of books but from the presence of the living God." The only prediction that is certain in life is that Christians will have eternal life due to Jesus' death and resurrection. There will be no more sadness. That is the best knowledge to have. Knowledge that is meant for everyone.

### **All-powerful**

Knowledge is power because it can help us make better decisions and do things easier. I attended a show in Las Vegas that demonstrated this point. A small child and a large muscular man were brought up to the stage from the

audience. It was demonstrated how the small child could do things that many would not think would be possible. The audience was asked how many people think the child could lift the man off the ground. Few, if any people, raised their hands. The man then was asked to stand on a platform that was connected to a system of pulleys and a lever. The young child grabbed the rope, began to pull and the man was lifted in the air. The pulleys and lever essentially reduced the weight of the man that needed to be lifted by  $1/36^{\text{th}}$ .

Next the well-known carnival game where you hit a mallet on a platform to try to get the bell on the top to make a sound was brought out. The audience was asked who had a better chance of ringing the bell and sensed now that it was probably going to be the young boy somehow. The man went first and was given a very tiny mallet. No matter how fast and hard he struck the platform there was no way he was going to get the bell to ring. The child was then given a much bigger, heavier mallet and was able to ring the bell. Since the mallet had more mass, the boy was able to generate more force.

New designs make new things possible, but only with God are all things possible. Only God is all-knowing and only God is all-powerful. There is nothing that is too difficult for God. Jeremiah 32:17 states, *Ah, Sovereign Lord, you have made the heavens and the earth by your great power and outstretched arm. Nothing is too hard for you.* Only God has the strength and power to sustain us in this life to life everlasting as in the Bible the end of the book of Jude states.

*To him who is able to keep you from stumbling and to present you before his glorious presence without fault and with great joy—to the only God our Savior be glory, majesty, power, and authority, through Jesus Christ our Lord, before all ages, now and forevermore! Amen.*

## **Omnipresent**

Engineers often work on teams and have to trust that others are doing their part of the work. Thomas Edison is often pictured working alone. However, he had thirty assistants and the light bulb took a lot of time and smaller inventions to be possible. Engineers cannot be everywhere and supervise all that is going on so they trust that the plan is being carried out.

Only God sees and hears all. *The eyes of the Lord are everywhere, keeping watch on the wicked and the good* Proverbs 15:3. He knows when good things happen in our lives and wants to help us in our struggles. There is no place that God cannot reach as Jeremiah 23:24 states, *“Who can hide in secret places so that I cannot see them?” declares the Lord. ‘Do not I fill heaven and earth?’” declares the Lord.* When Adam and Eve sinned in the Garden of Eden, they tried to hide from God, but God already knew what they had done and where they were. He did not give up on them.

God is constantly showing His desire to be with people. He wants all to be saved and does not give up on us. Christians know that they have the power of the Holy Spirit within them to guide and help them in life. God is always nearer to us than we think.

## **Always faithful**

God is **always** faithful, but people are not. Unfortunately, there are times when people are not honest and true to the facts. A 2012 article in the Guardian newspaper stated how the sciences are prone to this problem. “A recent paper in the journal *Proceedings of the National Academy of Sciences* shows that since 1973, nearly a thousand biomedical papers have been retracted because someone cheated the system...And the situation is getting worse—last year, *Nature*, reported that the rise in retraction rates has overtaken the rise in the number of papers being published.”<sup>1</sup> Researchers have pressure to publish to keep their jobs. If some people struggle for too long without papers being accepted it can cause them to be dishonest. Christians know though that no matter what the outcome, honesty is the best policy.

For our eternal lives we do not have to worry about being accepted into heaven based on the work we have done. God’s faithfulness does not depend on us. Rev. Dr. Robert Kolb says it this way, “Signs of God’s faithfulness to us will not rest in the good works we produce; God is faithful when we are not.”<sup>2</sup> Lifeguards know that it is hard to rescue someone who is drowning unless they are willing to trust you. The more a person struggles, the harder it is for a lifeguard to save them. All humans are in need of being saved, which only God can do. His promises are trustworthy and true. *For the work of the Lord is upright, and all his work is done in faithfulness.* Psalm 33:4. When the circumstances of

life make it feel like it is hard for us to keep our head above water, we can look to God's Word and his sustaining love. *Because of the Lord's great love we are not consumed, for his compassions never fail. They are new every morning; great is your faithfulness* Lamentations 3:22-23.

The hymn, *Great is Thy Faithfulness*, was written by Thomas Chisholm in 1923 based on the above two verses from Lamentations. Chisholm did not have much money and had health problems he dealt with, but stated towards the end of his life, "I must not fail to record here the unfailing faithfulness of a covenant-keeping God and that He has given me many displays of His providing care, for which I am filled with astonishing gratefulness."<sup>3</sup>

The three verses of the hymn emphasize how God's faithfulness is revealed in His Word, through creation, and in our lives. Verse one and the refrain remind us of truths from Scripture that God is unchanging, faithful, and provides us what we need. Verse two reminds us that the seasons, the sun, moon, and stars all continue on their courses guided by God's faithful hand, without any help from us. Verse three reminds us that God is with us, strengthens us, forgives us, and provides us hope through eternal life in heaven.

*Refrain*

Great is Thy faithfulness!  
Great is Thy faithfulness!  
Morning by morning new mercies I see  
All I have needed Thy hand hath provided  
Great is Thy faithfulness, Lord unto me!

1. Great is Thy faithfulness, O God my Father;  
There is no shadow of turning with Thee,  
Thou changest not, Thy compassions they fail not,  
As Thou hast been, Thou forever wilt be.

2. Summer and winter and springtime and harvest,  
Sun, moon, and stars in their courses above;  
Join with all nature in manifold witness,  
To Thy great faithfulness, mercy, and love.

3. Pardon for sin and a peace that endureth,  
Thine own great presence to cheer and to guide;  
Strength for today, and bright hope for tomorrow  
Blessings all mine, with ten thousand beside.<sup>4</sup>

### **Creation was made to give God glory**

How many of the following people do you know? Martin Cooper, John O'Sullivan, Marion Donovan, and John Harrington. How about a different question? How many of the following do you recognize? Cell phone, Wi-Fi, disposable diaper, and the flushing toilet. Respectively, the four people listed above invented the four everyday used technologies. For humans, the design often is better known than the inventor.

With God the opposite is true, the creator is more widely known than the creation. And that is the way it should be. We are created to give God glory. Any good things that humans produce should be used to glorify God and make His Name known. Based on what God has done, He more than deserves our praise.

Louie Giglio has a video on YouTube that explores this concept looking at Psalm 148.<sup>5</sup> Psalm 148 describes how all of creation can praise the Lord from angels, to sun, moon,

stars, to great sea creatures to humans. Louie goes on to talk about how stars just don't shine, they also sing. Indeed in Job 38:7 God states that at creation *the morning stars sang together*. There are satellites in space that listen to the internal vibrations of stars that produce sound. Recordings have been made that Giglio shares of several stars. Some have a thumping beat, while others are more of a single humming note. He then goes on to share the sound of the great sea creatures, whales, singing.

Since God sees all of creation, Louie decides to try to create a small glimpse of what God might experience as He observes all of creation praise him. Giglio uses a program to mix together several star's songs, whale's singing, and then Chris Tomlin's song, "How Great is Our God." It blends beautifully and is truly evident of how God's creation can praise Him. *Let them praise the name of the Lord, for his name alone is exalted; his splendor is above the earth and the heavens* Psalm 148:13. God does not need anything, yet He made creation. It is something only He could do. It is certainly worth singing of how great is our God. He is definitely worthy of our praise!

### **Savior**

Robert Kolb in his book, *The Christian Faith*, lists the characteristics of God described by Theologian Johann Andreas Quenstedt: "perfection, majesty, blessedness, unity, simplicity; he is spirit, invisible, faithful, good, independent of all else, eternal, immeasurable, omnipresent, immutable, and unable to be grasped by his creatures. He possesses life,



immortality, the ultimate intellect, all knowledge and wisdom. He embodies will, freedom, kindness, love, grace, mercy, patience, holiness, righteousness, power, and truth.” The most defining characteristic of God is something that only He could accomplish. He is our Savior. There is a poem by an unknown author that describes how Jesus accomplished what only He could.

There is majesty in the name God.  
There is personality in the name Jehovah.  
There is power in the name Lord.  
There is unction in the name Christ.  
There is affinity in the name Immanuel.  
There is intercession in the name Mediator.  
There is help in the name Advocate.  
But there is salvation in none other,  
None under heaven given among men,  
Apart from the name Jesus.  
An Alexander may build an empire.  
A Napoleon may change the nations of the world.  
A Newton may bring about an intellectual revolution.  
An Edison may create a new world for science.  
A Wyatt may usher in a new era of industry.  
But there is only one who can touch and transform  
the human heart.  
And that one is Jesus.

The name Jesus literally means Savior. Without Jesus we are broken sinners without hope of renewal. There is no way that humans could **ask** the right questions, **imagine** enough possibilities, craft a detailed enough **plan**, **create** a quality design, and make **improvements** on the design to engineer salvation. People might put their trust in their power, money, or possessions; but none of these truly matter. It is only when we put our trust, hope, and belief in Jesus that we are able to be saved. Poet and author Will

Allen Dromgoole has a poem called, "The Bridge Builder" that relates to how Christ came into the world to help us.

An old man going a lone highway,  
Came, at the evening cold and gray,  
To a chasm vast and deep and wide.  
Through which was flowing a sullen tide  
The old man crossed in the twilight dim,  
The sullen stream had no fear for him;  
But he turned when safe on the other side  
And built a bridge to span the tide.

"Old man," said a fellow pilgrim near,  
"You are wasting your strength with building here;  
Your journey will end with the ending day,  
You never again will pass this way;  
You've crossed the chasm, deep and wide,  
Why build this bridge at evening tide?"

The builder lifted his old gray head;  
"Good friend, in the path I have come," he said,  
"There followed after me to-day  
A youth whose feet must pass this way.  
This chasm that has been as naught to me  
To that fair-haired youth may a pitfall be;  
He, too, must cross in the twilight dim;  
Good friend, I am building this bridge for him!"

Jesus lived a perfect life and there is no problem too difficult for Him. He sacrificed himself on the cross because He cares that much for us. He did the work that we are unable to do. God wants to help us in our current life so that our earthly journey will end with us safely in heaven. Jesus laid down his life on the cross for us. His death on the cross and resurrection creates the bridge from our earthly life to our heavenly home! "*He himself bore our sins*" in his body on the

*cross, so that we might die to sins and live for righteousness; "by his wounds you have been healed" 1 Peter 2:24.*

# References

## Introduction

1. Petroski, H. (1992). *To engineer is human: The role of failure in successful design*. New York: Random House.
2. Friedman, T. (2007). *The World is Flat: A Brief History of the Twenty-First Century*. New York: Picador.
3. Dantzig, T. (2007). *Number: the language of science*. New York, NY: Penguin. First printed 1930.
4. Foster, B. (1977). Africa's gentle giants. *National Geographic*, 152(3), 402-417.
5. Carnegie, D. & Associates (2011). *How to win friends & influence people in the digital age*. New York: Simon & Schuster.
6. Luke 15:1-7
7. Bonhoeffer, D. (1954). *Life Together: The Classic Exploration of Christian Community*. New York: HarperCollins.
8. The Lutheran Church-Missouri Synod. (2015). In *Christ All Things Hold Together: The Intersection of Science & Christian Theology*. Commission on Theology and Church Relations. St. Louis, MO: LCMS.
9. Answers in Genesis (2014). *Bill Nye debates Ken Ham*. YouTube.  
[www.youtube.com/watch?v=z6kgvhG3Akl](http://www.youtube.com/watch?v=z6kgvhG3Akl).
10. Babcock, M. (1901). *This is My Father's World*. This is my father's world. Retrieved June 15<sup>th</sup>, 2015 from [www.cyberhymnal.org/html/t/i/tismyfw.htm](http://www.cyberhymnal.org/html/t/i/tismyfw.htm)
11. Genalo, L.J., Wright, C.T., & Wright, K.B. (1998). Toying with technology in elementary education. *Proceedings of the Frontiers in Education Annual Conference*. Institute of Electrical and Electronics Engineers, New York: NY.
12. Smith, R. (1997). *The 7 levels of change: The guide to innovation in the world's largest corporations*. Chicago, IL: Summit Publishing Group.
13. Stohlmann, M (2012). *The Little Engineer That Could*. Seattle, WA: CreateSpace.

14. Thaler, R. & Sunstein, C. (2008). *Nudge: Improving decisions about health, wealth, and happiness*. London: Yale University Press.

### Ask

1. Kahneman, D. (2011). *Thinking Fast and Slow*. New York: Farrar, Strauss and Giroux.
2. Maxwell, J. (2014). *Good leaders ask great questions*. New York: Center Street.
3. Petroski, H. (1992). *To engineer is human: The role of failure in successful design*. New York: Random House.
4. Maxwell, J.C. (1998). *The 21 Irrefutable Laws of Leadership*. Nashville, TN: Thomas Nelson.
5. UMBC. "Freeman A. Hrabowski, III." [president.umbc.edu](http://president.umbc.edu) Accessed June 23<sup>rd</sup>, 2015.
6. Bonhoeffer, D. (1954). *Life together: The classic exploration of Christian community*. New York: Harper Collins.

### Imagine

1. Ortberg, J. (2007). *When the game is over, it all goes back in the box*. Grand Rapids, MI: Zondervan.
2. About Barbara Glanz. [www.barbaraglanz.com/about/bio.html](http://www.barbaraglanz.com/about/bio.html). Accessed June, 17<sup>th</sup>, 2015.
3. Stohlmann, M. (2014). *Only One of You*. Seattle, WA: CreateSpace.
4. Pistorius, M. (2013). *Ghost boy: The miraculous escape of a misdiagnosed boy trapped inside his own body*. Nashville, TN: Thomas Nelson.
5. McBride, M. (2006). *Anyway*. From the album: *Waking up Laughing*. Nashville, TN: RCA.
6. Johnson, S. (2010). *Where good ideas come from: the natural history of innovation*. New York: Riverhead Books.
7. Gladwell, M. (2008). *Outliers*. New York: Little Brown and Company.
8. Rey, A. (2011). "Report: Christians Live Healthier, Longer." [www.christianpost.com/news/report-christians-live-healthier-longer-49976/](http://www.christianpost.com/news/report-christians-live-healthier-longer-49976/)

9. United States Army Corps of Engineers. (2015). In *Wikipedia, The Free Encyclopedia*. Accessed June 23<sup>rd</sup>, 2015, from [https://en.wikipedia.org/w/index.php?title=United\\_States\\_Army\\_Corps\\_of\\_Engineers&oldid=664808650](https://en.wikipedia.org/w/index.php?title=United_States_Army_Corps_of_Engineers&oldid=664808650)
10. Carlson, H. (1999). "Prayer of the U.S. Army Corps of Engineers. Accessed June 23<sup>rd</sup>, 2015 from [www.wood.army.mil/usaes/library/documents/engineer\\_prayer1.pdf](http://www.wood.army.mil/usaes/library/documents/engineer_prayer1.pdf)

### **Plan**

1. Williams, D. (2013). Sutherland keeps on running, rocking. Accessed June 18<sup>th</sup>, 2015. [espn.go.com/sports/edurance/story/\\_/id/9834548/endurance-sports-44-years-jon-sutherland-running-streak-going-strong](http://espn.go.com/sports/edurance/story/_/id/9834548/endurance-sports-44-years-jon-sutherland-running-streak-going-strong)
2. Schmidle, N. (2011). Getting Bin Laden. *The New Yorker*. [www.newyorker.com/magazine/2011/08/08/getting-bin-laden](http://www.newyorker.com/magazine/2011/08/08/getting-bin-laden)
3. Hsien-Hsien, L. (2007). 100 facts about DNA. [www.eyeondna.com/2007/08/20/100-facts-about-dna/](http://www.eyeondna.com/2007/08/20/100-facts-about-dna/)
4. Answers in Genesis (2013). "Junk Science." <https://answersingenesis.org/genetics/junk-dna/junk-science/>
5. Flew, A. & Habermas, G. (2004). "My pilgrimage from atheism to theism." [http://digitalcommons.liberty.edu/lts\\_fac\\_pubs/333](http://digitalcommons.liberty.edu/lts_fac_pubs/333)
6. Roseveare, H. (2007). *Living Faith: Willing to Be Stirred as a Pot of Paint*. Fearn, UK: Christian Focus Publications.
7. Lucado, M. (2007). *Great Day Every Day*. Nashville, TN: Thomas Nelson.
8. Chung, K.T. "Oswald Theodore Avery." Accessed June 19<sup>th</sup>, 2015. [highered.mheducation.com/sites/dl/free/0072320419/20534.html](http://highered.mheducation.com/sites/dl/free/0072320419/20534.html)

9. Oswald, A. (2015, May 5). In *Wikipedia, The Free Encyclopedia*. Accessed June 19<sup>th</sup>, 2015.  
[https://en.wikipedia.org/w/index.php?title=Oswald\\_Avery&oldid=660909083](https://en.wikipedia.org/w/index.php?title=Oswald_Avery&oldid=660909083)

### Create

1. Maxwell, J. & Parrott, L. (2005). *25 ways to win with people*. Nashville, TN: Thomas Nelson.
2. LZR Racer. (2015, June 14<sup>th</sup>). In *Wikipedia, The Free Encyclopedia*. Accessed June 20<sup>th</sup>, 2015.  
[https://en.wikipedia.org/w/index.php?title=LZR\\_Racer&oldid=666865393](https://en.wikipedia.org/w/index.php?title=LZR_Racer&oldid=666865393)
3. Wujec, T. "Marshmallow Challenge." Accessed June 20<sup>th</sup>, 2015. [marshmallowchallenge.com](http://marshmallowchallenge.com).
4. Nagourney, A. (2013). Unfinished luxury tower is stark reminder of Las Vegas's economic reversal. *The New York Times*.  
[www.nytimes.com/2013/01/23/us/unfinished-tower-in-las-vegas-is-symbol-of-a-reversal.html?\\_r=0](http://www.nytimes.com/2013/01/23/us/unfinished-tower-in-las-vegas-is-symbol-of-a-reversal.html?_r=0)
5. Insights from a sermon by Pastor Bo Brink.
6. Saad, L. (2014). "The '40-hour' workweek is actually longer—by seven hours."  
[www.gallup.com/poll/175286/hour-workweek-actually-longer-seven-hours.aspx](http://www.gallup.com/poll/175286/hour-workweek-actually-longer-seven-hours.aspx).
7. Jones, J. (2013). "In U.S., 40% get less than recommended amount of sleep."  
[www.gallup.com/poll/166553/less-recommended-amount-sleep.aspx](http://www.gallup.com/poll/166553/less-recommended-amount-sleep.aspx).
8. Stohlmann, M. (2011). *Bears and Baseball*. Seattle, WA: CreateSpace.
9. Stohlmann, M. (2012). *Bears and Baseball: Battling the Injury Bug*. Seattle, WA: CreateSpace.
10. Idleman, K. (2011). *Not a fan: becoming a completely committed follower of Jesus*. Grand Rapids, MI: Zondervan.
11. The Fuller Center for Housing. "History: Timeline & Milestones."  
[www.fullercenter.org/history?gclid=CKeZx6apn8YCFY9gfgodB00O0w](http://www.fullercenter.org/history?gclid=CKeZx6apn8YCFY9gfgodB00O0w)
12. Stohlmann, J. (1987). *Micah makes six*. Milwaukee, WI: Northwestern Publishing House.

13. Ram Trucks. (2013). "Official Ram Trucks Super Bowl Commercial 'Farmer.'" <https://www.youtube.com/watch?v=AMpZ0TGjbWE>.
14. Stohlmann, J. (2012). *He never stopped loving you: Finding comfort in God's everlasting love*. Seattle, WA: CreateSpace.

### **Improve**

1. Maxwell, J. (2013). *Sometimes you win-- Sometimes you learn*. New York: Center Street.
2. Dweck, C (2006). *Mindset*. New York: Random House.
3. Lucado, M. (2011). *God's Story: your story*. Grand Rapids, MI: Zondervan.
4. Johnson, S. (2010). *Where good ideas come from: the natural history of innovation*. New York: Riverhead Books.
5. Rudnick, M. (2010). *Journey into prayer*. St. Louis, MO: Concordia Publishing House.
6. Lucado, M. (2004). *It's not about me*. Brentwood, TN: Integrity Publishers.
7. Klebus, M. (2012). "The Death Star would take over 800,000 years and \$852 quadrillion to build." [www.deathandtaxesmag.com/178931/the-death-star-would-take-over-800000-years-and-852-quadrillion-to-build/](http://www.deathandtaxesmag.com/178931/the-death-star-would-take-over-800000-years-and-852-quadrillion-to-build/)
8. Platt, D. (2013). *Follow Me: A call to die. A call to live*. Carol Stream, IL: Tyndale House Publishers.

### **Conclusion**

1. Etchells, P. & Gage, S. (2012). "Scientific Fraud is rife: It's time to stand up for good science." *The Guardian*. <http://www.theguardian.com/science/blog/2012/nov/02/scientific-fraud-good-science>
2. Kolb, R. (1993). *The Christian Faith*. St. Louis, MO: Concordia Publishing House.
3. Gaither. "'Great is Thy Faithfulness'-The story behind the hymn." Accessed June 22<sup>nd</sup>, 2015 from [gaither.com/news/'great-thy-faithfulness'-story-behind-hymn](http://gaither.com/news/'great-thy-faithfulness'-story-behind-hymn).



4. Chisholm, T. (1923). *Great is Thy Faithfulness*. Music composed by William Runyan.
5. Probstfeld, A. (2011). "Louie Giglio-Nature Singing to God." Accessed June 22<sup>nd</sup>, 2015 from <https://www.youtube.com/watch?v=IB835wkz1Tc>
6. Quenstedt, J. (1685). *Theologia Didactico-Polemica*. Wittenberg.
7. Dromgoole, W. (1931). *Father: An Anthology of Verse*. Boston, MA: EP Dutton and Company.