

THE FULLNESS OF TIME

INTRODUCTION:

1 Samuel 17:37a *David said moreover, The Lord that delivered me out of the hand of the lion, and out of the hand of the bear, he will deliver me out of the hand of this Philistine.*

**What if...**

You were facing a giant task, too big for your own strength, but certain that the task was yours to overcome? Could you draw on past experiences, knowing God was the true source of your victory?

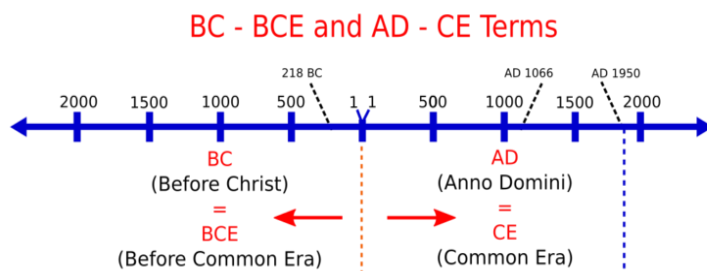
David knew God would provide him strength by remembering his past experiences, but He also knew that the task at hand was a spiritual fight! This giant “blasphemed” the God of Israel who had called the Jewish nation to this land and delivered His people from slavery in Egypt. The faith David carried into battle, and the obedience that Noah, Abraham, Moses, and Joshua demonstrated, was the foundation God laid for the coming Messiah. Jesus was a descendent from the “House of David.” Both Mary and Joseph’s families were of the House of David, requiring them to register for the census in Bethlehem.



Galatians 4:4-5 *But when the set time had fully come... “in the fullness of time...”*

DEVOTIONS: GALATION 4:4-7

GALATION 4:4-7 *But when the set time had fully come, God sent his Son, born of a woman, born under the law, to redeem those under the law, that we might receive adoption to sonship. Because you are his sons, God sent the Spirit of his Son into our hearts, the Spirit who calls out, “Abba, Father.” So, you are no longer a slave, but God’s child; and since you are his child, God has made you also an heir. NIV*



Our entire timeline is set to the time before Christ (BC), and the time after Christ (AD) or the year of our Lord. No true historians deny that Christ lived, was crucified, or that His grave was empty Easter morning. It’s a true historic event that all mankind will

one day acknowledge. As Christians, we embrace the truth and its historicity.

From Abraham to David was about 14 generations, from David to Jesus was another 28 generations or approximately 1000 years. Each generation adopts some ideas that seem

right or sensible to them. Our generation is conditioned (by our culture) to doubt anything that isn't considered scientifically possible, like the miraculous birth and resurrection of Christ, or any miracles of God. A common response to accepting Jesus as their Savior is "I don't believe in that kind of stuff." They reject the idea of the impossible becoming possible while also rejecting the actual historical evidence.

Before Christ (BC), the Jewish nation was responsible for delivering God's words and prophecies to the world. God strategically placed them at the crossroads of nations to tell the world of the one true God. Their miraculous victories led by Moses, Joshua, Saul, and David gave other nations reasons to listen. Since Christ (AD), we are the chosen vessels; we are to be the leaders of faith.

When faced with giants in our lives, we can draw on both eras of God's provisions – BC and AD. The purpose of the Jewish nation was fulfilled in and through Christ, their Messiah. Though many Jews failed to recognize Jesus as the Son of God, most early Christians were Jews – the disciples, Paul, and the inspired writers of the New Testament. Christians have no greater resource to fight giants than the faith that comes from God's written words.

HEBREWS 4:12 *For the word of God is alive and active. Sharper than any double-edged sword, it penetrates even to dividing soul and spirit, joints and marrow; it judges the thoughts and attitudes of the heart.*

VOCABULARY:

ELECTRON – the negatively charged particle of an atom found outside the nucleus.

ION – an atom that has gained or lost electrons, having a positive (cation) or negative (anion) charge.

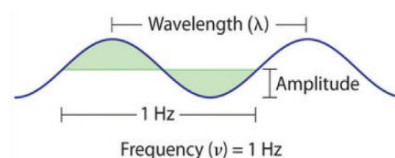
ELECTRICITY – a form of energy that results from the motion of electrons.

BATTERY – a device that transfers electrons from one material to another.

KINETIC ENERGY

Radiant energy is kinetic energy transferred by electromagnetic **photons or waves**. Photons are light particles whereas waves are continuous light.

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WATTS – a unit of power equal to Joules/sec used to describe electrical circuits and equipment. Watts, horsepower, and BTU/hr are all power references. A 15 watt bulb will use 1/3 the energy of a 45 watt bulb in the same amount of time.

HORSEPOWER – a unit of power needed to move 550 feet 1 foot in 1 sec commonly used to describe an engine.

THEME: THE FULLNESS OF TIME

“Timing is everything,” or so the saying goes. Everything in life is time-stamped. Our birth, the events we remember and those we don’t, life and death, all happen in the context of time. Time as we know it began on Day 1 of creation. God, however, is outside of time and is able to assert control over it.

At the time of Jesus birth, Roman rule made distant travel possible, even for commoners. The Roman empire protected all the territories around the Mediterranean, Europe, and western Asia. Roman roads were built to facilitate travel and trade. Pax Romana from 27 BC to 180 AD was considered a “golden age” – a time of peace, security, and stability. God’s timing for Christ’s birth, death, and resurrection, as well as the expansion of the early Christian Church coincided with this time.

ECCLESIASTES 3:1-2a *To everything there is a season, a time for every purpose under heaven: a time to be born, a time to die;*

TIMELINE/Introduction (History): The Classical Era

1000 BC to 500 AD Roman roads, battering rams, cranes, static electricity, water organs, odometers (geometry, modern astronomy, medicine, botany, philosophy, & cartography)

The Assyrian Empire (1500-600 BC) fell to other powerful societies from Mesopotamia – the Babylonians, the Medes, and the Persians, but fortunately most of these struggles were in the northern and eastern part of the Fertile Crescent. The desert between Israel and Mesopotamia (south of the crescent) protected Israel for a time. The Southern Kingdom of Judah maintained a distinct cultural separation from these Mesopotamian societies, the same societies Abraham was called to leave.

Under King David (~1000 BC), the twelve tribes were united. After Solomon’s rule, the Northern Tribes separated from Judah and were quickly overtaken by the Assyrians, and later the Babylonians, Medes, and Persian armies. Battles were fought using new technology. Battering rams could knock down



fortress gates or walls or sink a ship. Weapons were evolving and wars were often brutal.

By the time the Roman Empire began its rise, naval warfare controlled the Mediterranean Sea and most of the surrounding territories. Rome’s influence rose as they defeated the Grecian, Macedonian, and the Carthaginian navies. Speed, agility, and powerful metal battering rams, attached to the bow, were used to sink enemy ships. The Roman military power spread eastward until their control reached its heights during Pax Romana.

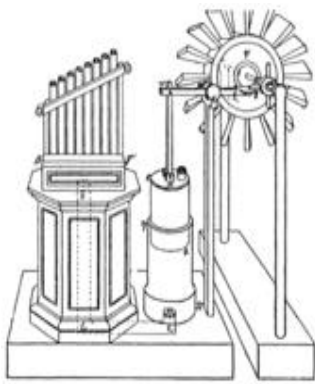
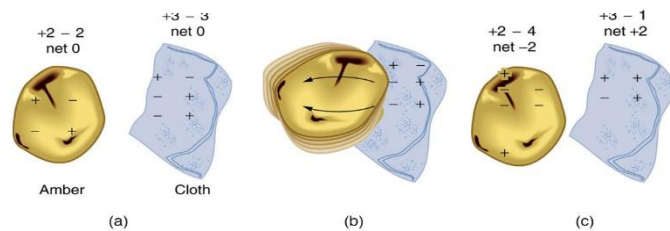
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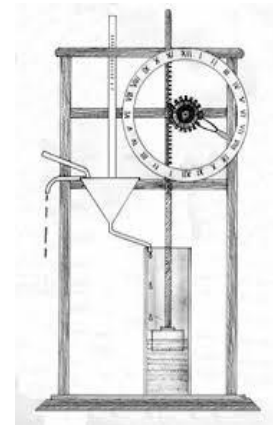
Around the same time, from 600-1 BC, Greek philosophers gained fame for feats of intellectual progress in reason, mathematics, astronomy, science, and more. Thales of Miletus observed that rubbing amber with fur caused the amber to attract objects.

He's credited as being the first to experiment with static electricity, around 600 BC. In the fourth century BC, Aristotle wrote about the attraction between objects via magnetic and static forces.

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By the time Jesus was born, wind and water pipe organs, cranes, water clocks with alarms, and a variety of geared mechanisms had been invented. Human hands could create timekeepers, but time couldn't be kept from its constant move forward. God's natural laws control this march of time; however, God's supernatural power is able to alter what the future holds for His children. Jesus' birth, life, and death split history into two epic era's: BC and AD!



Ecclesiastes 3:11 *He has made everything beautiful in its time. Also, He has put eternity in their hearts, except that no one can find out the work that God does from beginning to end.*

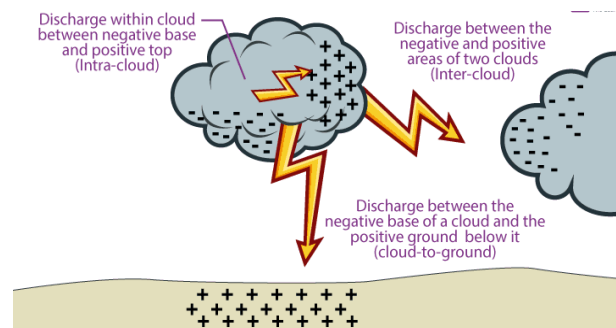
EQUIPPED/Science Principles: ELECTRON FLOW



Lightning is static electricity created by ice crystals in clouds, rubbing and bumping, interacting with H_2O molecules. Just like balloons sticking to your head, static electricity causes objects to attract positive or negative charged ions.

Electrons get passed between atoms due to heat and friction (kinetic energy), chemical reactions (ionic), and radiant light or photon interactions. Static electricity transfers electrons to a positively charged atom. Current electricity, is a continual flow of electrons.

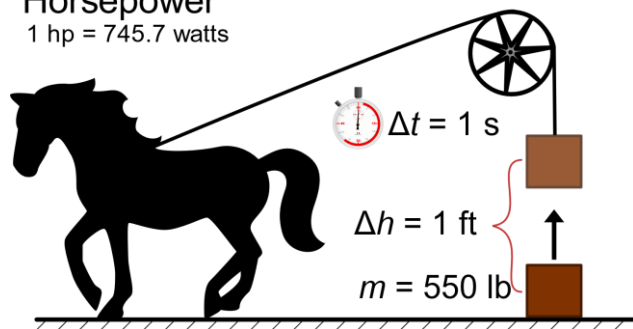
It requires a source, a medium or channel, initial pressure or force, and a current just like rivers. And, like a river, it may be high or low energy current and a narrow or wide channel, also known as voltage for electricity.



Powerlines are the electrical channels between the source and the user (outlets). The greater the flow rate the greater the potential power. Time (t) is the essential component because it tells how much electrical work is possible per second. The electrical objects you “plug-in,” whether a low-wattage lightbulb or a massive wattage compressor, determine the power drain or the amount of energy needed per second.



Horsepower
1 hp = 745.7 watts



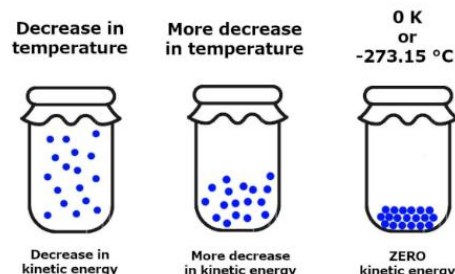
Horsepower and Watts are both units of power, but horsepower describes an engine's output in pounds lifted per foot, per second. Although electricity could do what a “horse does,” it's difficult to get enough watt-power into a power-hungry system, like a monster truck or a “muscle” car. Note that it takes 745.7 watts to equal one horsepower.

The 3 Laws of Thermodynamics (summarized):

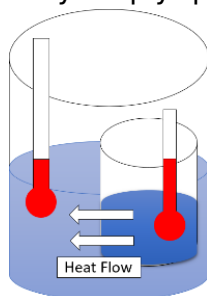
Law 1: Energy can be converted from one form to another.

Law 2: Heat transfer naturally occurs from higher to lower-temperature bodies and from order to disorder in a system.

Law 3: Entropy is zero at absolute 0 K (Kelvin).



Heat is kinetic or thermal energy. Energy may be converted from one form to another or it may simply spread out like hot water added into cold bath water. Heat flows from hot → cold. **Entropy** is a measure of disorder, randomness, or loss useable energy in a system often associated with an increase volume (such as space or heat spreading outward).



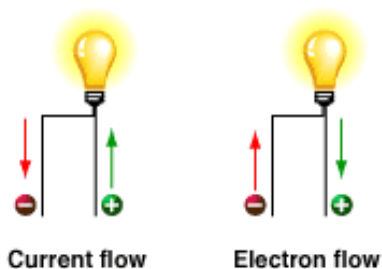
Flow directions move from high to low. Concentrated kinetic energy moves to lower density kinetic energy. Since temperature measures kinetic energy, the greater the temperature, the greater the kinetic energy of atoms. Heat travels from high heat to low heat. At the temperature of **absolute 0 K = -273.15 Celsius**, kinetic and heat energy are zero.

GEAR-UP/Practical Illustration: **MATTER AND ENERGY INTERACTIONS**

Magnets and static electricity are great examples of matter and energy interactions which is why Thales of Miletus, considered the 1st of the great philosophers, explored their properties in 600 BC. The energy exchange is clearly visible with these processes as well as with lightning.

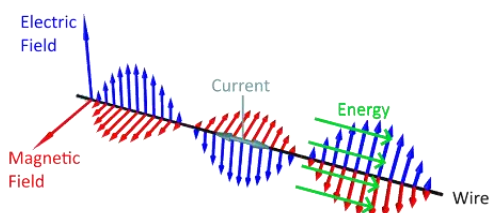
However, matter and energy interactions happen everywhere around us without our awareness. While electrons are matter, photons are energy that energizes electrons.

Whenever photons pass energy to electrons, a matter/energy interaction occurs. Photons supply energy to plants that in turn supply energy to the animal kingdom. Even basic elements like water absorb photons (via electrons) to warm up, melt, or evaporate. Solids can turn to liquids and liquids to gas.



When an electron is fully energized by a photon, it escapes its positively charged nucleus. This energized electron is like a hyperactive child that can't stay put. As it moves towards a positive charge, it quickly passes on its

extra photon energy to another electron that does the same. These electrons move in the direction of least resistance, or they can be “pushed” in a direction. These chain reactions are harnessed to create electricity.



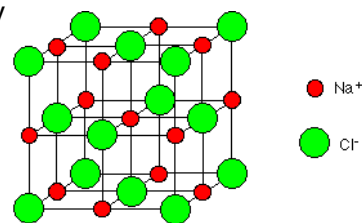
Flowing electrons also create a **magnetic field at a**

90° angle to the electric field. High voltage wires are often braided By experimenting, scientists discovered that metals conduct electrons well. **Copper and aluminum** electrons tend to “flow” easily; that is, their “hyperactive” electrons are easily lost by the parent nuclei and can be pushed into a current. Copper is the most common electrical wire, but aluminum is also used. Metal wires provide a channel to pass on the energy. Plastic coatings keep the energy from escaping.

MATTHEW 24:27 *For as lightning that comes from the east is visible even in the west, so will be the coming of the Son of Man.*

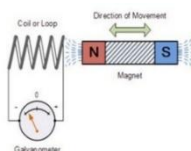
EXPERIMENT/EXPLORE: BATTERIES

Zinc readily loses electrons becoming a **CATION**. **Copper** readily gains electrons becoming an **ANION**. This difference drives the flow of electricity from zinc to copper. This process is an **ELECTROCHEMICAL** interaction, facilitated by **ELECTROLYTES** – liquids, gels, or moist solids – with the potential to produce ions. Salt water is a great electrolyte. Table salt is the molecule known as sodium chloride NaCl. Salt is an ionic compound, a molecule that bonds by the attraction of electrical charges. Positive and negative charges attract.

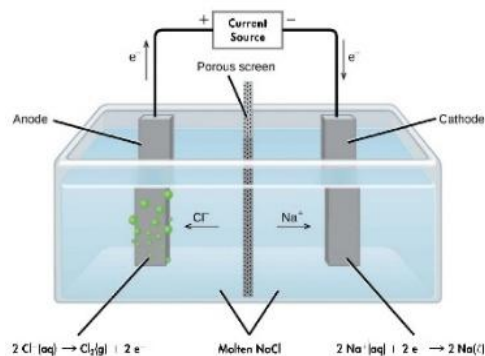


Sodium = Na is often found as the cation Na⁺ and has lost electron(s)

Chlorine = Cl is often found as the anion Cl⁻ and has gained electron(s)



Anything with an abundance of electron or photon energy is capable of shocking, bonding, repelling, or adding energy to a system. An electromagnet is an enhanced magnet – a magnet with more energy.



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SALTWATER BATTERY

1. Cathode (attracts cations) COPPER
2. Anode (attracts anions) ZINC
3. Porous screen assists in concentrating ions
4. Connecting wires/electron carriers
5. Ionizing medium - water
6. Ions in solution - salt
7. Poles – one positive, one negative
8. Current flow direction (vectors)

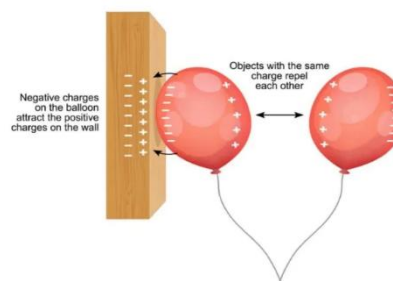
ANSWER THE FOLLOWING:

NOTE: Elements are typically neutral (the same number of positive as negative particles).

1. An element that has a negative charge, like the chloride (Cl-) ion, has _____ electrons?
LOST GAINED NEITHER

2. Rubbing a balloon in your hair causes electrons to jump to the: BALLOON or HAIR

HINT: The one most likely to shock you is the one that gained electrons.



GOT-IT/Apologetics:

Romans 1:20 *For since the creation of the world God's invisible qualities—his eternal power and divine nature—have been clearly seen, being understood from what has been made, so that people are without excuse.*

It's clear that created things contain qualities that reflect God. Every element on earth has the potential for power and light interactions, aka matter and energy interactions. Electrons reveal this power even though they're only a fraction of the full power of an atom. The full power of an atom is in the nucleus. That power is called atomic or nuclear energy.

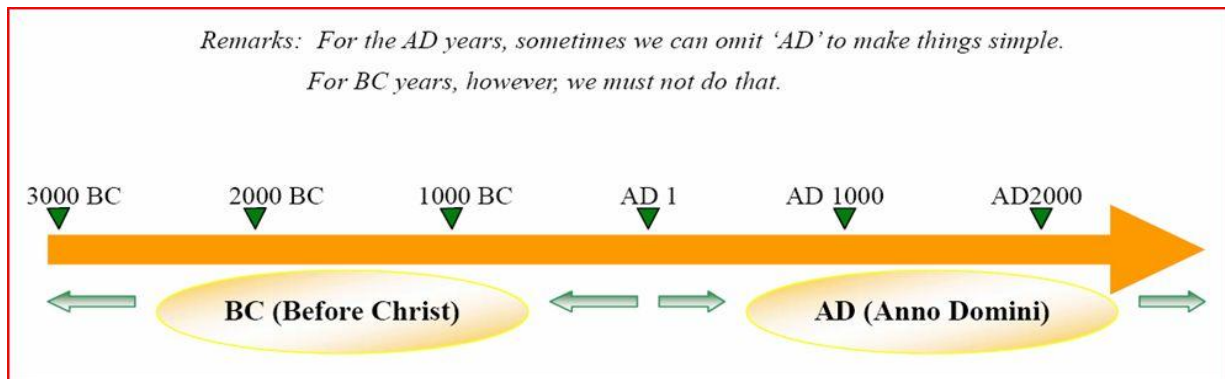
The key to "apologetics" is having enough faith to see that everything works together for good to them that love God, whether it's bringing His people into a good land at just the right time or sending His Son to die on a cross in the fullness of time. Accepting that God is working everything for our good opens our eyes to see the invisible truth hidden in all creation. Death may seem "bad" to our finite minds, but when it's death in God's **timing**, for anyone who accepts that Jesus' death was God's plan for our good, an eternity in heaven is the reward.

Romans 8:28 *And we know that all things work together for good to them that love God, to them who are called according to his purpose.*

REFLECTION/Devotion:

John 3:16 *For God so loved the world that He gave His only begotten Son, that whosoever believes in Him shall not perish but have everlasting life.*

This verse, John 3:16, is the most recited verse of all the scriptures. It is the gospel, the good news of Jesus Christ. From start to finish, the Bible tells the story of God's plan for the world. From the history of His chosen people (all those who would listen to His voice and follow Him) to the greatest love story of all time – the story of God's Son giving His life so that we may be adopted as sons of the Kingdom of God.



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God's desire is to save His creation, not to condemn it. But, as created beings with the gift of free choice, it's a choice only we can make for ourselves. God entered into the world in the FULLNESS OF TIME. His plan, His timing, and His love guides us from death to everlasting life.

John 3:17 *For God sent not his Son into the world to condemn the world; but that the world through him might be saved.*

REMEMBER THESE THINGS/Devotion:

Power isn't over-rated, it's undercharged. We've rarely been charged with defeating giants even though we have been infused with power from above, the power of the Holy Spirit and the power of truth. Our fears tell us to avoid tough conversations or to listen to the cynics who say, "You can't talk about Christ here!" But, Ephesians 1:19b-20a command us to, "understand the incredible greatness of God's power for us who believe in Him. This is the same mighty power ²⁰ that raised Christ from the dead..."



Ephesians 6:10-12 ¹⁰ Finally, be strong in the Lord and in his mighty power. ¹¹ Put on the full armor of God, so that you can take your stand against the devil's schemes. ¹² For our struggle is not against flesh and blood, but against the rulers, against the authorities, against the powers of this dark world and against the spiritual forces of evil in the heavenly realms.

Nothing in history compares to the brief time that separates the Age of Promise (BC) from the Age of Fulfillment (AD - aka the Church Age). These brief years of Christ's time on earth changed everything. We may struggle, we may have to fight a war, but we have already won the victory. As Christians, life is no longer defined by what happens to us or what we accomplish, but who we are in Him. The more we embrace Him, the gift, the more fulfilling life will be even in the midst of suffering.



Ephesians 2:8-9 *For by grace are ye saved through faith; and that not of yourselves: it is the gift of God: ⁹Not of works, lest any man should boast.*