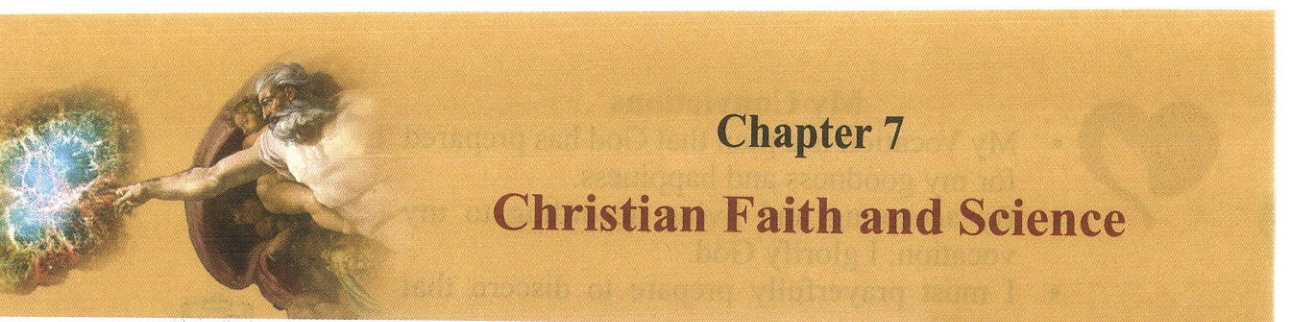




Chapter 7

Christian Faith and Science



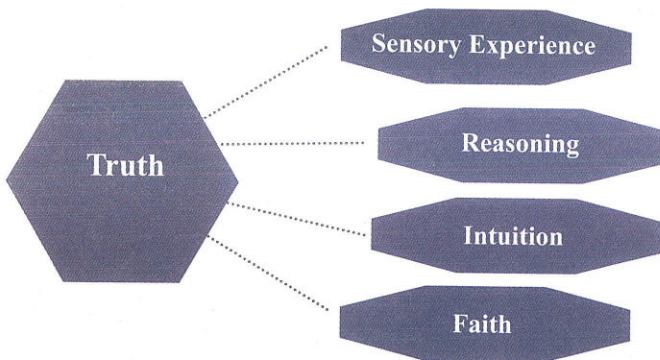
What is Truth?

Jesus remained silent before this question of Pilate. Because, even though God, the eternal truth, stood before him, Pilate did not realize it.

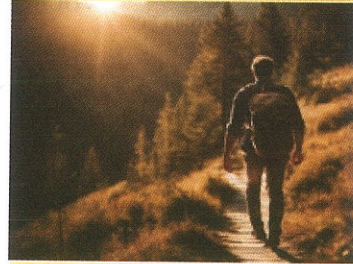
Seek the truth, discover it, and share it with others are inherent human traits. Consider some philosophical questions that transcend time, place, culture, language, and race, which humanity has pondered throughout history

- Who am I?
- Where do I come from? Where am I going?
- What is the meaning of my life?
- What is the order and foundation of the Earth, the planets, the stars, and the mysteries of the universe?
- Does the universe have a beginning and an end?

Many religious faiths and science have emerged from such inquiries of humans into their existence, the wonders of the universe, and the ultimate cause of all things.



Science reaches conclusions through the first two ways only. However, to seek truth beyond physical reality, intuition and faith are necessary. A believer in God journeys through all these four paths to arrive at the truth.



Four fundamental approaches humanity has adopted to seek and find truth?

- **Sensory Experience**
Gaining knowledge through the five senses.
- **Reasoning**
Finding cause-and-effect relationships.
- **Intuition**
Inner knowledge
- **Faith**
The human response to divine revelation.

Faith and Reason – Complementary to Each Other

- Faith and reason are both gifts from God. Though faith is above reason, there is no contradiction between faith and reason.
- The same God who reveals mysteries and infuses faith in humanity has bestowed the light of reason on the human mind (CCC 159). The perception of the Church is that faith and faith-based matters must be reasonable because faith seeks reason (CCC 159).
- Both religion and science are essential for the progress of humanity.
- Since the thirst for God is implanted in human hearts, people will consistently strive to find God through the virtue of faith.

Faith – Religion?

Faith is the response of the human person by surrendering his whole being to the self-revealing God (CCC 143).

Reason – Science?

Reason is the exceptional intellectual process through which one analyses and discerns cause-and-effect relationships to comprehend truth. Objectivity and precision are its hallmarks.

Theology?

Theology is the way of interpreting rationally the truths of faith.

Through reason toward faith

The presence of God is reflected in all things in the universe. "When I look at your heavens, the work of your fingers, the moon and the stars that you have established..." (Ps 8, 3). Created in the image and likeness of God, and called to know and love Him, human beings are capable of seeking God through their intellect. St. Thomas Aquinas, a theologian and scholar, presents five arguments in his *Summa Theologica* for rationally approaching the existence of God.

The Five Ways (in *Summa Theologica*)

- The universe that we observe is in motion. This moving universe must have an unmoved mover. That prime mover is God.

Pope Pius XII teaches as follows: "With every door that science opens with hope, it seems as though God is standing behind it. The more true science progresses, the more it reveals God."

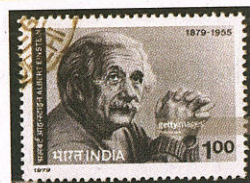
(Pontifical Academy of Science in 1951).



What is Faith, Reason, and Theology?

Understand in order to believe, believe in order to understand.

St. Augustine



Religion and science go hand in hand.

... Science without religion is crippled, and religion without science is blind. They both exist in mutual dependence. Their common goal is to seek the truth.

Albert Einstein



How can the existence of God be approached through reason?

- No entity can be the cause of its own origin. Every entity must have a cause that is distinct from itself. There must be a cause for the origin of this vast universe. That First Cause is God.
- Experience teaches us that all things are perishable and have a beginning and an end. The beginning of perishable things requires an imperishable cause. God is that imperishable being without beginning or end.
- Qualities such as truth, goodness, and beauty are found in varying degrees and measures among living beings. It is not rational to attribute that the origin of these varying qualities lies within them. There must be a supreme virtue that imparts these qualities to all living beings in different degrees. That absolute virtue is God.
- Like an arrow speeding toward its target, we see that the universe and all living and non-living within it move with a sense of purpose. Just as there is an archer with knowledge of the target behind a moving arrow, there is a controller behind the orderly movement of this universe. That controller is God.

The Holy Bible and Science

The Church teaches that the Holy Bible is divinely inspired. "In composing the sacred books, God chose men and while employed by Him, they made use of their own faculties and powers" (DV 11). Therefore, the Holy Bible is both divine and human. That is, the messages in the Bible are of God, while its language and cultural context are of humans.

The geography, astronomy, and other knowledge in the Bible reflect the understanding of people in that historical period. A Christian believer needs both the message of the Bible and scientific awareness for holistic spiritual and physical well-being. Science engages in discoveries. This will continue as long as the world exists. Because there are still many more things to be discovered. However, science does not create any of them.

Sacred Scripture

The divine revelation of eternal truths.

Science

A search for the meaning of the universal truths. It is either the discovery of what already exists or construction by utilizing what has been discovered.



The noblest power of a human being is reason. The highest goal of reason is the knowledge of God.
St. Albert the Great
(Youcat 3)



What are the arguments used by St. Thomas Aquinas to rationally approach the existence of God?



"O Lord, our Sovereign, how majestic is your name in all the earth! You have set your glory above the heavens" (Ps 8:1).



"The heavens are telling the glory of God; and the firmament proclaims his handiwork" (Ps 19:1).



Science is the human endeavour to discover and understand the mysteries of the universe using the God-given intellect and observational skills. Science is on the path of inquiry. Scientific discoveries are not always absolute truths. What science declares as true today may be proven false tomorrow. That is not a failure of science. Rather, it is merely a realization on the path of realities.

- The Holy Scripture, which is the revelation of eternal truths, and the discoveries made through scientific investigations are not contradictory.
- The purpose of science is not that of the Bible.
- The purpose of the Bible is neither scientific analysis nor the creation of scientific awareness. On the contrary, it is entirely spiritual.
- Beyond conveying divine revelation, the Bible does not have the mission of imparting any scientific knowledge.

“Methodical research in all branches of knowledge, provided it is carried out in a truly scientific manner and does not override moral laws, can never conflict with the faith, because the things of the world and the things of faith derive from the same God” (CCC 159).

Science, a Gift from God

- Scientific discoveries invite us to glorify the Creator even more.
- It is God who grants unerring knowledge about everything that exists. The wisdom given by Him teaches us about the structure of the world and the activity of the elements (CCC 283).
- The truth about creation is so important for all of human life that God in his tenderness wanted to reveal to his People everything that is salutary to know on the subject (CCC 287).

The message conveyed through the creation narrative in the Holy Bible.

Is the teaching that God created the universe opposed to science?

"In the beginning, God created the heavens and the earth" (Gen 1:1). Following this profound verse, the Bible systematically presents the creation of the universe and humanity through



Why is science incapable of discovering the ultimate truth? Explain.



Faith in God does not oppose scientific discoveries. Justify.



Can you share discoveries that science once taught as correct but later revised?
E.g.: The Earth is the centre of the solar system.

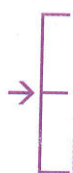
Can we say along with Solomon?
"It is he who gave me unerring knowledge of what exists, to know the structure of the world and the activity of the elements. . . for wisdom, the fashioner of all things, taught me"
(CCC 283, Wis 7:17-22).

God's command, "Let there be." Only God possesses the infinite power necessary to create everything out of nothing (CCC 298).

The Creation

To "create" means "to give existence to something that previously did not exist in any way; that is, to call it into existence "out of nothing" (CCC 318).

The message conveyed through the creation narrative in the Holy Bible.



God is the Creator of all things.

The origin of life is from God.

Man is the creation of God.

Arguments Regarding Creation

Science puts forward theories such as the Big Bang theory, the evolution theory regarding the origin of the universe and the origin of humanity.

The arguments put forward by science are diverse. Not all scientists support these theories equally. New discoveries in science also challenge the credibility of these theories. The Holy Scripture teaches us that God is the prime cause of life and the universe.

"The inspired authors have placed them at the beginning of Scripture to express in their solemn language the truths of creation – its origin and its end in God, its order and goodness, the vocation of man, and finally the drama of sin and the hope of salvation" (CCC 289).

How Should We Understand the Theory of Evolution?

A Christian can accept the theory of evolution as a helpful explanatory model; however, this theory has been disputed in history. One must not fall into the heresy of evolutionism, which views man as the random product of biological processes. Evolution presupposes the existence of something that can develop. The theory says nothing about where this "something" came from (Youcat 42).

Questions regarding the existence, essence, greatness, and purpose of the universe and humanity cannot be answered using the language of biology. Evolution is the growth or

Genesis

The first book of the Bible is "Genesis." (The word genesis, which means origin or beginning, is used in languages like Greek, Latin, English etc.). Among many other things, it describes the creation of the world and humanity (Youcat 46).



Is the world a product of chance? Read and discuss Youcat 43.

We can understand the catechism on creation from CCC 282-290.



How should we, as children of the Church, understand the theory of evolution?



Why is creation depicted as a work of six days? Discuss Youcat 46.

transformation in which a fundamental substance develops over billions of years into living beings, ultimately attaining their final form.

Does life originate from non-living matter? What is the prime matter of evolution? Who has orchestrated evolution? The theory of evolution remains silent before these questions.

Divine Providence in Creation

Creation has its own goodness and proper perfection, but it did not spring forth complete from the hands of the Creator. The universe was created "in a state of journeying" toward an ultimate perfection yet to be attained, to which God has destined it (CCC 302).

- The theory of evolution is not an indisputably proven scientific fact; rather, the foundation of the theory of evolution relies more on philosophical inferences than on scientific evidence.
- The conclusion that the human body, created by God, has been subject to changes is not contrary to faith. However, the human soul is directly created by God.
- The creation narrative in the Book of Genesis is not meant to be interpreted literally.
- God is the prime cause of the universe and life.

Artificial Intelligence

The study and design (Science and Engineering) for creating machines that mimic human intelligence is known as Artificial Intelligence (AI). These are computer systems that mimic human intellectual activities. The principle is to learn and solve problems.

Some areas where the positive impact of AI is evident

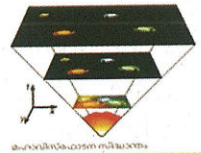
- **Medical field:** AI helps achieve greater accuracy and speed in diagnosis, identifying disease causes, predicting disease likelihood, and designing treatment methods like robotic surgery.
- **Industrial sector:** AI enhances the efficiency of production processes, ensures precise machine control, and reduces production costs.
- **Educational sector:** AI can be used to develop personalized learning models tailored to each student's learning style, providing a better learning experience.

The unheard-of precision of the processes associated with the "Big Bang" is supposed to have happened by chance?! What an absurd idea!

WALTER THIRRING
(Austrian physicist)
(Youcat 44).

Trees and stars will teach you what you can never learn from teachers.

ST. BERNHARD OF CLAIRVAUX
(Youcat 45)



The Big Bang Theory, which is widely discussed in the scientific world today, was first proposed by the scientist

Fr. Georges Lemaître (1887-1966), a Belgian Catholic priest. The core of the Big Bang Theory explains how the universe expanded and emerged from an initial state of high density and temperature. The scientific community considers this theory as an explanation of how the universe came into existence.

Challenges posed by Artificial Intelligence

- The use of artificial intelligence has the potential to transform the future of human life. At the same time, its application raises serious challenges.
- Traditional job sectors are disappearing; new ones are emerging.
- Threats to the privacy of individuals and communities.
- The possibilities of AI in various fields such as banking, transportation, and space research are vast.
- The possibility of humans losing control over machines.
- The risk of mass surveillance, dictatorship, and machine dominance.
- Cyber security threats.
- Unauthorized use of personal information.
- Deterioration of the common good and the collapse of morality.

The Catholic Church's Perspective (AN 36-117)

- The Church's vision is that artificial intelligence, the plan of God, should be used with due importance given to human dignity.
- Artificial Intelligence should not be used as a substitute for humans created in the image of God rather as a technology that provides necessary assistance to them.
- Artificial Intelligence should not be used in a way that defames human integrity, holiness, freedom, or creativity.
- Artificial intelligence must be used with dedication to promote peace, justice, and the common good while safeguarding fundamental human rights.
- Caution must be exercised against misinformation and discrimination while using artificial intelligence.
- AI should not be used in a way that leads to injustice. A balance must be ensured between developed and developing nations, and among individuals.
- Responsibility, justice, and transparency should be the guiding principles in its usage.
- Artificial intelligence lacks the ability to discern between good and evil. The quality of services provided by artificial



Gather the necessary ideas and resources to conduct classes for the 8th, 9th, and 10th-grade students in your parish on the topic, how to utilize the assistance of artificial intelligence to make learning more effective and effortless. The class should also include the precautions to be taken while using artificial intelligence.



What is the Church's perspective that we should have on the use of artificial intelligence?



Based on the contributions the Church has made to the growth of science, discuss whether the Church is opposed to science?

"So that everyone might see clearly that the Church and her Pastors are not opposed to true and solid science, whether human or divine, but that they embrace it, encourage it, and promote it with the fullest possible devotion.

(Pope Leo XIII)

intelligence depends on the data used and its structure; therefore, we must exercise greater caution when using it to solve complex problems.

- The arrival of artificial intelligence will create new situations and moral issues for human society. Recognizing them with vigilance is essential. The use of artificial intelligence must ensure the well-being of both individuals and society while upholding divine will and basic morality.
- Beyond artificial intelligence, care should be taken to nurture the newness and warmth of the wisdom of heart always.

The Church and Science

- The Church teaches that faith in God and science are complementary to each other and that their mutual cooperation is essential for the holistic progress of humanity.
- The Church supports the proper approaches and advancements in science.
- As a bearer of truth, the Church seeks to correct the erroneous approaches and unethical stances that have emerged in the progress of science.
- In the Western world, where modern science was born, the Christian Church has a history of being both an inspiration and a support for it.
- **The universe and the humans were created by God: in the universe, humans hold a central place.**
- The universe which originates from God, shares in His goodness.
- The goodness of the universe is meant to grow and reach perfection. It is the human effort and leadership that guide it toward this perfection.

The Church's Contributions to Scientific Growth Pontifical Academy of Sciences

In 1603, under the patronage of Pope Clement XIII, Prince Federico Cesi founded the *Accademia dei Lincei*, which became a center for scientific studies and research. The renowned scientist Galileo Galilei was in the leading position of this academic centre for studies. Later the academy which went into oblivion, Pope Pius IX reestablished and renamed it *Accademia dei Nuovi Lincei*, in 1847.



The church building was handed over by the Catholic Church in Thumba to ISRO for space research.



Can you identify other Christian church institutions that have contributed to scientific progress?

“Faith reminds science that it is supposed to serve creation and not set itself up in place of God. Science must respect human dignity instead of violating it”
(Youcat 23).

In 1936, Pope Pius XI reorganized the academy and gave shape to what is now the Pontifical Academy of Sciences.

- Functioning as an autonomous institution under the Holy See in Rome, the academy engages in research and studies across the fields of mathematics, physics, and biological sciences.
- Over 40 scientists who were members of the academy have received Nobel Prizes in various disciplines.

Vatican Observatory

Established by Pope Leo XIII on March 14, 1891. The oldest among the modern astronomical observatories.

Do you know?

Many priests and religious figures in the Catholic Church have made significant contributions to science and technology.

Those associated with India:

- The establishment of an institution for modern scientific studies in India was initiated by a Catholic missionary, Fr. Eugene Lafont S.J., a native of Belgium (1837-1908). This institution, known as the Indian Association for the Cultivation of Science was established in Kolkata in 1876 with the financial assistance of Mahendralal Sircar.
- In 2007, the Government of India honored Fr. Gabriel Chiramel (1914-2017) with Padma Bhushan, who was a zoologist, educationist, and author, is a Syro-Malabar priest.
- Dr. Mathew Thekkekara S.J. (1914-1976), an energy scientist who determined solar constants is a Syro-Malabar priest. He received the special award from the President of the United States in 1970 for his work at Goddard and the National Space Environmental Award in 1971.
- Fr. Mathew Maleparambil (1951-2015), a biologist who produced highly productive banana seedlings is a Syro-Malabar priest.

Those from other countries:

1	St. Albert the Great (1193–1280)	• A scholar with authority in various scientific disciplines. • Bishop of Regensburg and Doctor of the Church.
2	Nicolaus Copernicus (1473–1543)	A Polish priest and an astronomer: proved that the Sun is stationary, and the Earth and other planets orbit around it.

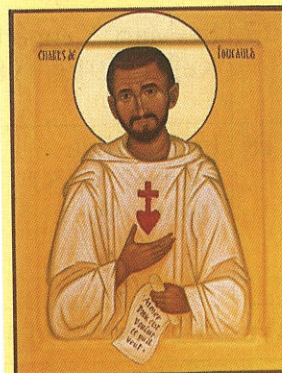


"All Scripture is inspired by God and is useful for teaching, for reproof, for correction, and for training in righteousness."
(2 Tim 3:16-17)

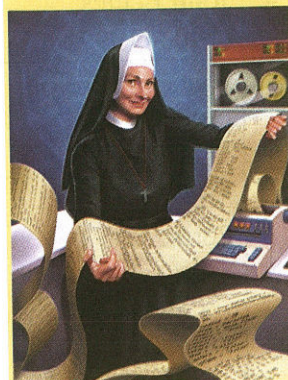


Identify and present in class several priests and religious figures from the Catholic Church who have made significant contributions to the field of science and technology by referring to the link (<https://www.facebook.com/catholicsandscience>).

3	Fr. Christopher Clavius, S.J. (1538–1612)	A German priest who was an expert in fields such as mathematics and astronomy and contributed to the formation of the modern astronomical calendar.
4	Fr. Pierre Gassendi (1592–1655)	A French priest and astronomer, he discovered the orbit of the planet Mercury.
5	Fr. Francesco Lana de Terzi, S.J. (1631–1687)	One of the early pioneers of aeronautics, a Jesuit priest from Italy.
6	Blessed Bishop Nicholas Steno (1638–1686)	A pioneer in modern anatomy and geology, Bishop of Titopolis.
7	Fr. Roger Joseph Boscovich, S.J. (1711–1787)	An Italian Catholic priest who first provided a rational explanation of Atomic Theory.
8	Fr. Andrew Gordon (1712–1751)	A Scottish Benedictine monk and scientist who invented the electric motor.
9	Fr. Giovanni Caselli (1815–1891)	An Italian physicist who invented the Pantelegraph, the early version of the fax machine.
10	Fr. Eugenio Barsanti (1821–1884)	An Italian engineer who designed the first version of the Internal Combustion Engine.
11	Fr. Gregor Mendel (1822–1884)	The Father of Genetics, an Austrian Augustinian friar.
12	Blessed Francesco Fr. Di Bruno (1825–1888)	A mathematician and an Italian priest, beatified on September 25, 1988.
13	Fr. Jean-Baptiste Carnoy (1836–1899)	A Belgian priest, regarded as the founder of Cytology.
14	St. Fr. Charles de Foucauld (1858–1916)	An explorer and geographer, a priest from France.
15	Fr. Joseph Murgas (1864–1929)	A Slovakian priest and scientist who contributed to wireless transmission, paving the way for mobile technology.



St. Fr. Charles de Foucauld (1858–1916)



Sr. Mary Kenneth Keller (1913–1985)

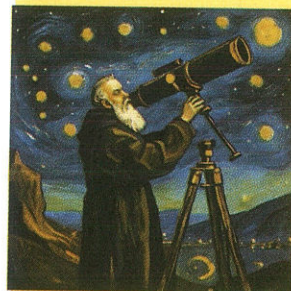
16	Fr. Julius Nieuwland (1878–1936)	A Belgian Catholic priest who invented synthetic rubber.
17	Sr. Mary Kenneth Keller (1913–1985)	An American Catholic nun and the first woman to earn a PhD in Computer Science.
18	Fr. Henri de Laulani Wp SJ (1920-1995)	Scientist and a French Madagascar Missionary who developed the technology of Systems of Rice intensification (SRI) related to rice farming.

World-Renowned Lay Persons

1	Galileo Galilei (1564–1642)	An Italian astronomer.
2	Louis Pasteur (1822–1895)	A French scientist whose primary fields were chemistry and microbiology. He discovered the first vaccines for rabies and anthrax.
3	St. Giuseppe Moscati (1880–1927)	A pioneer in biochemistry, a researcher, and a professor in Italy.
4	John Eccles (1903–1997)	An Australian neurophysiologist, recipient of the 1963 Nobel Prize.
5	Vladimir Prelog (1906-1998)	A Croatian-Swiss organic chemist, was awarded the 1975 Nobel Prize.
6	Max Ferdinand Perutz (1914-2002)	A British molecular biologist of Austrian descent, was awarded the 1962 Nobel Prize in Chemistry.
7	John Polanyi (1929-)	A Canadian chemist of German descent, recipient of the 1986 Nobel Prize in Chemistry for his research in chemical kinetics .

The Christian Church has been able to give birth to numerous scientists. In the past millennium, a significant percentage of scientists who received the Nobel Prize were Christians.

We must become capable of reading the mystery of the universe with reverence and joy. By deepening our Christian faith, we must be able to contribute further to the growth and progress in the field of science. Thus, let us live glorifying God through the life that He has given us as a gift.



Galileo Galilei
(1564-1642)

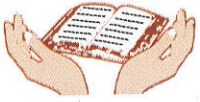


St. Giuseppe
Moscati (1880-1927)



My Convictions

- Science seeks the truth; the Bible reveals the ultimate truth.
- Reason and faith are complementary; science and religion are not contradictory.
- The Catholic Church has made significant contributions to the growth of science and technology.



Let Us Read the Word of God

Acts of the Apostles
Chapters 5–8



Let us illuminate our hearts

He established the sun, the moon, and the stars forever and ever; He fixed their bounds, which cannot be passed (Ps 148:6).



My Resolution

In the diversity of creation,
I see You and glorify You.