

The Thales Way

Bob Luddy



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Thales Academy™
DEVELOPING CLASSICAL THINKERS

THALES
COLLEGE

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It is also dedicated to my parents, Bill and Angie Luddy, who provided the intellectual spiritual formation of what has become *The Thales Way*; to economist Dr. William H. Peterson, my longtime mentor, who encouraged the formation of the Luddy Schools; and Alice von Hildebrand, Hunter College Philosophy Professor and advisor to Thales Academy.

A handwritten signature in black ink that reads "Bob Luddy". The signature is written in a cursive, flowing style with a large initial "B".

Founder, Thales Academy | President, CaptiveAire

Why Thales?

In the late 1990s, as the founder and president of CaptiveAire, a growing HVAC manufacturer, it became clear to me that our most prepared and highly motivated employees became stellar performers without much additional training. These individuals were ready to take on challenging assignments quickly since they were well-prepared professionals.

Unfortunately, these individuals were in the minority, and I watched so many others struggle due to lack of skill, discipline, knowledge, or motivation. Some of our technicians could not understand basic fractions, while others could not read well. At the professional level, they lacked both the rigor and the ability to handle new challenges, which require adaptability and a continuous learning curve. More than that, I recognized that although most individuals can learn industry practices eventually, many are reluctant to adapt to the continuous dynamics of growth and improvement. Professional development programs at workplaces are not adequate to address these key deficits.

After hearing similar stories from fellow entrepreneurs, I decided that if we want to have qualified individuals in the North Carolina workplace, we need to start at the beginning. K-12 education became my passion. I was appointed co-chairman of the North Carolina Math and Science Coalition to promote math and science instruction in primary and secondary schools. I emphasized the

importance of personal discipline, rigor, critical thinking, and character formation leading to virtuous leadership.

In 1995-1996, I was involved in the creation of North Carolina House Bill 955 ("the Charter School Act"). The bill initially allowed for one hundred charter schools, which are public schools that receive public funding but operate under unique and specific charters run by private individuals. Over time, we have seen that the most successful charter schools are the ones that have focused on the fundamentals of education. By 2010, the initial North Carolina charters were so successful the NC General Assembly amended the law and allowed for an unlimited number of charters in the state.

In 1998, I received authorization to develop a North Carolina charter school in Wake Forest. We named it Franklin Academy after Benjamin Franklin, perhaps the most entrepreneurial of the American Founding Fathers. In our first year, we opened at capacity with about 150 students. Parents were willing to take a risk based on a fresh approach that included a dress code, discipline, packed lunches, a year-round schedule, and Direct Instruction (DI).

Franklin Academy has been named a "School of Excellence" by the State of North Carolina. To this day, Franklin Academy is thriving with more than sixteen hundred students and a long wait list every year. Since then, a multitude of new charter schools have opened in the greater Wake Forest area. Over twenty-five percent of the local student population is now enrolled in private schools, charter schools, or are being homeschooled. The data confirms the demand for improvement in K-12 education and proves to me that parents want better choices for their children.

In 2002, a group of parents approached me to help establish an independent, college-preparatory Catholic high school. It was named for Saint Thomas More, one of the greatest men of courage in history, who stood up for what is right and paid for his convictions with his life. St. Thomas More Academy (STMA) was created as an academically rigorous, faith-based school with a classical curriculum. STMA established itself as one of the best classical schools in this area and now provides instruction in grades 6-12. It has been consistently named one of the "Best Catholic High Schools in North Carolina" (2018-2022).

Based on my experience, it is virtually impossible to change the K-12 status quo in public schools. The highly-entrenched educational bureaucracy prevents any type of positive change. Sometimes "Exit," a disruptive organizational approach that involves exiting the current system and creating a new one, is the best solution instead of trying to reform the current model.

In 2006, I invited several families to our corporate office to discuss the potential for a private school. More than thirty individuals attended, and stayed late into the evening as the discussions continued. It was clear that parents were hungry for a new approach. It would be an entrepreneurial venture in the education market formed in response to dissatisfaction with the status quo of education.

One foundational component was affordability for all interested students. An excellent education should not be unattainable because the financial costs are too burdensome. As with our previous schools, I knew my team could utilize human ingenuity to reduce

the cost of education and allow for students to receive what is of utmost value to their personhood: a robust education aimed toward seeking truth, goodness, and beauty.

The idea of a network of affordable, private, college-preparatory schools for all grade levels that could put into practice the many lessons I had learned about education over the years was germinating. Thales provides an alternative to the modern American education system and offers students the opportunity to utilize and develop their God-given intellects.

My daughter, Julie, suggested our name and spiritual founder, Thales of Miletus. Thales was one of the Seven Sages of Greece whom Aristotle regarded as the intellectual fountainhead of Western philosophy. In ancient Greece, philosophy was not a course in a classroom with textbooks but rather a systematic commitment to wise living. This struck me as a major insight missing in contemporary American education. I believe that at their core, parents want more than anything else for their children to learn to live wisely throughout their lives.

In 2007, Thales Academy was born. Thales would be a private, non-profit school, uninhibited by state regulation and bureaucracy. As a private school, Thales Academy has the freedom to teach the Classics in the Judeo-Christian tradition. We began to teach the first group of students in a small suite behind our corporate office. Since then, Thales Academy has expanded to become one of the largest providers of private K-12 education in the area, educating thousands of students throughout the Southeast.

I am enormously proud of everyone involved with the creation of Thales Academy: our dedicated teachers and staff members, supportive parents, and especially our students who have worked incredibly hard to achieve their educational goals. It is a pleasure watching our Thales community grow.

Robert L. Luddy

Founder of Thales Academy

Introduction

The purpose of this book is to elaborate on the history and mission of Thales Academy, explain the rationale for our educational approaches, and provide standards and methods for teachers, students, and families.

Thales Academy was founded with ideas that trace back to Thales of Miletus, the first individual known to have engaged in scientific philosophy. The mission of Thales Academy is to provide an excellent and affordable education for students in Pre-K to 12th grades using Direct Instruction and a Classical Curriculum that embodies traditional American values, including character formation.

We teach students how to think and seek the truth, and we help them form good character and integrity while maintaining high academic standards. We continually improve our curriculum and our school culture to best serve our students. Kaizen, the Japanese philosophy of continuous improvement, is an important value at Thales Academy, and we regularly review all processes and protocols to ensure we are providing the very best educational experience for our families. Across the network, our goal is to cultivate excellent students in pursuit of truth, beauty, and goodness.

Many educators believe that accreditation is a sign of legitimacy. However, at Thales, we believe that rigid processes quickly become obsolete because the world is dynamic and constantly changing. Thales Academy made the decision to reject accreditation because it is a process of legacy inputs, not outcomes. Such inputs of time

and energy take teachers away from students and hinder our purpose of providing the highest quality education. Instead, Thales Academy measures success by evaluating student outcomes such as university admissions, SAT/ACT test scores, school transcripts, senior theses, and quarterly teacher evaluations. Students must be able to research, think, debate, and write clearly and concisely. We utilize parent surveys to determine needed areas of improvement and always maintain a spirit of humility, anxious to improve.

Similarly, many educators believe that resource officers are necessary in schools today. We feel it is imperative that we provide an environment at Thales in which students feel safe and secure as they learn. We've established a culture where everyone is aware, visible, and constantly promoting a healthy and safe environment. There are no resource officers deployed because safety and security are high priorities for everyone within the school building. All the doors to the school are locked, and cameras are monitoring the interior and exterior of the facilities. Administrators continuously monitor activity. All individuals entering the building are security verified and wear proper identification.

Everyone on campus is expected to act with integrity and be actively engaged and in tune with their surroundings to maintain a safe and orderly learning environment. When students feel secure in their environment, they are more likely to be active and engaged within the school community. The most important aspect of security is the discipline, monitoring, and nurturing of our students.

Accordingly, our use of technology is very thoughtful. In grades K-5, only teachers use iPads to display lesson material on large screens during their instructional time lessons are underway. In grades 6-12, students use individual iPads under strict control. Teachers can monitor the internet for every student, and the software precludes the use of unhealthy sites.

At Thales, our goal from the outset has been to offer a stellar educational experience available to every student. We are forming men and women of moral excellence to be leaders in their families, professional life, and communities.

In this publication, we explore a variety of the themes and values that we strive to impart to our students at Thales Academy. We emphasize many important disciplines which help students improve their thinking and judgment. Thales graduates are well prepared for the best technical institutions, colleges, and universities in the country. Many Thales graduates have interned at CaptiveAire and have proven to be some of our best: they possess excellent writing skills, impressive work ethic, mature confidence, and logical reasoning and decision-making skills. The act of hiring Thales graduates has served as a critical litmus test: are we teaching our students to be competent and successful adults?

This book is a reference book on how Thales Academy came to be, how we operate daily, and how we form and teach our students.

We invite you to join us in our mission and learn more at

www.ThalesAcademy.org.

Repetitio est mater studiorum

Thales Mission Statement

The mission of Thales Academy is to provide an excellent and affordable education for students in Pre-K to 12th grades through the use of Direct Instruction and a Classical Curriculum that embodies traditional Judeo-Christian values.

Part I

Classic Formal Education

Part I of *The Thales Way* elaborates on the history and mission of Thales Academy; explains the rationale for our educational approaches; and provides standards and methods for teachers, students, and families. Included is an overview of the Direct Instruction pedagogical approach we utilize at our Elementary School level and the classical curriculum utilized at our Junior High and High School levels. Also discussed is our unique approach to vocational training and developing students' communication skills, both verbal and written, during their time at Thales.

Chapter 1

Mission and Philosophy

*The purpose of education is the pursuit of
universal truth.*

Alice von Hildebrand

Truth as Foundation

The late Alice von Hildebrand was a philosophy professor at Hunter College. A woman of deep wisdom and tremendous courage, she was a wonderful mentor. She encouraged us to ask, "Who of us would freely choose to build our life, our family, or our national health on anything less than the irrefutable truth?" The truth is required to establish sustainability, and yet the truth is continuously denied in the secular world.

The work of Alice's husband, German philosopher Dietrich von Hildebrand, highlighted just how much depends on our pursuit of truth and our ability to resist those things that degrade it: "Goodness, purity, truthfulness, and humility of man ranks higher than genius, brilliancy, exuberant vitality, higher than the beauty of nature or of art, higher than the stability and power of a state." Von Hildebrand knew that evil always opposes what is true, which is why truth should be the foundation for all we build even though

it will always be under attack. This is where education comes in to cure us of falsehoods and misunderstanding.

U.S. President John Adams once stated that "facts are stubborn things". How much better to learn the truth of reality from the very beginning of our education?

Rationalization is part of the human condition, but it always puts us into conflict with reality. The twentieth century is a virtual catalogue consisting of theories proven not only false but also destructive when these falsehoods face reality. In the end, *collectivism*, the practice of giving a group priority over individuals, does not serve individuals but rather enslaves them. Experts who know a great deal about one thing know too little about everything else. And more recently, unlimited spending does not lead to limitless growth but to the eradication of hard-earned capital.

At Thales, we strive to prepare students for life with a reality-based foundation so that their beliefs are on solid ground and aligned with the truth as they get started on their journey. Social theories about the way things "should be" have displaced honest instruction in the way things really are. Many of the educational establishment's practices are based on dubious theories such as the Whole-language method of teaching reading that was popular in the 1980s and 1990s. Such theories have largely been discredited. Trends such as these end up harming students in the long run.

Climbing the Ladder

Ancient masters of thought like Socrates and Plato have pointed us to a stairway or ladder that we can climb one step at a time. The

rungs on the ladder have become known as *The Three Transcendentals* because, like unattainable standards, we both reach for them, and they always continue to transcend our efforts.

Each transcendental is linked to reality, to the way things are. The first is what we call *The True*. *The True* is what we have when our thoughts come to assent to the reality. The absence of truth is chaos. Even conscious ignorance is a kind of truth. "To know that I do not know" is the very first truth and is a necessary beginning for any further discovery. As Socrates explains, "Pride divides the men, humility joins them."

The Good is even more challenging. *The Good* is what we have when we not only know what is real but when we agree with it and make choices that accord with it. The Good involves not only our thoughts but our actions, and thus requires high levels of discipline.

The third and final rung on the ladder of the transcendentals is known as *The Beautiful*. For most of us, choosing what is good is hard because our desires naturally lead us into vice. But while biting our lip and being self-controlled is better than vice, it is even better for us to take pleasure in doing what is good. The highest rung on the ladder comes when our tastes match reality: when good things are pleasant and evil things unpleasant to us. And none of these transcendentals are a matter of personal preference. The Good is solid and absolute, thoroughly fixed in natural law.

At Thales, we invite students to begin an intellectual and spiritual journey up this ladder. It is a lifelong undertaking that leads to ultimate fulfillment and happiness. As challenging as the journey

can be, the journey is worthwhile for each and every student who embarks upon it, and Thales establishes the highest standard for each member of our learning community.

Human Dignity

People talk in our society about individual rights and the value of each person. But, in many schools, the rhetoric contradicts the facts on the ground. When a school claims to value its students but does not offer them a safe, well-ordered, caring, or excellent academic environment, there appears to be a contradiction.

Thales Academy is built on a foundation that pursues truth and is convinced to the dignity of each person within our community, students and teachers alike. It is precisely because we respect the dignity of each person that we find it necessary to offer them the best education possible and hold them to the highest personal and academic standards.

Some may be challenged by the idea of asking students from all cultures, races, and walks of life to dress according to a shared standard of decorum or read a canon of great books. But at Thales Academy, we believe in holding each member of our community to the same high standards and to lifting each other up in pursuit of them. As such, we think our dress code is a clear way to respect a person's dignity. These standards reflect long-standing American traditions.

When we ask students to order their appearance and treat the school day like it has special value, we are showing them respect and are helping them learn to respect themselves. This is how

standards work. High standards recognize the nobility and potential of each person and call us all to better things. So many of the pathologies of contemporary education are rooted in a reluctance to establish and maintain high standards as though they themselves are oppressive. Standards do not oppress but, in fact, liberate.

At Thales Academy, we show respect for each person and for the institution we share by applying high standards throughout our organization, not just with our dress code. Our classroom management approach is to treat students with respect by asking them to behave in accordance with our Code of Conduct and our Honor Code.

We strive to work with all students to help them take ownership of their own progress. We make room for a person to improve, change, and grow. If a student repeatedly demonstrates that he or she is not willing to respect the classroom in this way, we do not choose to lower our standards but rather suggest another placement.

At Thales, we are committed to teaching what Matthew Arnold, an English poet, once described as "the best that has been thought and written". Some like to use the term "Great Books" to describe a set of original works or masterpieces in a subject such as literature, history, economics, the sciences, and philosophy that have stood the test of time. These works were written by pillars of Western society who were exemplars of human creativity and genius. The masters of thought behind the books are men and women in all sorts of fields, including entrepreneurship and teaching as well as the liberal arts. The common thread here is that all students de-

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serve access to the best ideas, greatest masterpieces, and geniuses who have come before us.

Chapter 2

Character Formation

*Good character is not formed in a week or a month.
It is created little by little, day by day. Protracted and
patient effort is needed to develop good character.*

Heraclitus of Ephesus

Thales Academy grounds its instruction in the Judeo-Christian tradition, which serves to protect students from untruths, lies, and propaganda promulgated by the media and internet. We witness the failure of humans based on poor moral choices that adversely impact many people. We stress character formation and define good character as a lifelong pursuit imperative for a happy and contributive life.

Inspired individuals, inspired to do right and follow a moral code grounded in the classical tradition, have the greatest positive impact on both families and societies. A well-formed character is critical to making excellent decisions, for it is our moral compass that helps us make sense of the knowledge that we have learned. We think of Thales Academy as offering ethical strength, moral endurance, and virtuous training for students so that they can boldly take on all the challenges of life.

Forming Character

But good character doesn't just happen. It must be intentionally formed for the good, or else it may veer off in evil or unhealthy directions. General William H. McRaven's book *Make your Bed* describes how important personal discipline is to our formation, beginning with making your bed every morning.

Thales Academy actively develops perseverance in students. Students have so many distractions, and it is easy for them to become irresolute and indecisive if they don't have good role models and great teaching at hand. The point is that character formation is not only essential but also unavoidable in every home and every school. If you are not actively fostering virtue, you could, in effect, be encouraging vice.

It is very hard to live a good life, and most of us are not up to the task without a lot of help. The whole concept of ethics grows out of this basic idea that character formation requires a person to learn how to resist temptation and choose to do what is right, even if, and especially when, no one else is making this choice.

There are three main areas of character development: skill formation, habit formation, and most importantly, virtue formation. By focusing on these areas, we help prepare our students by developing the character they need to live good, uplifting, and moral lives. Academic pursuits like mathematics, the scientific method, and learning how to write a research paper are important. But cultivating good personal habits like attention and orderliness, virtues, and courage are equally important to a student's development.

Skills

At Thales, we focus on the competencies that are necessary for all professions because they make a person useful in any situation. We group these skills into four main categories: learning skills, reasoning skills, communication skills, and social skills.

Learning Skills

Learning Skills involve an aptitude for recognizing your own ignorance, searching out knowledge and wisdom to address that ignorance, and mastering and retaining that knowledge and wisdom for future endeavors. These skills are about learning how to learn. Students who know how to learn are in a greater position for both success and fulfillment in life. For a mindset of curiosity and wonder creates an atmosphere in which you are constantly sparking new ideas.

Reasoning Skills

Reasoning Skills include patterns of thought for facing new and complex challenges and solving them in effective and accurate ways. Each major discipline offers its own style of reasoning, which is why it is good to be widely educated in all the liberal arts and sciences. For example, mathematics develops quantitative and analytic reasoning, while the humanities develop imaginative reasoning. The study of history offers insights about what happened in the past, while literature offers a window into might have happened. On the other hand, the natural sciences—biology, chemistry, and the like—teach the scientific method, which is a different pattern of reasoning. An often-neglected reasoning skill

for students is economic reasoning, which is not about economics but an ability to think about any subject through the lens of economics.

These reasoning skills complement each other. When scientists do not have imaginative reasoning, they find it harder to pose "what if" questions. The eminent physicist Albert Einstein (1879-1955) explained that this is because "knowledge is limited to all we now know and understand, while imagination embraces the entire world, and all there ever will be to know and understand." Einstein read widely, and his favorite books included not only works of science but also philosophy and literature. One of his longtime colleagues recalled that Einstein particularly enjoyed reading *Don Quixote*. It sat on his bedside table, and he read it for relaxation and pleasure. Here is a modern mathematical and scientific genius, and he displayed scientific, quantitative, and imaginative reasoning skills. We try and present such thinkers as exemplars, individuals whose lives are worthy of imitation, in hopes that our students may develop some of the same habits that made these men and women great.

Practically, any consideration in life can be enriched by applying multiple reasoning skills to the task. As a person integrates different reasoning skills from various fields, they become more astute and more perceptive thinkers ready for new challenges and ideas.

Communication Skills

Communication Skills entail expressing ideas clearly and persuasively across different media and in all sorts of situations. This skill is what allows us to deliberate and make judgments with

other people and why we can have families, clubs, companies, and nations that learn and improve together. Typically, we differentiate between written and oral communication, but with the rise of video and social media as major forms of communication, there are many more ways to express ideas than ever before. The importance of written communication cannot be overemphasized.

Civil rights leader Dr. Martin Luther King, Jr. understood the power of the written word and its ability to be an influence for good. Words tell the story of humanity and have the capacity to dictate what chapter comes next. Being articulate in writing improves and conveys the excellence of the mind. As a crucial part of developing our students, Thales Academy is dedicated to cultivating strong, capable writers. Instructors at Thales understand that the teaching of writing is iterative and requires ongoing patience, high expectations, and constructive encouragement.

Students must master grammar at a young age. At Thales, students have a class devoted to grammar in grades kindergarten through grade five. Beginning in middle school, students take classes devoted to logic and rhetoric which, together with grammar, are known as the *trivium*. These years of instruction in the arts of thinking and writing culminate in a student's senior thesis, a thesis-driven research paper that students complete in their senior year.

At Thales, we also require students to take Latin throughout junior high. Studying Latin helps students to critically dissect a sentence and thoroughly understand the parts of speech. Additional grammar and logic lessons solidify the student's ability to construct a

compelling written work. The journey culminates when a student can argue a thesis effectively by graduation. Writing itself is simply a form of honed reasoning, and so communication skills interact with reasoning and thinking skills, each strengthening the other.

In contrast, spoken communication is more relational and therefore more engaging and persuasive. While the written word can be exact and thorough, written communication cannot always do full justice to an idea. Spoken communication heightens the drama of ideas and makes such ideas appear more powerful and authentic. Speaking in person allows us to use tone, tempo, rhythm, volume, posture, movement, gesture, and the energy of our audience. Thales students practice these skills by studying rhetoric as well as participating in Socratic dialogue and formal academic debates.

We remember Winston Churchill's *Never Surrender* speech, which still gives us chills. History has given us Dr. King's *I Have a Dream* speech and patriot Patrick Henry's *Give Me Liberty or Give Me Death*. All these speeches inspire and motivate; they create a moment of decision; each one calls the audience to action and thus, helps to shape the future.

Social Skills

Social Skills include a focus on emotional intelligence, a critical component to becoming a good leader. Effective entrepreneurs are those who have learned the art of interacting with people with authenticity. John Maxwell, the author of many best-selling leadership books, once observed that "people may hear your words, but they feel your attitude".

How we present ourselves and interact with people establishes their impression of who we are. People will follow someone in whom they can trust and to whom they can relate. Without emotional intelligence, you can have the best ideas in the world and give the most eloquent speeches, but no one will be inspired to follow. The ability to approach people in a relatable, kind, and interested manner is a skill that will grant a successful life of partnerships, friendships, and mentorships.

The fullness of how to be emotionally intelligent cannot be fully grasped in a classroom, thus the need for activities outside of the classroom. At Thales Academy, students have opportunities to grow in emotional awareness through their after-school activities including sports, clubs, and projects. When we are placed in situations where we meet new people or are tasked with solving new problems together, we are forced to become aware of our surroundings and understand our role in any given situation. Much is expected of students at Thales—in their studies and their attitudes.

Dialogue, seminar, and debate all rely on social skills. Seminars take place in the real world all the time—in the board room, in a departmental meeting, or on a jury. People wrestle through problems and reach decisions together. There are also occasions when a set of settled views must be vetted in a public hearing such as a courtroom, a town hall, a school board meeting, or a legislative body. In a debate, ideas are vetted before a decision is made. Each of these scenarios require a mix of reasoning skills, communication skills, and social skills.

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Collaboration is a positive activity, but collaboration depends on individual contributions. Groups can be prone to a herd mentality, which is counterproductive. The herd can pressure a person into conformity, but as philosopher Søren Kierkegaard said, "there is no truth in the crowd." It was entrepreneur Jack Canfield, author and creator of the *Chicken Soup for the Soul* franchise, who emphasized the idea that our response to an event is what determines the outcome. We must decide to be the main character in our lives and respond to each situation as such.

Accordingly, Thales Academy takes discipline taken seriously. Nurturing a sense of grievance is a way to manipulate people. But if we want people to have better lives, taking personal responsibility is the only recipe that will offer students success. We strive to work with every student to help them take ownership of their progress. Part of this process involves asking them to own their failures and shortcomings, but we make room for a person to improve, change, and grow. At times, we send students home and remove them from the learning environment. Such a policy is best for the students who want to learn and for the student disrupting that learning environment. At heart, we do not accept a victim mentality from our students but rather hold them to high expectations, positively reinforced. Anything less will not help students achieve success later in life. Rather than feeding a sense of oppression with philosophies of resentment, we give them empowering tools to pursue the good life.

Virtue

Aristotle was the first to point out that virtues exist at the midpoint between two vices. Virtue and vice are not a pair of opposites but a continuum. Take courage. It is common to think of it as the opposite of cowardice. But Aristotle points out that true courage lies between an excess and a deficiency. Rashness is the excess and cowardice is the deficiency of courage. This continuum dynamic is why he described virtues as a Golden Mean—because they are the mean, or the midpoint, between two extremes.

There are many lists of virtues, but one very short and powerful list is known as the Four Cardinal Virtues. The idea is that if a person is characterized by these four virtues, he or she will live a truly good and noble life. It is not that all the others are unimportant, but rather all the other virtues grow out of these four primary ones: Prudence, Justice, Courage, and Temperance. No one has explored this subject more deeply than Thomas Aquinas, an Italian Dominican priest and perhaps the most influential philosopher in the Middle Ages. For Aquinas, the four cardinal virtues are a picture of how a virtuous soul functions.

Prudence

Prudence is the mind's recognition of what the right action is in any given situation. It is not simply the knowledge that telling the truth is good and lying is bad. It also demonstrates judgment on how to apply ethical rules. Prudence grasps what ought to be the goal of our action in a situation and does not just command adherence to abstract principles. But prudence is just the start.

Justice

Justice is the second cardinal virtue, and it widens prudence out to the larger circle of obligations that each person has—from self to others to the broader community. First, for Aquinas, justice is not some abstract, ideal framework but a very practical moral virtue that is required of every person. Justice requires us to do right to actual people—all people with whom we are in any kind of relationship. Ironically, many in our world talk a big game about justice to humanity or social justice or systemic justice while at the same time treating people around them with contempt, negligence, or malice.

Justice works in the opposite direction. It begins with how we treat people close to us and expands outward until we treat all people rightly. So, justice would not permit us to act in a way that shows favoritism amongst our employees. Nor would it allow us to succeed in our careers by failing to meet our obligations to our families. Justice requires us to do right to all. But prudence and justice are only as good as our willingness to follow through. To do what prudence and justice require is hard, sometimes very hard. Natural fear would have us withdraw from our obligations, take the side of evil, or just compromise a little to get by. This is where courage comes in.

Courage

Courage is sometimes described as the hardest virtue. In the real world, where people can freely choose to do the wrong thing, courage is necessary. It strengthens us to do the right thing when

we meet with opposition. But remember, courage is the midpoint between two vices. Cowardice comes when we yield to fear, but we can also be too bold and push our weight around. To be courageous, we need to not only overcome fear but also moderate boldness. When we strike this balance, we put prudence and justice into action. This is why courage is often known as the mother of all virtues, because if prudence and justice are just concepts in our minds, our virtue is never made real. It is only when we do the hard work of putting it into practice that true virtue takes shape.

Temperance

The fourth cardinal virtue is temperance, or moderation. We need only to follow the news to find a story of a seemingly successful life turned upside down by intemperate behavior. But temperance goes further than this and can often seem the most unattainable of the cardinal virtues. Temperance involves enjoying the good things in life within their proper bounds. While choosing not to lie is good, finding truthfulness pleasant is even better. Here is where desire comes in. A temperate person is not blown off track by excessive or deficient desires but rather keeps choosing the right thing because he or she has developed a taste for the right thing and experiences it as genuinely lovely and praiseworthy. While courage exists because the right thing is hard to do, temperance trains our desire to take pleasure in doing the right thing.

For Aquinas, the four cardinal virtues must all work together harmoniously.

Chapter 3

Direct Instruction

One of the biggest things that direct instruction develops is a rock-solid work ethic.

Edward Schaefer

In 1964, a professor at the University of Oregon by the name of Siegfried Engelmann pioneered a method of teaching that came to be known as *Direct Instruction* (DI). His primary purpose was to set a baseline for future learning. At Thales Academy, DI is a major feature of our grammar phase in grades K-5. If we are going to learn complex things, we need to know how to read, to know phonics, to have reading comprehension, to know how to compute, and above all to strive to learn "to mastery". Think about driving a car. If you do not know all the basics of driving, you cannot go out on the superhighway. DI is a way of mastering the basics in the grammar phase so that students are ready for what comes later in the logic and rhetoric phases.

The principles of DI are simple and intuitive. Humans make sense of things by learning rules that then bridge understanding between concepts. Poor understanding leads to incorrect assumptions and mistakes, while precise and unambiguous rules lead to effective learning. In 1998, after doing extensive research into cur-

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riculum efficacy, we selected DI for Franklin Academy. Right from the start, the outcomes were extraordinary, even with students who had been underperforming at their previous schools. Thales utilizes DI because of the excellent results it produces.

Engelmann designed DI based on his premise that "what humans learn is perfectly consistent with the input they receive." He believed that all children, not just certain children, were capable of learning both fast and well if they had the appropriate teaching input. Accordingly, he built his DI model based on five rules: be clear, be efficient, teach to mastery, celebrate success, and beware of intuition. The basic elements of the method include repetition, seat checks, and choral responses, all of which help keep students and teachers alike on task, focused, and excited about learning and applying new ideas and concepts. Below we will elaborate on each of the five rules.

1. Be Clear. Humans make sense of things by learning rules that bridge understanding between concepts. Preventing the learning of incorrect rules, or "misrules", is an important aspect of effective instruction that keeps learning efficient and accurate. It is much more difficult to correct a mistake later than it is to teach the correct rule first. The goal is to teach rules that will not be contradicted later in learning. Giving opposing examples during instruction ensures a clear understanding of concepts.

For example, in teaching about quadrilaterals, if a teacher just showed the picture of a square, students might make the incorrect assumption or misrule that squares are the only type of quadrilateral. Learning would be improved by showing pictures

of various types of quadrilaterals such as a trapezoid, a rectangle, and a rhombus as well as pictures of non-quadrilaterals such as a triangle, an octagon, and a pentagon. This clearly cements the concept beyond the formal definition based both on what is and what is not a quadrilateral. Engelmann explained, "You have to order your presentation of examples so that you rule out all the other possibilities. That can be hard to do. But if there is more than one possible interpretation of what you've presented, some of your kids are going to pick up on the wrong one."

2. Be Efficient. Direct Instruction is designed to maintain high time on task, which increases student learning throughout the school day. Engelmann's design is intended to teach students more effectively in less time by harnessing the mind's inclination toward mastering concepts through a series of steps (algorithms) and familiar frameworks. DI uses a progressive format that teaches foundational concepts first, then builds upon them in a way that eventually creates natural bridges between new ideas and earlier concepts efficiently.

DI also increases efficiency by utilizing carefully crafted teacher scripts and choral student responses. The teacher script maximizes the time spent learning by focusing intentionally on the concepts being taught, eliminating excessive teacher talk or deviations from the objective. The choral response maximizes the number of students directly engaging with the content, providing ample opportunities for teacher observation and feedback on student understanding.

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Finally, DI is most efficient when students can be grouped based on ability. Such ability grouping allows the students to focus on the material being presented and to master the concepts effectively at the same pace. When students enter Thales Academy, they are grouped based on ability. Some students may be strong readers but poor at math, or any other combination of skill levels. DI's skill grouping allows us to instruct each student in each subject at the exact level that they need to succeed. Ability grouping eliminates the need for smaller class sizes because all students are learning at the same pace.

Appropriate placement within the direct instruction program is paramount to each student's success. Teachers in each grade meet quarterly with the campus administrator to evaluate student performance and data. The data comes from regular assessments (every 5-10 lessons) that are built into the curriculum. The information provided by the data is used to inform planning for teachers and to determine and monitor individual and class needs (i.e. to ensure that all students are placed correctly based on their current skill set). Students who do not consistently meet mastery on assessments may be recommended to receive remedial support in the form of additional repetition and exposure to the content. If appropriate, a placement change may be recommended. These evaluations ensure that each student is being appropriately challenged while mastering the material.

3. Teach to Mastery. Direct Instruction's emphasis on efficiency must not sacrifice the mastery of a concept. DI carefully introduces new concepts at a pace that is meant to allow both the absorption of new material and the reinforcement of old material. Each

lesson is designed to include at most 15 percent new material and 85 percent reviewed material. DI starts students where they are with what they already know, builds upon that with logical sequences based on that starting point, and repeats concepts until they are cemented. Engelmann noted: "You can't achieve mastery if you introduce tasks that are far beyond the learner's ability and if you don't give kids enough practice".

Achieving mastery requires thoughtful methods using repetition and correction. Learning is sequential, and concepts are reviewed until they are factual, familiar, and internalized, which maximizes retention and gives students a rock-solid foundation of knowledge as they progress in their studies. DI focuses on quality versus quantity, with mastery of all concepts as the primary goal. Teaching to mastery in this way is built into the DI model, and students become confident in their knowledge as they progress.

4. Celebrate Success. To encourage both good behavior and the desired learning results, we praise positive student behavior and achievement whenever and wherever possible and praise it precisely. Direct Instruction offers many opportunities for praise with its naturally built-in rapid pacing and repetition that allow for many correct answers. For example, throughout any given DI lesson, there are many opportunities for the teacher to check students' knowledge. The teacher may call upon the class as a whole or may call a student individually by name. Students are often excited when they answer a question correctly and are praised for their work. Additionally, teachers must project sincere motivation and encouragement to communicate the importance of learning as well as confidence in their student's ability to master

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the material. This not only creates an internal thirst for learning in students, but also breeds stronger self-esteem, both of which benefit students in the long term. These positive impacts on students are wonderful rewards for them individually, as well as for their teachers, who get to experience real-time results and visible student growth in their classrooms from their lessons.

5. Beware of Intuition. Engelmann said: "You cannot fall in love with your own judgment." The Direct Instruction methods rely on evidence of results and are guided by demonstrated student benchmarks, so student progress is measured by real data and not subjectivity. DI supports the notion that all students can learn effectively using evidence-based methods. They may learn at a different pace, but the best methods of learning are universal. Engelmann recognized that many of the most effective methods might feel counterintuitive, so teachers must trust the well-studied DI methods over their intuition in delivering the lessons. This reduces errors in assumptions about what students already know, what students already understand, and what might be the most effective way to teach a concept.

DI has been demonstrated to be highly effective for students of various backgrounds, abilities, and ages. When done well, its results are nothing beyond astounding to those witnessing it for the first time. DI helps good teachers become great ones. This is because, as Engelmann explained, "There's a great difference between teaching and designing effective instruction. Most learning failures are caused by bad programs, not bad teachers." Thales Academy's teachers and students alike benefit from our commitment to Direct Instruction with its proven recipe for success.

As Shepard Barbash writes in *Clear Teaching*, "More scientific evidence validates the effectiveness of (Engelmann's) methods than any other approach to instruction."

The Learning Experience

Direct Instruction K-5

A quick glimpse into a Thales Direct Instruction classroom will show a teacher leading highly engaged students through specific, structured lessons. DI curriculum is utilized in kindergarten through 5th grades in core subject areas such as Reading, Language Arts, and Math. Additionally, DI methods are incorporated into Writing, Science, and History to maximize every moment of instruction.

Our goal is for all students to master each concept, enjoy learning, build their confidence, and establish a strong foundation for lifelong learning. We chose the DI method for our K-5 program because of its impressive results and proven track record of continuous research and improvement, over half a century since its invention in the 1960s.

Students thrive being placed in a classroom matched with peers at their same skill set level for Reading and Math. This allows each child to learn at an appropriate pace and master concepts thoroughly before advancing to the next level. Teachers and administrators review data regularly to ensure students are placed correctly, meeting mastery, and being appropriately challenged. Such regular data meetings ensure that each child is receiving

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the instruction he or she needs. Such skill-level grouping helps to reduce student frustration or boredom and builds confidence.

This simple deviation from mainstream mixed classrooms makes a huge difference in student success. Parents of Thales Academy elementary students often share that their kids are happy, and they say their students are happy because they're reading fluently, understanding math, and showing self-discipline, respect, and personal growth. In short, Direct Instruction is highly effective in teaching students the foundational aspects of reading, writing, and mathematics. Even better, students are happy and enjoy learning, and parents are extremely pleased with the results.

In our classical education program, the K-5 years serve as the grammar stage of education when facts and basic principles are mastered, paving a foundation for future learning and growth. This goes beyond academics at Thales and includes the formation of character.

Teachers work to continuously model, teach, and integrate character formation into our schools to foster traits important to long-term happiness and success. Our goal is for all classrooms to be safe, disciplined, and free from disruptions. In addition to the traditional "3 R's" of Reading, (w)riting, and (a)rithmetic, our students learn other valuable "R's" including Respect, Responsibility, Regard for others, Rectitude, Reciprocation, Reason, Reliability, Refinement, and Real-world skills. And we still make time for good old R & R with Recess and Recreation each day. We model classical virtues without sacrificing contemporary skills as we integrate new technology and STEM concepts seamlessly into our classrooms.

Outcomes

Students that complete the K-5 elementary program will emerge as positively changed individuals by the time they depart for junior high, prepared to move to a higher level of education and personal growth. We ensure our graduating fifth graders:

- Are fluent readers and sound writers who have the world of information open to them, including the well-practiced ability to write in cursive
- Have mathematical, historical, scientific, and grammatical foundations solidified
- Know how to seek the good, the true, and the beautiful in the world
- Are developing into virtuous and confident future leaders who have made strong relationships, both with friends and their formal education, to set the stage for continued success

The Thales Way and Thales Academy's carefully designed K-5 program thoughtfully prepare children to confidently move into the next stage of learning with a strong academic foundation and good character.

This solid footing is what propels our students to the next developmental stage as they enter Thales Middle School. By this point, our students are prepared to meet the challenges of this new stage of development which will allow them to translate their earned knowledge into understanding.

Staying Engaged (K-5)

Young minds are eager to understand important lessons and values. Parents possess an important responsibility in supporting their children outside of the classroom. The smallest actions often make the biggest impact, especially in a child's formative years. Below are just a few easy and natural ways to stay engaged in a child's learning:

1. Help with Homework. Most K-5 students need some sort of support/oversight with nightly homework. This also allows for natural conversation about what students are learning in class. Additional specific support and praise for hard work shows the child that their progress is valued and worth the effort.

2. Talk to their child about their school day. Ask specific questions that give insight on what's been going on at school and allow for discussion. For example, "Who did you play with at recess? What was the best part of your day? Did anything funny happen today? Which specials class did you have today?"

If a child had a "bad day" it is important to talk through why it was a "bad" day, then shift gears to talk about how tomorrow is a new day. This provides great insight as to what a child considers a "bad" day (received a warning/red point, friend didn't play with me, seat change in class, didn't like lunch) and parents are able to further talk through their concerns.

3. Talk with their child about their friendships. Did you play with a "friend" today at school? What do you like best about that "friend"?

Have you made any new friends? Questions like this allow parents to help their child if there is any type of conflict or hurt feelings by/with a friend.

4. Read together for enjoyment. Show interest in what your child enjoys reading and do it with them. Have discussions about lessons learned in the book.

5. Attend school functions, volunteer, or visit for lunches when possible. These activities (and your attendance at them) helps build the school community and share in school-related experiences.

Chapter 4

Classical Curriculum

The love of wisdom begins in wonder.

Plato, *Theaetetus*

Thales students are encouraged to devote their lives to the relentless pursuit of the truth and best ideas by learning from very best of what has been taught and thought.

Innovation is rare but imperative to improve the human condition. At Thales, we urge students to try and improve each day, an idea derived from the concept of Kaizen. Thales is not a military academy, but we do learn from those institutions. Brig. Gen. Shane Reeves, Dean of the Academic Board at U.S. Military Academy West Point, explained: "Our academic program is the intellectual engine that drives innovation in the Army through applied research, cross-disciplinary work, and engagement. Our faculty and staff are dedicated instructors, mentors, scholars, and most importantly, role models who work tirelessly to support our cadets in and out of the classroom."

This ethos according to Gen. Reeves is how West Point is "preparing cadets for the intellectual rigors of leading in an ever evolving and complex world."

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There is a great deal of wisdom in this observation. On the one hand, we observe an honesty about the kind of world that West Point graduates will have to contend with and lead in. And this honest recognition of the world has yielded corresponding innovations in academic programming suited to our unique moment: applied research, cross-disciplinary work, and engagement. This is an important and good trend in education—the recognition that students will need to be practical, integrative, and socially competent. Yet, Gen. Reeves does not abandon the tried and true in the name of innovation and relevance.

In Greek literature, when Odysseus went on his epic journey to Troy, he asked his friend, a man named Mentor, to stay back and be a teacher, advisor, and role model to his young son while he was away. The enduring importance of the teacher as a classroom instructor, role model, scholar, and, most of all, mentor is still central. Thales Academy fully embraces this concept.

It is among the most powerful ideas in education—as old as ancient Greece and as current as West Point—that the role of the mentor is most important. A teacher communicates content and applies classroom oversight, but more than anything else, students are absorbing who the teacher is all along the way. Students watch for sincerity or hypocrisy, conviction or disinterestedness, follow-through or neglectfulness, humility, or arrogance. The teacher imparts him or herself beyond just the content of the lesson. We understand this at Thales, which is why we place the character and professionalism of the teachers at the center of the student's academic experience. Thales teachers guide students through their academic life.

Aristotle and Aquinas take the view of the contemplative vocation as being the highest vocation. For Aristotle, this means the life of the philosopher. For Aquinas, the natural is integrated into the supernatural, meaning the vocation of the theologian and monk. I would add that in a certain regard, the academic vocation is a contemplative one, especially in fields such as theoretical mathematics and theoretical physics.

The Three Stages of Learning

One very ancient insight in education has recently been revived by the classical school movement. There are three fundamental stages of learning that progress chronologically: Grammar, Logic, and Rhetoric. Together they are known as the trivium, which forms the first of the traditional seven liberal arts. This is where we get the term "grammar school" from. It is also where the three familiar stages of schooling come from in the American system of education: elementary, middle, and high school. But there is a great insight that we take from the traditional trivium that guides the way we think about learning at Thales. The trivium is built on the idea that we have a natural, human way of thinking about any given subject, field, or discipline. In fact, even if we begin to study a subject as an adult, we must unavoidably move through each of these stages in proper order.

One must first acquire the basic grammar of a discipline which includes terminology, formulae, fundamental axioms, and the history of the field. Only after mastering the basic grammar of a discipline can one become conversant with its way of reasoning toward the truth—its own specific logic. This is done first by studying the

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masters of the discipline, describing their ideas, imitating them, and contrasting them with each other to discern their differences. The final stage of any discipline is participation in the discipline with your own mind and voice.

In the formal school setting of Thales, the trivium guides our year-by-year curricular progression with the aim of maximizing efficiency and measuring progress. First, there is the grammar phase (grades PreK-5) in which students master basic facts. This includes learning the foundational structure of a subject through observation and memory.

Next comes the logic phase (grades 6-8) in which students begin to discover why certain facts exist as certainties. Students begin asking questions, hypothesizing, and debating to determine cause-and-effect relationships and the deeper meaning of realities.

Finally, there is the rhetoric phase (grades 9-12) in which self-expression and high-level communication skills are developed. Basic facts from the grammar phase and reasoning skills from the logic phase are combined to critically analyze a topic and develop conclusions. This is the phase in which students truly come to think for themselves. They begin to understand and believe the truth for themselves. This is critical as young people embark into the wider world and must remain grounded in truth while so many different perspectives compete for their minds. In the rhetoric phase, students practice the art of articulating their thoughts in meaningful and effective ways to communicate truth to others with persuasion and confidence.

Each of these stages of learning requires distinct age-appropriate teaching strategies. At Thales, we have selected only proven teaching methods.

The Masters of Thought

In the logic phase, students begin to understand the "why" behind certain facts and how those facts exist as certainties. This is a crucial step in the classical trivium. In this phase, questions begin to take on a particular prominence as students try to get to the bottom of a subject. By questioning, posing hypotheses, and debating, students work to find the solid certainty upon which knowledge is established. There is perhaps no one who did more to flesh out this process than Plato, the famous philosopher from ancient Athens.

Some of the most life-changing moments begin when we say "I wonder" about something and start asking questions. Asking a question is a kind of admission of ignorance without which the adventure of discovery, innovation, and growth cannot take place.

One of Plato's favorite teaching methods was to use a question to create what he called "an impasse." The Greek word is *aporia*. You think you know something. Then someone asks you a question about what you think you know. You try to answer, but bit-by-bit through question and answer, you begin to realize that you do not know after all. And just like that, by simply prompting question, you reach such an impasse. For Plato, it is precisely at this moment that true knowledge begins—not only in the mind but also in the heart. Questions help us become both more certain and clearer in our thinking and help cultivate an attitude of humility.

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Humility is a kind of truthfulness with yourself about yourself. It is a refusal to believe what our natural arrogance, often encouraged by others, tells us. Humility is the first step to growth of any kind. If a person can recognize that he or she does not have all the answers, that person will never stop learning, and genuine growth becomes not just possible but all-pervasive. The alternative is terrifying: to stagnate in your ignorance and never break free. Cowardice, laziness, and pride can all be powerful, debilitating forces. Humility is a much better way, which is why Plato so emphasized the art of asking questions in the process of education.

At Thales, teachers ask questions of students all the time, often drawing out problems and puzzles from assigned books by the masters of thought. As we discussed in Chapter One, the Thales approach is built on the idea that our students deserve the very best because they have inherent dignity and worth. Anything less is disrespectful to our students.

At Thales, teachers assign books by the greatest and most enriching thinkers: Plato, Aristotle, Shakespeare, and so many others. Of course, to interact with a master of thought is to face your ignorance. This can be difficult. But an excellent education also fosters intellectual and ethical courage in students as they continually refine their ideas, testing them against the ideas of the wisest souls. This is how we grow and how students become prepared for wise living.

Socratic Reasoning

In the rhetoric phase, Thales Academy builds on this art of questioning and takes it to the next level. We have already mentioned

Plato, but his famous teacher was Socrates. Socrates never wrote a book, but in a sense, we are all his students.

At Thales Academy, wherever appropriate we use Socrates's thoroughly effective way of teaching, often called the Socratic Method or Socratic Reasoning. His way of reasoning focuses on searching out through trial and error the key questions that a subject depends upon. Most of the time, we do not know where best to begin an exploration. Through dialogue, we try repeatedly until we find something solid to build from. This solid thing for Socrates is always the root question. Once we find that point, we can move toward truth. This process invariably requires a person to set aside false or mistaken ideas, which in turn requires humility.

A wonderful feature of Socratic Dialogue is that it interweaves thinking and communication skills. Learning to think and learning to communicate are more closely linked than most people realize. It is one thing to work towards truth in your own mind, but we strike out on our own when we can express ourselves with our voice and words and persuade others of the truth. This is the rhetoric phase. And as Socratic Reasoning leads into Socratic Dialogue, we start to watch students become confident, articulate, and poised. Socratic Dialogue gently guides a student into the art of rhetoric as friends try to reason together and persuade each other by working through questions. Communicating well is more central to personal and professional success than most academically minded students realize.

Of course, this Socratic Reasoning is behind so many pillars of Western society. The scientific method is one famous application

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of Socratic Reasoning. So too is the entrepreneurial way of life, which we have hinted at already. Even freedom of speech in the American Constitution exists precisely to protect the space for open debate for society to arrive at the truth. Truth is the greatest check on power, and absent the right to speak freely, we would be unable to discover the truth.

The Learning Experience

Thoughtfully Designed Classical Education 6-12

As previously discussed, the Thales classical education model follows the trivium, three chronological phases that seize upon the natural development of human thinking and learning to maximize a student's growth in each grade to reach his or her highest potential for success.

- 1. Grammar Stage:* Students in grades K-5 build a foundation of mastered facts and knowledge.
- 2. Logic Stage:* Students in grades 6-8 build upon their knowledge with time spent questioning, discussion, and discovery. Herein, students ask why certain truths exist as realities and investigate the intricate cause-and-effect relationship of the world around them.
- 3. Rhetoric Stage:* Students in grades 9-12 use the knowledge gained from the Grammar Stage and their ability to reason in the Logic Stage to critically analyze a topic, develop original conclusions and articulate those points effectively.

Although the elementary years are foundational in a child's education, the junior high (i.e., middle school) and high school years serve as the primary bedrock for future success and lifelong learning. In the JH/HS years of grades 6-12, students discover how to learn on their own, how to discern truth, how to come to their own conclusions, and how to communicate their ideas confidently and effectively with others. To achieve this, Thales Academy JH/HS offers a thoughtfully designed, rigorous classical education program. Some of our JH/HS program strengths include:

- A well-rounded offering of core courses that include: math, science, history, literature, trivium (grammar/logic/rhetoric) and philosophy, languages (required Latin and optional Spanish), fine arts, industrial arts, and physical education along with a variety of electives including arts and pre-engineering options
- Frequent use of the Socratic Method of discussion—a shared, cooperative dialogue to come to a better understanding of a significant idea
- A study of "The Great Books," the wisdom of the "Masters," and a strong emphasis on the study of primary sources
- Literature and History taught chronologically from the beginnings of civilization to present day as well as in cross-curricular alignment (read material in Literature from the same time period

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as in History) and with chronological repetition (study a complete timeline of Western civilization twice, first in junior high and again at a deeper cognitive level in high school)

- Required Latin language courses in junior high intended to develop habits of academic excellence, open up the ancient world to students, and thoroughly understand the parts of speech which leads to enhanced writing and reading comprehension skills
- Integrated character formation that promotes virtue and demands integrity
- Real-world skills development with emphasis on skills such as problem-solving, time management, teamwork, public speaking, and continuous improvement (Kaizen) incorporated into students' educational experience and nurtured during their years with us
- College preparedness courses that include economics, civics and government, marketing, and entrepreneurship along with personalized college advising and a Thales Academy Senior Thesis

By the time our students graduate from high school, they have been equipped to be highly capable truth-seekers and thinkers with excellent character, civility, fairness, and integrity.

Staying Engaged

Students learn valuable lessons throughout their time at school, but the learning doesn't stop when the bell rings. Similar to the previous chapter, there are many opportunities to engage with students outside of the classroom and help prepare them for success in the future.

First, get to know teachers, administrators, and other individuals at the school. Take opportunities to visit the school for performances, sports, tours, special events, and other great opportunities. Appreciate and support concerts, performances, athletic games, and other extra-curricular activities and extracurricular opportunities. Volunteer for Parents and Teachers at Thales (PATT) and help recognize the investment teachers make in students.

Consider, also, ways to deepen a personal understanding of the philosophy of Thales, classical education, and pedagogy to support classroom practices and expectations. Take advantage of opportunities that provide for further learning, such as Thales-produced publications, webinars, seminars, conferences, podcasts etc. Thales also offers behind-the-scenes tours and open houses, which is a wonderful way to get to know the school better. Enjoy reading the great books and demonstrate a love of learning to students. Considering reading the same books that your students read and ask questions of students to find out what they are learning. Challenge yourself to always learn something new and share this desire with students. By doing this, you will help your students

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retain the material for tests but also encourage their love for what is good, true, and beautiful.

In this day and age, we should address social media consumption among teenagers. We would recommend that parents monitor and reduce time spent in social media or group texting. Both are major distractions and a significant cause of anxiety in young people.

Help students go through the challenges of school, not avoid them. Advocate for students to take primary responsibility for their own education, even as early as 6th grade. To this end, students should feel encouraged to reach out to teachers with questions about classroom expectations. They should be the ones double checking their assignments and checking Canvas (or similar learning management system) for major assignments and assessment deadlines. Students should also attend parent-teacher conferences when possible.

As educators, we believe that most student growth occurs through overcoming challenges. To that end, parents should encourage their students to take electives that stretch students and enable them to broaden their abilities and perspective. Recognize that the learning process requires effort and perseverance, and thus has more important, long-term benefits than the learning product, like grades. With persistence and dedication, students will be amazed at what they can achieve over the course of the year.

Chapter 5

The Arts and Vocational Training

Music and art are the guiding lights of the world.

Pablo Picasso

Classical learning has always included studies of the fine arts. The original quadrivium of the liberal art disciplines in medieval times was referred to as the Arts (studies) of Matter, or the substance of the universe. Rooted in mathematics, the language of the universe, the disciplines included arithmetic (discrete number), geometry (forms of number), music (harmonic number), and astronomy (dynamic number). These were taught as necessary components of learning about the physical world around us and our place in it. It is in music that we find the obvious link to our modern understanding of art; however, geometry is the study of form that gives natural substance to art. Art remains one discipline that explores the nature of matter.

In education, the disciplines of the quadrivium may have changed over time. For example, we appeal now to the sciences for our understanding of the universe, but traditionally the fine arts provide richness and depth within a holistic education. Unfortunately, in progressive education, the arts are often sacrificed for cost-cutting reasons because, at first glance, they seem to be leisure activities

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without practical benefit. This preference for utilitarian purpose over richness and depth is a modern mistake. That progressive way of thinking accidentally severs a link to meaning, purpose, and character formation that we at Thales do not wish to repeat. Alternatively, we believe that the ideal education is both rich and deep, while also inspiring utilitarian benefits.

The purpose of studying the fine arts is traditionally understood to be an expression of pursuing the true, the good, and the beautiful. In fact, it is arguably the ideal way to understand beauty. Exposure to these three transcendentals is the best method of soul-formation, the process of coaching and educating the soul towards virtue. Therefore, excellence in art can inspire excellence in mind, body, and soul. The arts can not only connect with us intellectually but also emotionally, and it is this emotional component that moves the soul and helps develop good character, thus orienting us towards wisdom.

The ancient Greeks, whom we frequently appeal to for inspiration, so valued this soul exposure that they invented most of our modern art forms as attempts to capture in physical form a greater knowledge of human nature. A prominent example is the Greek invention of theatrical drama whereby the great questions of truth and responsibility, ego and humility, or cause and effect can be examined and re-examined on stage to discipline the soul and intellect. In addition, arising from theater and public performance, we inherit the rhetorical and oratorical skills that enhance our ability to communicate and persuade. Thales Academy also values both these performative and rhetorical skills as essential for confidence building and long-term career success.

The fine arts can also inspire an often overlooked but related utilitarian idea. Once a community has established the importance of the arts, soon after artisans develop a body of skills that capitalize on and monetize the production of art. In other words, there is a benefit in developing the skills and habits of the fine arts as they train young people in skills and disciplines that can one day provide an income. For this reason, we can philosophically extrapolate from the fine arts the need for manufacturing and "tent-making" skills that we label the Industrial Arts.

When we superimpose these ancient liberating ideas that set mind and soul free with the industrial ideas that give us the means to be self-sufficient, we can argue that Thales is able to educate students toward true independence. Combine this with our modern understanding of entrepreneurship, science, and engineering, and we fully integrate classical learning with modern real-world technological needs. Putting all these disparate threads together, our graduates have a distinct advantage in the marketplace because they possess the skills and character necessary to be productive, self-sufficient, virtuous, and persuasive leaders in whatever field they choose to specialize.

In addition to these historical justifications for the inclusion of the arts, there is a myriad of practical and cultural benefits that we can identify. For example, it is known that exposure to music education promotes higher academic achievement. This is due to its inherent mathematical logic and linguistic expression which are skills that sharpen the mind. Music also deepens cultural connections due to its shared heritage and ability to evoke emotion. Therefore, students resonate with the culture into which they are

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infused through music and form a greater sense of pride in their community.

Education in the fine arts at Thales Academy begins in kindergarten where skills can be developed and refined. We all remember songs we learned in our youth. In some cases, students sing their responses in the Direct Instruction classes studying reading and grammar, which students naturally love. Music and language are closely related. Think of singers remembering long songs, sometimes in multiple languages. "Practice makes permanent," says Ed Schaeffer, a retired DI consultant.

The discipline of learning music improves academics and vocational skills. As students progress through middle and high school, the principles remain the same, but the range of skills and ability to perform are gradually increased to provide a consistent challenge that makes students better but is also calibrated to become increasingly productive. This is reflected in the quality of art that is on display or performed in high school in band, choir, studio art, and theater.

The Industrial Arts sequence required for all 6th-9th grade students provides an introductory education in practical skills for the modern world. It exposes students to the engineering design process and teaches them to handle the tools and materials necessary to solve problems and create finished products.

Industrial Arts skills are developed at an early age through STEM (Science, Technology, Engineering, and Math) and STEM-like classes that introduce students to the engineering process. This process of applied critical reasoning and perseverance through

trial and error is a valuable habit to instill in students. Again, the difficulty increases, and in our middle school Industrial Arts classes, we model and demonstrate techniques that mirror mechanical engineering skills. Our science programs in high school integrate similar ideas of biological and chemical engineering.

This exposure to these vocational and practical skills in middle school inspires some students in freshman year to join the Luddy Institute of Technology (LIT). This four-year high school elective option is unique to Thales and trains students in tool use and modern engineering skills in disciplines like woodwork, metalwork, robotics, and programming. The capstone of LIT is a senior year project, a challenge to design and build a new piece of technology to solve an engineering problem. Senior students must identify the need, plan and budget for the solution, and successfully manufacture the technology. Graduates of LIT frequently find rapid acceptance into high-profile colleges of engineering.

Vocational Skills are important for all individuals, regardless of their career aspirations. All skills, such as learning how to use tools and follow safety practices, build confidence, and prepare us for more difficult tasks and future internships and apprenticeships.

TV host and narrator Mike Rowe said, "I think a trillion dollars of student loans and a massive skills gap are precisely what happens to a society that actively promotes one form of education as the best course for the most people. I think the stigmas and stereotypes that keep so many people from pursuing a truly useful skill begin with the mistaken belief that a four-year degree is somehow superior to all other forms of learning."

Chapter 6

Communication

*Rhetoric is the artful use of grammar, making truth
vivid and intelligible.*

Robert Kirkendall

Communication skills, both verbal and written, play vital roles in our lives. Regardless of profession or vocation, the ability to communicate well is necessary for students to achieve excellence throughout their lives. There is a direct correlation between people who are strong communicators and successful individuals. These important skills are taught at Thales beginning in primary school and reach fruition in high school.

Literature

As Benjamin Franklin once said, "An investment in knowledge pays the best interest". Any well-read individual is more inclined to be a well-spoken and well-written individual as well. Without the capacity to analyze a variety of texts, most students would struggle to convey their opinions and emotions on the page. Therefore, we emphasize the ability to critically process works of literature together in the classroom. It is important to the process of devel-

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oping critical thinking skills that students become comfortable with figurative language and poetic expression.

Over time, teachers lay the groundwork for their students to develop into analytical thinkers whose prose reflects the various insights they glean from an assortment of texts. Through literature, we introduce students to the rhetorical strategies that are important for conveying their thoughts in structured prose and when making well-thought-out arguments.

Being well-read leads an individual to confidently navigate the various intricacies involved in producing strong prose. Additionally, an individual's ability to offer up a convincing argument relies heavily upon the resources they've accumulated within their minds over time. This is why we place such a priority on reading comprehension skills.

Voracious readers are met with success in the world of business because they have carefully crafted, over their years in the classroom, a natural penchant for writing in the rhetoric style. Students who become avid readers are more capable of communicating effectively with those around them and defending particular viewpoints.

At Thales Academy, we are purposeful about the type of literature that students are exposed to. If the overall goal is to achieve excellence through how students express themselves, both orally and on the page, it stands to reason that certain genres of literature are more valuable models than others. At Thales, we expose students to authors who have paved the way as innovators in terms of developing writing techniques and persuasive strategies.

In addition to the benefits of being a voracious reader, it is essential that students are able to communicate their thoughts as well. They first learn to model their writing based on texts that promote effective, fluid, and purposeful writing. Their execution is directly aligned with their understanding of what eloquent writing looks like and their ability to emulate it. Therefore, Thales places top priority on offering a literature curriculum designed around the Great Books of the Western Canon.

Through careful examination of authors such as Dante Alighieri, Charles Dickens, Geoffrey Chaucer, and John Milton—to name just a few—the minds of young writers develop a firm understanding of what writing should look like. Our curriculum allows students to evolve into future leaders who can produce carefully crafted rhetoric in the vein of many fine writers who have come before them.

Writing and Rhetoric

Teachers can positively influence students to pursue the type of truth and beauty that can only emerge through careful reflection and thoughtful delivery. It is immensely satisfying to them to assist our future leaders with the opportunity to grow through the process of writing and rhetoric. Past innovators and effective communicators, through their own works of writing, have paved the way for future generations.

Dr. King said, "If you want to change the world, pick up your pen and write". Words tell the story of humanity and have the capacity to dictate what chapter comes next. Dr. King understood the power of the written word and its ability to positively influence people. Looking at the master thinkers such as Plato and Aristotle, we see

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how their writings continue to influence the ways people think and live today.

Robert Kirkendall, a teacher at Saint Thomas More Academy, suggests that "If students fall in love with truth, they will also be moved to find elegant and compelling ways to express those truths." Articulation in writing is an invaluable skill that both improves and conveys the excellence of the mind. Thales Academy is dedicated to helping students become strong and capable thinkers, and writing is a crucial part of that development.

Ernest Hemingway said, "The only kind of writing is rewriting". The best writers spend a great deal of time editing and rewriting to achieve clarity and succinctness, and we promote this process in the classroom. Instructors at Thales understand that the teaching of writing is iterative and requires ongoing patience, high expectations, and constructive encouragement.

Meaningful discussion of the Great Books facilitates deep critical thinking, which is required to advance as a writer. It is from influential and essential works of literature that students learn how best to probe the world around them in a meaningful manner. Students then utilize voices who have come before them to help them construct their own claims.

As critical thinking is strengthened within the classroom, and minds are open to all possibilities, students return to their initial pages of writing and mold it into something far more advanced, analytical, and admirable. They learn over time to perfect their ability to express themselves with mindful conviction on the page.

Debate

William Wilberforce, a Member of the British Parliament, spent twenty years convincing the Parliament to end slavery. Finally, in 1807, he was successful. This is a remarkable achievement. Wilberforce's debating skills accomplished the impossible task of ending the slave trade without the loss of life that characterized the end of slavery elsewhere.

Debate requires thinking, presentation, quickness, and a good memory. It also requires intellectual humility or a willingness to respect other viewpoints and revise your own. Finally, debate requires individuals to think and develop quick, accurate responses.

We live in a country where we have the freedom to hold opposing convictions. Debate prepares students to enter a world filled with competing narratives. It also trains us to organize logical arguments in a series of clear, succinct, and well-presented ideas. Debate greatly improves our thinking skills.

The American Founding Fathers utilized their stellar debating skills to create the greatest country in the history of the world. George Washington used his debating skills to mold and form America. John Adams, Thomas Jefferson, and Thomas Paine were all rigorous debaters. The signing of the Declaration was preceded by meticulous debate, and the formation of the Constitution in 1787 occasioned much debate.

Debate develops strong, decisive decision-making capabilities so that truth, freedom, and human dignity can be upheld in all circumstances. It improves listening skills. An excellent debate is

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won or lost in the rebuttal, in how students handle the case that the other side presents. Debate enables students to be ready to step into a complicated world that requires clear decisions, logic, and humility and make the best argument available to them at that moment.

Debate is often the best exercise for preparing students for the requirements of stewarding the American way of life.

The Coolidge Debate Program

In 2018, Thales Academy established the Coolidge Debate program. Students meet four times a year for debates and a final contest in Plymouth Notch, Vermont, the ancestral home of our 30th President Calvin Coolidge. Coolidge was a stellar president due to his analytical thinking skills and his writing ability, which in turn enabled him to be a skilled debater.

The winner of this program named after him receives recognition and a scholarship. All the participating debaters sharpen their skills because:

- Debate and Declamation offer two important competitive advantages in life and how we solve problems.
- Debate is important because we may have good ideas, but unless we can convince others of them, our ideas flounder. Debate is selling our ideas to others, which is imperative in our lives.

Senior Thesis

The Senior Thesis is a tradition in which all Thales Academy students complete during their senior year. In conjunction with the Senior Trivium Instructor and a faculty advisor, students develop and research their topic, write a 15-25 page rough draft, refine the draft into a polished paper, and then present and defend their thesis before a faculty panel. This cumulative paper is intended to provide space for the graduate to demonstrate his or her understanding of the Top 15 Outcomes, the Western Tradition, and the skills of scholarship attained through his or her education at Thales.

This capstone experience enables students to walk into college having already developed a major research paper and learned the skills of rhetoric and argumentation only found through the rigorous debate over ideas. Each year the community is proud of the senior class for investigating a subject area of great significance to them, applying lessons from their classical studies to that subject, and contributing a work of genuine scholarship to the field.

Appendix A

Photographs

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The first Thales Academy campus at Paragon Park



Thales Academy Pittsboro - Sunrise



Thales Academy Apex - Afternoon



Lobby at Thales Academy Holly Springs

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Teaching and Learning at Thales Academy Holly Springs



A Classroom at Thales Academy Holly Springs



Direct Instruction at work



A Kindergarten through 5th Grade Classroom

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Thales Academy Rolesville Junior High students



Thales Academy Rolesville graduation - 2020



A classroom at Thales Academy Apex High School



Thales Academy Rolesville graduation - 2022

Part II

Thinking and Life Skills

Part II of *The Thales Way* emphasizes the disciplines that improve our thinking and wisdom while providing life skills that shape many of our future decisions. The classical curriculum includes the range of disciplines necessary to shape intellectual, reasoning students. Free market economics helps us understand how the economy operates based on incentives and subjective choices. The natural world grounds us in hard truth with the laws of physics. Inspiration and aspirations provide long-term vision and goals which sustain us in our daily work. Communication skills and emotional intelligence help us navigate professional and family life with clarity and finesse. All these work toward the ultimate goal of forming conscientious individuals who exercise virtuous leadership in service to others.

Chapter 7

Entrepreneurial Thinking

Creativity begins at the edge of the known.

Edwin H. Land

Entrepreneurship is important for all people to understand because America exists as a free market. When students understand how markets work, they can more easily function within them.

New thinking by entrepreneurs is required to improve products, technologies, and execution. The entrepreneur creates value when he or she recognizes overlooked opportunities, and takes risks to solve those problems.

There are no level playing fields in the entrepreneurial world, which is why students must be well-prepared for the future. We aim to form and encourage entrepreneurial thinkers, regardless of the career field they choose to enter.

Freedom spurs innovation by creative individuals, the process by which mankind solves problems and increases our standard and quality of living. Innovative technologies are required to improve productivity and the standard of living for all mankind, but all technologies are ephemeral. Therefore, we must continue

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to innovate. This process requires a commitment to humility and virtue—to discard a good idea to create a better one.

Thales students learn the fundamental concepts of free market economics and how markets work to provide the highest standard of living and personal growth for all citizens. Adam Smith explained how the invisible hand (of self-interest) created untold benefits for the consumer. Business wants to make a profit, but the only way to achieve profitability is to serve the users: the king and queen of the market.

The cost of food, housing, transportation, and necessities has decreased dramatically since the year 1900. This is an excellent example of how entrepreneurs help create prosperity and abundance. Most working Americans enjoy a very high standard of living and live decades longer than our ancestors or those who lived in the 19th century. America is also the leader in new technologies, including high technology which allows individuals and industries to be more productive.

Anticipating the future needs of individuals and business requires the skills and insight of entrepreneurs. This principle is easy to understand when comparing countries that do not respect individual freedom to the Americas, Singapore, and most free countries. Gross domestic product (GDP) in western countries are vastly higher than in countries lacking freedom. Some of the most important skills of successful entrepreneurs include:

1. Alertness: making observations and thinking of solutions

2. Sparking: the relentless pursuit of new thinking, ideas, and methods
3. Flexibility: the adaptability to make quick decisions in real-time
4. Vision: the ability to conceptualize the future and work towards its improvement
5. Curiosity: the willingness to probe, ponder, wonder, and think
6. Experimentation: critical for proving or disproving ideas
7. Thinking: the process leading to sound judgments
8. Creativity: from the known to innovation
9. Risk-taking: requires careful calculation and experience
10. Execution: the entrepreneur acts after careful thought
11. Grit: The perseverance and determination to overcome obstacles
12. Courage: the strength needed to stand on one's convictions

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These attributes take time to develop and perfect—sometimes a lifetime. As an example, food scientist and businessman Orville Redenbacher spent forty years perfecting his corn kernel for popcorn which allowed him to produce the most popular popcorn brand in America.

Successful entrepreneurs solve future problems not from solutions already learned, but based on existing knowledge combined with new thinking. This is an endless process that requires the continuous acquisition of information, ideas, and experimentation. Students must learn as much as possible to engage in creative thinking.

Every idea belongs to a single individual. Technologies and ideas begin with an individual thought or concept. Technologies can be improved, but again, it is always the work of an individual. We are influenced and stimulated by other people, but our thoughts are individual in nature. Virtuous entrepreneurs are visionary leaders who change the world by leading small or large teams of individuals toward defined goals.

In his book *The Ultimate Resource*, Julian Simon identifies the ultimate resource as the human mind. He informs us of the importance of the human mind in solving the perennial problems facing mankind. The human mind is the primary resource—not minerals, oil, and rocks, all of which to him are just "stuff". It takes a creative mind to transform useless rocks into usable products.

Entrepreneurs are individuals with visions who think differently to come up with creative solutions. They are willing to break, change, and disrupt the status quo with new methods and technologies.

Successful entrepreneurs solve real problems by creating new products, technologies, and methods. Most entrepreneurs have a disdain for the status quo, and that stance fuels innovation.

Clayton Christensen, a Harvard professor, described the process of disruption ("Exit") of major producers of mundane products such as food, steel, and housing. In 1960, Nucor adopted a new method of making steel that was developed in Italy. It established smaller operations known as mini-mills for cost efficiency. Big Steel, to their peril, paid little attention to Nucor in the '60s because they considered Nucor a small and obscure company. Today, Nucor is by far the largest steel producer in America.

IBM, GM, GE, AT&T, and U.S. Steel dominated American business fifty years ago. However, today upstarts have improved computers, automobiles, and virtually every product imaginable. More recently, the small chip company AMD upended Intel, the major producer of microprocessors for personal computers.

Some people believe that because entrepreneurs are good risk calculators, they are not the high-risk individual we perceive. To the contrary, excellent entrepreneurs are proficient calculators of risk.

I can speak to my own experience as an entrepreneur. My company CaptiveAire began as a small sheet metal shop. Thanks to years of hard work, determination, and willingness to solve whatever problems my customers faced, CaptiveAire became the industry leader in commercial kitchen ventilation. Now, CaptiveAire is becoming an emerging HVAC company to better serve the needs of our customers. The important lesson is that new ideas and creativity are the most valuable skills of the entrepreneur.

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Peter Drucker, the founder of modern business management, provides excellent logic for entrepreneurs, which is why we read and take his wisdom seriously: "The most efficient way to produce anything is to bring together under one management as many as possible of the activities needed to turn out the product." This is true because, as British economist Ronald Coase argued, it lowers transaction costs.

Traditional management is excellent for the world of the known, but it is severely challenged when new problems arise that need to be solved. Entrepreneurs meet these problems with new technology, product, and service solutions. Their new inventions shift markets, experiments, and relationships outside of the preconceived comfort zone, forcing them to never be the same again.

Reading, discussion, and debate is imperative to improving thinking, writing, and knowledge. Peter Drucker said, "Management is doing things right; leadership is doing the right things". Leaders identify and call to task what is worth doing. At Thales Academy, we create leaders by surrounding our students with the right things—classical curriculum—so they are prepared to solve important problems.

Having a concrete vision is the key to being a successful entrepreneur and leader. Leonard E. Read, the founder of the Foundation for Economic Education (FEE), differentiates between a vision and a plan: "Set realistic goals, determine a flexible timeline, execute to achieve them. Don't worry about how you'll get there, just know where you're going, and you'll figure it out along the way."

This is the key attribute of entrepreneurs: undertaking challenges and solving problems as encountered. In a similar way, English writer Samuel Johnson stated, "Nothing will ever be attempted if all possible objections must first be overcome".

Planning has merit, but dynamism or adaptability keeps the vision moving toward fruition. The formation of Thales Academy came from the vision of a group of involved parents and dedicated teachers. CaptiveAire provided the office space for the first Thales classrooms; as an entrepreneur, I set about building what a school could and should look like, and as an American who loves our founding principles, I cast a vision for the future of their children and my grandchildren. The greatest thing I can do is to create opportunities for the people who come after me to achieve their dreams, whatever those may be.

Thales Academy staff are urged to remember the vision that they have for their students: to create curious, motivated individuals who take joy in learning and their visions to improve the world. This vision helps teachers in the most challenging lessons.

Learning from the Masters

Learning from the masters can spark creativity. Studying what those of the past said, did, and invented can give us ideas for something new. Edwin Land, the inventor of the Polaroid camera, stated that "Old knowledge provides a crucial basis for moving beyond it." We cannot create something new without seeing what has been done before. Not only would we not know if it's really something new, but we wouldn't even have the tools or skill set to begin.

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Creativity and learning from the masters are both essential elements of genuine entrepreneurship. They are applied in every aspect of Thales Academy's curriculum, whether it is in the unique questions of essay prompts or the adherence to our Founding Fathers' ideas.

America was one of the first places in which the entrepreneur could truly thrive. The unique combination of freedom, responsibility, and equality of opportunity gave innovators and creative thinkers for the first time the environment they needed to give life and breath to their ideas.

Thales, as an entrepreneurial venture of its own, rings of this same freedom, responsibility, and equality on which the Founding Fathers built our country. It gives students of all socioeconomic backgrounds a chance to receive the highest quality education. As freedom can only thrive with protection and stability, students are given the highest degree of freedom through an environment that fosters discipline and order.

Thales Academy is proudly and distinctly American, both in its entrepreneurial culture and the way we embrace traditional values.

Chapter 8

Economics and Personal Finance

Economics deals with society's fundamental problems; it concerns everyone and belongs to all. It is the main and proper study of every citizen.

Ludwig von Mises

In 10th grade, all students take an economics course that focuses not only on financial policies but also on the philosophy of the Austrian School. In this course, students learn about noteworthy economists like Adam Smith, Ludwig Von Mises, Friedrich Hayek, and Henry Hazlitt among other thinkers and writers within that tradition. The Austrian School focuses on individual rights and freedoms and the need to limit government interference in the broader economy to promote individual success and initiative.

The laws of economics describe human decision-making. Market-based economics helps ground Thales students in the truth of how markets work based on the choices of individuals.

"Value is not intrinsic, not in things. It is within us, within each individual. Value is wide open to the varying human conditions of change and future uncertainty", states Ludwig von Mises. Incentives and emotions drive human behavior and help explain how markets work.

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Austrian economics is one of the best disciplines for students seeking truth. In studying the Austrian school, students gain a much deeper understanding of the long-term outcomes of policies and decisions. It reminds us there is no such thing as a "free lunch". The best example is conspicuous consumption, when individuals may live beyond their means to impress others. Such practices may satisfy them in the short term but create adverse consequences in the long term. Moreover, Austrian economists, using deductive reasoning, accurately describe such economic realities and the role of incentives and how they influence human behavior.

Nineteenth-century French economist Frédéric Bastiat stated, "In the economic sphere an act, a habit, an institution, a law produces not only one effect but a series of effects. Of these effects, the first alone is immediate; it appears simultaneously with its cause; it is seen. The other effects emerge only subsequently; they are not seen; we are fortunate if we foresee them."

The study of economics helps students understand how to allocate scarce resources morally and cost-effectively. The division of labor creates the efficient use of resources. Each person's talent can be used to its highest potential. Free market economics encourages entrepreneurs, inventors, creators, and intellectuals to improve society by working cooperatively and harmoniously.

At Thales, students learn that they can create value by developing their talents to their highest potential, which is the best way to serve and change the world. This process allows them to live a life of purpose and ultimately experience true fulfillment and joy.

The Evolution of Austrian Economics

Beginning Concepts and Understandings

The continuous division of labor is why free trade is essential for an efficient economy. Most products today, regardless of where they are finished, contain components from around the world. The iPhone is assembled in several Asian countries, but it includes components from forty-three countries. T.J. Watson, the founder and CEO of IBM, pointed to the mutual benefits of free trade with his hopeful view of "world peace through world trade".

In the sixteenth century, the Salamanca University Philosophers (SU) in Salamanca, Spain wanted to learn the fair and moral way to approach economics. They developed an understanding of "The Laws of Supply and Demand." SU philosophers also understood the causes of inflation, exchange rates, and free trade.

Several centuries later in 1776, Scottish philosopher Adam Smith released *The Wealth of Nations*. This seminal work was the product of over twenty years of research and writing. The book contains valuable insights into human behavior, economics, and human flourishing, and it is studied by scholars today for its vast wisdom. Smith defined justice as essentially doing no harm to others. The Salamanca scholars and Adam Smith were philosophers using deductive reasoning to establish moral economic principles and laws.

Perhaps the most famous passage in the work states, "It is not from the benevolence of the butcher, the brewer, or the baker that we expect to eat our dinner, but from their regard to their own interest." Essentially, Adam Smith explained the positive nature

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of self-interest. We develop our own talents to earn a living, but in the process we serve others.

I strive to put Smith's counsel into practice with the opening of Thales Academy. In 2007, when a group of parents approached me about helping to establish a new private school, I did not just invest start-up funds but also my office space and my time to get Thales off the ground and running. Through CaptiveAire, I developed invaluable skills for running a business, and I wanted to use these same skills to help students reach their highest potential. In this way, I tried to emulate the advice of Sir John Templeton, the founder of the Templeton Funds. He stated, "Every successful entrepreneur is a servant. He must be oriented to matters outside of himself. He must look to consumers and their needs. He must rely on their voluntary patronage to bring about his goals."

Producing Growth

Economist Julian Simon explains that natural resources have no value until humans figure out how to make them useful. The most prominent example is of oil in 1840, which had little, if any, intrinsic value. But thanks to engineers and inventors, it allowed America to become the most productive economy in the world.

Most individuals have learned the importance of producers of industrial goods, food, and the products we rely on for daily life. In 2020 to 2022, nearly all of these producers have experienced severe shortages, which have led to inflation and very high prices. These shortages have been magnified by government largesse in the form of large deficit spending financed by newly created money by the Federal Reserve is the primary cause of inflation. Milton

Friedman explained inflation as a failure in monetary policy, with "too much money chasing too few goods". It is a prime example of very bad government policy. You cannot buy what is not produced: a lesson consumers now understand all too well.

In 1803, Jean-Baptiste Say provided an insight into economic growth by stating that supply creates demand. This has come to be known as "Say's Law". It was an important discovery because it recognized the important role of entrepreneurship in economic growth. The iPhone was unknown technology prior to its introduction by Apple in 2007, but it since its introduction, the iPhone has turned Apple into a trillion-dollar enterprise and increased the efficiency of most industries.

Cooperation

David Ricardo, an early nineteenth-century economist, emphasized the importance of the economic and moral principle of cooperation. The scarcity of all resources, including capital and time, requires continual optimization of specialization and division of labor.

When students, parents, and teachers cooperate, they produce stellar results and help accelerate the learning process. This is the spirit of cooperation at its best.

Mises extended the concept of cooperation to a broader "Law of Association" which would encompass all organizations, including families, businesses, companies, and countries.

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The simplest way to think about cooperation is working toward common goals. We will have differing approaches, but cooperation moves individuals to accomplish the stated goal.

Interventions

Mises also reminded us that most government interventions lead to trouble and require additional interventions. In short, Mises argued that when government intervenes in a supposed attempt to correct a problem, it typically not only fails to correct the problem but also creates additional problems. Government then intervenes further to correct the additional problem, which only creates even more problems.

Think of the Federal Reserve Bank (Fed), the actions of which are a prime reason we have recessions. The Austrian School of Economics, articulates the harm of ultra-low interest rates. When interest rates are manipulated to be too low, the result is malinvestment, inflation, and economic bubbles. Then the Fed moves to raise interest rates back up to fight inflation, and a recession often follows. Then to fight recession, the Fed lowers interest rates again to supposedly stimulate the economy, and the cycle repeats.

Austrian economics begins its methodological analysis with the self-evident truth that humans employ means according to an idea to accomplish ends. This is known as *the action axiom*. In sum, people choose from available scarce resources (the means) to achieve a goal (the end) with the belief their chosen means will help them to achieve their chosen end. Using the process of deductive logic, we can arrive at several crucial fundamental economic concepts implied by the action axiom.

Power

The American Founding Fathers favored decentralization, which utilized the concept of subsidiary, meaning all decisions should be made at the lowest level. Families make decisions based on resources and local information. The Austrian economist F.A. Hayek applied this concept to economics, arguing that individuals dispersed throughout the economy can use their localized knowledge to better make decisions about allocating scarce resources than a centralized organization ever could.

Frédéric Bastiat, in his book *The Law*, identified liberty with power. Such power granted to a person the ability to use and develop his faculties, but this must be done according to the virtue of justice and the protection of the law. He also wrote that laws must be fair and just so they will not be ignored. Bastiat's ideal country would be where nobody plundered anyone.

Free Market Value

In 1871, at the University of Vienna, Karl Menger's new economic thinking based on free market principles came to be known as Austrian School of Economics. Menger taught these ideas to Ludwig von Mises, who became the great twentieth-century Austrian economist.

Menger described that all value is subjective. Acting men and women choose among various opportunities offered up for choice, selecting that which is of the greatest value to them. Menger reminds us that value is not intrinsic and not in things; instead, value is within us, within everyone, within our power to make

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meaningful choices. Individuals will value the same good differently. And the same person can value the same good differently at different points in time, depending on their changing circumstances and preferences. Value is wide open to varying human conditions of continuous change and future uncertainty.

Dr. William H. Peterson was a student and colleague of Ludwig von Mises at New York University where he learned the wisdom of Austrian economics. He often joked that if economics could be reduced to the word "price". We make economic decisions based on price—that is, the marginal cost versus competing choices.

Dr. Peterson taught me that products and services must be produced before consumption. The U.S. in 2021 and 2022 is an illustration of this principle. During the covid pandemic, the federal government authorized five trillion dollars in deficit spending, wiring money to organizations and individuals.

The result was predictable, namely shortages of everything from baby food to industrial components and materials. The simple lesson learned is that you can print money and expand the money supply, but this process will create inflation. Thanks to this inflation, we have as of the writing of this book (2023), a critical shortage of producers but high demand for goods backed by the massive influx of new money. In other words, we have too much money chasing after too few goods: ergo, inflation.

A market is made up of millions of individuals making choices based on needs and wants. These needs cannot be determined by a committee, which is why entrepreneurs—right or wrong—are the maestros of free markets.

Austrian economist Friedrich Hayek expanded on the knowledge theory. Knowledge, in its broadest form, is inaccessible to any single individual and certainly not central planners. Market knowledge is ephemeral, making central or long-range planning nearly impossible. The alert entrepreneur is watching and monitoring market signals every day to understand change and direction. On the New York Stock Exchange, a stock opens and may trade positively, but if bad news occurs during the day, the market reacts in seconds.

Economic Principles

Comparative Advantage

Comparative Advantage is when a company, country, or individual can produce a particular good at a lower cost and higher quality than a competitor. A comparative advantage goes to the entity that can produce at the lowest opportunity costs.

The scarcity of all resources, including capital and time, requires continual optimization of specialization and international division of labor. A prime example of this phenomenon is Saudi Arabia producing oil at very low cost or Brazil producing biofuel from sugarcane bagasse (SCB) waste. These are processes not easily replicated, and these countries have the comparative advantage in making these forms of energy.

Transactional Costs

Transactional Costs include all costs related to the offering of a product or service. The economist Ronald Coase recognized the

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time, effort, and resources needed to search out, negotiate, and conclude exchanges.

Bastiat explained, "Liberty is power. It is also the power granted to a person to use and to develop his faculties under a reign of justice and the protection of the law."

User is King or Queen

In free countries, the "User" is the "King or Queen" of the market, which is why we have a robust economy. Self-interested individuals work to serve the market needs. This idea was first documented by Adam Smith.

A thorough understanding of economics helps Thales Academy students to see the importance of human decision-making. Sir John Templeton, an investor, banker, and philanthropist, explains that every successful entrepreneur is a servant and must be oriented to matters outside of himself. He must look to consumers and their needs and rely on their voluntary patronage to bring about his goals. Freedom, innovation, and a stellar work ethic have created American exceptionalism and world leadership.

Personal Finance

At Thales, we believe we must help students develop a strong moral character. From that emerges practical wisdom, or prudence, so that students know how to use moral judgments to make good decisions. Such an understanding shows itself in the right use and understanding of money. Often, it is through handling money that you can recognize the practical applications of traditional virtues

like self-control, generosity, and frugality. After all, if one wants to know someone's values and priorities, look at their checkbook.

As a classical school, at Thales we teach a virtue-based personal finance curriculum. Educating students in the correct handling of personal finances is a useful means to this end. We believe that the correct handling of money has political and entrepreneurial importance. To promote independence and freedom, one must consider financial policy and large-scale economic positions that promote the individual acquisition of wealth and free-market capitalism. Such are the cornerstones of a truly free economy and a society that help individuals achieve their fullest potential. Arguably, it is in the opportunity for entrepreneurship that we see the actualization of a functioning free society whereby individuals can earn a living and build a business to support themselves, but which in turn enables them to reinvest in the community that helped them succeed.

Adam Smith says in *The Wealth of Nations* that, "The natural effort of every individual to better his own condition is so powerful, that it is alone, and without any assistance, not only capable of carrying on the society to wealth and prosperity, but of surmounting a hundred impertinent obstructions with which the folly of human laws too often encumbers its operations."

These desires and philosophies are built into the courses that we teach at Thales. This progression begins in middle school when students first encounter simple personal budgeting during health class, which focuses on practices for promoting a healthy mind, body, and soul. A healthy mind requires right thinking and

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positive psychology. A healthy body requires an understanding of physical health, nutrition, and wellness. A healthy soul is a product of prudence, the making of good life choices that includes the right use of money.

Students in 9th grade also study a similar health program with a special section on personal finance that includes budgeting, investments, interest, taxation, and credit. That way, as students earn their first income, they also acquire the skills needed to handle this money wisely.

The approach to economics offered in the 10th grade, as explained in the previous chapter, builds upon taking control of personal finances. In that, we can provide the same prudent oversight to a local economy as we can to a personal economy.

Our approach to personal finance and a values-driven curriculum culminates in students' 11th and 12th grade years. Building on our course in economic policy, students take American Civics and Government in 11th grade. This course studies economic policies in the American government while emphasizing our civic responsibility to our society. In this sense, we turn the practical application of correct financial handling into a responsibility to improve society as a whole and play an active part in the process.

As a capstone in 12th grade, all students take a course in business and entrepreneurship. This program helps to weave the various threads together and gives students the drive and impetus to seek opportunities for building a concept into a business. This will bring about Adam Smith's "carrying on the society to wealth and

prosperity" which is more possible in America today than at any other time or place in history.

When a student completes all these classes they will have learned how to be disciplined and properly handle their money, how to be responsible not only to themselves but also to society at large, and how to leverage this knowledge into an ability to provide for self and family in the present and long term. Ultimately, students will want to provide the chance for others to learn the same things that benefited them.

Chapter 9

Natural World

Freedom is the foundation of evolution.

Dr. Adrian Bejan

The ancient philosophers categorized the study of philosophy as a progression from logic to physics to ethics. Once critical thinking skills are developed, it is natural to continue the relentless pursuit of truth by turning toward physics. A further understanding of physics leads to a deeper understanding of humanity.

From ancient to modern times, there have been various attempts to improve the human understanding of nature. The very word is derived from *natura*, the Latin equivalent of the Greek word *phusis* meaning "nature" and from which derives our English word *physics*. For example, the first scientist, Thales of Miletus, sought explanations for natural phenomena instead of assuming that the gods were responsible for environmental events such as the rains or earthquakes. From this insight, Thales built canals, predicted an eclipse, discovered mathematical propositions, and even uncovered some of the properties of electricity.

In the century following Thales of Miletus, just a few miles down the road in Asia Minor, a philosopher named Heraclitus claimed that it is not possible to step into the same river twice. What flows

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is inherently changing or evolving, so the river is not the same as it was just a few moments prior.

Physics grounds us in irrefutable truth—the truth of the physical world—and is immune to non-truths and wishful thinking. The physical world that we touch, see, feel, and interact with informs our sense of reality based on nature. There is no getting away from gravity, as the laws of physics are entirely indisputable.

Dr. Adrian Bejan, a contemporary physicist, engineer, and professor at Duke University, speaks about "irrefutable evidence" and adds that "truth is power" (*Freedom and Evolution*). When students study physics and other related disciplines like mathematics and chemistry, they acquire a habit of reasoning that looks for solid realities upon which further thinking can be established. Physics is applied to decision-making in science, but it also helps form us as thinkers based on the natural world created by God.

A similar way of thinking can be seen in the development of a new theory of flow by Dr. Bejan. He theorized the Constructal Law of Physics, which states that "For a finite-size system to persist in time (to live), it must evolve in such a way that it provides easier access to the imposed currents that flow through it."

The background premise is that living systems are flow systems with configurations that have the freedom to morph. Biological organisms have an energy flow with a constant input provided by food. These flows of energy are ever-present in nature, and the systems that survive and thrive are those that most efficiently access these flows.

In short, the world is dynamic, always changing, and no human can stop this process. We can contribute to the world in the best ways we can.

Dr. Bejan and his collaborators applied the Constructal Law to a variety of topics. These topics range from natural systems like rivers, trees, and circulatory systems to larger, man-made social and economic structures. Whether we observe a natural process or an artificial one, this law holds true such as improved efficiency for HVAC design. I try to apply this way of thinking to improve efficiency while creating better outcomes, down to the basic level of decision-making. From this mindset, I continually encourage our leadership team to create better outcomes for our students. A high-quality, affordable school is not going to develop over night but requires hard work, creative thinking, and the desire to move towards efficiency. For students, the Constructal Law is shown in their writing skills, which should improve by rewriting and editing. The ability to communicate quickly and accurately becomes an important life skill. Students who explore hunches may not always be successful, but over time they will gain new insights and make positive contributions.

By exploring new ideas for the purpose of improvement, we open the eyes of the mind, and this process revs up the mind to higher levels of thinking. Bejan notes that sparking (mental images or flashes) is required, which is exactly the mission of Thales Academy. We are all excited to learn new ideas and knowledge to satisfy our desire for more intellectual stimulation and content. This process is similar to what happens when entrepreneurs, creative individuals, and engineers use hunches or intuition to begin the

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process of change. Bejan points out that our first thought is often correct or at least a good starting point.

Scientist and writer Homer Hickam grew up in the coal mining town of Coaltown, West Virginia, and began to build rockets in high school. He won a gold medal for propulsion at the National Science Fair and went on to have an impressive career, receiving many honors as a Captain in the U.S. Army, an aerospace engineer at NASA, and later an author.

Hickam would have never accomplished these remarkable tasks if he hadn't acted on his curiosity and explored all the possibilities.

Thales wants students to realize the importance of growing for a lifetime. It is easy to become complacent, but I remind students and teachers that the natural world is dynamic, which is why we should pursue personal growth.

Thales Academy seeks to facilitate the various themes that have been shown to be effective in nature for improving flow. Some of these are laid out above, while others can be explored in greater detail in Dr. Bejan's book, *Freedom and Evolution: Hierarchy in Nature, Society and Science* (2020).

Freedom

Freedom is the primary requirement for innovation, growth, and improvement of the standard of living for all individuals. "Freedom is physics, not opinion", which is why America, with its commitment to individual rights and freedoms, has produced amazing results. "Without the freedom to change, there is noth-

ing, no design, no evolution, and therefore no future." Freedom in physical phenomena is the catalyst for evolutionary change. "Science is self-correcting because it is imbued in freedom. This key truth of science needs to be broadly communicated to all, not just scientists" (Bejan 145).

Hierarchy

Hierarchy recognizes the diversity of skills in humans and allows these skills to execute harmoniously.

Hierarchy comes from the word "chief priest", who should be a good person. Hierarchy is good: "Without hierarchy, humanity would not have evolved to have language, religion, science, books, army, government, university, library shelves, and grocery shelves" (Bejan 22).

"Inequality happens even when the natural hierarchical channels are destroyed and replaced with an artificial one-size design everywhere, as during communism" (Bejan 59).

Innovation

Innovation is rare but vital to growth. It requires well-formed minds and thinkers. Innovation benefits the entire population, indeed the entirety of mankind.

"The spreading of innovation events over the populated territory is a very subtle way to control inequality. Innovation happens when one individual seizes the opportunity to open the flow channel that he or she controls... The whole population becomes wealthier because of a single innovation. The distribution of wealth over the

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population becomes more equal than in the absence of innovation" (Bejan 60).

"Scientific revolutions do not happen through the accumulation of new data. Revolutions happen while looking at existing data and seeing their organization—their message—in a new way, suddenly, involuntarily, accidentally, unwittingly. Over time, the science improved by revolution tends to usurp the authority of academicians and politicians" (Bejan 141).

Evolution

The prerequisite of evolution is freedom, nature, efficiency, and humans seeking improvement. Growth is the vertical passing of time of one unit, while evolution is the horizontal passing of time spurred by diversification.

Constructal Law can predict evolution: "The thinker's mind sees an evolving flow architecture—its physical characteristics and direction of changes over time—and anticipates the main features of the architecture that 'will be,'" (Bejan 109).

"Good ideas travel far and persist. Science is a story that flows freely from those who know to the many more who wish to know. This flow spreads on the globe and in time. It flows from generation to generation. It flows one way, from high to low, from a source to a population on an entire area" (Bejan 137).

Diminishing Returns

Diminishing returns help form decisions of all humans by allocating time to the highest priorities.

"When the evolving animal is old enough the improvements are imperceptible, to the point that the observer believes that evolution has ended. The observer is mistaken. Evolution does not end; it just waits to be kick-started by its unruly environment into a new direction" (Bejan 127).

Sparking new ideas creates the kickstart or change. Kickstarting often comes from a new extraneous idea.

How we stop diminishing returns: "The subtle becomes a loud 'a-ha!' when we recognize that the string divides the design space into two worlds—to the right the possible, to the left the impossible...You are powerful because you know where not to waste your time digging. The string of pearls that marks the limit of the possible is the secret of the impossible" (Bejan 125).

Disciplines

Disciplines are geometry, mechanics, and thermodynamics. Disciplines are the "how" of a study. It is not the pedagogy but rather the deep understanding.

"Compared with the advanced person who uses modern equipment, the thinker with a straight edge and compass may strike us as backward, or prehistoric. This impression is false and damaging to education. The person who learns to use the ancient tools is equipping himself or herself with the discipline: how to think most simply and directly, how to deliver the coup de grace while arguing scientifically, how to disarm the skeptic, and how to design even better modern instruments for the graphics needed today" (Bejan 82).

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"Many in academia make the mistake of equating the goodness of an idea with the number of authors who agree with that idea... Science is not democracy... Many make the mistake of equating the goodness of an idea with the volume of research funding, people hired, money spent, and buildings built... Science is not accounting" (Bejan 141).

Complexity

Complexity can be changed by humans into simplicity with innovation and thought.

"A difficult concept, like chaos or turbulence. Thinking becomes sharper, higher, and deeper, and complexity gives way to theory" (Bejan 70).

As science progresses, we see designs in complexity: "Once understood, complexity becomes easier, and we call it architecture, weave, tissue, design, organization, and many more names that are a lot less puzzling" (Bejan 70).

Adrian Bejan's Constructal Law of Physics provides new insights into flow systems and their optimization. This line of thinking can be applied to education as there are numerous parallels between the physics of flow systems and the flow of an educational system.

Chapter 10

Inspiration, Judgment, Execution, and Courage

*We cannot solve our problems with the same
thinking we used when we created them.*

Albert Einstein

American excellence is based on several important principles including freedom, inspiration, ethics, work ethic, perseverance, and grit. Character formation and self-actuation are required to achieve excellence.

Our Founding Fathers enshrined God-given freedom into the American Constitution, resulting in American exceptionalism. Individuals from numerous countries enjoy success and excellence in America based on freedom of opportunity, work ethic, fiscal responsibility, respect for the law, education, respect for free markets, and a strong moral compass.

Philosopher and diplomat Michael Novak points out in his book *The Fire of Invention* that by 1860, the state of Ohio had more colleges and universities than all of Europe. In the modern world, America produces 24 percent of the world's goods and services. We are also the leader in high technology in most industries.

In+spir+ation = "in" + "spirit" + "process/action"

Inspiration is the guiding light that allows us to endure many challenges, hardships, and obstacles to achieving our goals. Inspiration is from God and is in our soul, reinforced by master thinkers and achievers. We can be inspired by excellence, strong leadership, or individuals we refer to as mentors. New and higher levels of thinking are required to achieve lofty aspirations.

Reaching our aspirations requires personal formation including discipline, learning, experimentation, reading, and listening to mentors as well as observing and working daily to achieve our goals. Alertness involves paying attention and making observations of both great outcomes and things gone wrong. Being alert informs our minds of new information to be used for solutions.

Ludwig von Mises identified alertness as the first step in the discovery of new opportunities, one necessary for innovation and problem-solving. Alert individuals observe what most people miss, including new insights into things gone wrong, which leads to improving existing products, technologies, or processes.

Inspiration, alertness, thinking, experimentation, and risk-taking are tools of the entrepreneur. Risks must always be measured and thought out carefully and calculated.

Lawrence Bossidy, a former Honeywell CEO, wrote a book titled *Execution*. In it, he states the following: "Execution must be a part of a company's strategy and its goals. It is the missing link between aspirations and results. As such, it is a major—indeed, *the* major—job of a business leader."

Execution is integral to Thales students' lives. Deadlines are continuous and important. They help us allocate our time correctly to achieve all stated goals. Deadlines force us to execute or fail.

Human formation leads to improving judgment. Humans are prone to error, so we must carefully think before we act. This is a lifelong challenge for all individuals. Learning from others, beginning with our parents, is imperative. Learning how our peers handle situations is very valuable.

Ironically, when students blame the event, they cut themselves off from learning which precludes a successful outcome. This concept emphasizes how important our response is to every situation and person. Meaningful responses require integrity, humility, finesse, and experience.

Courage requires continuous development and thought. Most of us fall short, but we can improve and become courageous individuals through self-developed skills. Courage requires judgment, action, and last-minute review of our thinking to make sure we are correct and handle every situation with finesse and skill.

Inspiration, clear thinking, and perseverance are prerequisites to success because there will be many setbacks and failures throughout our lives. These challenges require high levels of discipline and continuous acquisition of knowledge. As humans, we have many ideas, but only a few come to fruition. Each idea must be carefully vetted, tested, and open to criticism.

Chapter 11

Virtuous Leadership

Life is a gift from God, but life cannot maintain itself alone. The Creator of life has entrusted us with the responsibility of preserving, developing, and perfecting it.

Frédéric Bastiat, *The Law*

The end goal of a Thales Academy education is to form students who exercise virtuous leadership. This is the reason, more than any other, that our school was founded.

Thales is a private school, founded for the purpose of academic and personal formation of students and committed to fostering the ethical and social development of its students. We seek to promote a community that holds personal integrity and mutual respect as standards for behavior.

We have determined that we need to clarify our expectations of student behavior by creating a formal code of conduct. More than just a set of rules, the Thales Code of Conduct is a set of ethical standards by which Thales students live both in and out of school. Decent, self-respecting behavior must be based on personal integrity, genuine concern for others, and the ethical principles

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which are the basis of civilized society. This behavior is instilled and cultivated at home and fostered in our schools.

Alexandre Havard, author of *Virtuous Leadership*, explained, "Magnanimity and humility go hand in hand in leadership. Magnanimity generates noble ambitions; humility channels these ambitions into serving others. Because virtue is a habit acquired through practice, I say leaders are not born, but trained." Virtuous leadership can only be acquired through habitual behavior.

Virtuous leadership requires one to understand and practice emotional intelligence. Emotional Intelligence (EQ) is the ability to identify and manage your own emotions and the emotions of others. It is required for top performance and applies to both individuals and companies. The higher a person's leadership role, the more emotional intelligence matters.

IQ alone is not sufficient because top performers have both high IQ and EQ. Possessing a high EQ is required to reach your full potential and separates excellent leaders from mediocre ones. There are two types of emotional intelligence. There are personal competencies, which are how we manage ourselves, and social competencies, which are how we handle relationships. Emotional competence means having a choice in how we express our feelings. We do not suppress them but rather manage and channel them to use them effectively. Having emotional intelligence with others requires piloting through emotional undercurrents rather than being controlled by them. High team EQ can raise the combined group effectiveness which results in better performance. Emotional intelligence can be honed by mastering self-awareness.

Families and students are considered ambassadors of Thales and as such expected to uphold the beliefs and virtues of the organization. Therefore, students can be held fully accountable for personal behavior on and off the campus if their behavior reflects poorly on Thales, affects the operations of the campus, or is in contradiction with our stated goals. This ideal constitutes our honor code, and Thales requires all students to behave in a manner that honors the school and its four foundational principles.

Central to the concept is an understanding that Thales' Code of Conduct system is rooted in parental support and involvement. The world presents many challenges on children (e.g. the internet, social media, texting apps, etc.). Therefore, strong parental support and supervision are required if students are to develop good character and personal integrity. Thales Academy cannot and will not replace the role of parents, but we will support parents and students to influence, teach, encourage, and model honorable conduct. We expect a commitment from both students and parents to uphold the values set forth by the Code of Conduct.

Thales Academy Code of Conduct

Thales Academy has four foundational principles that speak to the character and behavior of students and provide the foundation for our Code of Conduct. These principles should be understood as guidance for the spirit of the Thales community. Therefore, specific examples should not be considered an exhaustive list of prohibited behaviors but rather representative of how to apply the spirit of the principles to everyday conduct. They are as follows:

Natural Order

We believe that there is order and beauty in the universe and that this must be reflected in our school. Therefore, behavior that brings disruption and disorder to the campus or classroom or any school event will not be tolerated. We expect high professional standards of conduct by teachers towards students and families and by students and parents when communicating with Thales Academy's staff. A lack of professionalism will not be entertained. Students have a responsibility to recognize their role in creating a respectful and productive working environment in school.

Human Dignity

We believe that every individual is worthy of being treated with respect and dignity. Each person has unique value and special gifts that when encouraged make a better and more complete community. Therefore, students may not engage in any behavior that is disrespectful, harassing, or worse. This may include using profanity and sending rude digital comments to staff or friends. Human dignity is well-defined, which means students should not spread gossip or rumors.

Objective Morality

We believe that it is important to teach that some behaviors are objectively good and promote healthy civic relationships. Principles such as integrity, honesty, responsibility, gratitude, honor, and civility should characterize our actions and speech. By contrast, we ask students to steer away from behaviors that are immoral, harmful, and disrespectful. Therefore, it is never appro-

priate to engage in behaviors such as cheating, plagiarism, misuse of phones or electronic devices, theft, or vandalism.

The Western Tradition

We believe that through the tradition of Western philosophy and morality, we as individuals can learn to be the best version of ourselves. We, the faculty, are dedicated to teaching these ideals. We expect students to learn, imitate, and ultimately appreciate these same virtues. Therefore, we are dedicated to the following plan of character formation.

Blueprint for Character Formation

Character is imperative for an excellent life, and character requires the formation of excellent judgment and a sound philosophy based on virtue. In every career, whether it be business, medicine, the law, and/or government, trust is imperative. Character formation requires a long-term commitment and daily persistence. It is impossible to separate the education of the intellect from the education and character formation of the person. At Thales, we acknowledge this fact and work to inspire our students to be who they were meant to be. In the words of St. Catherine of Siena, "If you are who you should be, you will set the world ablaze".

Humility

Humility is the first step to personal and intellectual growth of any kind. If one can recognize he or she does not have all the answers, such an individual will never stop looking for more. Humility allows for continuous learning and genuine progress. Socrates,

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one of the most famous ancient philosophers, was sure of one thing: that he knew nothing. This led him to ask some of the leading questions that shaped scientific, political, and social progress for millennia to come. At Thales, we encourage our students to be humble in their pursuit of knowledge and progress so they can truly enjoy learning for its own sake.

Gratitude

Alice von Hildebrand once observed that "Gratitude is required for happiness." The optimist can take every difficult situation and make it into a positive one with the simple ingredient of gratitude. A bad day at school? At least you were given a chance to attend today. A difficult paper topic? This will be a challenge that will help prepare you for the future. Thales staff and students are cheerful because they can remember with profound gratitude the opportunities a quality education will afford their future.

Virtue

The cardinal virtues and classical virtues provide standards and goals on how one ought to live. At Thales, we use the concept of virtue to set ideals and standards for our students so they can exercise true freedom and confidently reach their potential. Our virtues of excellence take the form of the Top 15 Outcomes of a Thales Academy Student.

Personal Integrity

The best organizations follow high standards, while organizations that fail often fail moral codes first. Many individuals fail in life

because they don't follow the law, or their actions are unethical. Thales knows that institutional collapse stems from individual collapses of personal integrity. At Thales, we lead our students by example and continually encouraging them to rise to the occasion. As an example, the lockers do not have locks, which reinforces to everyone no one is bringing materials that do not belong in school. Beyond that, we implement a consistent discipline system across classrooms, and students who do not follow the rules are not permitted to stay.

Perseverance

Perseverance is the ability to continue a course of action despite obstacles or challenges. It is a discipline that can be learned, and it is aided by a boldness and confidence in pursuing the right choice without fear of judgment by others. At Thales, it is cultivated by a passionate staff who lead students through a rigorous curriculum. Our students are taught the virtue of perseverance by the very nature of Direct Instruction, Socratic Discussion, and the content of their courses that goes from the beginning to the end of the Western tradition.

Persistence

Calvin Coolidge, the thirtieth president of our country, said, "Nothing in this world can take the place of persistence. Talent will not: nothing is more common than unsuccessful men with talent. Genius will not; unrewarded genius is almost a proverb. Education will not: the world is full of educated derelicts. Persistence and determination alone are omnipotent."

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The goal of Thales Academy is to not turn out the most academically savvy students. Knowledge and the ability to acquire it is a natural talent. Persistence, on the other hand, is a discipline that can be learned and is therefore taught at Thales.

The Common Law is the minimum standard of society. Ethics are moral principles that govern human behavior. These principles are much higher than the law and include kindness, respect, selflessness, loyalty, responsibility, and honesty.

The classical learning from the masters and character formation with an in-depth understanding of the truth enable Thales graduates to be virtuous leaders, finding and thinking about the most important challenges of the world.

By holding fast to unchanging Truth, especially the truths of physics (natural world) as they speak about a world in which change itself is preeminent, we are confident in our expectations that Thales will continue to grow and succeed in all its endeavors.

We are born to serve. The greatest level of happiness comes in the form of serving others. At Thales Academy, our teachers and staff recognize our students, who, as adolescents, possess practically unlimited potential. This is evident in the attitude of the teachers, the disciplinary rules, the modern technology, and the application of the material. Every minute detail is oriented toward the student, and with the service of the student at the center of the school, everything else falls into place. Thales has a nurturing, exciting, warm environment because the student is at the heart of the school.

Chapter 12

Thales Outcomes

Wonder is the beginning of wisdom

Socrates

It is more difficult to reach for something if you do not know what you are reaching for. This is why we take the time in this chapter to outline the skills, habits, and virtues we believe are essential for a good life. God-given freedom, enshrined in our constitution, provides the opportunity for everyone to reach their potential as they strive for truth, beauty, and noble lives.

One of the tools we use to guide members of our community is a blueprint called the "15 Outcomes of a Thales Academy Student." The Thales Outcomes streamline our vision of character formation into something that is motivating, memorable, and comprehensive. These are the skills, habits, and virtues we hope Thales students will have mastered by the time they complete our programs and graduate. Not only are they visible in every classroom, but also these outcomes are embedded into the school culture.

History of Outcomes

Thales Academy is unique for many reasons, but outcomes are essential. These outcomes require continuous focus and skill development beneficial to the complete formation of our students. They were determined by observing the effective skills and talents of excellent professionals. Trust is imperative for any relationship, which is why it leads our list. We want students to be self-actuated, critical thinkers. As students master these outcomes, their research and communication skills improve while curiosity leads to a depth and breadth of intelligence and wisdom. Students learn to love the acquisition of knowledge that fosters innovation and perseverance in the pursuit of the true, the good, and the beautiful.

We have an exceptional culture of civility, fairness, and respect at Thales. By graduation, each of our students will have mastered all fifteen of these outcomes:

Top 15 Outcomes of a Thales Academy Student

1. UNFAILING INTEGRITY compels a person to follow a strong code of ethics with honesty in all situations.
2. A VIRTUOUS LEADER WITH WELL-DEVELOPED JUDGMENT combines thinking skills and traits such as humility, generosity, and courage.
3. SELF-RELIANCE creates confidence to depend on one's own powers and resources to meet all of one's needs.

4. A TRUTH SEEKER searches for the correct, right, or accurate explanation of reality following the scientific method.
5. A CRITICAL THINKER discerns the truth of a statement or observation through questioning and examination.
6. A CONTINUOUS LEARNER takes lessons from all aspects of life and work, learns from mistakes, and adapts to change.
7. COMPETENT TECHNICAL SKILLS allow individuals to join modern technological industries and navigate modern life.
8. ASTUTE PROBLEM-SOLVING leads one to identify the solutions to a problem, evaluate likely outcomes, assess risk, and choose correctly.
9. A COOPERATIVE AND CONTRIBUTIVE TEAM MEMBER knows how to collaborate to achieve successful results.
10. A STRONG WORK ETHIC links perseverance, reliability, and honesty.
11. DREAMS AND ASPIRATIONS TO CHANGE THE WORLD help us remember that directed efforts bring us closer to our goals.

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12. TRADITIONAL AMERICAN VALUES AND ENTREPRENEURIALISM drive a leader to build and sustain a thriving economy.
13. WELL-DEVELOPED PEOPLE & COMMUNICATION SKILLS promote effective sharing with a clear message.
14. GRATITUDE acknowledges the gifts one has been given and the contributions of others.
15. A HEALTHY MIND, BODY, AND SPIRIT offer the freedom to operate at an optimal level and achieve a higher sense of fulfillment.

Aristotle said that the highest learning came from studying subjects for their own sake. In light of this insight, we love to teach students to love the acquisition of knowledge is a passion we uphold at Thales Academy. Once students begin to master the material and practice habit formation, they are able to formulate and debate their thoughts. This process fosters innovation and demands continual participation in the dynamic world around us. Students are called to neglect passivity and instead use their talents and acquired knowledge to improve the world in which they live.

As a result, Thales students have an advantage over their peers, one of which is the key to making lasting changes: perseverance. Perseverance drives one's determination and passions to serve the future generations. Innovators, thinkers, and doers alike all exhibit perseverance in the face of the challenges they must overcome to build the future they envision.

Students are well equipped with the tools and knowledge necessary to develop such perseverance and use it to seek the true, the good, and the beautiful.

Appendix B

Supplementary Documents

Thales Year-Round Schedule

<i>Track In</i>	<i>Track Out</i>
July 18 - September 23	September 24 - October 16
October 17 - December 16 <i>One week for Thanksgiving Break</i>	December 17 - January 8
January 9 - March 10	March 11 - April 2
April 3 - June 9	June 10 - July 17

Thales Academy K - 5 Outcomes

TOP 15 OUTCOMES OF A THALES ACADEMY STUDENT



- 1 UNFAILING INTEGRITY**
Be Honest, Do the Right Thing
- 2 VIRTUOUS LEADER**
Be a Positive Role Model for Others
- 3 SELF-RELIANCE**
Believe that "Change is Up to Me"
- 4 TRUTH SEEKER**
Seek the Good; Seek the Truth
- 5 CRITICAL THINKER**
Ask Questions to Find the Right Answer
- 6 CONTINUOUS LEARNER**
Learn Something New Every Day
- 7 COMPETENT TECHNICAL SKILLS**
Use Technology as a Helpful Tool
- 8 ASTUTE PROBLEM SOLVING**
THINK; Choose Carefully and Correctly
- 9 COOPERATIVE & CONTRIBUTIVE TEAM MEMBER**
Be a Team Player; Be Kind to Others
- 10 STRONG WORK ETHIC**
Work Hard; Do Your Best
- 11 DREAMS & ASPIRATIONS TO CHANGE THE WORLD**
Dream Big; Set Goals
- 12 TRADITIONAL AMERICAN VALUES**
Be Creative and Work Hard to Improve the World
- 13 COMMUNICATION SKILLS**
Share Your Message Clearly; Help Others Understand
- 14 GRATITUDE**
Always Be Thankful
- 15 HEALTHY MIND, BODY & SPIRIT**
Live Well

Thales Academy Junior High / High School Outcomes

TOP 15 OUTCOMES OF A THALES ACADEMY STUDENT



- 1 UNFAILING INTEGRITY**
Follow a Strong Code of Ethics with Honesty
- 2 VIRTUOUS LEADER**
Be a Positive Role Model for Others
- 3 SELF-RELIANCE**
Depend on Your Own Resources to Meet Your Needs
- 4 TRUTH SEEKER**
Search for the Accurate Explanation of Reality
- 5 CRITICAL THINKER**
Discern the Truth Through Questioning and Analysis
- 6 CONTINUOUS LEARNER**
Learn from All Aspects of Life, Including Mistakes
- 7 COMPETENT TECHNICAL SKILLS**
Use Technology as Tool to Navigate Modern Life
- 8 ASTUTE PROBLEM SOLVING**
Evaluate Likely Outcomes; Assess Risk; Choose Correctly
- 9 COOPERATIVE & CONTRIBUTIVE TEAM MEMBER**
Collaborate to Achieve Successful Results
- 10 STRONG WORK ETHIC**
Persevere; Be Responsible and Reliable
- 11 DREAMS & ASPIRATIONS TO CHANGE THE WORLD**
Set Goals; Use Your Talents to Make a Difference
- 12 TRADITIONAL AMERICAN VALUES**
Be Creative, Courageous, and Hard Working
- 13 COMMUNICATION SKILLS**
Share Your Message Clearly and Concisely
- 14 GRATITUDE**
Be Thankful; Embrace a Spirit of Appreciation
- 15 HEALTHY MIND, BODY & SPIRIT**
Take Care of Yourself

Student - Teacher - Parent Triangle



