"Certain knowledge is more than opinion, less than truth."[1] The arts and sciences are two very complicated areas of knowledge that have taught us that life is not that simple. It is not simply black and white. Many people believe that the natural sciences only use reason while the arts require only imagination. We know better. In philosophical terms, reason is defined as being "the intellectual ability to apprehend the truth cognitively, either immediately in intuition, or by means of a process of inference".[2] Imagination on the other hand is "the revival of sense images derived from earlier perceptions and the combination of these elementary images into new unities."[3] But if we examine these definitions in relation to both areas of knowledge, as philosophers, it would be fair to conclude that both areas of knowledge require reason and imagination.

"Science is nothing but trained and organized common sense"[4] aimed at obtaining knowledge about the natural world. Most of the time, when we are told that something (e.g. theory) is proven to be "scientifically true"[5] we immediately trust it. This is because, over the years, science has achieved many advances made through the scientific method, and these advances have improved our lives dramatically. If the scientific method is used to prove a theory to be true, then where do the ideas that formulate the theory originate from? When we see something that we do not understand, it sparks our curiosity forcing us to ask questions to satisfy it. For example, people in the 1600 believed that maggots formed naturally from rotting meat. Because flies commonly laid their eggs on rotten meat and maggots were found to commonly hatch on the meat, it was automatically assumed that the meat gave birth to the maggots. Redi, an Italian physician, disagreed with this theory and set out to prove this theory inaccurate. He performed an experiment in which he put rotting meat in three jars. One was sealed shut, another was left open and the third one was covered by gauze. Maggots appeared in the open jar but not the sealed jars, thus proving him correct. As a result, we have an example of differing perceptions, and had these differing perceptions not existed, this incorrect theorem may never have been corrected.

Observations create "hints"[6] which, along with imagination, are used to create generalizations. These generalizations can then be tested in scientific experiments. But if one already knows what he or she is looking for in a scientific experiment, then it is possible that one could 'accidentally' manipulate his or her experiment in order to acquire the desired results. How, then, can the evidence from this manipulated experiment be used as reason? In reality, scientific conclusions are made through

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[1] Alchin, Nicholas. Theory of Knowledge. London: Hodder Murray, 2003.
[2] Kemerling, Garth. Philosophical Dictionary. 7 Aug. 2002. 13 Jan. 2007 <http://www.philosophypages.com/dy/r.htm#reas>.
[3] Dictionary of Philososphy. Ed. Dagobert D. Runes. Totowa: Littlefield, Adams & Co., 1977.
[4] Alchin, Nicholas. Theory of Knowledge. London: Hodder Murray, 2003.
[5] Alchin, Nicholas. Theory of Knowledge. London: Hodder Murray, 2003.
[6] Alchin, Nicholas. Theory of Knowledge. London: Hodder Murray, 2003.

inductive and deductive reasoning, and this makes reasoning an essential part of natural sciences. However, it does not act alone. Imagination also plays a limited role in the creation of scientific conclusions as one will conclude from the example of the meat and the maggots. Had there been no spark of imagination, curiosity about where maggots actually come from might never have been asked and perhaps we would have gone on to conclude that they came from meat. This idea science and imagination was introduced in the 17th century by Emanuel Kant's philosophy which introduced the power of the mind. Scientists must use their imaginations to relate a theory to life in order to conclude the theory to be logical and rational in the real world. Imagination in natural science helps scientists predict new facts and also unify already existing ideas. Experiments are then performed to verify or falsify these conclusions.

One example of this is occurs in physics which we are constantly using throughout our lives. One main component of physics is the concept of gravitational force. The concept of gravity holds together the majority of all theories in physics. One could even describe it as being the basis for all of our physics calculations. However, scientists remain unsure about the origin of this significant force. No one is able to see it or feel it or touch it. How can we be sure of its existence? In 1687, Sir Isaac Newton came up with a theory for this gravitational force. Previous knowledge and imagination were used to reason that there must exist an invisible force which keeps planets in orbit around the sun. As a result, natural sciences and the scientific method do have limits with only the use of reasoning. Science can't answer questions about value. For example, it fails to provide a satisfactory response to the question "Who is better looking?" Science can't answer questions of mortality and immortality, and of what is wrong or right. These types of questions are limited to our perception. We must rely on our own outlook on life to answer such questions. Most of the time, science is limited to telling us how something works and not why it works that way. We must use our imagination to answer the questions that science can not. Imagination is based on perception, and perception varies from person to person. As a result, there is no right or wrong answer to ethical questions such as "is abortion right?" Science has proven that the world is not simple, and according to the philosophies of science, neither are the methods of scientific knowledge.

"Artistic impulses are found almost anywhere"[7]. The mimetic theory of art states that art imitates nature. Whether a person believes this or not depends entirely on one's personal view of the world, thus this idea is directly related to one's imagination. The arts are methods of expressing creativity. This can come from emotions and experiences. For example when we listen to a piece of Beethoven's music like his 8th sonata "Pathétique", we hear a slow melody which then leads to a faster melody. To some people, this could represent Beethoven's infamous temper, and how easily he goes from being calm to being angry, or to other people it may represent the hectic nature of his life and the manner in which it could unexpectedly become tangled. This is called creativity.

Creativity is displayed through our ability to imagine things we have not experienced, or to create something artistically beautiful based upon these experiences.

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[7] Alchin, Nicholas. Theory of Knowledge. London: Hodder Murray, 2003.

For example, poets tend to recall a life experience in their poems and more often than not, the poems will have an emotional connotation attached to them. In the famous poem "Do not go gentle in that good night" by Dylan Thomas, Thomas relives the experience of his father's death. One could argue that in this sense artists are not creative but gifted at expressing emotions and experiences in an unusual way. Some may argue that creativity is a gift. This, however, is highly debatable. David Hume, Scottish philosopher, "invokes the imaginative power of human nature to explain both thought, when there are no impressions present to our consciousness, and also our belief in the continued existence of bodies when there are no immediate impressions."[8] Artists are creative in the sense that they not only use imagination but also reason in their works. For example when a poet writes a poem about love in which he describes what he thinks love is, he often uses reason. This reason can be defined as being his language techniques: such as metaphors to get a certain feeling across in his tone, punctuation to create a serene or hectic atmosphere, and even apostrophe to allow one to better relate to a specific object.

In order to understand a piece of art, one must think about the symbols and the messages being portrayed by the artist. This requires the use of reason to justify and support our thoughts and opinions. For example, think of a painting which consists of an image of a person whose face is mostly covered by shadows. When we first look at this, we immediately think that the person in the painting is hiding, or that the painter used dark colors to express a depressed atmosphere. We try to justify this by pointing out anything in particular that supports our theory. Every single color and shape in the painting was put there for a reason. The painter had to use his imagination in order to emphasize certain parts of his painting, but those emphasized parts had a reason for being there, but sometimes we as the admirers of the painting tend to over symbolize certain aspects of a painting. For example, pointing out that certain colors were used for a certain effect when maybe this is not the case at all. Maybe the artist liked black. Or maybe his definition of black is not actually depressing. Maybe for him it was serene. If an artist is trying to portray a message in his art, he must think of how the message could be portrayed in the most beautiful manner possible. Artists mostly use reason because they are trying to make "conscious" art. But not all art is conscious. Many people base their art on emotions they are feeling at the time and the fact that emotions are subjective makes certain aspects of the art unintentional. The arts not only promote the artist to think about his work, but also to consider the response of the general population because the message is hidden behind the beauty of the art. Some philosophers will argue that the arts are not about truth or knowledge because they are all opinion based. Everybody can judge equally well, therefore no opinion is more valid than another. Opinion is based on everyday experience and common sense and because everyone's experience and common sense is different, this is a further indication that no one's opinion is any more valid than anyone else's. As David Hume's said, beauty only exists "in the mind that contemplates them; and each mind perceives a different beauty." He also said "to seek the real beauty

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[8] Downie, Robin. "Science and the imagination in the age of reason ." Medical Humanities. 13 Jan. 2007 <http://mh.bmj.com/cgi/content/full/27/2/58#SEC1>.

is [a] fruitless inquiry"[9] so there really is no right or wrong answer. The arts teach us to take something so ordinary and make it extraordinary. Some philosophers suggest that the arts are not related to truth or knowledge for they are "necessity linked to our moral perspectives"[10]. In a way, this makes the arts more complex and difficult to understand than the science.

"Even if by chance he were to utter the final truth, he would himself not know it: for all is but a woven web of guesses."[11] Philosophers have established that there is no such thing as 'absolute truth'. Natural science uses reason to create logic and rationality and get us as close to the absolute truth as possible. Imagination is used to fill in the gaps in our scientific knowledge and science and imagination work together to bridge the gap between what is said to be true and what is imagined to be true. An imagination enhanced by the arts helps us to mend our reasoning and our logic to allow for a more complete outlook on the world. Even though it is not universal truth, it does not make it completely false. Everyone has a different perception of the world; there will never be 'absolute truth' or 'universal knowledge'.

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[9] Downie, Robin. "Science and the imagination in the age of reason ." Medical Humanities. 13 Jan. 2007 <http://mh.bmj.com/cgi/content/full/27/2/58#SEC1>.

[10] Downie, Robin. "Science and the imagination in the age of reason ." Medical Humanities. 13 Jan. 2007 <http://mh.bmj.com/cgi/content/full/27/2/58#SEC1>.

[11] Alchin, Nicholas. Theory of Knowledge. London: Hodder Murray, 2003.