As I walked along Madison Square Park, these spheres that were inside the park grabbed my attention. I wasn't sure what they were, and as I got closer to them I could see that they were filled with small pieces of things that I later found out were radio parts, glass vacuum tubes, shredded rubber tires, and recycled plastic flotsam. You could see the materials because they were all contained within a globe made out of transparent polycarbonate. There were 18 of these globes, but each one was a work of its own. I would peer into one and get lost in it, my eyes going from one detail to the next. The bottoms of the globes were filled with some sort of crystals that laid in something that looked like snow. The scrappy materials emerged from the snowy bottom, almost as if they were floating to the top. It felt like each globe was some sort of world, like a new version and representation of earth. The material she used made it seem like the worlds were happening at current time, and so I couldn't help but see our own world in these miniature ones. When I did this, I started to see our world through a different lens. These globes to me represent different perceptions of our earth; it is amazing to think about the infinite ways that there are to look at things.

Imagine that there is a sweater. Imagine that I see this sweater as "red". Now imagine that someone else sees this sweater but they see it as "blue", but they have grown up thinking that the color "blue" is called "red". When we both see the sweater, we both call it "red." We think we see the same color, but in reality we might see two different colors. We see the world a certain way, and it is not until we are older that we question the reality of what we are seeing. We are so caught up with our own perception of things to ever really think of the possibility that there is another way of looking at it. We never even question our senses – we just believe that they are right and base everything on the observations we get from them. Can we even trust our senses to tell us what is and isn't real? Will we ever be able to know what is and isn't real or is it a subjective concept? An important line from The Intelligent Eye reads: "We not only believe what we see: to some extent we see what we believe". What do things *really* look like? Does the world really appear as we humans see it? Do humans even see the world the same way as one another?

Our brain thinks in two different ways. One of the ways we think is instant and quick, and is referred to as "fast thinking". This fast thinking is in use when we look at something and make assumptions. We refer to this fast thinking as "common sense". The second type of thinking is the opposite, and is referred to as "slow thinking", because rather than making assumptions we take the time to observe the situation at hand and "solve it".

We use these two different ways of thinking on a daily basis. At a young age we learn to follow our instincts and learn to store our knowledge as a reference. For example, we learn to associate colors to different fruits and we assign them such as "red for apples", "yellow for bananas", and "orange for oranges". Therefore, if we are asked what color an apple is we will think of it as red, even though there are apples that are green or yellow. This leads to "priming", where you are given a "stimulus" that will influence a response to another "stimulus". For example if you are given the following letters: SO P, you will fill in the space between the O and the P with different letters depending on any information given to you before. If you are given the word "wash", you will most likely add an A and make the word "soap." If you are given the word "eat", you will most likely add a U and make the word "soup."

This sort of fast thinking plays a key role in optical illusions. An article from Scientific American says, "Visual illusions have to do with the subjective perception of an object or event." This subjective perception that they refer to in the article is essentially just your fast thinking coming into play, leading you to make assumptions about what you see that are false. Illusions themselves are designed to do this – they are created with the intent that you will use common

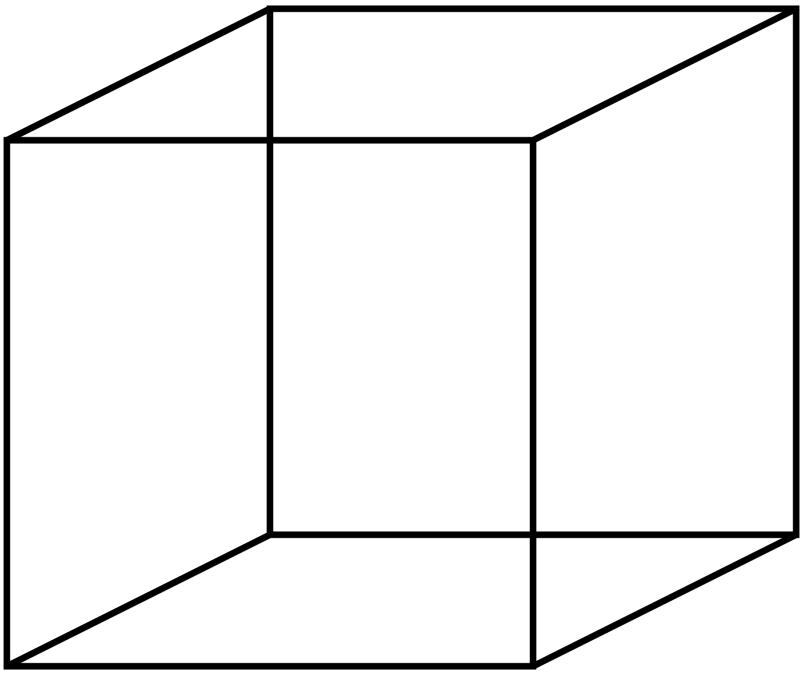
sense to make an assumption about the piece and the creators of these illusions will play around with that assumption to create different perceptions.

R.L. Gregory, author of The Intelligent Eye, says on perception: "Perception is a matter of reading non-sensed characteristics of objects from available sensory data." By this he means that we use our senses to observe whatever we are looking at and try to make sense of it. Humans rely on their senses to determine what things look like while optical illusions make us question our senses. For example the famous Rubin vase, where at first you see the vase as the image, but then you see the two faces as the image. This optical illusion makes us question which one is real in a way, because it makes our brain question which one is the foreground and which one is the background.

Pictures are like a daily optical illusion because they are "paradoxical." Gregory comments: "The image they show can appear to be slanting but the page that they are on will forever be flat." Pictures capture many different dimensions but the picture itself does not have these dimensions. The same can be said for paintings and drawings that have dimension, depth, and even shadow. They all create a "double reality" as he calls it.

The Necker Cube is an optical illusion that has played a large role with questions like these, as it disproved the idea of Naïve Realism. Naïve Realism is the idea that the way we see the world is the way the world actually is. When you look at the Necker Cube, you have to ways of looking at the cube but your mind can't make up its mind on which one is "real" since they both logically make sense. You can never see it both ways at once and therefore that shows how you can never see the world in any other way then your own. Moreover, the Necker Cube disproves Naïve Realism because there is in fact no cube at all, there is simply a "two-dimensional drawing of twelve lines. We see something which is not really there, thus (allegedly) disproving Naïve Realism."

Susana Martinez-Conde says in her article The Neuroscience of Illusion: "Everything we experience is a figment of our imagination. Although our sensations feel accurate and truthful, they do not necessarily reproduce the physical reality of the outside world". Why then do we see the world as we do? Speaker Beau Lotto says in his TED Talk, the "brain didn't evolve to see the world as it is – we don't. Instead the brain evolved to see the world in the way it was useful to see in the past". An example he uses is the evolution of color. He showed a black and white image in which there was predator. In the black and white image it was nearly impossible to identify but when it was changed to color, it was easily found. The way we see the world was created to benefit us. We learn how things work through our experiences, and in order to make



our lives easier, we refer to these experiences as a standard of how things work. Just as we developed color, and we use that to benefit us, we use our experiences to benefit us. This means that when we look at something, we see it as what we think it should look like rather than what it actually looks like.

Plato argues in The Republic, that everything we see are shadows of whatever really exists. In his metaphor of the cave, a prisoner is in a cave and sees shadows – believing that they are real. Then the prisoner is released and is shown the statues that produced the shadows. From there he is taken out of the cave and shown the real objects themselves. We are the prisoners, who only see the world in relation to ourselves. In terms of the metaphor, the story would have to mean that all we see are shadows of objects. This also ties into how we use our experiences to perceive things, because up until his experiences expanded, the prisoner was convinced that the way he saw the world was the way the world was. His perception of it changed, however, as his experiences changed.

Descartes argues that we cannot trust our senses at all. In his wax argument, he takes a piece of wax and melts it, asking himself if it's the same piece of wax. The answer is that yes it is the same wax, but how can you come to this answer? When you use your senses to answer this question, you would end up answering it wrong because the wax now looks different and feels different. Descartes took this to mean that we "only know things through intellect" since our senses had failed to lead us to the correct answer.

The importance of this experiment that Descartes did sets up an important foundation for perception. He continued on after this experiment to question everything, leading to the concept of Cartesian doubt. Rather than checking if everything we ever learned was true, he focused on how we got to our findings, which was through our senses and our reason. He had proved that our senses lied to us, and therefore that left him with reason. But we can never know for sure whether someone else's reasoning is "correct" because we can never see the world as they do. When you relate this back to the color theory, it is easier to understand why we can never be sure that our reasoning is correct, because if my red is your blue but the "real" color is blue, than that means that my reasoning would have to be wrong. But Descartes did come to some sort of conclusion. He decided that the one thing he could be sure of is that he was a "thinking creature". He knew this more than anything and so he came to the famous realization: "I think, therefore I am".

That quote by Descartes is the epitome of solipsism, which Webster defines as the theory that "your own existence is the only thing that is real or that can be known." We have come to

describe ourselves as self-absorbed and selfish. As humans, we have a lack of respect for animals and the environment and we are caught up in the society that we have created. We are obsessed with finding out the truth and on gaining knowledge. We want to know what the world is like, and how the worlds around us are like – we want to know everything. We do all of this so that we can have a clear perception of the world. But why does our perception of the world even matter? In retrospect it doesn't. Some person 100 years from today is not going to care about how I saw the world, but it matters to me and to my friends and family. When the only thing we can know for sure is our existence, we have to value it and we have to cherish it. We always question why we are on this earth, and we always search for ways to leave our mark and leave some sort of legacy. I think this is because we want to solidify our existence – we know that we exist in our heads but we want to make it "real" by writing a great book, making a beautiful piece of art, and by touching the lives of those around us. I think that's also why we rely so heavily on science, because we want something to grasp to that will show our existence. So although we might not ever know what the world is "really" like, we will always know that we are here, right now in this moment, and we can take comfort in that.

Works Cited

"Beau Lotto: Optical Illusions Show How We See." *YouTube*. TED Talks, n.d. Web. 04 May 2015.

"Brain Tricks - This Is How Your Brain Works." *YouTube*. YouTube, 31 Jan. 2013. Web. 04 May 2015.

Gardner, Robert. *Experimenting with Illusions*. New York: F. Watts, 1990. Print.

Gregory, R. L. *The Intelligent Eye*. New York: McGraw-Hill, 1970. Print.

Martinez-Conde, Susana, and Stephen L. Macknik. "The Neuroscience of Illusion." *Scientific American Global RSS*. N.p., 12 Sept. 2013. Web. 04 May 2015.

"Necker Cube." *Wikipedia*. Wikimedia Foundation, n.d. Web. 04 May 2015.

Plato, G. R. F. Ferrari, and Tom Griffith. *The Republic*. Cambridge: Cambridge UP, 2000. Print.