BRYAN GUNER

I am a very outgoing and passionate person. I take a very deep interest in anything that captures my attention, and will often devote myself so wholly to such a topic that I neglect to eat or sleep. From a very young age I was fascinated by the physical sciences, and devoted myself to experimentation, a pursuit that has since influenced many other facets of my life. In more recent years, my passion for science has been equaled by my passion for music. I try to experience both as much as I can because they are the only things in life from which I personally draw true meaning.

Creative Design
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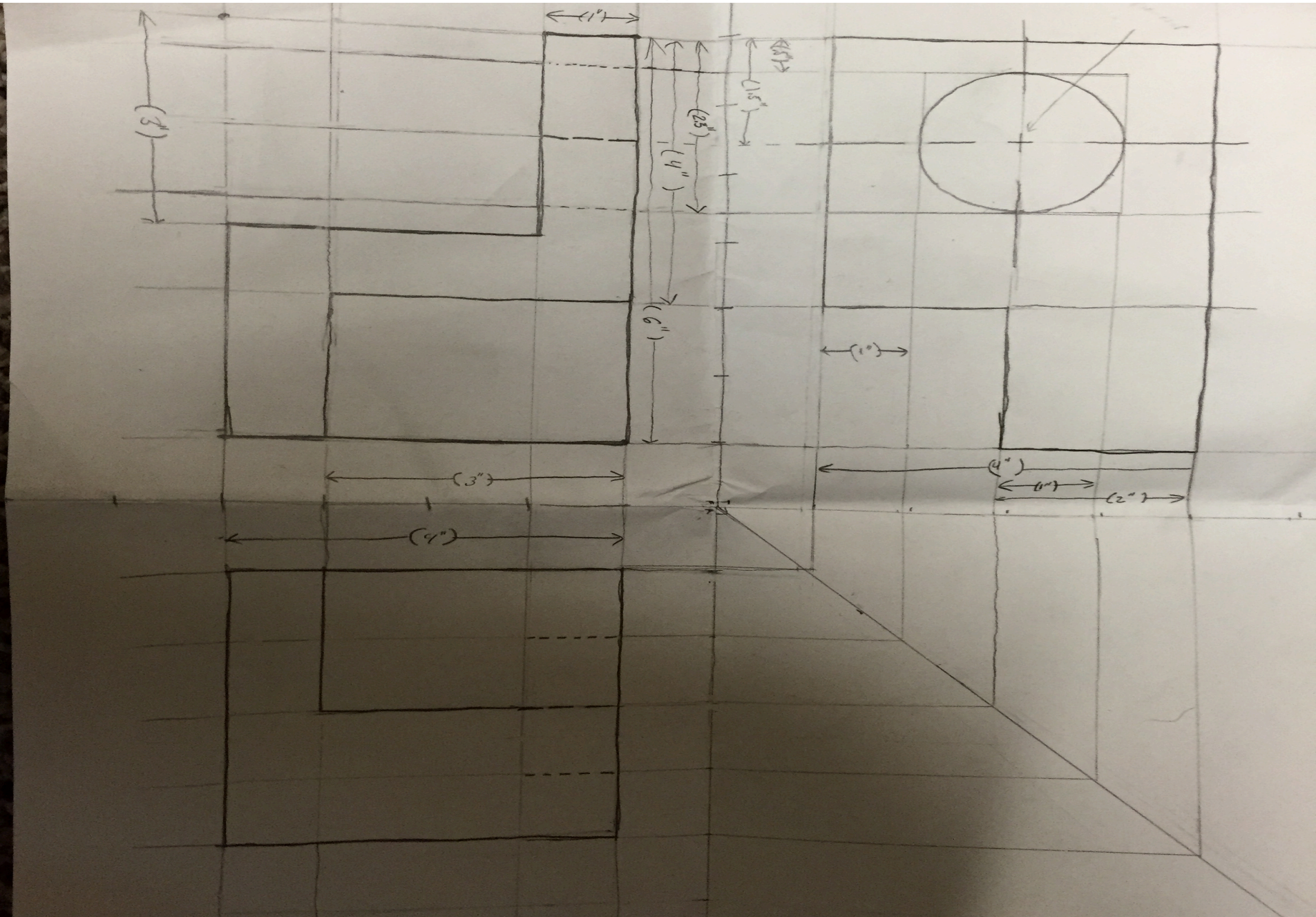
Page #1 (Group design construction)

Page #2 (Design Communication Explanation and introductory activity)

- **Explanation:** For the Design Communication activity the class was broken into about five groups of four students. Each group was tasked with assigning group roles, planning a design, and subsequently constructing a structure in one class session. The assigned structure was a free-standing tower to be maid out of 30 sheets of printer paper and 45 inches of masking tape. The goal of this structure was to be at least 30 inches of height and support the weight of a gold ball for at least one minute. The real goal of this assignment, however, was to experience impromptu group design and to hone the communication skills necessary to success in most creative fields.

- **Activity:** In order to prepare students for such demands, especially under time constraints, the following activity (loosely based on the microeconomic "ultimatum game") would serve as the perfect introduction. The class would be broken into the same groups as in the assignment, and given this proposition: Each group must elect a leader, the first group's elected leader will be allotted 10 bonus mid-term points to distribute amongst their group however they see fit. Each subsequent group's leader will be allotted 2 less points than the last leader selected. Furthermore, any leader that chooses to keep all the points to themselves will be rewarded with a 5% increase in their final class grade (weather or not these grade bonuses are delivered by the professor as promised is arbitrary). In response to this activity, each group must develop a system or agreement to hold their respective leader accountable for the fair allocation of bonus points. They must also come to an agreement faster than the competing groups, in order to tangibly boost their grades.

Page #3 (Orthographic Sketch)

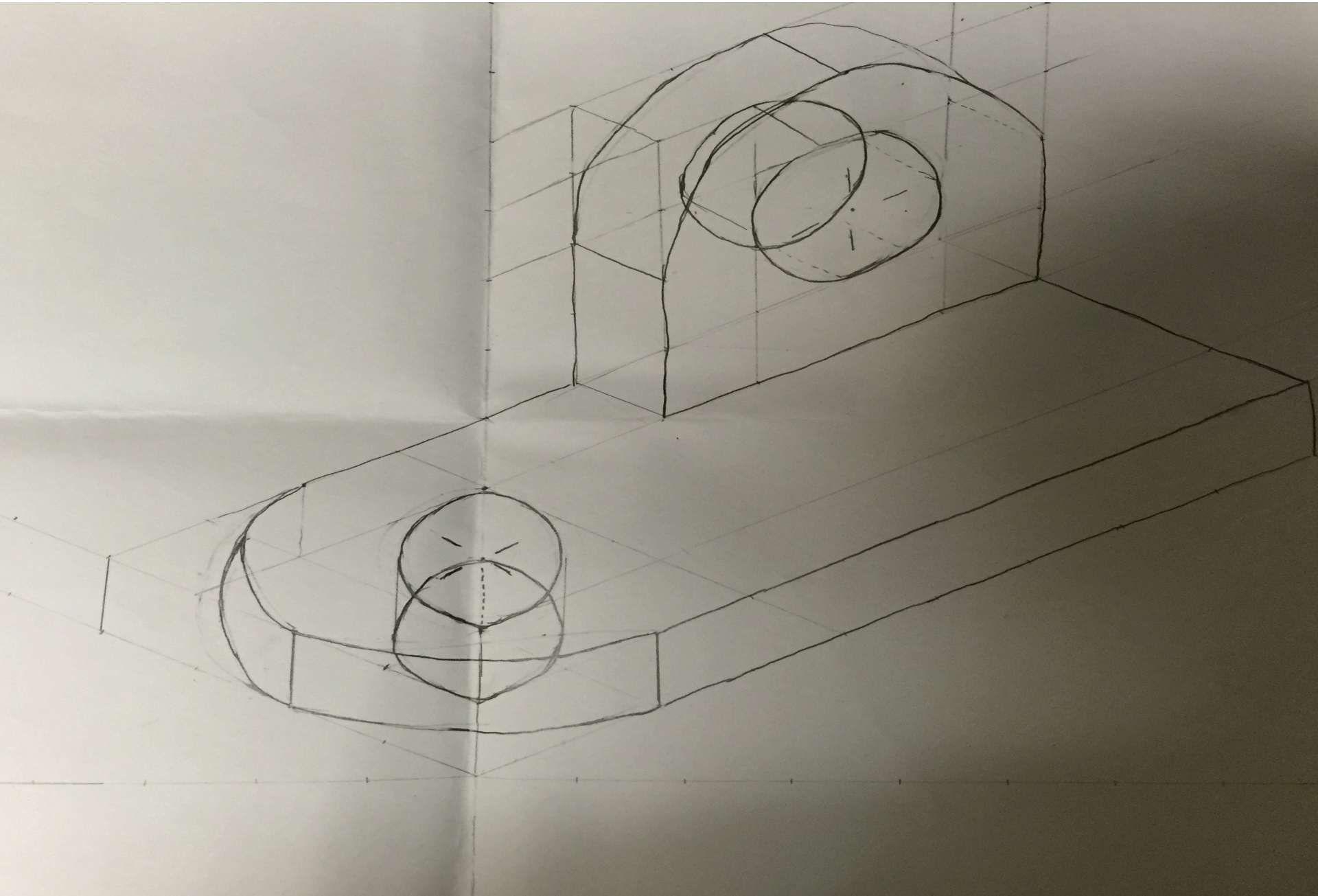


Page #4 (Orthographic guidelines and introductory activity)

- **Explanation:** In order to complete this assignment each student must take a 3-D isometric drawing and break it down into three perspective views, from which all of the information about the original shape is contained. This process is started by breaking the sketch surface into four equally sized quadrants. At this point, the student draws the largest profile the shape possesses. Once the largest surface is drawn, the student will draw one set of construction lines (continuations of 2 lines that form the original profile and are not parallel to the separating axis) straight into another quadrant and form a second profile using the dimensions from the isometric drawing to figure out at what points to intersect the construction lines. Then, the student must draw a line that bisects (45° from each axis) either of the remaining 2 quadrants and draw construction lines that are reflected over the aforementioned bisecting line to form the 3rd outer profile. Once these profiles are constructed, the student must convey dimensioning information and any surface that is not formed by the combination of each outer profile through the use of hidden lines, center lines, and dimensioning lines. The profiles must also be uniformly spaced away from the axis that contain them in order to prevent the profiles from forming one continuous 2-D drawing. This entire process should be completed with the skills taught in class and preclude the use of any precision measurement instruments.

- **Activity:** The class as a whole, is presented with a three dimensional object. They must collectively produce a set of accurate orthographic sketches and then establish a set of instructions and rules so simplistic that a 12 year old participant may follow them to fruition, unassisted.

Page #5 (Isometric Sketch)

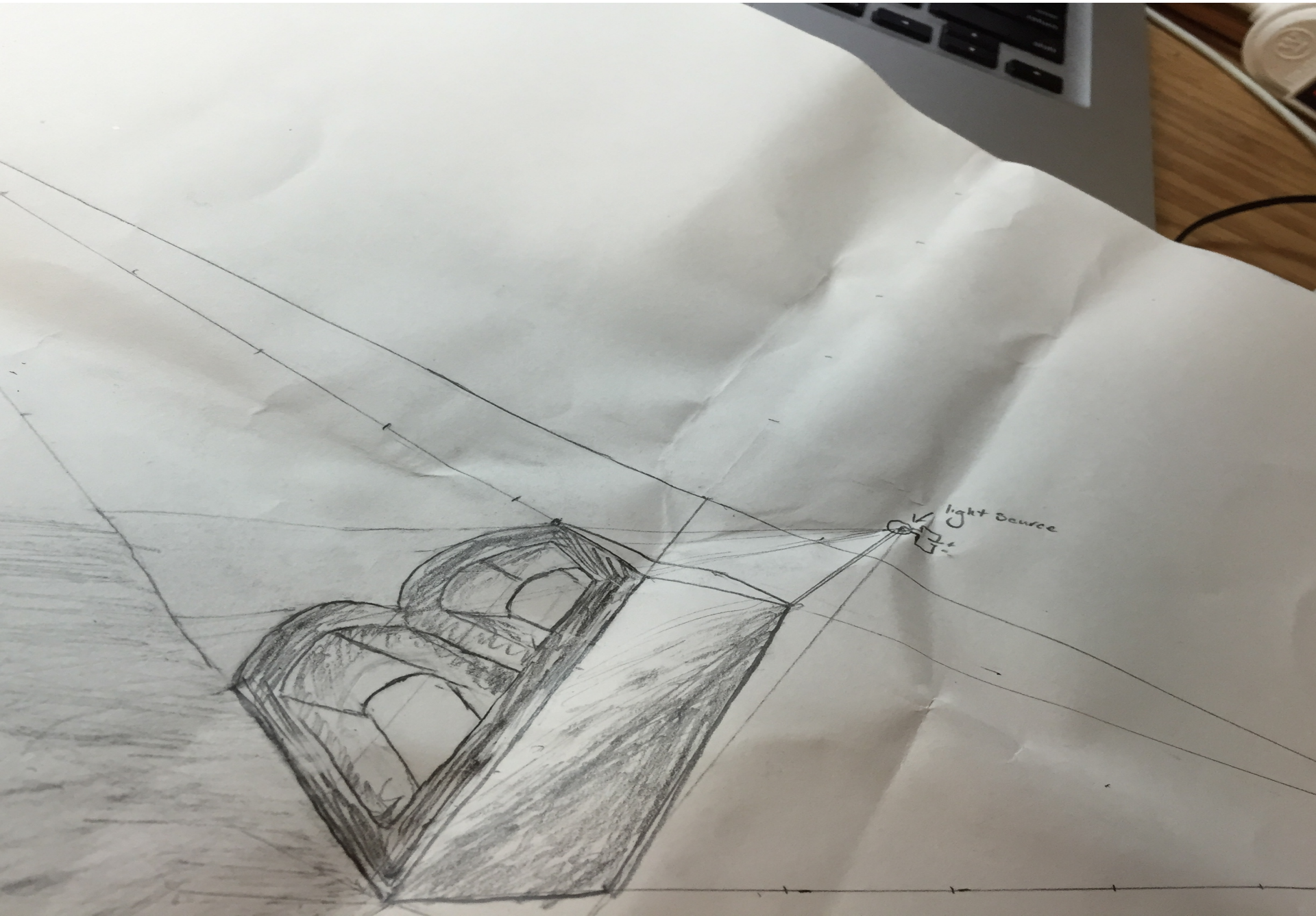


Page #6 (Isometric guidelines and Introductory Activity)

- **Explanation:** This assessment is almost the exact converse of the orthographic assignment. Each student was given two orthographic sketches with approximate dimensions. From these dimensions, the student must produce a 3-D Isometric sketch. This process begins by drawing a vertically centered horizontal line and two other lines that meet at it's horizontal center. These two lines will each form approximately a 30° angle with the horizontal line. From there, the student must create a 3-D rectangle with the largest dimensions in each direction possessed by either orthographic sketch. From there on, the process is similar to the orthographic assignment in the sense that the shape is drawn inside the aforementioned rectangle to convey dimensions and abnormal surfaces using various types of lines; and the rectangle as a frame of reference.

- **Activity:** Provide the class with orthographic sketches, paper, scissors and tape. As a class, have the students try and construct the 3-Demensional shape using the paper. Once the information is accurately represented by their paper model, have each individual student try to represent it on isometric paper.

Page #7 (Perspective Shade and Shadow)

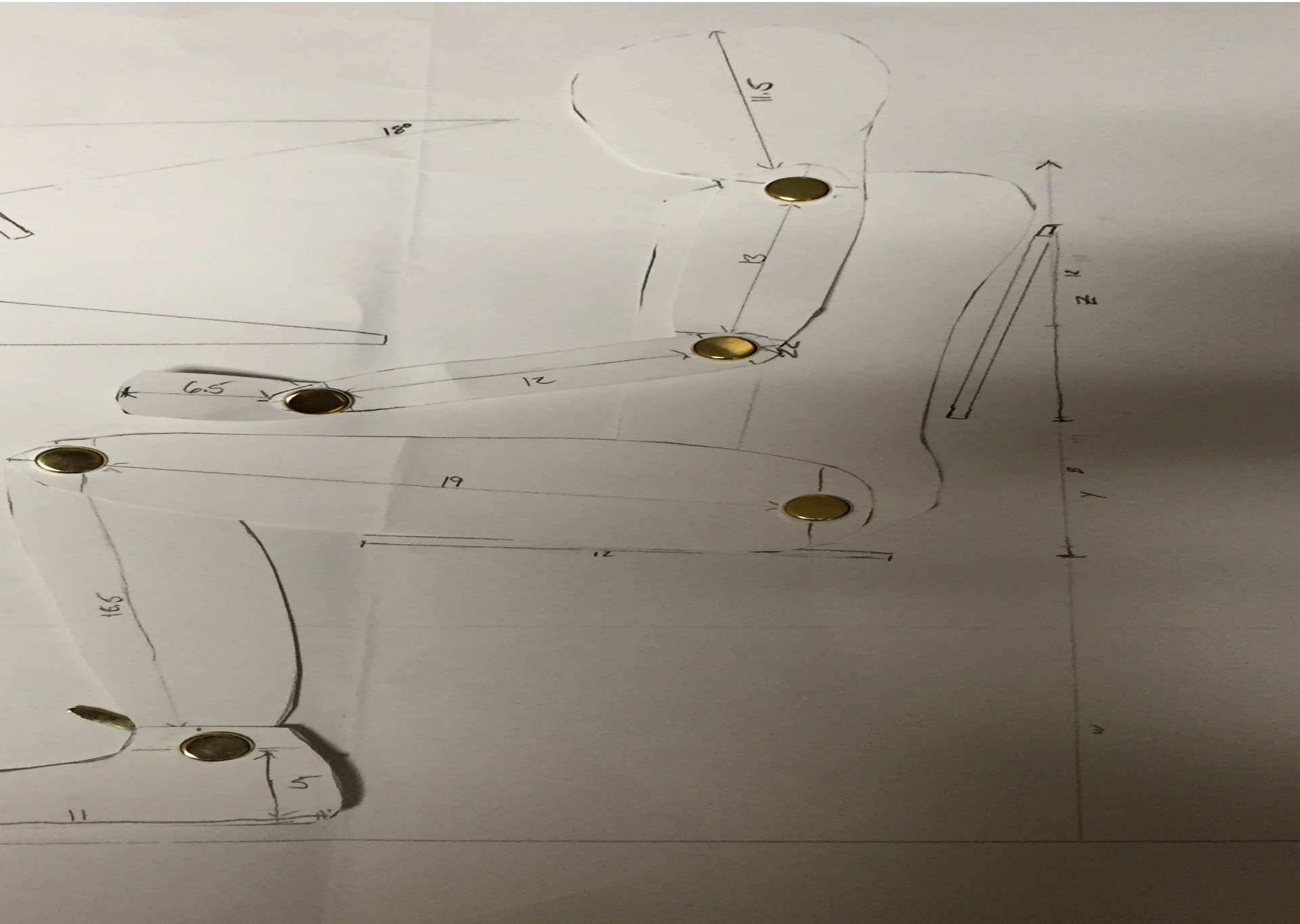


Page #8 (Perspective S&S Explained and introductory activity)

- **Explanation:** For this assignment each student had to pick one of their initials and represent it as a 3-dimensional bubble or block letter. Once complete, the student would designate a light source on the sketch paper such that it's position was angled like that of the sun about an hour before noon. Once complete, the assignment called for extending "light rays" from the light source extremely very nearly intersecting the outer dimensions of the letter; such that they would reach the ground and provide the outline of the shadow the letter cast. The student must then fill in the shadow (with uniform stroke direction) and shade the surfaces of the letter not completely exposed to the light source.

- **Activity:** Provide the class with foam blocks and have them use cutting tools to sculpt one of their initials out of the foam. Then take the class outside and place their letters in the sunlight so that they may observe and photograph the shadow cast, and the spectrum of illumination at various surfaces of the letter. Once they have collected their data, use a meter stick, an alternative measuring device and the meter stick's shadow, in conjunction with Pythagorean theorem, to determine the angle from which light was being cast on their letters. For more precise observations use artificial light sources with controllable variables to observe the same effects.

Page #9 (Anthropometric Mannequin)



Page #10
(Mannequin Explanation and Intro Activity)

- **Explanation:** This assignment was meant to make students familiar with the dimensions of the human body. Students were instructed to measure the distances of their legs, arms, torso and neck-head combination including the distances between joints. From those measurements, they were to construct ¼-scale movable mannequins using paper cutouts and metal pins. Once constructed the students were expected to sketch a workspace similar to the one provided to them, but in proportion with the size of their personal mannequin.

- **Activity:** As a class, pick one subject to measure. Using a tape measure and protractor collect data on their range of motion (in the context of their personal proportions). Using these measurements, try to devise a way of creating a kinesthetic model that describes their range of motion. For extra credit, challenge the students to try to calculate and produce a 3-D sketch of the volume enclosed by all the possible combinations of motion (assuming a fixed-position torso) for the test subject. (Should be nearly spherical)