

## Night Sky Observing

Actually, the temperature of these two nights is too low. I go out and try to look at the sky for about five minutes, but I do not see anything except one star in the sky. I will try to observe the night sky in the following days. I hope I can see something different.

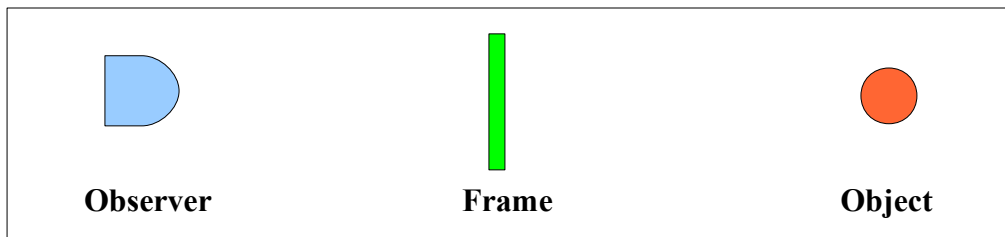
I like to see the night sky with my family since young, although we do not know the name of the stars. We still enjoy the time for being together under the night sky. There were many stars in the night sky in Asia. My mother used to tell me that when there are stars in the sky at that night, it will not rain at that night. I believe her because every time I see stars in the night sky, that night will no rain particularly in Asia.

## Viewing Activities

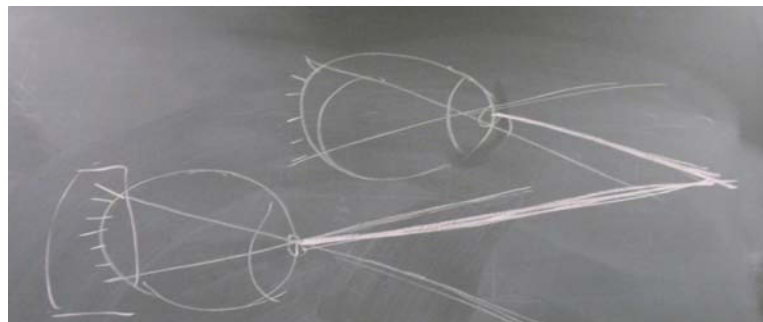
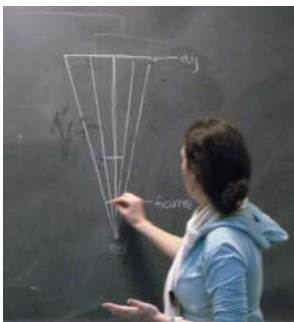
### (a) Class Investigations with Frames, Size and Measure

My classmates have discussed the frame and size activities done previously in the class. I'm too afraid to speak in the class because my English is not my first language, therefore I have difficulties in expressing my opinions and observations. However, I'm glad that I can express myself in writing down all the notes and thoughts I would like to share with the class in the paper.

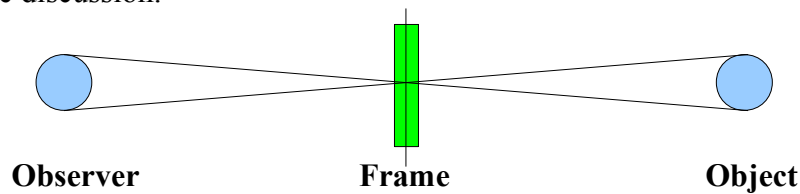
One of my classmates has mentioned what his group has done and observed during the frame and size experiment. He described three observations relative to three different conditions:



- (1) **the object moves** (observer and frame stay at the same position)  
When the object moved away in relative to the observer, the object appeared to be smaller in the frame.  
When the object moved closer in relative to the observer, the object appeared to be larger in the frame.
- (2) **the observer moves** (object and frame stay at the same position)  
When the observer moves away from the frame, the object is bigger relative to frame.  
When the observer moves closer from the frame, the object is smaller relative to frame.
- (3) What happens to the object, **when the observer and the frame move away at the same rate?**  
Everything should looked at the same.



Further discussion are related to the size of the object appeared in the frame relative to the position of the observer standing. My classmates have drawn something on the board to support their opinions in the discussion.

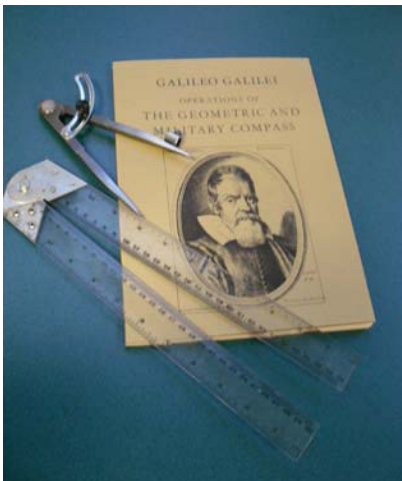


As for my group, we have fixed the position of the object and frame in our experiment. We try to look the object from different perspective by changing our standing/sitting position. In short, we have the same observation with the other group where the object appeared in the frame become larger and larger as we move further away from the frame and object. In addition, we realized that we can have different object appeared in the frame if we stand or sit in front of the frame. I also notice that the color of the object do attract my eyes; the only black strips found in the frame attracted me a lot compared to the rest of the object appeared in the similar color and pattern. It is an interesting experiment!



On the other hand, one of my classmates, YY, has brought something to show us in the class. An empty tissue box with a small hole on one of the surface and a semi-transparent plastic sheet. When the light is turned off, we can see the light from the torch light travel through the hole and formed an image on the plastic sheet. Because of the torch light is made up of nine small LEDs which arranged in a circular shape, the image formed on the plastic sheet seem like a flower. Then, YY covered the top part of the torch light with a tape. We can only see half of the flower now, but the image formed on the plastic sheet is upside down.

### (b) Galileo's Geometrical Compass



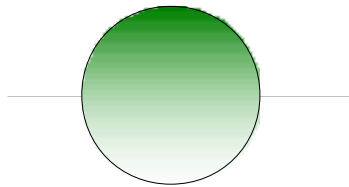
First, I like to draw things. Therefore, I am so excited when I have a chance to use Galileo's geometrical compass. Personally, I am a kind person who loves to use instrument. Thanks to this special program offer during this IAP, I can learn the operations of the geometric and military compass. I have tried out all the exercise in First Operation in the class. The exercise becomes more challenging as I proceed, until the last part of the exercise in First Operation – to divide the line into seven equal parts and divide each part into thirteen equal parts using the instrument. It takes me sometimes to finish this exercise, and I did it correctly! Let me tell you the secret, I fixed the geometrical ruler on the table using the tape in the lab so that it will not move. Moreover, I used the “modern” compass, which is much easier to adjust to the correct length I wanted.

After the class, I borrowed the textbooks and instrument so that I can practice during the weekend. It is an interesting textbook. I can see how the people in the ancient times measure and construct the drawing in an accurate and proportion way. Then, I started to think about the inventions of the measuring tape, rolling ruler and scale ruler. Without the aid of these instrument, we can't divide things into equal parts and/or measuring things accurately. It reminded me the invention of a balance might be a combination of a ruler and some other things.

### (c) Lenses, Eyeglasses and Mirrors

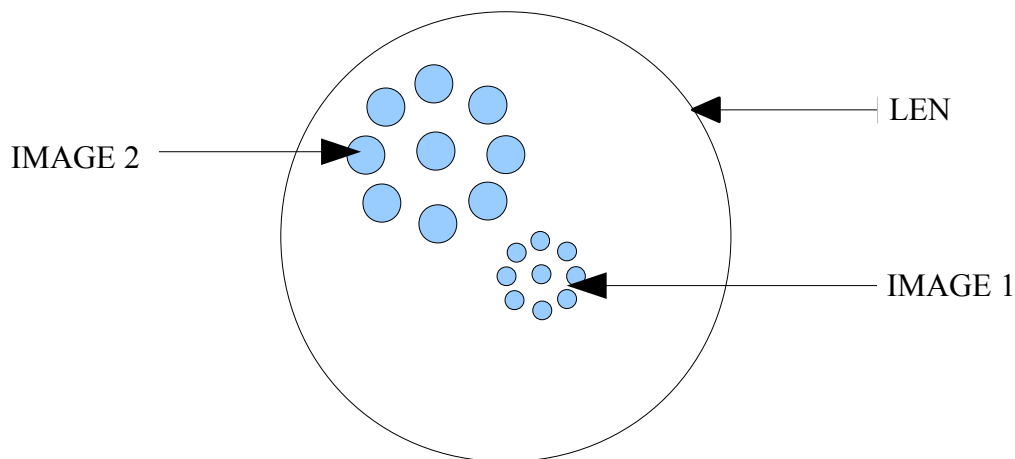
Before this, I don't realize that there are so many mystery hidden behind these tiny reflective things in my life. Sooner I feel that I am glad that I have attend this class, I am now paying more attention to the things in my life regardless of its complexity in the nature. We are so excited when we are doing this experiment in the class. Because of different people has discovered different things in the class, and most of us cannot even tell the theory behind of the things we discovered. What an awesome experiment we have done!

Personally, I like the “magical solid glass ball.” This is because it helps me to recall the story of the Snow White in my mind. I place the “magic ball” on the green surface table, I discovered that the top half part of the “magic ball” is green whereas the bottom half part remains transparent. It is like a magic show! From my past experience with this “magic ball”, I know that the image formed in the”magic ball” will be upside down. Therefore, I think that the “magic ball” is reflected the green color of the table. This is why only the top part of the “magic ball” is green.



**Front View of “Magic Ball”**

After that discovery, I began to play with my torch light and lenses. As I mentioned earlier, my torch light is made up of nine small LEDs and arranged in a circle. I directed the light source onto the lenses. For the first time in my life, I discovered that there are two images formed on the lenses under one light source. I saw one small flower and a big flower appeared on the lenses. Without any hesitation, I try to apply the same the light source onto a plane mirror. However, I only see one image on this plane mirror. I do not know the theory behind, but this is an interesting discovery for me. It is very difficult to use word to describe the feeling when you have discovered something new in your life.



**Images Formed on the Len Under a Torch Light (Made up of nine small LEDs)**

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EC.050 Recreate Experiments from History: Inform the Future from the Past: Galileo  
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