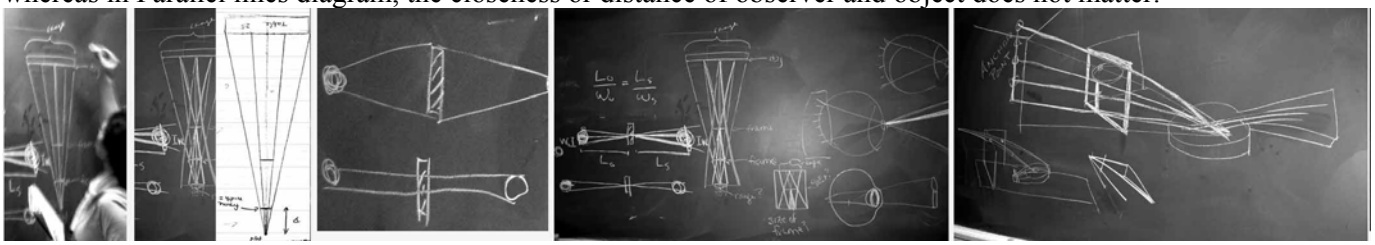
Class Summary Jan. 8, 2010 SP713

Discussing findings from the frame activities

-1. "keep observer and frame steady, just move the object, what happens to the object? relative to the frame, when the object moves away from the frame the object gets smaller. When the object moves closer to the frame, it gets bigger in the frame"
2. "when the observer moved away, from frame, the object got bigger. Observer goes closer to the frame, object got smaller.
3. "when the object and observer move away or toward each other at the same rate. .. everything looked the same."

Similar triangles diagram (photo 1, 2, white diagram) where the table/object is the horizontal line at the top and the frame is the short horizontal line shown at two positions from observer (bottom point). A sight line goes from observer to the left edge of frame, and out to object; another goes from observer to right edge of frame, then object. This makes a triangle from observer point having part of object as its far side; a smaller and similar triangle is from observer point to the frame as its far side. When the frame is further from observer, these 2 sight lines from observer, past frame edges to object, are closer together: less of object is seen. This diagram demonstrates how range of view changes with frame position (not one of the points listed above).
-"two different operating systems: 1. the vanishing point where your eye is focused 2. range of the observer's view"
Parallel lines diagram:
(photo 3 bottom) lines from observer through frame to object, stay same if observer or object moves.
Crossing lines diagram
(photo 4 left) sight line goes from observer's top through frame to bottom of object; another goes from observer's bottom through the same point on frame, to the object's bottom. When observer or object moves, the lines change, whereas in Parallel lines diagram, the closeness or distance of observer and object does not matter.



Responses to crossing lines diagram*:*
What makes there be a crossing point at the frame? A small hole in a box, with a wax paper taped across the box(photo 1 below). A flashlight shines at hole, shows up on paper. If the top of the flashlight is blocked, on the screen its top is blocked; and vice versa. "this is not the same as the frame; [what you see] is upside down in the box! Not in the frame"
-"we didn't make it up [our similar triangles diagram]. We tried it. We proved that. That demonstrates the range of what we see in the frame …[the crossing point diagram] is great about focal point but has nothing to do with the frame size -- that looks the same no matter what size of the frame is. So how are those two things related?"

Discussion of the eye
(photo 4 above, right) What is the hole in the box? "it is your eye without the [brain]flip. It is your lens."

Da Vinci diagrams; his experiments with pinholes.
"the only way to know there is perspective is to have straight lines"
Using a flat mirror to check out the vanishing point (photo 2, 3 above). The mirror is upright if the ruler on the floor continues straight in the mirror. Viewing the mirror from an angle, the vanishing point of a ruler in mirror is opposite to what I thought.

Discussing the construction method of last time where the lute was drawn:
-"How they moved the marker? Where do you put it[marker] on the string" They marked the string [fixed mark on string]. "Whose view did it draw? Why isn't this the guy's perspective[person across frame from lute]?.. group all confused by how it worked." (photo 4 above) " It looks like the pictures but I don't think it does what the pictures does." (right diagrams above) "2 different anchor points [for string], when higher up, that would make it bigger"

Galileo's exercises with his geometric compass and ordinary compasses
He gives two directions for placing a length set by ordinary compass: 'lengthwise' and 'crosswise'. Lengthwise, put the compass points along the metal part [of Galileo's instrument and use the pivot as the origin for one point. Crosswise, put the compass points between the legs of his instrument. Measurements with the paper instruments are a little off.
-"who invented the ruler; how would you know it was straight?"

***Ring of Truth*, 1987, "Looking" episode 1, scene at Treviso Library (eyeglasses and glass)**
-"In China why science didn't develop, they explain that containers are ceramics, not transparent but in where science developed they used glass. Glasses are transparent you can see what happened in the container, people more accessible to what is really going on and in ceramics you cannot see; only guess."
-"[in reading] one particular substance [in glass] to reduce temperature; the other one prevented air bubbles from forming".
-"Corning glass museum: glass from all over the world. The glass from Italy is remarkably different, more developed artistic"

Exploring lenses and mirrors
The appearance of a finger beside the ball, viewed in the curved mirror (photo 1 above). Viewing print on a poster through two different lenses to compare them (photo 2). A line-up of eyeglasses, based on the feel of the lenses: whether the lens is thick at the edge (far left) or thick in the middle (thickest on the far right). Viewing through the different glasses makes a succession also, and putting one over the other – two at once (photo 3). An arrangement of mirrors on table, making an upright corner and with an alphabet block (photo 4). Looking through a lens or the round ball at a flashlight; two flashlight shapes are seen, one magnified, watching motion (photo 5).

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