

## Class Summary Jan. 6, 2010 SP713

### *Reading on Galileo's biography*

- Drake said Galileo's father encouraged him to question authority, I interpreted it as a hallmark..
- what do you think nurtures one to feel confident in their observation? You don't have to believe the book .. we can go test it out.
- what is necessary? he needs: time, resources to build things, skills or friends skilled, knowledge, or incredible curiosity
- I feel like da Vinci was more of self discovery, self knowledge kind of journey; where Galileo was more educating people

### *Discussing last time's perspective activity*

- I used a hole in helping to isolate what it was I was looking at, one view I was looking at and how to orient my lines.. just by me focusing on that one little point, I realized what perspective was grandly; if you actually shift a little, you open up to a greater idea
- Galileo Newton, Einstein: it started with a frame retrospectively. I wonder: perspective in science, art to frames of reference

### *Group in the Hall with frames, string, mirrors, paper, straws...*

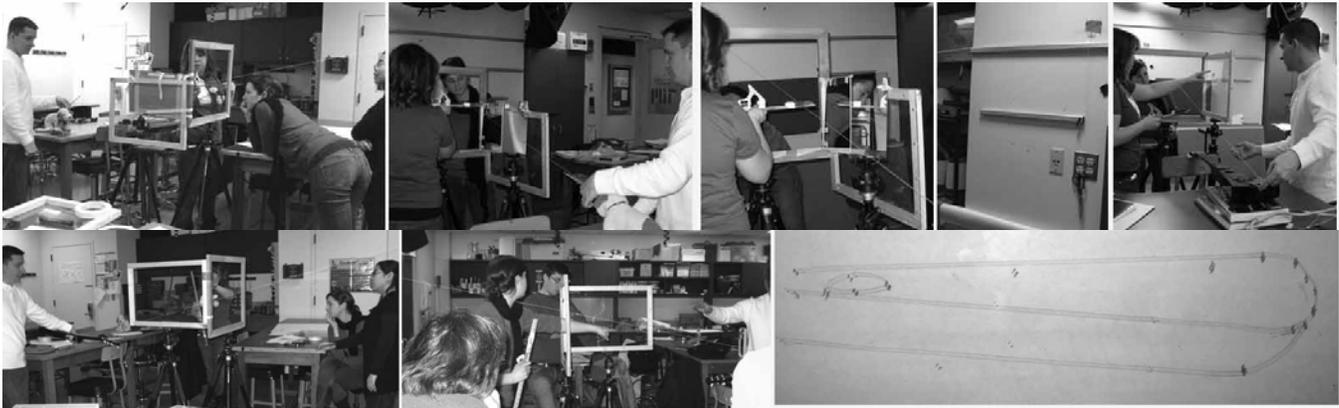
Two people stand apart, looking at each other through a mirror on the floor(photo 1) and move back while seeing each other in the mirror(photo 2). Their feet are about equidistant from the mirror: "whatever goes in comes out at the same angle, triangle" Setting up mirror/frame with 2 people in front(who see each other in mirror) and 2 behind it the same distance; mirror goes at crossing of direct sight lines between people in front and at back. "how can drawing on the mirror help you figure out?" "I think all the things we get with the frame also applies to the mirror." Drawing a person on the mirror (photo 3); drawing a grid on the mirror first and then marking over the grid (photo 6). The mirror enlarges(photo 4) "the only way it makes sense for it to be bigger when you back up, is for the mirror to be shaped, concave." Tube sighting through a window (photos 8, 9) A frame set up in front of an object, string passes from it through the frame; two other strings in the frame's plane cross where the string pierces it (photo 5,6). "using [those] two pieces of string, you isolate the point [mark it on paper placed over the frame] then you open it up [remove paper]. And put the string somewhere else." A viewing device with a short and longer straw mounted crosswise on a tube (photo 7); the other hand has a marker "if you hold this and follow the [object's] outline [while with sighting it and marker] it will draw object in perspective. ... I think it attaches to the wall to have a vanishing point. ..If you made that string shorter, it would appear to be, it would make the depth greater."



### *Group in the Classroom using two tripods, frames, mirrors, plexiglass, string, weight, ruler, marker, level*

One person puts a string at different points around the form of a puppy(photo1,2 next page) or lute(photos 6-8). The string passes through a picture frame over to the wall where it is kept tight by a weight (photo5). Another person uses a marker on a leveled ruler (photo4), referenced by the string, to mark onto a screen mounted crosswise(photo 1, 7). When connected, the dots produce the shape of the lute (photo 9), where the distances between dots on the drawing are shortened in perspective. The lute had to be tipped up to show this; the drawing based on puppy was ambiguous. "What would be the point of the apparatus?" "I think ..it is giving us a side view with a 3 dimensional structure to it."

- "I had errors. If I didn't hold the string flat, I was introducing error in some random direction"
- "we had no implicit hypothesis moving into it"
- "we had the wrong hypothesis"
- "yeah and we gave everything up and said let's just connect the dots and see and that's what we saw"
- "Now let's say I want to make something half the size. Where do I put all this stuff?"
- "A methodology of how it works, that would be accurate enough to measure."
- "Make a different machine..One side has a spring, one a weight, as you draw the line here the string will stay on the paper."



***Looking at and with mirrors and lenses of different shapes***

Tilting a shaped mirror (photo 1 below); one mirror above another (photo 3); magnified viewing effects (photo 4, 5)



***Looking with tubes and lenses at things far away outside***

The sighting tube with a lens on an end (photos 1-4) or the lens by itself (photo 5).



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