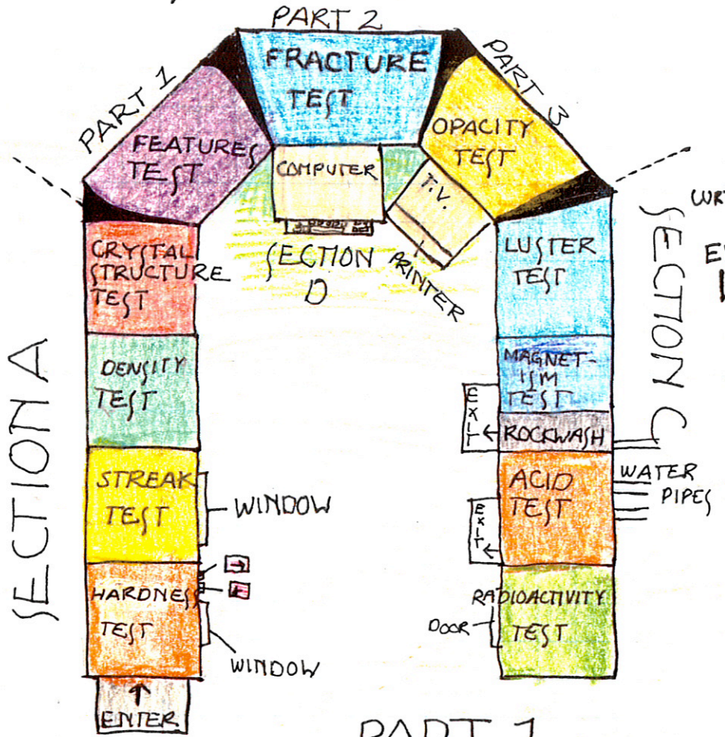
Rock and Mineral Machine

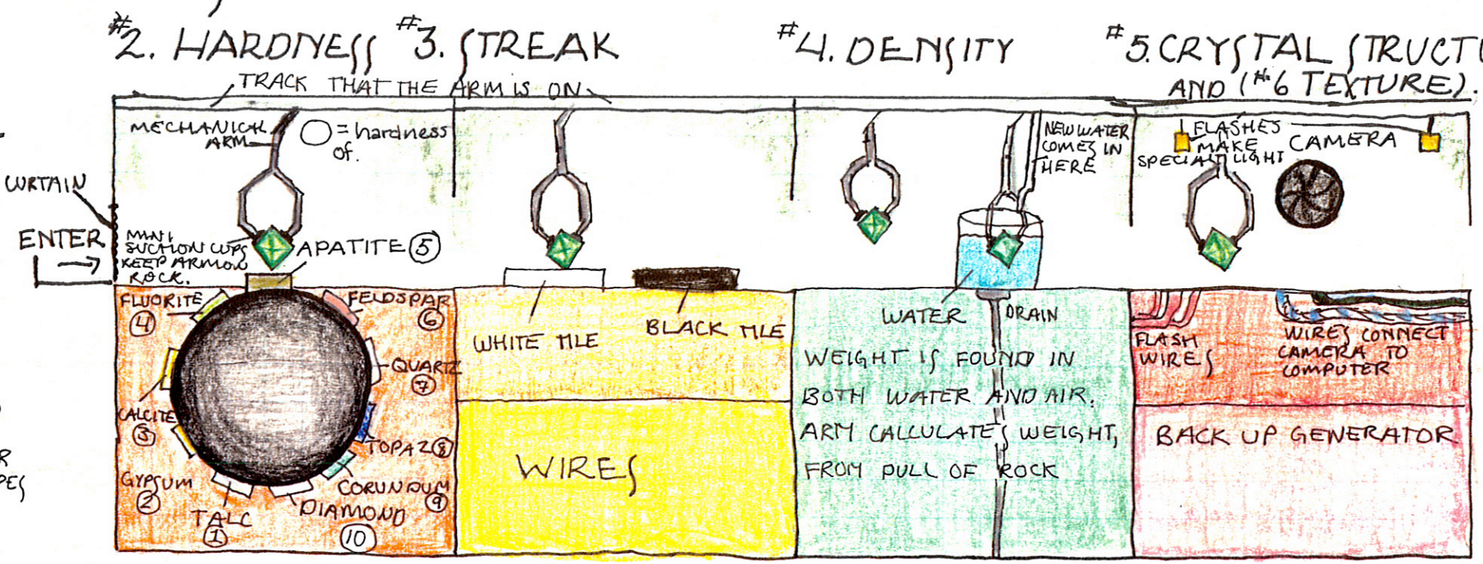
By Hannah

TOP VIEW:



CROSS SECTION

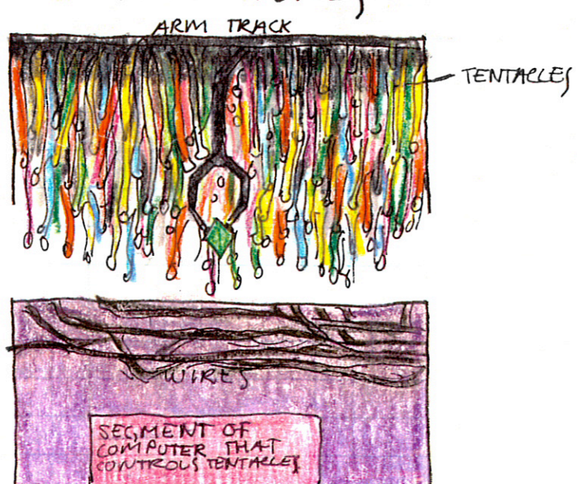
SECTION A — AUTOMATED ANALYSIS



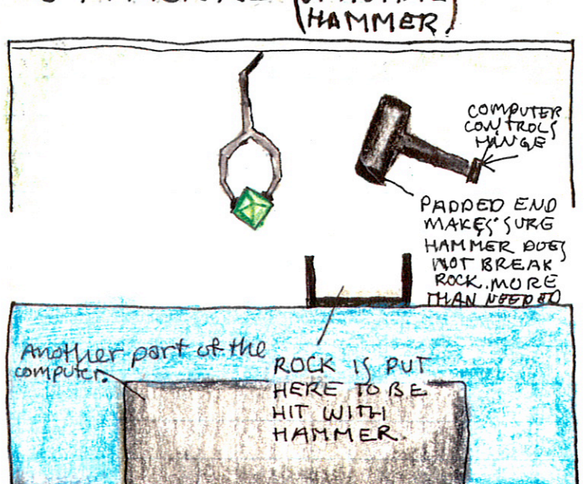
SECTION B (NOTICE DIFFERENT FLOOR LEVEL)

PART 1

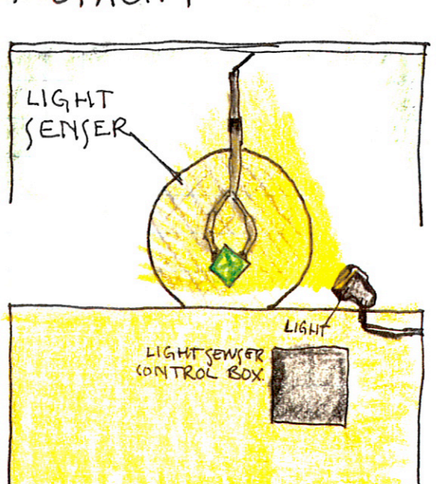
#7. FEATURES

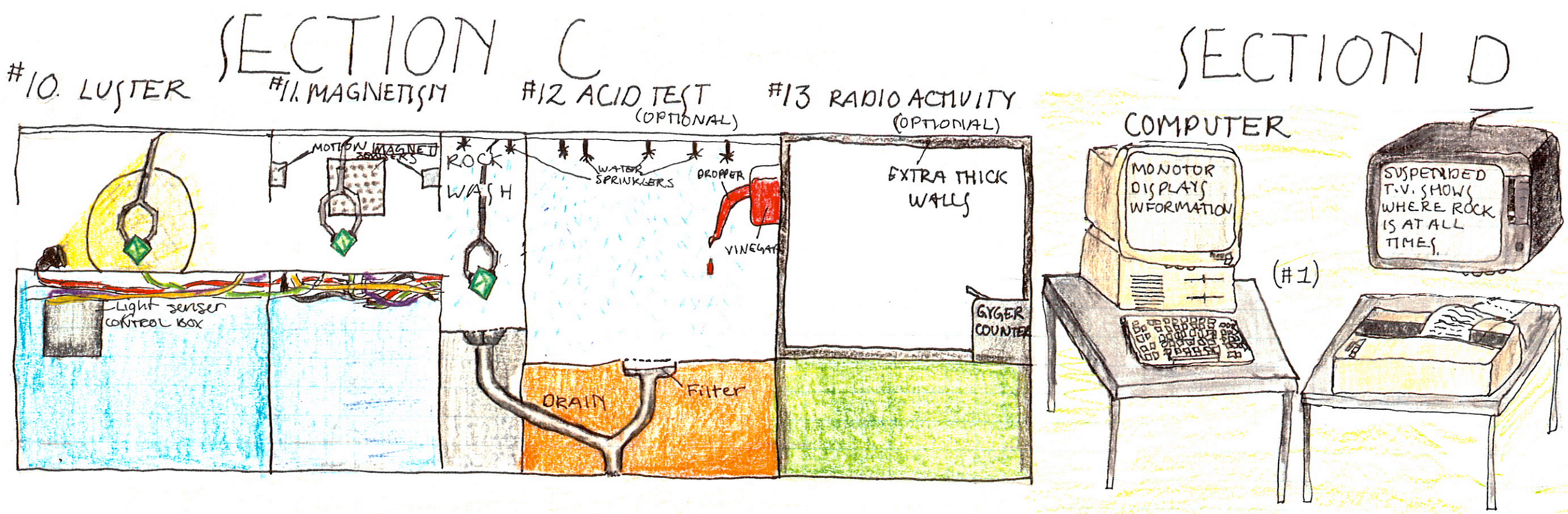


#8 FRACTURE (OPTIONAL HAMMER)



#9 OPACITY





To identify a rock you use the following precedure:

Let's say we take a sample rock that we allready know what is, such as a fluorite crystal. Now this is a green crystal, shaped a shown in the above drawings. To begin, we type the color (#1) of our rock into the computer. The screen shows us many colors of green and we pick the one closest to the color of our rock. Than we are shown many different shades of that color green, and we pick the one that is the color of the rock. Than we put the rock onto the 'enter' tray, where it is picked up by a mechanical arm, which will carry it through the entire machine (except for #13). The hardness (#2) is tested first. The arm scrapes the rock across a piece of apatite. You look through the window to see if the rock has scraped the apatite. If it has, you press the ➡ button so it will be scraped on feldspar, a harder mineral, but if it hasn't scratched the apatite you press the ⬅ button so your rock will be tested on the next softer rock sample, which happens to be fluorite. Since we allready know that our rock is fluorite, it has the hardness of the fluorite sample, which is '4'. Next the rock goes to the streak test (#3) where it is scratched across a black and a white tile, to see what color 'streak' (mark) it makes. The streak of our rock is white. This is entered into the computer, as in #1. Next the rock is tested for density or 'Specific Gravity' S.G (#4). This includes weighing the rock in and out of water. The figure is derived by the computer using a simple mathematical equation $\left(\frac{\text{weight in air}}{\text{weight in air} - \text{weight in water}}\right)$. Fluorite's SG is between 2.97 - 3.25. Next, to find crystal structure (#5) a camera photographs the rock in special light. The pictures are enhanced by the computer and the crystal structure is determined. The texture (#6) is found from the crystal structure. The fluorite is an igneous rock that cooled slowly, so the texture is smooth, because the crysta structure had time to line up well. After this, the rock is tested for features (#7), by computerized tentacles. The fluorite crystal has no special features. Next the fluorite is tested for fracture (#8). If you want, your rock can be hit by a hammer so it break on the fracture or 'cleavage' lines, but we are going to have the computer scan the crystal structure for weaknesses, or fracture lines. The fluorites shape is a rhombus. Next a strong light is shone on the rock to test opacity (#9), also called 'transparency'. A light senser picks up how much light is coming through the rock. The fluorite is 'translucent'. Now our rock is ready for the Luster (#10) test. A light is shone on the rock and a senser picks up how the light is being reflected back. The fluorite has a vitreous luster (resembling glass, but a little more dull). Next our rock is tested for magnetism (#11). A very strong magnet is switched on. Motion sensers sense any movement of our rock. The fluorite is not magnetic. If you don't want the acid test (we don't), your rock is washed in the rock wash and it exits. If the rock does go on to the acid test, a drop of vinegar is dropped on it. The rock is then washed and a screen in the drain picks up disolved rock (if there is any). this tells you if your rock is limestone or not. There is an exit from the acid test also. In the radioactivity test a gyger counter finds out if the rock is radioactive or not. This test is rarely used. After this a paper is printed with results from all the tests.