

## Math/Science Learning Unit 1~5

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There are five sessions of Math and Science related to the Chinese ancient architectures.

**Session 1** was about researching of Chinese Ancient Architecture and Tower Culture on math and science. For example, Euler's theorem was given. ( $V - E + F = 2$ ,  $V$  = the number of Vertex,  $E$  = the number of Edge,  $F$  = the number of Plane) This session was spoken in Chinese because the teacher couldn't speak English well, so we couldn't understand what the teacher said. Such being the case, I can't comment about this session.

**Session 3** was Research into the Project of "Cube". Chinese ancient architectures have three characteristics. First, they have a base of marble. Second, their timber pillars can move freely. (seismically isolated structure) Third, their beams can move easily. Then, we made cubes which made by only a piece of paper (paper's size: A4, 210mm×297mm). The durability of cube was evaluated at an expression,  $T \times L^3$ .  $T$  is the weight on the cube and  $L$  is length of edges of cube. Our group's strategy was decided that the length of edges of cube should be as long as possible. Thus, we made a cube with the long length of 66 mm. I thought that it was useful to make hexagon honeycomb structure, but the size of A4 paper was not enough to make it. So we set five pillars by paper rolled up into the cube. As the result, our cube withstood against  $F = 4.5$  kg, so our result of  $T \times L^3$  was 1,293,732.

**Session 5** was about Center of gravity theory etc. This session was explained in Chinese as the session 1 and had many mathematic problems which were represented by triangle. I am so vexing that I couldn't understand well.

**Sessions 2 and 4** were explained in Chinese with no materials in English. I couldn't understand completely, so I have nothing to write.

**Generalization:** This program is INTERCITY Mathematics & Science Summer Camp, but quite a few classes were in Chinese, which is vexing point. I think that these sessions should be explained in English not in Chinese because Japanese students and some from Singapore can't understand Chinese. I wanted to listen these sessions in English.