Teacher's guide

Hi teachers, welcome to this class! This lesson is about how to measure the height of the objects in our lives.

In the first segment, we introduced the topic through a situation in our lives: How to measure the height of the objects around us. Also, we talked about Pythagorean Theorem and the history of it and then raised the question of how to measure the height of bamboo.

In the second segment, we first gave the answer to the last question: how to measure the height of bamboo. The main teaching goal here is to recall the knowledge of Pythagorean Theorem so that we could use it to solve the problems in the following segments.

The challenge of the third segment is to build a model and a equation by Pythagorean Theorem. Teachers can give some hints to the students if needed : a right triangle can be built by the flag pole and the rope. In addition, we can build two right triangles which have the same length of the their hypotenuse, for the length of the rope remains unchanged, to solve this problem.

In the fourth segment, we used the knowledge of similar triangles to solve the problem and then a protractor is introduced which can be used to measure both the height and the angle. Before this class, teachers could teach students how to make a protractor. A video tutorial of making a protractor is also attached to this lesson.

The sixth segment is very challenging, teachers should guide the students to understand the working principles of a protractor and lead them to analyze which measurements can be made directly and which measurements need to be calculated so that we could develop a solution.

In this class, students can be divided into groups of four and collaborate with each other. Each group comes out with their own solution first and then discuss it with other groups. Since this class has so much content, it might be better to teach it in two lessons. In the first lesson, students focus on making proposals for the activities by using their mathematical knowledge. In the second lesson, each group will do the actual measurements, and then discuss their solutions with other groups about their results and what they can do to improve the current solutions.

 Also, teachers can guide the students to reduce errors by doing multiple measurements and calculating average values. Of course, we can study the strength and weakness each solution and try to improve it or even come out with new ones.

Again, thanks for your listening and if you have any suggestions or comments,

please contact me by the email: liangfei.ya@163.com. At last, I hope you could have a chance to visit Chongqing some day and I'm here waiting for you!