

## Triangle Table Problem: Over View

Teacher poses a problem:

Mr. Cheng just received new tables for his classroom, and they are triangular shaped. He wants our help to figure out how many tables he needs to fit the amount of students he has. His room is very long and narrow, so the tables can only be placed in a row.

Teacher puts up triangle and shows that only 3 seats can fit around it. 3 tables are displayed to show that 9 seats can fit around them all. But what happens when you put the tables together? You can only fit 5 seats around it.

Manipulatives are passed out. Have students try the same problem on their own to see if they get the same answer.

Teacher: What if I had 10 tables? How many seats would fit?

Students come to board to show how many fit and how they counted each seat.

Have different ways to count the seats pointed out by students. (Write these up on chart paper.)

Pass out student problem strips. Each student receives one problem. Strips are organized where the number of triangles is no higher than 20, and at least two groups will have the same numbers to check for classroom understanding.

Students are to figure out how many seats will fit around their given number of tables. They are to use the manipulatives to discover this.

Then as a group, they are to compare answers and try to figure out a way to record what they have discovered. One person will be the recorder and they all have to agree on their findings before it gets put onto their "Community" chart paper. Students are to put their strips on the chart paper and they have to arrange them in a way that helps explain their pattern.

Teacher: What patterns do they see? Students will write this on the bottom of their paper.

A group representative (reporter) will come to the board and give their findings. Only two groups will be chosen (one group per set of numbers).

Begin to discuss the patterns they see. (Write this on a separate chart paper.)

Teacher: Which pattern would most easily help me solve the problem about how many seats can I fit around a certain number of tables?

Check on hypothesis by putting the strips in numerical order, does this pattern work? Do they see the +2?

Teacher: Does the class agree with the findings? Does the rule apply?

Then go back to the original problem: (Hatsumon)

(How does the pattern help you solve the Hatsumon?)

Mr. Cheng have 30 students.... How many tables will he need to set up so each student has a seat? How did they figure that out?

If time, as a challenge- what if He had 35 students? 50? Etc.