Gnomes and Gnumbers: A Mathematical Tale

Lesson One

Once upon a time, in the deepest, darkest recesses of the earth, there lived a clan of four greedy gnomes. The first was as blue as a crisp, clear sky. The second was the shade of a red apple in autumn. The third was as yellow as the sun and the fourth was greener than a blade of grass.

Now gnomes are a curious folk. Burrowing deep in the ground, they build hidden cities that guard the treasures of the earth. Of course you already knew that, but these gnomes were particularly curious folk. Not content to work with their fellow earth-dwellers, they wanted to make a name for themselves and build up a treasure greater than any the world had ever known. So these four miserly gnomes dug and burrowed and tunneled until they reached the middle of the earth where they believed their treasure would remain protected.

Days and weeks and months went by and the four gnomes came to realize that they had nothing to do but count and sort their mounds and mounds of jewels all the day long. It wasn't long before the gnomes began arguing among themselves about the true owner of the treasure.

"It is all mine!" squeaked the small yellow gnome as he scooped great piles of rainbow-colored gems toward himself. "I am the one who found the way to the middle of the earth. The jewels belong to me."

After many days of bickering and quarreling, each of the four gnomes had clearly argued their reason for being the rightful owner of the treasure. Finally, the red gnome offered a solution.

"Perhaps if we divide the gems evenly among ourselves..." he timidly suggested. (Having kept some of his wits about him, he realized that the only way for peace and quiet to return to their cavernous home was to share the treasure equally.)

"But how shall we know if we have divided the treasure evenly?" asked the green gnome.

The gnomes fell silent, each trying to think of a way to be absolutely certain that their pile was equal to the piles of the other gnomes.

After what seemed like hours upon hours, the yellow gnome suggested that they take a trip back up through the winding tunnels to the surface of the earth in search of someone with wisdom who could solve their problem. The others reluctantly agreed and soon they were on their way.

The gnomes made their way through a tunnel which led to a secret hollow in a magnificent, ancient tree. Climbing out of the hollow, they tripped over the gnarled feet of the tree and looked around hoping to find someone to direct them to the dwelling place of a wise one who would offer a solution to their problem. Suddenly a sparkle of brilliant color caught the eye of the green gnome.

"What is that?" he asked in a whisper.

The gnomes turned and together discovered a pile of the most beautiful gemstones.

"They are mine!" shouted the green gnome. "I spotted them first!"

Before he had a chance to dive upon the pile of gems, the red gnome held up his wee hand and interrupted. "Let us use sticks to count how many gems there are and then we shall share them. Surely this is a great treasure which we must carefully guard." Then reaching up to the tree above him, he pulled down on a branch and snapped it off.

"Huuuummmphh!"

"What was that?" asked the blue gnome.

The other gnomes ignored the deep and unusual sound and went about their work of counting.

After spreading the gems on the ground, the gnomes laid down the branch next to the first stone. And when they added a second gem they broke the branch in two. For the third stone they broke one of the two branches again and saw that they had three stones and three sticks. Then a fourth gem was moved but the sticks were becoming hard to keep track of and they stopped to find a solution.

"Let us use two of the pieces of the branch to make the shape of the Letter V. That looks like the "V" between our thumb and other fingers when we hold up our hand. That will help us to remember the number five" suggested one of the gnomes.

Placing one of the leftover sticks before the V-shaped pair, the gnomes counted four.

"One before five is four."

The gnomes continued to count the gems in this way. The V-shaped formation showed five and then adding a stick after it made six.

"One after five is six." The gnomes were rather pleased with themselves.

Pulling a seventh gem from the group, they decided to break the single stick in half to make seven. One of those was broken again to make eight.

"This is getting confusing again," sighed the red gnome. "What can we do to count so many gemstones?

"I know," boasted the greedy yellow gnome. "Let's cross two sticks together, like our arms crossed in front of our chest. This will remind us that the gems are all mine!"

The other three were not happy with his solution, but not being able to come up with a better one, they agreed. It was true, when both hands are crossed together they counted ten fingers. The sticks in the shape of a V were rearranged to form an X.

"One before ten is nine" said the yellow gnome.

Again the gnomes continued moving the gems and counting. The X-shaped sticks by themselves represented ten gems and then one more was added in front of it.

"One after ten is eleven. And two after ten is twelve."

The gnomes were tired and sat down to rest.

"We have so many more gems to count. We will most definitely need another branch" announced the yellow gnome.

And just as he raised his arm to grab the nearest branch..."Huuuummmphh!" An enormous woody hand swooped down and scooped him up high above the green ceiling of the forest.