

Generalizing with Evens and Odds

- Ⓜ What happens when you add an odd number and an even number? Is the result even or odd? Make a conjecture that shows what you found. How do you know your conjecture is true? Will it always work?
- Ⓜ What happens when you add three odd numbers? Four odd numbers? Suppose I told you I was going to add a lot of odd numbers together but I didn't tell you how many. What could you say about whether my result would be odd or even? How do you know your conjecture is true? Will it always work?
(You can repeat these questions for even numbers.)

Extensions:

- Ⓜ What happens if you change the operation to subtraction? Do the same results hold? (Note that this can involve negative numbers!)
- Ⓜ What happens if you change the operation to multiplication? Do the same results hold?

Figure 2-5 *Generalizing with evens and odds*

when you add three odd numbers together, you end up with an odd number.”

I looked around the room and everyone was in agreement with Marla's answer. I then wrote on the board:

$$1,895 + 1,987 + 2,073 + 5,999$$

I wanted to see if my class had made the generalization with this activity. Could they make the determination for larger numbers just as easily as they could for the smaller numbers? I then asked, “Without calculating these numbers, can anyone tell me if this set of numbers added together would end up being odd or even and why?” “Even,” Gail said. “It is even because there are four numbers and that is an even amount of odd numbers so it's even.”

I then asked if they would be willing to make this into a conjecture that we could all agree on. “Once we all agree on the wording, we will hang it up with our first conjecture from last week,” I said. Travis raised his hand. He stated, “When you add an odd amount of odd numbers, you will get an odd number. When you add an even amount of odd numbers you will get an even number.” I wrote this conjecture on the board.