## **Coloring Remainders Exploration Questions**

Pascal's Triangle is very interesting from a number pattern point of view. We've already seen the interesting 2-color patterns from <u>coloring multiples</u> of numbers. Now we are going to look at remainders.

- 1 4 6 4 1 Q Q Q Q R R R 0 R R ÷2 ÷3 ÷4 ÷5 ÷6 ÷7
- 1. Find the quotients and remainders when each number in row 4 of <u>Pascal's triangle</u> is divided by 2, 3, 4, 5, 6, and 7, filling in the table below:

What happens when we divide by numbers larger than the largest number in the row in general?

2. Now try coloring <u>Pascal's Triangle</u> on paper, using 3 as the divisor. Color all remainders 0 one color, remainders 1 another color, and remainders 2 a third color.

3. Use the <u>Coloring Remainders Activity</u> to explore other patterns. Try at least three different numbers. Do you see a general pattern? Can you describe how each number you try relates to the pattern for that number?

4. How do these patterns compare to the ones you found with the <u>Coloring Multiples</u> <u>Activity</u>?