Bunnies! An Exploration of the Fibonacci Sequence   NAMES:

You have been given a bag of poker chips (or get 20 of two different colors of poker chips or coins). You will use them to explore the following problem.

Begin with a pair of newborn rabbits, a boy and a girl. Suppose that when a pair of rabbits is two months old, they begin to produce a new pair of rabbits each month. Each new pair of rabbits is made up of one boy and one girl, who, after reaching the ripe-old age of two months starts having babies of their own. If no rabbits die, how many pairs of rabbits will there be after three months? After five months? After seven months?

We will explore this together. You should place adult rabbits on the far left of your rows, keeping babies to the right. This will help you see the Fibonacci sequence better. Also, when asked to draw, make your shapes slightly smaller than a dime.

1. Designate one color of poker chips to represent adult rabbits and one color to represent baby rabbits. Lay out on the table (giving yourself plenty of room to the right and bottom to grow) one poker chip to represent one pair of baby rabbits. Draw the poker chip on the space provided on the next page. Please fill in the key at the bottom of your drawing.

2. After two months, that pair of rabbits are adults but has not had any babies yet. On the table, below your original pair of rabbits, place one poker chip of the other color to denote that there is one pair of adult rabbits now. Draw the poker chips on the space provided on the next page.

3. After three months, how many pairs of rabbits are there? Well, the original pair of rabbits are still there, and they give birth to a pair of baby rabbits. So place poker chips in a third row to denote that. Draw the poker chips on the space provided on the next page.

4. After four months, how many pairs of rabbits are there? Well, the original pair of rabbits are still there, and their babies are now adults. So place poker chips in a fourth row to denote that. Also, the original pair has a pair of babies so place an appropriately colored chip to represent that. Draw the poker chips on the space provided on the next page.

5. After five months, how many pairs of rabbits are there? Well, the two adult pairs from last month are still there, and the babies are now adults. So place poker chips in a fifth row to denote that. Also, each of the first two pairs of rabbits has a pair of babies so place appropriately colored chips to represent that. Draw the poker chips on the space provided on the next page.

6. Continue in this fashion with your poker chips to finish out seven months. Draw the poker chips on the space provided.

Month 1	
Month 2	
Month 3	
Month 4	
Month 5	
Month 6	
Month 7	
Key: (denote adult and baby rabbits)	

7. You have run out of poker chips, but continue the drawing for two more months.

Month 8	
Month 9	

8. The Fibonacci sequence quickly gets out of hand because of the way each term is found. Fill in the table with the number of pairs of rabbits we have found. Also, continue beyond our data to complete the table.

Month	Number of Pairs		Month	Number of Pairs		Month	Number of Pairs
1			6			11	
2			7			12	
3			8			13	
4			9			14	
5			10			15	