Name $\qquad$
Berkeley Math Circle- Upper
Exponentials in Biology: Part 2

1. If a DNA strand is 2 units long, how many nucleotide sequences are possible?
2. If a DNA strand is 3 units long, how many nucleotide sequences are possible?
3. A DNA strand is 2 units long, how many nucleotide sequences are possible if...
a. There are only 2 types of nucleotide bases
b. There are only 3 types of nucleotide bases
4. A DNA strand is 6 units long, but only utilizes 3 types of nucleotide bases. How many nucleotide sequences are possible?
5. A DNA strand is 16 units long. However, the bases of units $8-16$, inclusive, are fixed (if the base is yellow, it must remain yellow). How many nucleotide sequences are possible?

6. A certain DNA strand is 8 units long. As a young math and biology enthusiast, Timmy discovers that this DNA strand has 5 possible bases in units 6-8, inclusive. How many nucleotide sequences of this DNA strand are possible?

