Baby Dice Island

In this experiment you roll dice to model population growth on Baby Dice Island. Each die represents a living organism, capable of reproducing. You will start out with an initial population equal to the number of dice you have at your table. Every time you roll a three or 6, this represents the birth of an offspring, adding an individual to your population. Each time a 1 is rolled, a death occurs, decreasing your initial population by 1. After all the dice for the initial population have been rolled (representing 1 year). You will determine your final population for that year, by adding the number of births, and subtracting the number of deaths. You will be rolling your dice over a number of years, adding births and subtracting deaths from your initial population, until your populations reaches 500 individuals.

Each person of the 3 person lab group should perform one of the following roles. The roles must be changed each day that this lab is performed.

* Dice roller - rolls dice
* Death tracker - keeps track of all deaths in each year.
* Birth tracker - keeps track of all births in each year.

Procedures

1. Dice roller - put all dice in cup and roll dice onto table.
2. Death tracker - remove and count all the 1's. A 1 represents a death and must be subtracted from the initial population. Record the number of deaths on tally sheet.
3. Birth tracker - Determine the number of 3's and 6's that appear. This number corresponds to births and will be added to your population. Record the number of births on a tally sheet. Each person is responsible for completing a data table.
4. Continue each year, rolling the amount of dice equal to the amount of your population. For example, if your final population for year 1 is 26, you will need to the dice a total of 26 times for that year.
5. Repeat until your population reaches at least 500.

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| Data Table For Exponential Growth Lab |
| Year | Initial Population | Births | Deaths | Change | Final Population |
| 1 | 3 |  |  |  |  |
| 2 |  |  |  |  |  |
| 3 |  |  |  |  |  |
| 4 |  |  |  |  |  |
| 5 |  |  |  |  |  |
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| 27 |  |  |  |  |  |
| 28 |  |  |  |  |  |
| 29 |  |  |  |  |  |
| 30 |  |  |  |  |  |
| 31 |  |  |  |  |  |
| 32 |  |  |  |  |  |
| 33 |  |  |  |  |  |
| 34 |  |  |  |  |  |
| 35 |  |  |  |  |  |

Anaylsis

1. How many years did it take to reach a population of 100? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. After you reached a population of 100, how long did itn take you to reach a population of 200?\_\_\_\_\_\_\_\_ 300?\_\_\_\_\_\_400?\_\_\_\_\_\_\_500?\_\_\_\_\_\_\_\_\_

3. Using this experiment, define exponential growth. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. Graph you data.