

Name_____ Date_____



Flu Transmission

STEM Sims

Lesson 1: How Does Influenza Spread Through a School?

Have you ever been sick? Have you ever had the flu? The flu is short for a virus called influenza. Many thousands of people die each year from the flu. The flu most often strikes during the winter months when people are inside more. Can you find out how the flu spreads? Grab a tissue and get ready for this activity.

Preparing for the Science

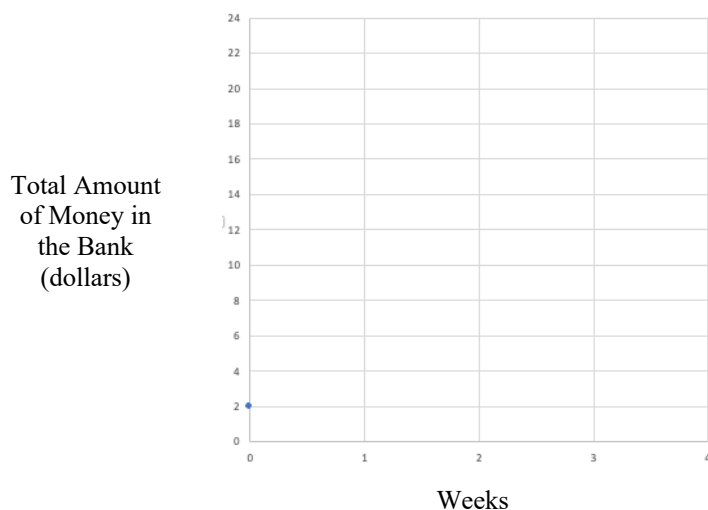
1. A person starts with \$2 in their bank account. Each week that person receives \$5 for completing chores around the house. Use this information to complete Table 1 below.

Table 1. Linear Growth Data

Time	Money earned	Total Money in their bank
Start	0	\$2
End of Week 1		
End of Week 2		
End of Week 3		
End of Week 4		

- Q.A.** The previous example is of linear growth. Each week the person's bank account increased by the same amount. How much did the person's account increase by each week?

2. Plot Table 1 data to create a graph of total amount of money in the bank versus number of weeks.



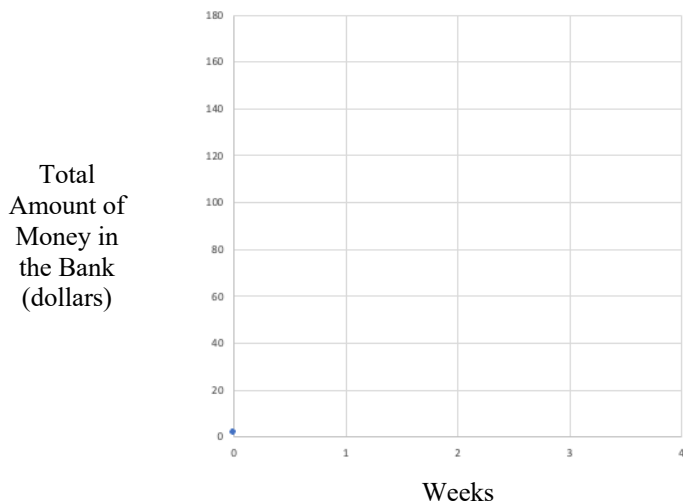
3. A different person also starts with \$2 in the bank. However, each week this person has the total money in the bank doubled. To double something means to multiply the number by 2. Use this information to complete Table 2 below.

Table 2. Exponential Growth Data

Time	Money Earned	Total Money in their Bank
Start	0	\$2
End of Week 1		
End of Week 2		
End of Week 3		
End of Week 4		

- Q.B.** The previous example is of exponential growth. Did the person's total bank account increase by the same amount each week?

- Plot Table 2 data to create a graph of total amount of money in the bank versus number of weeks.



Doing the Science





- Start the Flu Transmission Simulation. 
- Select the "None"  button under the Factor menu on the left-bottom of the screen.
- Select the "Run"  button at the bottom center of the screen.
- Note the Progress  bar, which shows time running for a six-week period.
- Select the "1" icon on the Progress bar.
- Count and record in Table 3 below the number of infected students at the end of the first week of the flu outbreak.

Table 3. Infection Rates

Week	Infected	Uninfected	Week	Infected	Uninfected
1			4		
2			5		
3			6		

7. Select the "2" icon on the Progress bar.
8. Count and record in Table 3 the number of infected students at the end of the second week of the flu outbreak.
9. Repeat this process until you have counted and recorded data for all six weeks.

What Do You Understand?

1. In Part I, by how much did the person's total bank account increase each week?
2. In Part II, by how much did the person's total bank account increase each week?
3. Describe how the two graphs for Parts I and II of this lesson were alike and how they were different.
4. As time progressed, how did the number of students who were infected by the flu change?
5. Provide a possible reason for your answer to the previous question.

6. Is the spread of flu more like linear growth or exponential growth? Please support your response with evidence.

7. Coronavirus is another virus that spreads in a similar way as the flu. Why do experts say people should social distance to avoid the coronavirus?