

Activity 10 Growth Trends

Teacher's Guide

Health officials often need to predict future trends and growth in disease and illness. Data can be collected and simulations run that assist them. However, to predict accurately, they must find an appropriate mathematical model.

In this activity, students simulate the spread of a disease and then analyze the data to find a mathematical model that will help predict future growth trends.

- Assign each student in the class a number.
- Using your graphing calculators random number generator, select a random integer between 1 and the number of students in class.
- Have the student whose number matches the random integer stand up. That student is the first infected.
- For each "day," the infected student(s) select a random integer indicating the next group of students to become infected. All newly infected students stand up. Record the total number of students infected at the end of each "day."

Note: A student cannot be "cured" and once infected remains so even if their number appears again.

- Continue this process until 7 days have elapsed.

| Day Number | Number of Students Infected |
|------------|-----------------------------|
| List: DAY | List: INFCT |
| 0 | 1 |
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |

- Enter the data for days 0 – 5 in the lists DAY and INFCT as indicated, and send the lists to the students along with the LearningCheck™ Creator file or provide the data to the students so that they can create the lists. Days 6 and 7 will be used for predicting.

Note: Although there will be variations in general, the data should increase steeply then begin to slow down and possibly level out.