

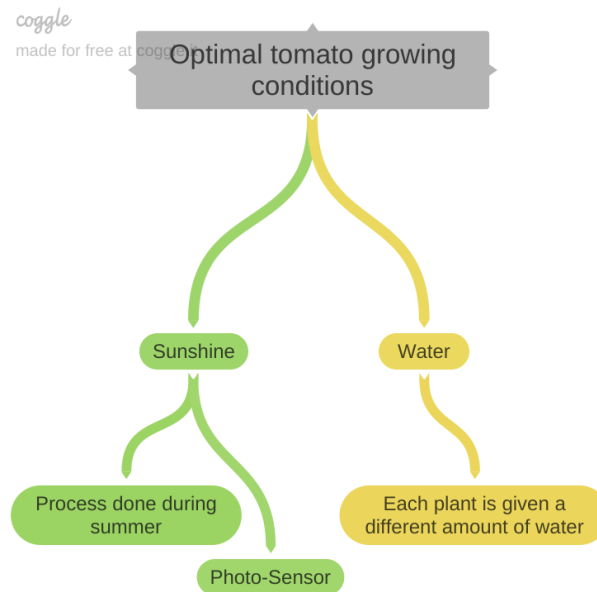
## 1: Concise Writing 1

### 1 Using the delete button

- a) Scientists use the knowledge of the orbits of stars around the center of the galaxy to calculate the mass of the object at its center. The calculated mass is so large as to be deduced as a black hole.
- b) Epidemiologists use the reproduction parameter, or  $R_0$ , which is the number of infections caused by one newly infected person.
- c) According to Newton's Laws of motion, things that have different masses and shapes would still accelerate downward at the same rate when dropped.

### 2 Creating an outline

- Ten tomato seedlings are obtained ^
- A patch in the garden is reserved with space for all ten ^
- A photo-sensor can be used to determine the light level at each spot in the patch ^
- Each tomato plant is given a different amount of water per day ^
- This whole process is done during the summer when the amount of sunshine is maximized



An experiment is run to determine the optimal growing conditions of tomato plants. Ten tomato seedlings are obtained and a patch of the garden is reserved for the plants. To maximize the amount of sunshine received, this is done in summer, and a special photo sensor is used to determine the level of sunlight at each spot in the patch. To determine optimal watering level, each plant is given a different amount of water per day.

## 2: Concise Writing 2

### 1 *Hierarchy of detail and outlines*

## 3: Technical Description 1

### 1 *Removing ambiguous words*

- When born, the baby was 6 pounds in weight and 21 inches in length. ^
- The baby grew at a rate of 0.5 inches a month, by the time she was 1 year old, she was 27 inches tall. ^
- Radio transmission between the Earth and the Moon took 9 hours. ^
- A hiker walked the full 60 km trail in 4 days, making her average speed about 3 kilometers per hour.

### 2 *Spatial and temporal detail, perspective*

## 4: Technical Description 2

### 1 *Convert to passive voice*

The acceleration due to Earth's gravity,  $G$  was measured using a pendulum. First, the pendulum was measured and its length was 20 cm. Second, the pendulum was hung straight down and the bob was displaced 5 cm to the right. The pendulum was released and the amount of times it returned to the same position as it swung was recorded for one minute. The pendulum returned to its original position every 0.90 seconds. When this result was inserted into the formula predicted by Newton's laws, the result for  $G$  was  $9.81 \text{ m/s}^2$ .

### 2 *Rearrange the sentences to have the proper hierarchy of detail*

The average horizontal distance bacteria travel after a person sneezes was measured. First, a sample of 20 infected people was gathered. The height of each subject was required to be within 6 inches of 5 feet 6 inches tall. Second, petri dishes were arranged in 0.5 meter intervals out to 10.0 meters on the floor in front of the subject. Third, once each subject felt the urge to sneeze, the subject was required to aim the sneeze down the line without covering their mouth. Fourth, bacterial colonies were allowed to grow in the dishes for one week under ideal conditions. The trials were conducted in a room with no air conditioning, and therefore no air flow. The category of dishes with the largest colonies were the ones corresponding to 8.0 meters. The results show that when a person sneezes, it is possible to spread infection to someone who happens to be 8.0 meters away. These results inform the epidemiology of spreading bacteria.

### 3 *Rearrange the sentences to have the proper hierarchy of detail, and convert to passive voice. Remove ambiguous words, and make the writing more concise*

The coefficient of friction of an eraser was measured. An eraser was placed on a meter stick that was on a table. The angle between the meter stick and the table was increased gradually.

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Each time, the angle was measured with a protractor. This continued until the eraser slid off the meter stick. The tangent of this angle was then measured many times. Using a diagram of the forces, it was shown that the tangent of the angle is the friction coefficient. The average friction coefficient was determined to be 0.095. The standard deviation of the coefficient was 0.05. A future idea for an experiment is to change the temperature of the eraser and determine if the friction coefficient depends on temperature.