

## "Where in the World is Moneran Santiago?"

Your team's assignment is to initiate an all out sleuth hunt for Moneran Santiago. Moneran has been known to cause such ailments as typhoid, botulism, pneumonia and syphilis (she is known for her promiscuity!!) Moneran has also been associated with good things like fine cheese and yogurt. She has also been known to contribute to the decay of ecological society (decomposer).

Moneran is a very clever organism. She avoids simple visual detection. If a top notch crime team pulls together they can capture Moneran in a "Moneran trap" called a nutrient agar Petri dish.

Moneran is trapped by carefully swabbing, with a sterile damp Q-tip, any surface where Moneran might be lurking and swabbing it across a quadrant of the agar plate or touching an object gently to a quadrant of the agar plate. Keep a record in your notebook of where you swabbed for each quadrant (See last page of this lab for specific instructions). Moneran has been known to be attracted to such unsavory places as toilet seats, water fountains and door knobs where she can take advantage of her unsuspecting victims. The nutrient agar plate must be placed upside down, under lock and key, in a warm place. After 2-3 days Moneran can't remain hidden and will appear on the plate.

### Crime Wrap-Up

When Moneran shows up in her trap then you must finish your crime report. This is done by carefully describing Moneran's appearance with regards to color, size and shape. Moneran has many disguises, therefore, the crime report must contain the area where you think she was found, the total number of sightings (# of colonies) and the type of disguise. Be careful, she has also been easily confused with her distant yet different cousin Fungal Santiago. In your report indicate how many fake Monerans you trapped and how you uncovered their true identity.

Be creative in your crime report on Moneran Santiago. Make certain that you include all of the data indicated above and correctly answer the questions that follow.

Materials you will have in the crime lab:

1-nutrient agar plate	grease pencil
1-sterile cotton swab	tape
sterile water	incubator

GOOD LUCK AND REMEMBER WE ARE COUNTING ON YOU TO EXPOSE MONERAN FOR THE GERM THAT SHE IS!!!

1. Use a sterile swab to collect bacteria and make a streak plate.
2. Keep the dish *closed* as much as possible, except when actually touching the swab to a section of the agar. This will keep air-borne bacteria from landing on the agar.
3. Touching a contaminated object to the sterile agar is referred to as **inoculation**.
4. The petri dishes must be incubated *upside down* so that condensation will collect in the larger lid and not on the surface of the agar.
5. The petri dishes will be stored for several days at **human body temperature** (37°C) in an incubator and then returned to you to observe.
6. Once returned, *do not open the dish as it may contain harmful organisms in large numbers!* Recall that a colony will grow from each bacterium that lands on the agar, so the number of colonies that result from the inoculations will indicate how many bacteria were on the original object! Also recall that different types of bacteria produce colonies that differ in appearance (color, size, texture, shape). It is common to inoculate several types of bacteria by touching one object to the agar.
7. **Be sure to take a picture** of the bacterial growth when the plate is returned to you. This should be included in your lab report. Include both qualitative and quantitative data.

**Part II - Be sure to answer these questions within the body of your crime report!**

1. After your experience in sleuthing Moneran Sandiago, how would you respond to a co-worker who says "I do not see Monerans, so there must not be that many hanging around" ?
2. Based on the class results what would be your advice to a sleuther who wanted to know the best place at school to trap Moneran Sandiago (bacteria)?
3. Based on your knowledge of bacteria specify what 3 other places you might sample if you were sleuthing in your home or neighborhood for a crime team trying to find the most bacteria?
4. If you were Moneran hunting in a hospital instead of our school building, with what other three illnesses might you find Moneran Sandiago associated?
5. How did you distinguish between Moneran and Fungal Sandiago on your agar plate?
6. Were the techniques used in this activity sufficient to identify specific bacteria?
7. If your next assignment were to identify a particular Moneran, what techniques might you use?  
Include those used here as well as additional techniques (it may take additional sleuthing to answer this question).