

SI Microbiology - Full Discipline Demo

Hand Washing and Normal Flora

Final Report - Answer Guide

Institution	Science Interactive University
Session	SI Microbiology - Full Discipline Demo
Course	SI Microbiology - Full Discipline Demo
Instructor	Sales SI Demo

Test Your Knowledge

Categorize each statement as true or false

True	False
1	2

Correct answers:

1

Gloves both protect the hands from exposure to microorganisms and prevent contamination of pure cultures by normal flora on the skin.

Normal flora describes the microorganisms that reside on the skin and mucus membranes of the human body without causing disease in healthy individuals.

2

Transient flora is most commonly acquired by inhalation.

Nitrile gloves may be reused for multiple experiments.

Order the steps for proper hand washing technique.

≡ Apply soap to wet hands.

1 **Correct answer:** Wet hands with clean, running water.

≡ Rub lather over hands for at least 20 seconds.

2 **Correct answer:** Apply soap to wet hands.

≡ Create lather by rubbing the soap between the hands.

3 **Correct answer:** Create lather by rubbing the soap between the hands.

≡ Dry hands with a clean towel or an air dryer.

4 **Correct answer:** Rub lather over hands for at least 20 seconds.

≡ Rinse soapy hands under clean, running water.

5 **Correct answer:** Rinse soapy hands under clean, running water.

≡ Wet hands with clean, running water.

6 **Correct answer:** Dry hands with a clean towel or an air dryer.

Exploration

_____ flora microbes are established at a particular body location over a long time period ranging from months to years that help maintain the health of the host.

- ☐ Parasitic
- ☐ Pathogenic
- ☒ Resident
- ☐ Transient



The goal of hand washing is to kill all microorganisms on the hands.

☐ True

☐ False



Hands should be washed and dried both before and after wearing nitrile gloves.

☐ True

☐ False



Exercise 1

Which section(s) of the developed culture plate contained the highest abundance and diversity of microbes? Reference Data Table 1 and Photo 1 in your explanation.

0 Word(s)

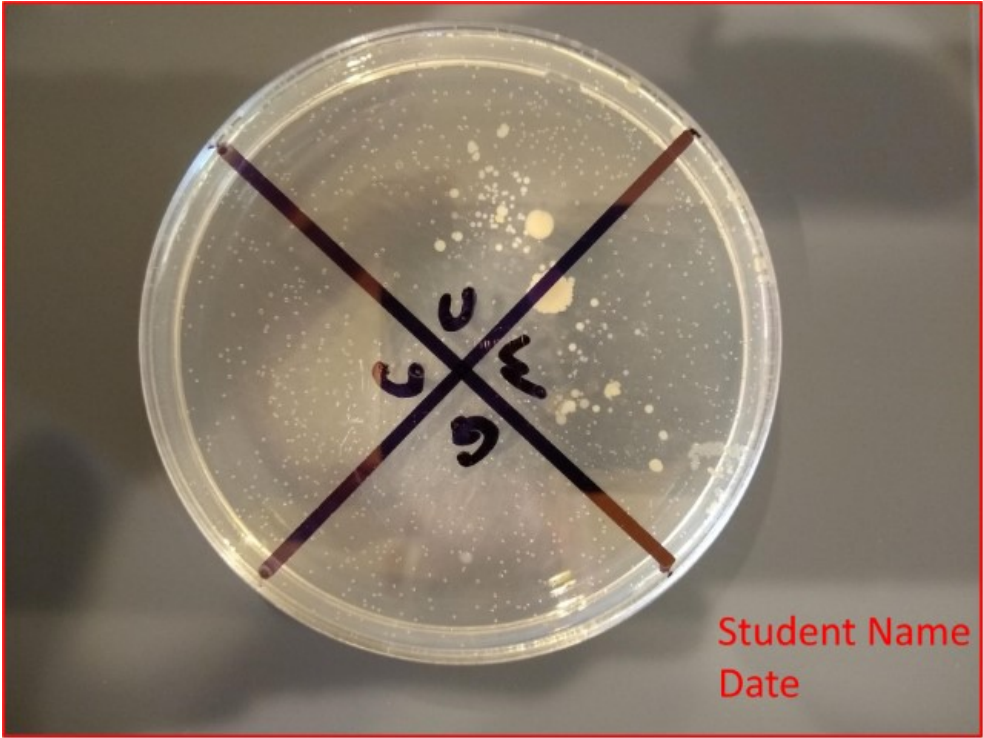
Were the microbes grown on the agar plate most likely resident or transient flora? Include the definitions of resident and transient flora in your explanation.

0 Word(s)

Do your results support the importance of hand washing and glove use in microbiology procedures? Reference Data Table 1 and Photo 1 in your explanation.

0 Word(s)

Photo 1: Microbe Growth from Fingertips
(SAMPLE ANSWER BELOW)



Data Table 1: TSA Plate Results
(SAMPLE ANSWER BELOW)

Plate	Abundance	Diversity	Morphologies
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Label			
U	Note to instructors: student results will vary but should match the the images they upload in Photo 1. Science Interactive results: 37	4	White, circular, umbonate, curled; white, circular, raised, entire; yellow, white, circular, umbonate, curled; white, circular, raised, entire
W	23	3	White, circular, unbonate, curled; white , circular, raised, entire; white, circular, raised, entire
G	1	1	White, circular, raised, entire
C	0	0	N/A

Competency Review

Normal flora of the human body includes ____.

- ☐ *Staphylococcus epidermidis*
- ☐ *Escherichia coli*
- ☐ transient bacteria species
- ☒ All of the above



Resident flora is less likely to be associated with disease than transient flora.

- ☒ True
- ☐ False



Routine hand washing removes resident flora which normally resides on the superficial skin layers.

- ☐ True
- ☒ False



Proper hand washing technique requires soapy hands to be rubbed together for ____ seconds.

- ☐ 5
- ☐ 10
- ☐ 15
- ☒ 20

✓

A new pair of nitrile gloves should be used for each laboratory exercise.

- ☒ True
- ☐ False

✓

Transient flora were transferred to an agar plate in the experimental procedures by ____ onto the agar surface.

- ☐ coughing
- ☐ sneezing
- ☒ pressing a fingertip
- ☐ rubbing a sterile swab

✓

Washed hands transfer greater numbers of microbes to agar than unwashed hands.

- ☐ True
- ☒ False

✓

Gloved hands transfer few or no microbes to agar when properly worn.

- ☒ True
- ☐ False

✓

Extension Questions

A student performed the procedures in this laboratory two times: first according to the written instructions and a second time without drying their hands after washing. Apply your knowledge of proper hand washing techniques and culturing microbes to predict how their results in each section from each time would differ. (SAMPLE ANSWER BELOW)

The agar plate from the second time using wet hands would be predicted to have more microbes growing in the W section of the agar plate because wet hands transfer more microbes than dry hands. The other sections of the plate (U, G, and C) would be predicted to have similar results to the first time.