

# Fomite transmission and microbes in the environment essay sample



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BUSTER**

## Fomite Transmission

1. Prepare two agar before the experiment.
  2. Divide the two petri dishes into four quadrants each, numbering 1 through 8
  3. Identify eight areas in the home that may be a source of fomite transmission, then form a hypothesis.
  4. With a moist swab of distilled water rub it on the first potential fomite.
  5. Inoculate quadrant #1 by swabbing the area, repeat for all the areas selected in the specific quadrants.
  6. Incubate upside down for 24-72 hours and evaluate the dish in each quadrant. Record data, and then disinfect the site.
- Microbes in the Environment

## Part I Microbes in the air

1. label the bottom of three prepared dishes, air, water and soil. Set aside soil and water for Part II and III.
2. Select a location and leave agar dish uncovered for 1-2 hours.
3. Close the dish and let sit for 24-72 in room temp.
4. Observe the dish and count the number of colonies, record.

## Part II Microbes in the Water

1. Take a water sample from the environment
2. Stir and mix bacteria, using a pipet, inoculate the dish labeled water. Use 4 drops then cover the dish and let sit for 30 minutes to ensure water soaks in.
3. Incubate for 24-72 hours
4. Observe the dish and count colonies record, clean the area and disinfect.

## Part III Microbes in the Soil

1. Take a soil sample from the environment
2. Stir and mix bacteria, using a pipet collect the water sitting on top of the

soil, inoculate the dish labeled soil. Use 4 drops then cover the dish and let sit for 30 minutes to ensure water soaks in.

3. Incubate for 24-72 hours

## Questions

### Fomite Transmission

1. What are the three elements required for the transmission for infectious diseases? A source of infecting microorganisms, a means of transmission for the microorganism, and a susceptible host

2. What is it meant by the term vertical transmission?

This type of transmission occurs when a pathogen is passed from mother to child across the placental barrier.

3. What is the difference between endogenous and exogenous infection?

Endogenous infections are infections caused by microorganisms that are already in the human body whereas exogenous infections are caused by microorganisms from the external environment

4. List three factors that contribute to the susceptibility of a potential host.

Compromised immune system, age of host, and stress

5. What is droplet transmission? It is a contact transmission. It is the transmission of infectious agents in droplets from respiratory secretions (coughing, sneezing, and coughing)

6. Define horizontal transmission and give examples of two types. It is one of the most common routes of transmission. It is the spread of organisms that

occur by contact transmission. Examples include transmission through kissing and transmission through vector.

7. What is fomite? An inanimate object that is capable of carrying infectious organisms

8. List ten potential fomite sites. Cutting boards, kitchen sponges, toothbrushes, door handles, faucet handles, shopping carts, phone, keyboard, ink pen, remote control

9. How can you prevent the spread of pathogens via fomite transmission? Getting educated on fomite transmission is a key to prevent the spread of pathogens. Also, disinfecting areas where fomites might be and washing hands frequently would help prevent them.

10. What type of growth did you observe in each of your chosen sites? Was it what you expected? Why or why not? All of the growths appeared about the same color. I expected some areas to have a large amount of growth like the remote control since it's often used and one doesn't think about washing their hands before touching it. I saw some have a few isolated colonies, while others it was more of a big blob. I wasn't too surprised by any of the growths.

#### Microbes in the Environment

1. List five environments in which you are likely to find microbial life? 2.

What is the difference between an autotroph and a heterotroph?

Heterotrophs derive energy from preexisting organic matter and

autotrophs derive energy from light or the oxidation of reduced molecules.

3. Define the following;

Photoautotroph; Use light as energy source and CO<sub>2</sub> as a carbon source

Photoheterotroph; Use light as energy source and reduced organic

compounds as a carbon source  
Chemoautotroph: Use inorganic chemicals as an energy source and CO<sub>2</sub> as a principle carbon source

Chemoheterotroph; Use organic compounds as an energy source as well as a principle carbon source

4. How plentiful are bacteria in water? In soil? The average generation time is one day and they comprise of one third of the water and soil.

5. What is nitrogen fixation? What role do microbes play? When bacteria are the only organism capable of removing N<sub>2</sub> gas from the atmosphere and fixing it into a usable nitrogen form (NH<sub>3</sub>)

6. How do microbes contribute to soil fertility? The microbes are a major contributor to the soil's fertility.

7. Describe what type of growth you observed in the air dish. 8. Describe the type of growth you observed in the soil dish. 9. Describe what type of growth you observed in the water dish.

10 Did you see the same or different types of microbes in each dish?

Different growth in some of the microbe dishes.

Conclusion

Microorganisms are everywhere - in the water, in the air, in the animal body,

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and so on. They can easily spread to the environment in which they prefer. There are different types of microorganisms growing on luria broth agar and nutrition agar under the same physicochemical conditions, for those two kinds of agar provided different nutrition. Tetracycline could suppress the growth of bacteria, but not do much to the fungi.