

2.11 Investigation

Observing the Effects of Antiseptics

Antiseptics act in many ways, all of which inhibit or prevent growth. Most wound-cleansing agents contain an antiseptic to prevent the infection of wounds, scrapes, or burns. Soap, alcohol, and mouthwash are used as antiseptics.

In this investigation, you will determine the effect of antiseptics on a bacterial culture. Your teacher will provide you with a selection of antiseptics (**Figure 1**) and a petri dish containing agar inoculated with a bacterial culture.



Figure 1

Question

How do different antiseptics affect bacterial growth?

Prediction

- Make a prediction about the effect of antiseptics on bacterial growth.

Experimental Design

- Design a controlled experiment to test your prediction. Include the following in your design:
 - descriptions of the independent, dependent, and controlled variables
 - a complete list of materials
 - a step-by-step description of the procedure
 - a list of safety precautions
 - a table to record your observations

Inquiry Skills

- | | | |
|---------------------------------------------|---------------------------------------------|------------------------------------------------|
| <input type="radio"/> Questioning | <input checked="" type="radio"/> Planning | <input checked="" type="radio"/> Analyzing |
| <input type="radio"/> Hypothesizing | <input checked="" type="radio"/> Conducting | <input checked="" type="radio"/> Evaluating |
| <input checked="" type="radio"/> Predicting | <input checked="" type="radio"/> Recording | <input checked="" type="radio"/> Communicating |

Procedure

- Submit the procedure, safety precautions, and observation table to your teacher for approval.
- Carry out the procedure.
- Write a report (see Appendix A4 for format). Include in your report ways to improve your design.

Analysis

- Answer the Question asked at the beginning of this investigation.
- Describe how different antiseptics affected bacterial growth. Which were the most effective? the least effective? Explain.

Evaluation

- Was your prediction correct? Explain.
- Describe any problems or difficulties in carrying out the procedure.
- If you were to repeat this experiment, what new factors would you investigate? Write a brief description of the new procedure.

Synthesis

- Predict what will happen if the experiment is repeated using a disinfectant.
- Were any of the statements or claims made on the product labels misleading? Explain your answer.

CAREER CONNECTION



Environmental health and safety technicians perform and/or supervise technical duties in the fields of industrial hygiene, safety engineering, environmental sanitation, fire-protection engineering, and/or radiological health. Research training programs in this field.



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