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Participant Activity Book

HANDS ON

Real-World Lessons for Middle School Classrooms

Name: _____

Age as of the current year: _____

County: _____

Club Name or School: _____

Instructor: _____

UT EXTENSION INSTITUTE OF AGRICULTURE THE UNIVERSITY OF TENNESSEE

Approved by GMA Science and Education Foundation

IFT feeding the minds that feed the world

4-H

Participant Activity Checklist

Welcome to *Hands On: Real-World Lessons for Middle School Classrooms*! These activities have been specifically designed for 4-H members with intermediate to advanced level skills. Upon completing this project, we hope you will further investigate additional Food Safety opportunities.

Double check with your county's project guidelines for completion requirements, if you plan on competing in county project judging or plan to prepare a fair exhibit.

Activities	Date Completed	Instructor's Initials
Activity 1 How Clean Are Your Hands?		
Bacterial Growth Experiment Set-Up		
Handwashing Log		
Activity 2 How Clean Are Your Hands, REALLY?		
Bacterial Growth Experiment Observations		
Generating a Researchable Question		
Activity 3 What's Growing on Me?		
R.A.F.T.		
Activity 4 I Think I'm Gonna Be Sick		
Applying Bacterial Growth Rates		
Is it Safe to Eat?		
Activity 5 Kitchen Patrol Task Force		
Carousel Activity		
Public Service Announcement		
Activity 6 FBI: Identifying the Culprits of Foodborne Illness		
Bacteria that Cause Foodborne Illness		
What's the Cause?		
Activity 7 Breaking News: Millions Sick and Dying		
Researching Foodborne Illness Outbreaks		
Activity 8 Kitchen Patrol Task Force Returns		
Finding Food Safety Mistakes		
Activity 9 Extra! Extra!		
Paper Slide Video		
Activity 10 I Spy … A Bacterial Cell		
Reaction Guide to Safe Food Handling		
Edible Cell Model		

Bacterial Growth Experiment: SET-UP **Treatment _____** **Name _____**

Objective/Problem: The purpose of this experiment is:

Hypothesis:

Materials:
1 pre-poured TSA plate
Hand Soap
Hand Sanitizer
Secure location for plate incubation
Sharpie Marker
Parafilm (1" x 4" strips)

Procedures: List the step-by-step procedures of your experiment below (Step 1 has been listed for you along with the first word of each step. You must fill in the details.):

1. **Shake** hands with at least 5 people.
2. **Draw**
3. **Label**
4. **Touch**
5. **Wash**
6. **Touch**
7. **Wrap**

Bacterial Growth Experiment: SET-UP **Treatment _____** **Name _____**

Data: Fill your data into the charts below:

Day 2: Observations

	Control	Treatment
Colony Count		
Description of Colonies		

Do NOT touch colonies growing on your plate. Once you have finished recording your observations, wash your hands thoroughly with soap and warm water.

Post-Lab Discussion Questions:

1. **What changes took place in colony growth?**

2. **Looking at the data, what differences do you notice between the control and treatment?**

3. **Discuss your conclusions based on the data collected in this experiment.**

4. **What problems might have occurred in this experiment that might lead you to question the validity of your results?**

Conclusions:

HANDWASHING LOG

Name: ______________________________

Date and Time of Handwashing	Reason for washing hands	Time (in seconds)	Soap (check if used)	Warm or Cold Water

Bacterial Growth Experiment:
Generating a Researchable Question

1. As an individual or group, brainstorm three things you would like to know more about as a result of this experiment or its results.

   a.

   b.

   c.

2. Choose one of your ideas from above and reword it as a researchable question. (Example: What would happen if we stored our bacterial growth plates under a heat lamp instead of at room temperature?)

Researchable question:

3. Design a simple experiment to test your researchable question. (What steps would you take to get an answer to your question?)

4. As a group, brainstorm a hypothesis for your researchable question. (What do you think would happen if you did the experiment you outlined above?)