

YOGURT MAKING

NAME _____ SCHOOL _____

DATE STARTED _____ DATE COMPLETED _____

PREREQUISITE: None. Microscope Basics course or ability to use a simple microscope recommended.

HOW TO DO THIS COURSE: Do the steps one at a time, in order. When you finish a step, put your initials and the date on the sign-off line on the right. A split line means to get a pass (and an initial) from another student (or your academic supervisor if it says that). A * means get a checkout. Essays are turned in to the academic supervisor.

PURPOSE: Learn to make yogurt and what it takes to make good yogurt.

ESTIMATED TIME: 5 hours over 3–4 days (plus additional time outside of class).

MATERIALS NEEDED FOR THIS COURSE

Data Sheet 8253 Making Fruit Yogurt, to be attached to the back of this study guide.

Study booklet, *Yogurt Making*, with these data sheets (DS):

371 372

Exam: 2824, 8254 (answers) 7327 (review), 8255 (answers)

Other materials: One pint or more of whole or reduced fat milk; 1 spoonful of store-bought yogurt (may be from opened container); 1 small, unopened store-bought carton of plain yogurt with live yogurt bacteria; packet of powdered milk; ¼ cup of fruit pie filling or 1 small jar of toddler fruit dessert; 8 oz. and 16 oz. jars with lids (and material to label the jars); tablespoon; measuring cup; pot holder or cooking mitt; refrigerator; source of hot water; clock; a microscope; a prepared slide of yogurt bacteria or a clean slide and a bacterial stain (to make a prepared slide with). For additional equipment needed to make yogurt, see recipes in Data Sheet #372 Making Yogurt, in the study booklet. Needs will vary depending upon preparation and incubation methods chosen.

NOTE TO ACADEMIC SUPERVISOR

The materials needed to make yogurt are described in Data Sheet #372 Making Yogurt, in the study booklet. The course offers several different ways to make yogurt, so the supervisor should read the data sheet ahead of time in order to decide which methods will be offered. If the yogurt-making sessions are well coordinated, it is possible for the student to prepare a batch of yogurt at the beginning of a day, begin incubation in the morning, and complete incubation and put the yogurt in the refrigerator to cool by the end of the same day. All yogurt preparation and incubation steps should be closely supervised.

A. INTRODUCTION

*1. READ: Data Sheet #371 Yogurt and Bacteria. _____

2. DEMONSTRATE: Taste some yogurt from a commercial (store-bought) container of yogurt. (Rinse a clean spoon in hot water. Take out a spoonful, replace the top and do not put the spoon back into the yogurt container.) _____

3. DEMONSTRATE: Look at a stained prepared slide of yogurt (or make your own slide if you know how). Look through the microscope and find the darker dots that are the yogurt bacteria. Get your supervisor to help you if needed. _____

B. BASIC YOGURT

- *1. READ: DS #372 Making Yogurt, section “Why Milk Is Heated to Make Yogurt,” to heading “Yogurt Starter Cultures.” _____
2. DEMONSTRATE: Why you first heat the milk hot, then keep it warm when you are making yogurt. _____
- *3. READ: DS #372 Making Yogurt, section “Yogurt Starter Cultures,” to heading “Plain Yogurt Recipe.” _____
4. DEMONSTRATE: What a starter culture is used for. _____
5. READ: DS #372 Making Yogurt, the first part of section “Plain Yogurt Recipe” to the part called “Burner Method.” _____
6. PRACTICAL APPLICATION: Check with your supervisor to find what preparation methods are available and which incubation method is available. These are the methods you will use to make yogurt. Then:
- a) Circle here the preparation method you will use: Burner Method or Microwave Oven Method. Then read just the section in the data sheet (DS #372) for that method. _____
 - b) Get all the materials together that you will need to do the preparation steps for the Plain Yogurt Recipe. _____
 - c) Circle here the name of the incubation method that you will use: Insulation Method, Incubation Method Using a Cooler, Incubation Method Using an Oven.¹ Read the first two paragraphs of the “Incubation” section and then read just the section in the data sheet (DS #372) for the method you will use. _____
 - d) Get all the materials together that you will need to do the incubation steps for the Plain Yogurt Recipe. _____

¹ Another method could be used instead of these three.

- e) Tell your supervisor you are ready to make yogurt. Prepare a small batch of plain yogurt (½ cup) under supervision.² _____
- f) Incubate your batch of yogurt under supervision. Save this batch at least until you get to step 13 below. (While the yogurt is incubating, continue with the next steps of the course.) _____
7. READ: DS #372 Making Yogurt, sections “What to Do if the Milk Doesn’t Turn to Yogurt” and “Problem 1.” _____
8. DEMONSTRATE: Something you can do if it smells like yogurt but isn’t thick enough. _____
9. READ: DS #372 Making Yogurt, section “Problem 2.” _____
10. DEMONSTRATE: Something you can do if the mixture still is liquid. _____
11. READ: DS #372 Making Yogurt, section “Problem 3.” _____
12. DEMONSTRATE: What you should do if the milk doesn’t smell or look right. _____
13. PRACTICAL APPLICATION: Look at the batch of yogurt you made in step 6 and taste it if you want to. If it is good enough to eat, you do not have to do anything. (Remember that this yogurt will not be as thick as store yogurt.) Go on to the next step.

If the yogurt is not good enough to eat, decide which of Problems 1 through 3 fits your situation, and decide what you should do to make the yogurt edible. Check with your supervisor, then carry out your plan. It may even be necessary for you to make a new batch of yogurt and to follow the steps more carefully. To pass this step, you must make a small batch of plain yogurt that is good enough to eat.
Supervisor pass. _____
14. PRACTICAL APPLICATION: Wash the dishes you used. Put away any materials you used unless you are going to make more yogurt during the same day. **Supervisor pass.** _____

C. MAKING THICK FRUIT YOGURT

² In this course all steps for preparing and incubating yogurt must be supervised by an adult.

1. READ: DS #372 Making Yogurt, section “How to Make Thicker Yogurt,” to heading “Making Fruit Yogurt.” _____
2. DEMONSTRATE: The steps for making thicker yogurt. _____
3. READ: DS #372, section “Making Fruit Yogurt.” _____
4. PRACTICAL APPLICATION:
 - a) Get everything you need to make fruit yogurt, including powdered milk and fruit filling. Then follow the directions in the section “Making Fruit Yogurt” to make a batch of thick fruit yogurt. ____
 - b) Taste your yogurt after you make it. To pass this step, you must make a batch of thick fruit yogurt that is good enough to eat. (You might share your yogurt with others, if you want to.) ____
- Supervisor pass.** _____
5. PRACTICAL APPLICATION: When you are finished eating your yogurt, wash the dishes and put away any materials you used. _____
6. REREAD: DS #371 Yogurt and Bacteria. _____
7. ESSAY:
 - a) Why is yogurt a good food to know how to make?
 - b) Why is it important to have the right bacteria when you make yogurt and to keep out other bacteria?
 - c) What will happen if the incubation temperature stays too hot? What if it stays too cold? _____
8. READ: DS #372 Making Yogurt, section “Yogurt on the Internet.” (There is a shorter version of the fruit yogurt recipe attached to the back of this study guide. If you would like to have it so you can make yogurt again, you can pull it off now and keep it.) _____

I have completed the steps of this course. I understand what I studied and can use it.

Student _____ Date _____

The student has completed the steps of this course and knows and can apply what was studied.

Academic supervisor _____

Date _____

The student has passed the exam for this course.

Examiner _____

Date _____

MAKING FRUIT YOGURT

(This recipe is summarized. For full directions read the study booklet for the Yogurt Making course. This recipe makes a little more than 1 cup of fruit yogurt.)

Let's make some yogurt with fruit in it! Be sure you have:

- yogurt starter: a small unopened container of high quality plain yogurt with live yogurt bacteria.
- 1 cup milk (whole milk or reduced-fat milk. Don't use non-fat milk.)
- pint (16 oz.) jar with lid
- packet of powdered milk
- fruit filling (small jar of toddler fruit dessert or canned pie filling)
- a clean tablespoon

1. Pour 1 cup of milk into the jar. Then stir in 3 tablespoons of powdered milk.
2. Heat the jar of milk in a pan of water or in a microwave oven until it is too hot to hold (don't boil the milk). Then cool it until you can keep the jar against your face. (This is a way to cool the milk to about 110°F or lower without using a thermometer.)
3. With the tablespoon, measure out 1 tablespoon of yogurt starter and stir that into the milk you heated. Then screw the lid back on the jar.
4. Incubate the yogurt jar in a warm place for at least six hours, or until the yogurt begins to thicken a little. Try to keep the temperature between 100° and 110°F.
5. Open a small jar of toddler fruit dessert or measure out 3 to 5 tablespoons of fruit pie filling. Stir this into the yogurt and refrigerate.

After the yogurt has cooled and thickened it is ready to eat!

If you want to make a larger batch of yogurt, you can use a quart jar and double the amounts of all the ingredients (milk, yogurt starter, powdered milk, fruit filling). The preparation and incubation is done the same way as above.