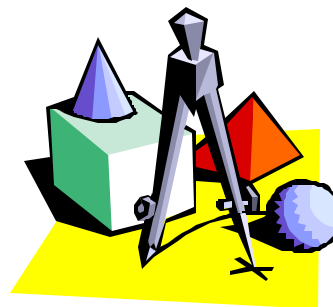# Algebra/Geometry Institute Summer 2003

Lesson Plan Three

Faculty Name: Joanna Dickison
School: Olive Branch Middle School
City: Olive Branch, MS
Grade Level: 8th Grade Math

1   Teaching objective(s)

The students will demonstrate knowledge of fractions, including addition, subtraction, and reduction of fractions.

2   Instructional Activities

➤ The students will begin class by completing a problem of the day in their journals, where they will solve the problem and write a paragraph describing the steps they took to find the solution. Because my school's schedule is based on a modified block schedule, I always choose problems that reinforce what the students learned the last time they were in my classroom (which is 48 hours).

Write on the board (or overhead) the following problem: "If John has $\frac{3}{8}$ of

an apple, and Mary has $\frac{1}{2}$ of an apple, how much apple do they have

together? Find the answer and record in your journal the steps you took

and WHY you took them in your journal." (The answer is $\frac{7}{8}$.)

Once the students have wrapped up their thoughts, two may volunteer to share their findings with the rest of the class. (8-10 minutes)

➤ The teacher will then put up a transparency with 4 addition and subtraction of fraction problems on it in order to review the students on what they have already learned about these operations. I would use some problems with the same denominator, and some with different denominators. Encourage the students to work them out on paper, and then volunteers may come to the overhead to show how they solved each problem. (My students LOVE to write on the overhead!) (7 minutes)

➤ The teacher will then split the students up into groups of four. As soon as this is done, the teacher should explain to the students that they are in groups for *help*, but each student will complete their own sundae. With any project, I like to show an example of what the students are going to make before they begin. It gives them a sense of direction. So, I suggest that you show the students your already finished Fraction Sundae. Then,

pass out "Sundae Kits" to each group. Inform the students that they should read the page "Constructing Your Sundae" for directions. As the students complete their sundaes, the teacher should circulate through the groups, observing the students' work and redirecting those who may be completing the project incorrectly. If different groups are experiencing the same problems, then the teacher should get the attention of the whole class, and explain the directions a little more clearly. (30 minutes)

➢ The students will complete the "All About My Sundae" sheet and turn it in. (5 minutes)

➢ Once the students have completed their sundaes, the students should then present their work to the class. After presentations are completed, the teacher and students may create a bulletin board showing their projects. This may have to be completed in another class if there is not enough time.

➢ *Extension*: (Optional) The teacher and students may create a huge sundae on a bulletin board in the classroom. Have students contribute flavors until you have reached a certain number of scoops, such as 100. Then work together to figure out all of the fractions that make up the whole sundae. Check your work by adding all of the numerators and make sure it is the same number as the denominator. All of this would of course take place on a different day.

3   Materials and Resources

➢ Materials: 1. Overhead Projector/Transparencies/Markers
              2. "Sundae Kits" for each group*
                 • Four Copies of Directions for Completing the Sundaes (an example is attached)
                 • Four Copies of Ice Cream Flavor Combinations Sheet (This should be created by the teacher before class, so that the students will have a consistent code for each flavor of ice cream. You can use common colors of ice cream for your class, like pink for strawberry, white for vanilla, brown for chocolate, etc.)
                 • One Stencil of the Dish and Four Stencils of Ice Cream Scoops (See attached Stencils.)
                 • Four Question Sheets
                 • Construction Paper in "Ice Cream Colors"
                 • Red Construction Paper Cherries, with a twisty-tie stem (enough for each student)
                 • Two Pairs of Scissors
                 • One Roll of Tape
              3. Completed Fraction Sundae of Your Own (See attached sheet for example.)
        *A note on Sundae Kits: Because I know that passing out materials takes up precious time, and that students usually get rowdy during this kind of downtime, I would have the Sundae Kits made up the night before. I would find a sealable plastic bag big enough to hold all of the contents, and have them ready to pass out to the groups.

➢ Resource: Ford Brunetto, Carolyn. <u>Math Art: Projects and Activities</u>. Scholastic Professional Books 1997.

4   Assessment

Because this is an Art project that is used to determine whether the students understand fractions or not, I would not grade on the neatness of the project *as importantly* as the *content* of the sundaes. The students will complete the number sentences with at least 80% accuracy.

Constructing Your Sundae

1. Trace the stencil of the dish on blue construction paper, and cut it out.

2. You will construct a sundae that has 12 scoops. One flavor should be $\frac{1}{3}$ of your sundae, another flavor should be $\frac{1}{4}$ of your sundae, one flavor should be $\frac{1}{12}$ of your sundae, and <u>two</u> flavors should be $\frac{1}{6}$ of your sundae. Be sure to follow the Key provided for you on the Ice Cream Flavor Combinations Chart to represent your flavors.

3. Trace and Cut out your Ice Cream Scoops. Then, make sure the front side of the bowl is facing you, and begin stacking your ice cream scoops on the bowl.

4. Now, follow the directions on the "All about my Sundae" sheet.

All About My Sundae

Name: _____

1. Describe your sundae in fractions. How many scoops of ice cream does it have in all?

   That number will be the denominator of your fractions. How many scoops of each flavor

   does your sundae have? Those numbers will be the numerators of your fractions.

   > Flavor 1: _____

   > Flavor 2: _____

   > Flavor 3: _____

   > Flavor 4: _____

   > Flavor 5: _____

2. What flavor had the least scoops in the sundae? _____ What is its fraction?

   _____ What flavor had the most scoops in the sundae? _____

   What is its fraction? _____

3. Add the following flavors and tell me what fraction they make:

   > Flavor 1 + Flavor 5 = _____

   > Flavor 2 + Flavor 3 = _____

   > Flavor 4 + Flavor 1 = _____

   > Flavor 2 + Flavor 4 = _____

4. Select two flavors and find the difference in the amount of each.

5. Choose two different flavors and subtract the smaller from the larger.

6. List all the fractions on your sundae dish, and include their <u>lowest terms</u>. When you

   have finished, top off your sundae with the red construction paper cherry!

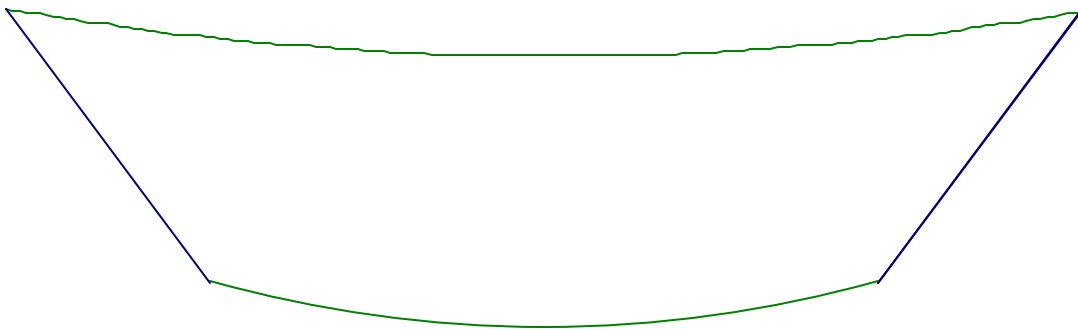# Stencils for Ice Cream Scoops and Dish and Cherry

Cherry Stencil
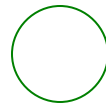
Ice Cream Scoop Stencil
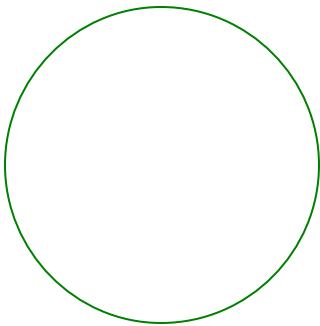
Ice Cream Dish Stencil

Illustration of Completed Sundae