



**Title:** Gallon Man  
**Grade(s):** 4th/5th  
**Subject(s):** Math  
**Author:** Hudson K-8 Team  
**Overview:** Students will review different measures of volume and work with their classmates to create a Mr. Gallon Man to model the units that make up a gallon. Students will use technology to create a Scratch program illustrating customary units of volume.

**Content Standards:**  
MA (4) 14. Measure length, width, weight, and capacity using metric and customary units and temperatures in degree Fahrenheit and degree Celsius.  
MA (5) 13. Convert a larger unit of measurement to a smaller unit of measurement within the same system (customary or metric).  
SCI (5) 2. Define mass, volume, and density.  
TC (3-5) 2. Use various technologies, application including word processing and multimedia software.  
TC (3-5) 11. Using digital tools to analyze authentic problems.  
TC (3-5) 12. Create a product using digital tools.

**Local/National Standards:**

- Primary Learning Objectives:**
- Student will identify different measures of volume.
- Additional Learning Objectives:**
- Student will identify tools that they use to measure volume at home or at school.
  - Students will work in groups to create a visual to show the different measures of volume compare.
  - Student will create a Scratch animation that will illustrate the relationships of customary units that make up a gallon.

**Approximate Duration of Lesson:** 2 Days (50 minutes)

- Materials and Equipment:**
- Examples of volumes
  - Assorted construction paper
  - Glue or tape
  - Scissors
  - Markers
- Technology Resources Needed:**
- Scratch

- [www.tinotopia.com/log/dairy\\_case.jpg](http://www.tinotopia.com/log/dairy_case.jpg)
- Promethean board

**Background/Preparation:** Review four common measures of volume (cups, pints, quarts, and gallons).

**Procedures/Activities:** Step 1 Place students in 4 groups. Have students list as many things that they can think of that are in their house in each of the following containers. (Teacher will display examples of the four measures of volume.) Students

will discuss the types of things that you keep in each of the containers that they just looked at. Show students a picture of a grocery store aisle.

[www.tinotopia.com/log/dairy\\_case.jpg](http://www.tinotopia.com/log/dairy_case.jpg) and have them point out examples of containers that hold cups, pints, quarts, and gallons.

Step 2

Tell the class that we will construct a model “Mr. Gallon” to serve as a visual representation of the volume units. We will be comparing cups, pints, quarts, and gallons.

**Instructions:**

1. Divide the class into 4 groups.
2. Give Group 1 two sheets of construction paper and each other group one sheet of different colors of construction paper and a pair of scissors. Each group should follow the instructions for the group when the teacher reads them.
3. Group 1: (Read instructions to group): Use one of your sheets of paper to create a head for Mr. Gallon. Fold the sheet in half and round off the corners to create a circle. Draw a face on the circle. The second sheet will represent a one gallon body. Write Gallon on this sheet. Have one member of the group bring their Mr. Gallon head and body to the front of the room and tape them in position to the board or wall.
4. Group 2: Use a second color of construction paper to make arms and legs for Mr. Gallon. Remember that the whole piece of paper is a gallon. Fold the paper in half hamburger style. Then, fold it hamburger style again. You should have four equal sections on your construction paper. Ask students, “What portion of a gallon does each square represent?” (Each section will represent a quart because there are 4 quarts in a gallon.) Tell them to write “quart” on each of the four rectangles and cut along the lines to separate the four quarts. Have one member of Group 2 bring their 4 quarts to the front and glue or tape the quarts onto the Mr. Gallon to make arms and legs.
5. Group 3: Use the third color of construction paper to make hands and feet for Mr. Gallon. Remember that the whole piece of paper is a

gallon. Fold your paper into quarts again, but do not open it. Remember that there are 4 quarts in a gallon. Ask students “How many pints are in a quart?” (There are two pints in a quart.) Fold the paper in half one more time then open the paper up to see how many pints are in a gallon. (Eight). Write “pint” on each of the rectangles and cut along the lines to separate the pints. Have one member of Group 3 bring their 8 pints to the front and tape or glue two pints on each of the quarts to make hands and feet for their gallon man.

6. Group 4: Use the fourth color of construction paper to make fingers and toes for gallon man. Remember that the whole piece of paper is a gallon. How many quarts are in a gallon? (Four) Fold your paper as before to make a quart. How many pints are in a quart? (Two) Fold your paper as before to make a pint. How many cups are in a pint? (2 cups in a pint). Fold your paper in half again to make a cup. Open up the paper to see how many cups are in a gallon. (You should have 16 cups in your gallon.) Write “cup” on each rectangle and cut apart the cups. Have one group member bring their cups to the front and glue two cups to every pint to make fingers and toes for Gallon Man.
7. Review with the students what they have learned about the customary units of volume. Point out that the Gallon Man model represents the volume relationships in two dimensions (length x width) while volumes are actually three dimensions (length x width x depth). Ask, “What could we use to be more accurate representations of volumes?” (Actual containers, such as cups, pint jars, quarts of milk, etc.)

Step 3 Show students the Scratch animation of Gallon Man.

Tell students that they will work with their group to create a scratch animation. (List requirements on board. Share rubric with students.)

1. Create a Scratch program with representations of the 4 volume units that we have studied: cups, pints, quarts, and gallons.

2. Create animations in your Scratch program to represent math problems of converting, adding, or subtracting cups, pints, quarts, and gallons.

Step 4 Have each group present their completed Scratch program to the class.

**Attachments:**

- Rubric
- Scratch program

**Assessment Strategies:**

Rubric

**Extension:**

Give word problems on volume:

- Jamie has a half-gallon of milk. She needs 5 cups to make her cream of tomato soup. Does she have enough milk? Figure out your answer and show your work.
- The recipe for a batch of brownies calls for one cup of chocolate syrup. John has a one quart container of chocolate syrup. How many batches of brownies can John make?

**Gallon Man Scratch Program Rubric**

Task	Developing 2	Accomplished 3	Exemplary 4	Score
<b>Completion of Scratch Animation</b>	<ul style="list-style-type: none"> <li>- At least three of the four measures of volume (gallon, quart, pint, cup) are included.</li> <li>- Includes some conversion, addition, or subtraction problems.</li> <li>- Some mistakes with conversions or problems.</li> </ul>	<ul style="list-style-type: none"> <li>- All four measures of volume (gallon, quart, pint, cup) are included and are placed accurately in relation to each other.</li> <li>- Illustrates several correct conversion, addition, or subtraction problems.</li> </ul>	<ul style="list-style-type: none"> <li>- All four measures of volume (gallon, quart, pint, cup) are included and are placed accurately in relation to each other.</li> <li>- Illustrates accurate conversion, addition, <b>and</b> subtraction problems.</li> </ul>	
<b>Effort During Group Work</b>	<ul style="list-style-type: none"> <li>- Most group members worked with others without conflict most of the time, helped with the group work.</li> </ul>	<ul style="list-style-type: none"> <li>-All group members worked fairly well together, participated most of the time, and contributed to completion of the assignment.</li> </ul>	<ul style="list-style-type: none"> <li>- All group members consistently worked well together and participated actively to complete a quality product.</li> </ul>	