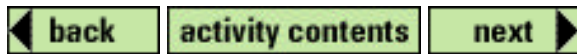


## ACTIVITY CONTENTS:

### Visualizing Fractions

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- [Thinking About the Question](#)
- [Materials](#)
- [Safety](#)
- [Investigation I: Using computer fraction strips](#)
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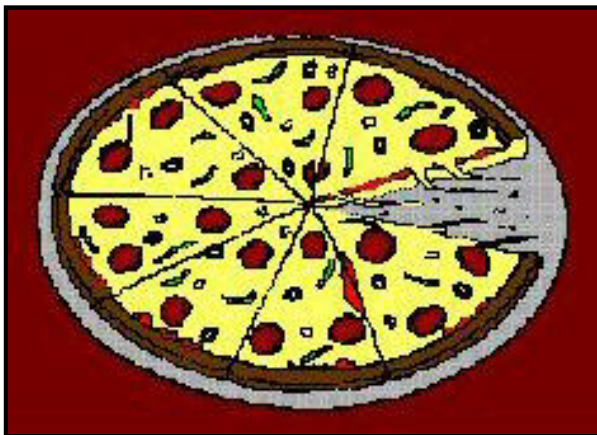
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## Visualizing Fractions Introduction

### Discovery Question:

How do I compare fractions?



In this activity you will explore a visual model to relate fractional parts of a whole.

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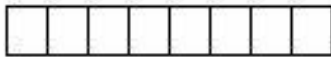
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## Thinking About the Question

### How do I compare fractions?



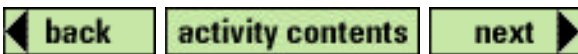
Often when you buy a pizza it is cut into eight pieces so that it can be easily served. If you eat only one piece of pizza, what fraction of the pizza is left? Create a fraction strip similar to the one shown below on graph paper that connects eight squares in a line.

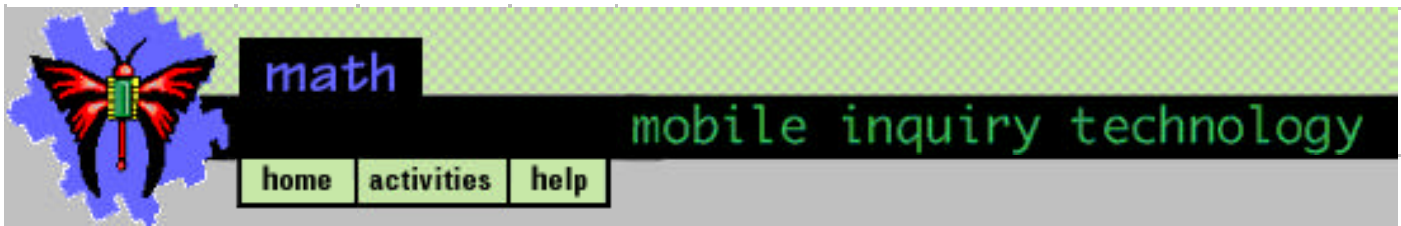


**1/8**

Discuss with your group how to show your answer with the fraction strip.

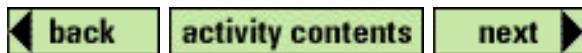
If you have an apple pie that can be cut into sixteen pieces and you eat two small pieces, what part of the pie is left? Create another fraction strip on graph paper that connects sixteen squares in a line. Discuss with your group how to show your answer with the fraction strip. Be prepared to share your fraction strips with the class.

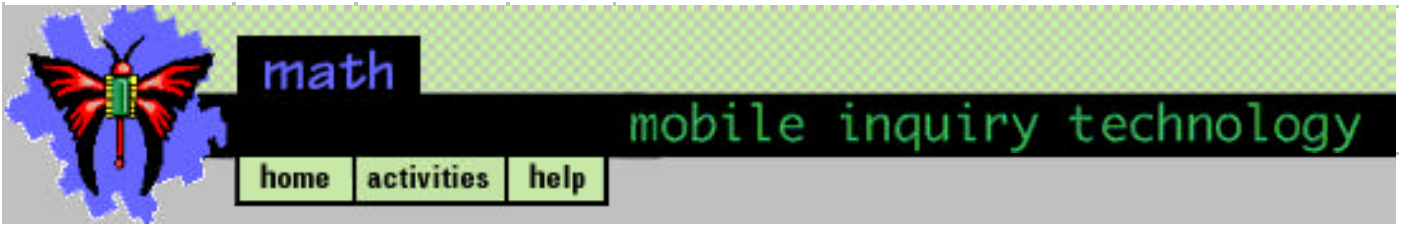




## Visualizing Fractions Materials

- ClarisWorks Paint program
- calculator
- ClarisWorks Paint fraction strips document (fractionstripsdoc)

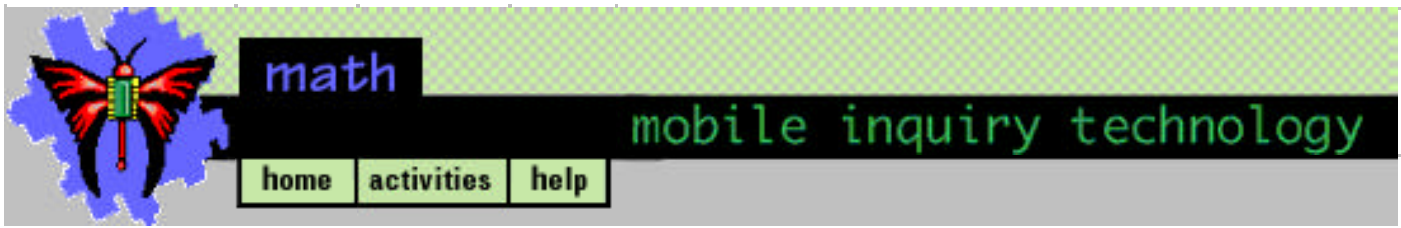




## Visualizing Fractions Safety

No specific safety instructions are needed for this activity.





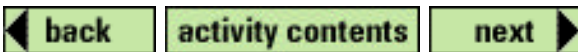
## Visualizing Fractions Investigation I

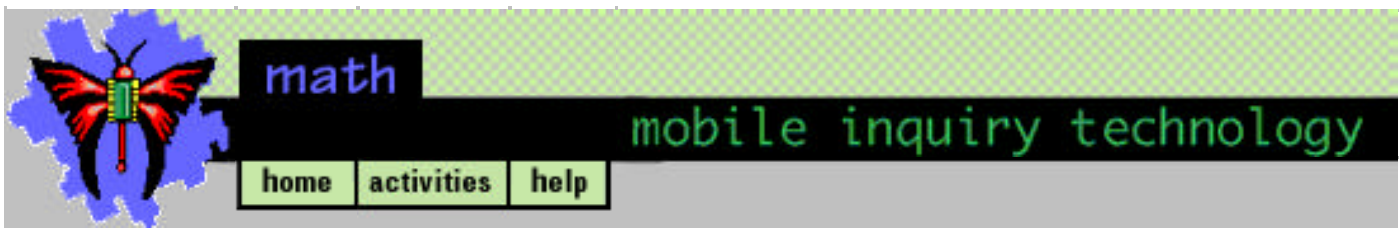
### Using computer fraction strips

1. Open the Fraction Strips paint document and save as "practice". Refer to [Technical Hints](#) to see how to open and save the draw program. Practice visualizing in as many ways as possible with the fraction strips provided for:
  - $3/4$
  - $2/3$
  - $3/5$

Be prepared to share your results.

2. Refer to [Technical Hints](#) to see how to use the paint bucket.
3. Go to Questions 1 and 2 in "Analysis".

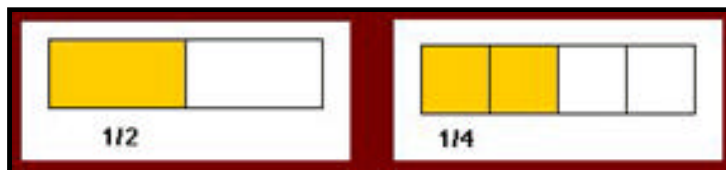




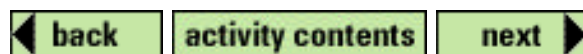
## Visualizing Fractions Investigation II

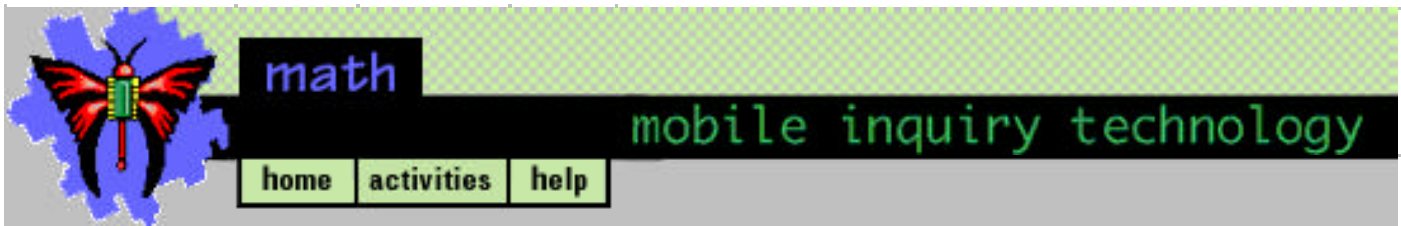
### Reducing fractions

1. Open the Fraction Strips paint document and save as "reducingfractions". Refer to [Technical Hints](#) to see how to open and save the draw program.
2. For an example of a reduced fraction, let's look at the two fractions.  $1/2$  is the smallest reduced fraction of  $2/4$ .  $1/2$  represents the same quantity as  $2/4$ , but with a smaller number in the denominator.



3. Use the fraction strips to show the smallest reduced fraction for:
  - $6/9$
  - $2/6$
  - $5/7$
4. Refer to [Technical Hints](#) to see how to use the paint bucket. Be prepared to share your results.
5. Go to Questions 3 and 4 in "Analysis".

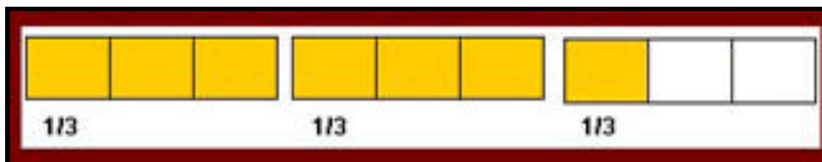




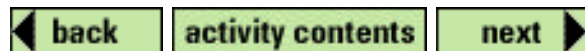
## Visualizing Fractions Investigation III

### Displaying improper fractions and mixed numbers

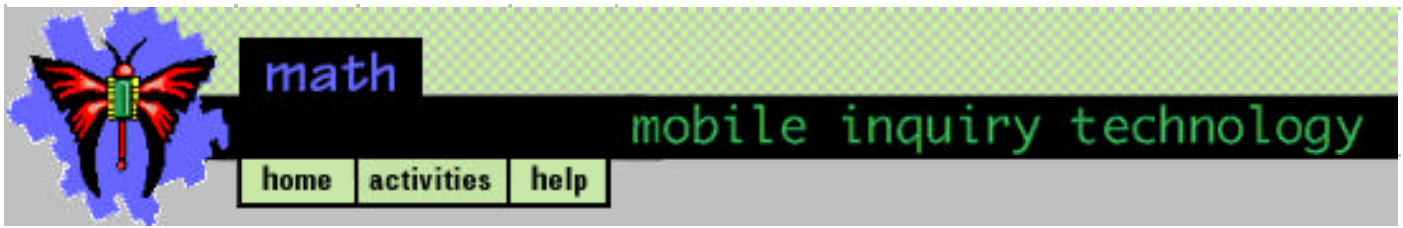
1. Open the Fraction Strips paint document and save as "impropermixed". Refer to [Technical Hints](#) to see how to open and save the draw program.
2. Mixed numbers have both whole numbers and fractions in their reduced forms and are numbers greater than one. Improper fractions have larger numerators than they do denominators. We can use the fraction strips to show how  $\frac{7}{3}$  (an improper fraction) can be written as a mixed number.



3. By filling 7 thirds, you can see two complete wholes plus 1 third. This is written as  $2 \frac{1}{3}$  as a mixed number.
4. Use the fraction strips to determine the mixed numbers for:
  - $\frac{9}{6}$
  - $\frac{14}{5}$
  - $\frac{8}{7}$
5. Refer to [Technical Hints](#) to see how to use the paint bucket. Be prepared to share your results.
6. Go to Questions 5, 6, and 7 in "Analysis".

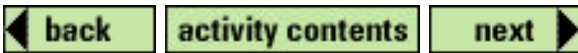






## Visualizing Fractions Technical Hints

- [Opening and saving the draw program](#)
- [Using the paint bucket](#)

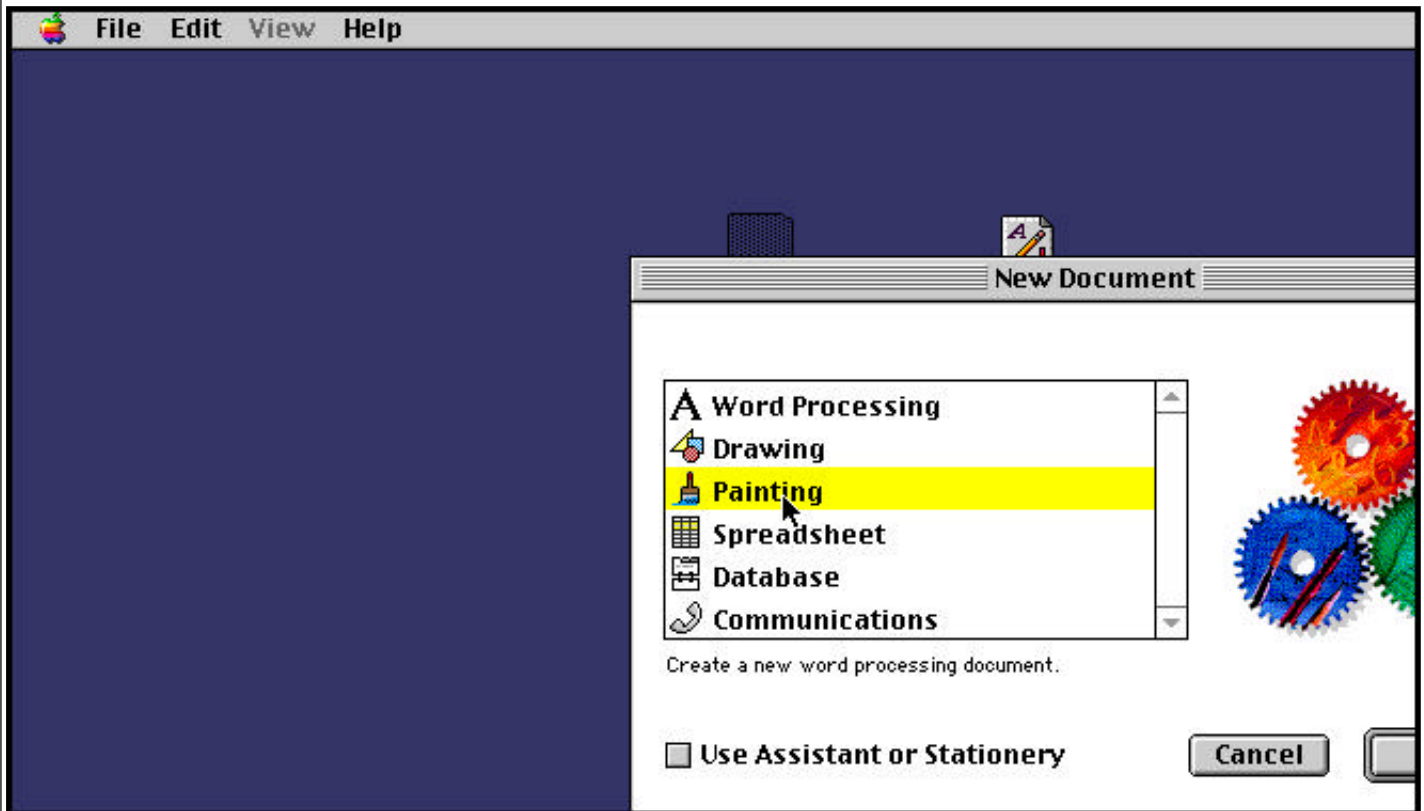




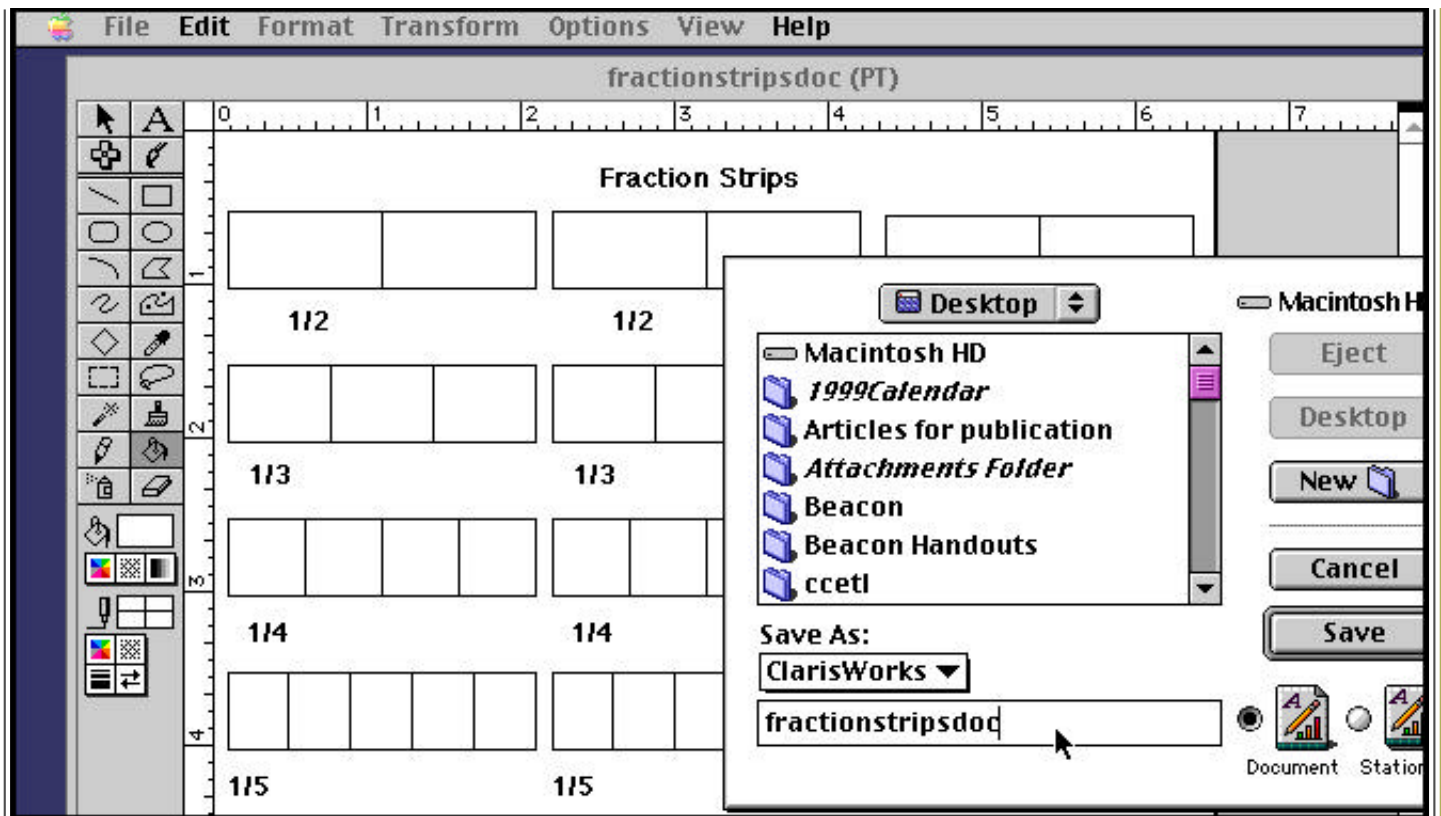
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**Visualizing Fractions Technical Hints**

**To open and save the draw program:**

1. Select the drawing option in ClarisWorks.



2. Select from the File menu the "Save As" option. Name the "reducingfractions" (Investigation II) or "impropermixed" (Investigation III).
3. Select your location for saving the document.
4. Note that you may wish to save several documents for each Investigation, this can be done by using a number following the title. For example, "reducingfractions2" for a second document. You may wish to add your initials to the title so that you can share with your teacher or with other students.



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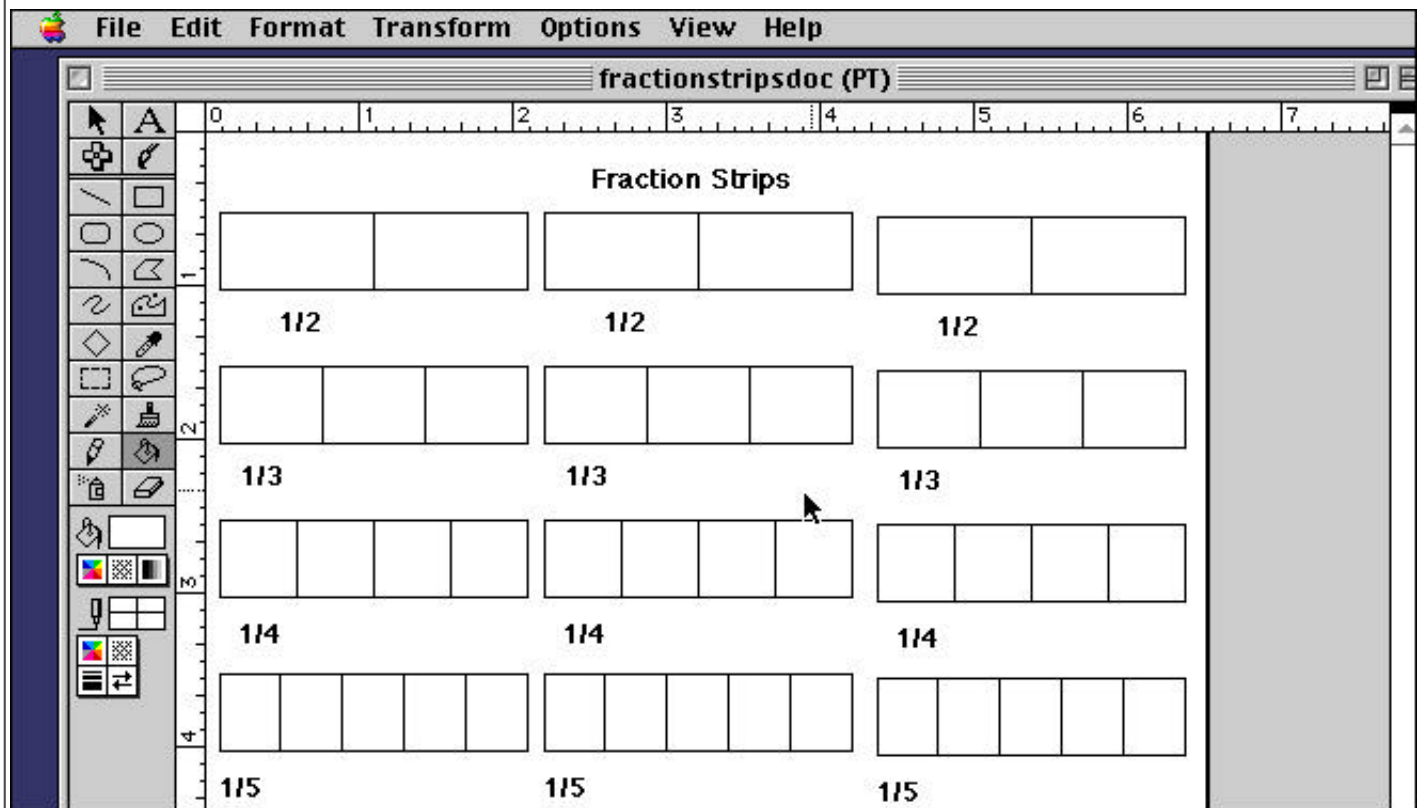


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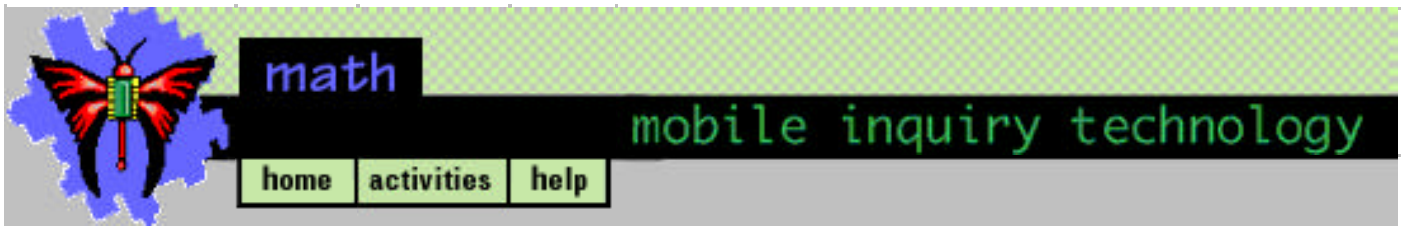
### Visualizing Fractions Technical Hints

#### To use the paint bucket:

1. Click on the Paint Bucket in the Tool Bar. Select the color that you desire to fill the squares from the color palette for the Paint Bucket (below the main tool bar). Your color selection should show in the small window. Click with the cursor on the square you wish to color.
2. To remove the coloring from a square, select white from the color palette. Use the Paint Bucket to cover the colored square.



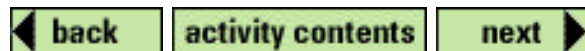
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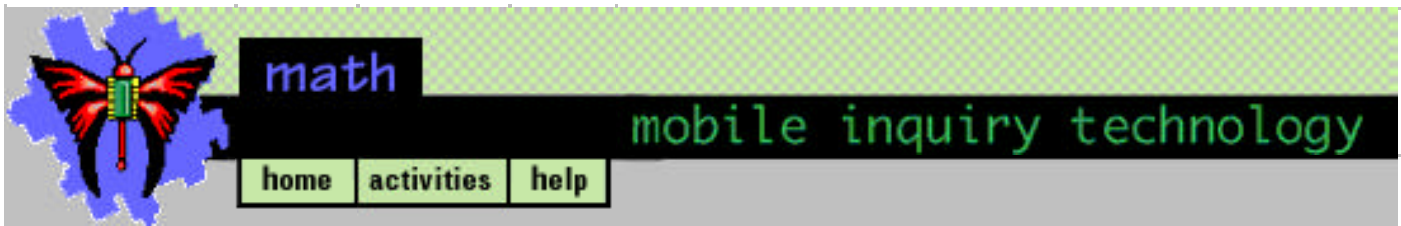


## Visualizing Fractions Analysis

Use your fraction strips to answer the following questions on paper:

1. How many different representations did you find these fractions?
  - $\frac{3}{4}$
  - $\frac{2}{3}$
  - $\frac{3}{5}$
2. Select some fractions of your own. Which fraction could be displayed in the most ways on the computer? How can two different fractions represent the same number?
3. What is the smallest (reduced) representation for these fractions?
  - $\frac{6}{9}$
  - $\frac{2}{6}$
  - $\frac{5}{7}$
4. Try to reduce fractions of your own selection on the computer. When do you know that a fraction can be reduced?
5. How many different representations did you find of these fractions?
  - $\frac{9}{6}$
  - $\frac{14}{5}$
  - $\frac{18}{7}$
6. Is it possible to find a mixed number from an improper fraction without fraction strips? Describe your method and give an example.
7. How can you compare two different fractions to see which one is largest?





## Visualizing Fractions Further Investigation

Record the amounts of fractional quantities that you used throughout a day (e.g., shampoo, orange juice, cereal, soup, vegetables) and display in the model of your choice (e.g., fractional strips, picture or pie charts, square or area charts).

