

LESSON

# 10



photo: Martin Dixon

## Fractions of an Inch

### Aim

In this lesson students will practice measuring fractions of an inch. Students will:

- Identify on a ruler the markings for halves, fourths, eighths, and sixteenths
- Accurately measure objects to the nearest  $\frac{1}{2}$ ",  $\frac{1}{4}$ ", and  $\frac{1}{8}$ "

## Things to Consider

**Here is an opportunity** for students who are shaky on basic math to relearn the concept of fractional parts and practice finding them on a ruler. This activity lends itself to measuring activities at the construction site, where objects frequently include a fractional measurement.

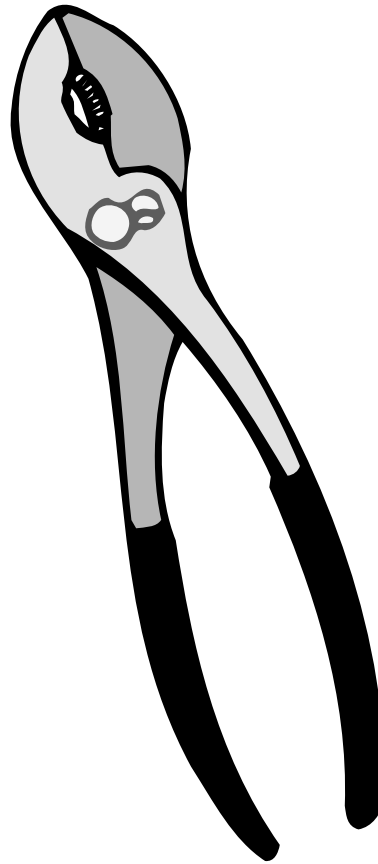
**If your students** need practice adding and subtracting fractions, see these handouts in Tools and Resources "Adding Fractions" and "Subtracting Fractions."

## Materials, Tools, and Resources

- Flipchart or blackboard
- Handout: Ruler Reference Sheet
- Handout: Measuring Fractions
- Handout: Equivalent Fractions of an Inch
- Handout: Measuring and Marking
- Handout: Measurement Symbols
- Handouts: The Inch; Object Measurement Worksheet: The Inch; Activities for Practice Measuring the Inch
- Handouts: The Half Inch; Object Measurement Worksheet: The Half Inch; Activities for Practice Measuring the Half Inch
- Handouts: Sixteenths of an Inch; Object Measurement Worksheet: Sixteenths of an Inch; Activities for Practice Measuring Sixteenths of an Inch
- Handouts: Eighths of an Inch; Object Measurement Worksheet: Eighths of an Inch; Activities for Practice Measuring Eighths of an Inch
- Handouts: Fourths of an Inch; Object Measurement Worksheet: Fourths of an Inch; Activities for Practice Measuring Fourths of an Inch
- Rulers for each student
- Tape measures for four groups
- A collection of eight numbered objects in different fractional lengths: nails, screws, pieces of wood, wire, tools
- Scissors for each student

## Time

2 hours



## Key Terms

- Fraction
- $\frac{1}{2}$ "
- $\frac{1}{4}$ "
- $\frac{1}{8}$ "
- $\frac{1}{16}$ "

## Steps for Activity



Here is an opportunity for students who are shaky on basic math to relearn the concept of fractional parts and practice finding them on a ruler.

1. Ask students how many of them have measured objects on the worksite to the nearest  $1/2$ ". What were the objects? Tell students that much of what they will measure in construction will include parts of inches — or fractions of inches. Being able to identify and measure objects to the smallest fraction will make their work accurate and clean.
2. Invite students to name all the fractional parts of an inch that they know. List these on the board.
3. Pass out the handout "Ruler Reference Sheet." Explain that this activity will review reading a ruler as an introduction to practicing measuring fractions of an inch. Have students cut out the enlarged ruler.
4. Tell students to fold the sheet exactly in half and find the line that is halfway between the inch mark. Label this  $1/2$ ".
5. Have students fold the sheet in half again. What do we call the marks that fall on these new creases? ( $1/4$ " marks) What is another name for  $1/2$ "?
6. Repeat folding for eighths and sixteenths.
7. Write the fractions below on the board and have students copy them down. Using their reference sheet, students can figure out and complete the equivalents.
 

$4/8$ " =	$2/8$ " =
$2/16$ " =	$14/16$ " =
$4/16$ " =	$10/16$ " =
$1/2$ " =	$3/4$ " =
$3/8$ " =	$6/8$ " =
8. Pass out rulers and the handout "Measuring Fractions." Spread out a collection of objects that have been numbered one through eight. Have students work individually or in pairs to measure the objects and complete their worksheets. Allow 10 minutes.
9. In whole group have students share and compare their answers. Did students come up with different numbers for the same object? Are these answers equivalent?

## Wrap Up

1. Divide the class into four teams and give each a steel tape measure. Each team will measure the length, width, depth, and height of the tables in the room. (Or you can choose some other object for students to measure: windows, doors, etc.) Have team number one measure to the nearest  $\frac{1}{2}$ ". Team number two will measure to the nearest  $\frac{1}{4}$ ". Team number three will measure to the nearest  $\frac{1}{8}$ " and team number four will measure to the nearest  $\frac{1}{16}$ ". Put some of your best measurers in the last group.

Have the groups compare their measurements when they are done. Using their rulers or the Ruler Reference Sheet, students should be able to determine correct equivalencies. Have students resolve disputes about accuracy by re-measuring objects as a class.

2. To help students reflect on this activity, ask students to do the following:
  - (a) List the times on a job when an accurate measurement — marked to the nearest sixteenth — might be essential.
  - (b) List other times when it might be better not to measure to the nearest sixteenth or when it might not matter.

## Creative Extensions

- Challenge the students to draw a picture using only  $\frac{1}{2}$ " lines or  $\frac{1}{4}$ " lines.
- Tell students that scale is a measurement used in maps and blueprints that is proportionate to actual size. Have students draw simple rooms that are based on a scale using  $\frac{1}{4}$ " = 1' or  $\frac{1}{2}$ " = 1'.
- Play a measuring game. Break the students into teams and have them measure all surfaces of three or four objects on the site. They should carefully note the dimensions. These objects could be doors, windows, tables, or bookshelves. Teams then choose one of their objects and write its dimensions on a piece of paper. Each team exchanges dimensions but does not tell the other what the object is. The first team to find the object that matches the dimensions on its piece of paper wins.

## Project-Based Learning Activities

- Students could go to a lumber yard and measure various sizes of lumber. They can make a chart of nominal and actual sizes of lumber. Have them research the history of the lumbering business. How is it that a 2 x 4 is really  $1\frac{1}{2}$ " x  $3\frac{1}{2}$ "? Encourage them to display this information as a resource for their own and other classes.
- Have students collect, label, and mount nails and wood screws on a portable display. They will need to be shown how to measure the length of wood screws. This display can be used during class as a reference.

**Handout 1****Equivalent Fractions of the Inch**

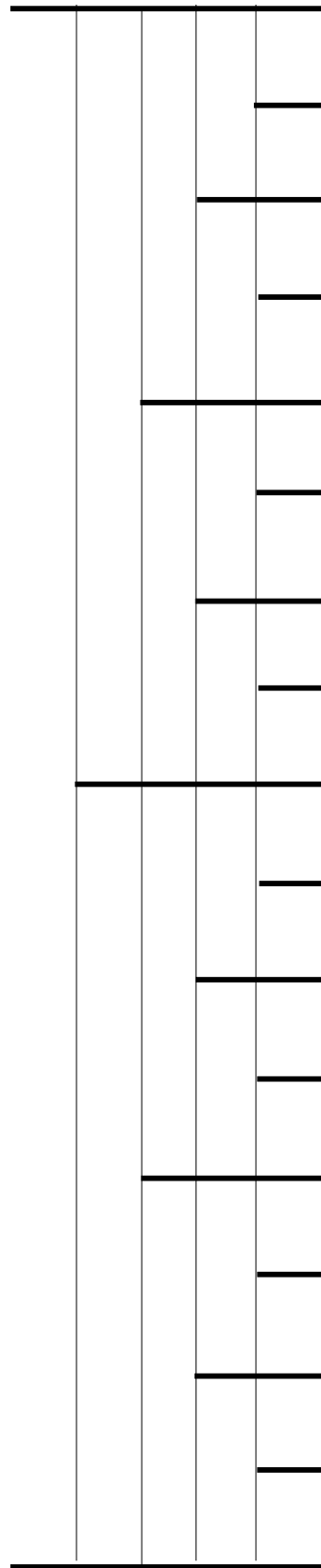
This is an enlarged “inch.”

Use an actual ruler to help you to label fractions and their equivalents.

Cut out the ruler reference sheet.

Fold the sheet exactly in half.

1/2



1/4

**Handout 1, cont'd.**

Find the line that is halfway between the “inch” marks. Label this:  $1/2$ ”.

Fold the sheet in half again. When the paper is unfolded, you will see that the folds now fall on the  $1/4$ ” marks. What is another name for  $1/2$ ”?

Refold the sheet again along the creases, then fold the paper again. Label the  $1/8$ ” mark, then  $2/8$ ”, then  $3/8$ ”, etc. What is another name for  $2/8$ ”?

Can you label all the 16th”s?

Use the reference sheet to figure out these equivalents:

$$4/8" =$$

$$2/16" =$$

$$4/16" =$$

$$1/2" =$$

$$3/8" =$$

$$2/8" =$$

$$14/16" =$$

$$10/16" =$$

$$3/4" =$$

$$6/8" =$$

**Handout 2****Measuring Fractions**

Measure the length of the numbered objects you have been given. Write the measurements in words first, and then in numbers and symbols.

**Example:** three inches = 3".

Object #1 \_\_\_\_\_

a) words \_\_\_\_\_

b) number and symbol \_\_\_\_\_

Object #2 \_\_\_\_\_

a) words \_\_\_\_\_

b) number and symbol \_\_\_\_\_

Object #3 \_\_\_\_\_

a) words \_\_\_\_\_

b) number and symbol \_\_\_\_\_

Object #4 \_\_\_\_\_

a) words \_\_\_\_\_

b) number and symbol \_\_\_\_\_

Object #5 \_\_\_\_\_

a) words \_\_\_\_\_

b) number and symbol \_\_\_\_\_

Object #6 \_\_\_\_\_

a) words \_\_\_\_\_

b) number and symbol \_\_\_\_\_

Object #7 \_\_\_\_\_

a) words \_\_\_\_\_

b) number and symbol \_\_\_\_\_

Object #8 \_\_\_\_\_

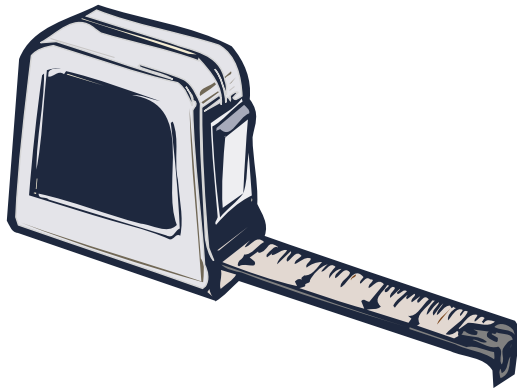
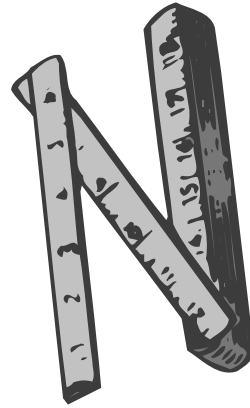
a) words \_\_\_\_\_

b) number and symbol \_\_\_\_\_

## Handout 3

### Measuring and Marking

The folding wood rule is used for general measuring, especially where rigidity is needed, as in extending across wide openings in stairwells.



The steel tape rule is flexible. It is used to measure round as well as straight objects, and it is compact enough to fit into toolboxes and pockets easily.

**Handout 4****Measurement Symbols**

Measurement symbols are a short way to write “feet” and “inches.”

For feet, write this symbol after the number: '

**Example:** four feet = 4'

For inches, write this symbol after the number: ''

**Example:** two inches = 2''

1. Write the measurements represented by the following symbols:

a. 2' = \_\_\_\_\_ e. 9'' = \_\_\_\_\_

b. 5' = \_\_\_\_\_ f. 21'' = \_\_\_\_\_

c. 10' = \_\_\_\_\_ g. 3'5'' = \_\_\_\_\_

d. 4'' = \_\_\_\_\_ h. 7'9'' = \_\_\_\_\_

2. Write the following measurements, using numbers and symbols:

a. twenty-two feet \_\_\_\_\_ e. four feet, six inches \_\_\_\_\_

b. five inches \_\_\_\_\_ f. ten feet, three inches \_\_\_\_\_

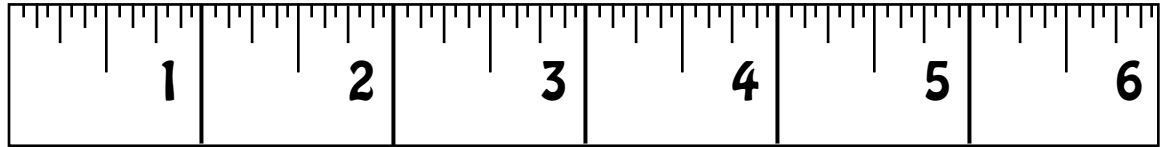
c. seventeen inches \_\_\_\_\_ g. sixteen feet, three inches \_\_\_\_\_

d. twelve feet \_\_\_\_\_ h. five feet, nine inches \_\_\_\_\_

## Handout 5

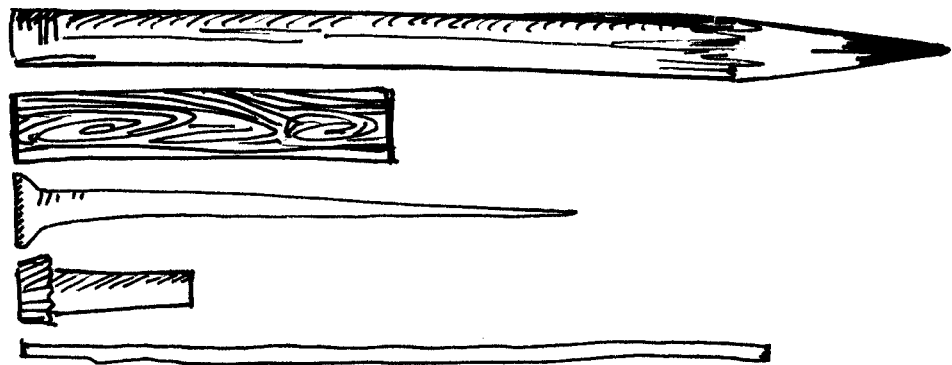
### The Inch

Every ruler is divided into inches.

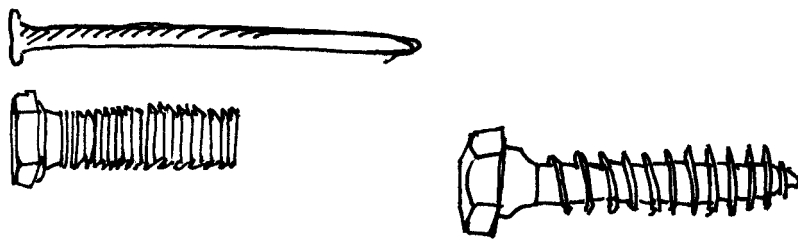


Examine a ruler or tape measure to see how inches are written.

Line up the tape measure against the object you wish to measure. How many inches long are these objects?



Sometimes you need to measure to the “nearest inch.” Can you measure these objects to the “nearest inch?”



Sometimes you need to add objects of different lengths. Can you find the total length of these two objects?



## Handout 6

### Object Measurement Worksheet: The Inch

Measure the length of these objects to the nearest inch. Write the measurements in words first, and then in numbers and symbols. The first one is done for you.



Object (example ) is: *a piece of wood*

(a) *two inches*

(b) *2"*

Object #1 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #6 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #2 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #7 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #3 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #8 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #4 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #9 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #5 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #10 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

**Handout 7****Activities for Practice: The Inch**

Have students do the following activities for practicing measuring and marking the inch. Students can work individually for practice, then check each other's work for accuracy. Or they can work in pairs or groups of three, each person doing a different part of the assignment.

- Draw, on large paper, a scale drawing of the classroom, or a room on the worksite, or any room you choose. Measure the length and width of the room, then draw a picture of it, in which an inch is equal to one foot ( $1" = 1'$ ).
- Build a model of the classroom, a floor of the worksite, or any area you choose. Measure the length, width and height of the room or rooms, then cut pieces of the cardboard or posterboard to scale, where one inch is equal to one foot. ( $1"=1'$ ) Tape them together and display.
- Construct a cardboard box with the dimensions  $4" \times 3" \times 2"$ . Cut six pieces of cardboard or posterboard with the measurements:

2 pieces:  $4" \times 3"$

2 pieces:  $4" \times 2"$

2 pieces:  $3" \times 2"$

Tape all the pieces together to form a three-dimensional box. If the sides are measured and cut accurately, they should fit together perfectly!

- Construct a wooden pencil box with the dimensions  $7" \times 3" \times 2"$ . Cut five pieces of wood with the measurements:

Bottom:  $7" \times 3"$

2 end pieces:  $3" \times 2"$

2 side pieces:  $7" \times 3"$

Glue all the pieces together to form a box. If the sides are measured and cut accurately, they should fit together perfectly! Use the box to store pencils and erasers.

- Measure the height of all the students in the room to the nearest inch. On a large piece of newsprint (about seven feet long) make lines the same length as each student's height and compare.
- Make a picture or design using lines that are varying lengths, marked in exact inches.

**Handout 7, cont'd.**

- Try these measurement puzzles:

Cut three pieces of wood of any length, in exact inches, that measure a total of 17 inches.

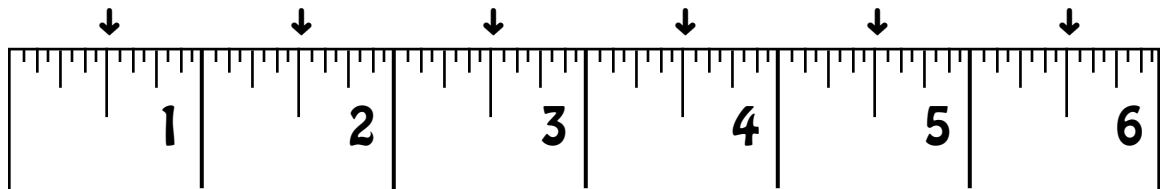
Cut four pieces of wood of any length, in exact inches, that measure a total of 13 inches.

Cut five pieces of wood of any length, in exact inches, that measure a total of 18 inches.

Check for accuracy by asking another student to assemble them and measure the total length.

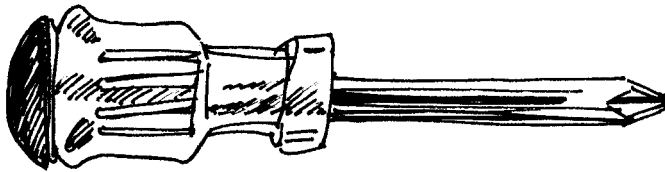
**Handout 8****The Half-Inch**

Every inch is divided into half-inches.



Examine a ruler or tape measure to see how half-inches are written.

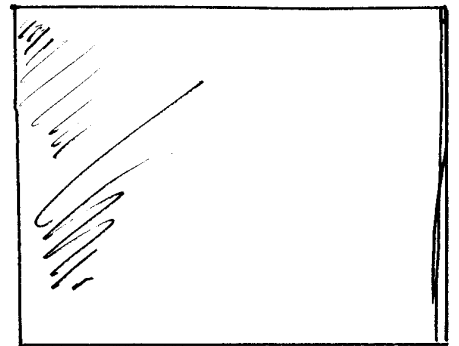
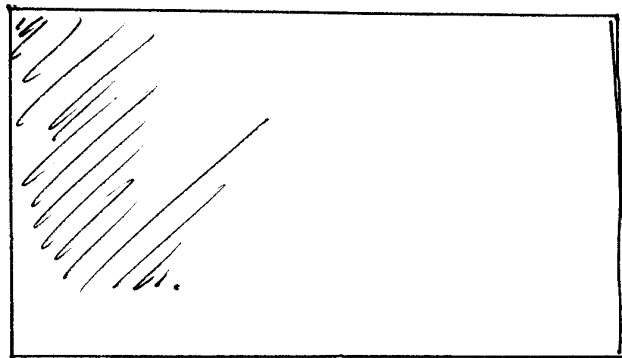
Line up the tape measure against the object you wish to measure. How long are these objects?



Sometimes you need to add measurements that include half-inches.

How many half-inches are there in one inch?

Can you find the total length of these two objects?



## Handout 9

### Object Measurement Worksheet: The Half-Inch

Measure the length of these objects to the nearest half-inch. Write the measurements in words first, and then in numbers and symbols. The first one is done for you.



Object (example ) is: *a piece of wood*

(a) *four and a half inches*

(b)  $4\frac{1}{2}$ "

Object #1 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #6 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #2 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #7 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #3 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #8 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #4 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #9 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #5 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #10 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

## Handout 10

### Activities for Practice: The Half-Inch

Have students do the following activities for practicing measuring and marking half-inches. Students can work individually for practice, then check each other's work for accuracy. Or they can work in pairs or groups of three, each person doing a different part of the assignment.

- Construct a cardboard box with the dimensions:  $4\frac{1}{2}'' \times 3\frac{1}{2}'' \times 2\frac{1}{2}''$ . Cut six pieces of cardboard or posterboard with the measurements:

2 pieces:  $4\frac{1}{2}'' \times 3\frac{1}{2}''$

2 pieces:  $4\frac{1}{2}'' \times 2\frac{1}{2}''$

2 pieces:  $3\frac{1}{2}'' \times 2\frac{1}{2}''$

Tape all the pieces together to form a three-dimensional box. If the sides are measured and cut accurately, they should fit together perfectly!

- Measure the height of all the students in the room to the nearest half-inch. On a large piece of newsprint (about seven feet long) make lines the same length as each student's height and compare.
- Draw, on large paper, a scale drawing of the classroom, or a room on the worksite, or any area you choose. Measure the length, width and height of the room or rooms, then cut pieces of cardboard or posterboard to scale, where one half-inch is equal to one foot ( $\frac{1}{2}''=1'$ ).
- Have students experiment with marking 16" on center. Give pairs of students each an eight foot long stud (which will serve as a mock bottom plate of a framed wall), a carpenter's pencil, a tape measure and a quick square. Show students a picture of a framed wall. Ask them to figure out how to measure and mark out the bottom plate for wall studs to be placed sixteen inches apart, using the process of discovery, before correctly demonstrating the procedure. Give only this information:

*We're going to prepare you to build a wall.*

*The first thing you do when building a wall is lay out a bottom plate.*

*The wall studs rest on the bottom plate.*

*Even though we call these 2"x4"s, they are  $1\frac{1}{2}''$  wide.*

*On each end you should place double studs for wall support.*

*Otherwise, studs should be placed on the wall at a maximum distance of 16" on center, which means that from the center of one to the center of another is 16".*

*This is the same measurement if you measure from the left to the left, or from the right to the right.*

*To mark where the wall studs should go, mark the bottom plate with two lines for each side of the wall stud and an x.*

**Handout 10, cont'd.**

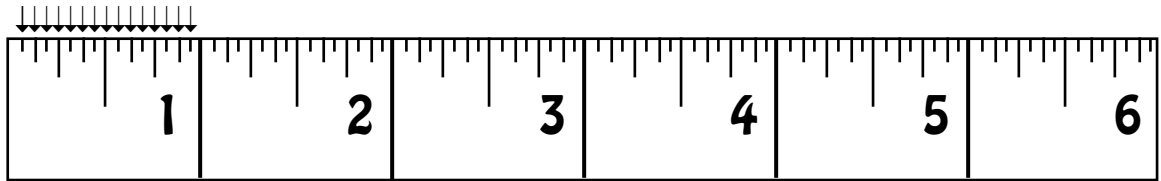
After students have experimented with this and displayed their marks, use a tape measure to demonstrate how to mark and measure correctly 16" on center.

- Practice marking 16" on center till students get it right. Add additional problems for review: put in a 30" window in the middle of the wall; put in a 36" window, etc. Give assorted addition problems in which students add 16" to an assortment of measures to practice marking 16" on center in various situations.

## Handout 11

### Sixteenths of an Inch

Every inch is divided into sixteenths.



Examine a ruler or tape measure to see how sixteenths of an inch are written.

Each whole inch is divided into sixteen equal parts.

Each part is called one-sixteenth ( $1/16$ ).

Two-sixteenths are written this way:  $2/16$ .

Three-sixteenths are written this way:  $3/16$ .

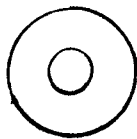
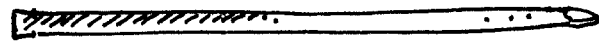
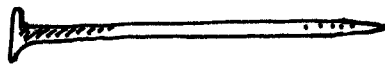
How would you write five-sixteenths?

How would you write seven-sixteenths?

How would you write eight-sixteenths? Look at a ruler. What is another way to write this?

How would you write seven-sixteenths?

Line up the tape measure against the object you wish to measure. How many sixteenths of an inch long are these objects?



## Handout 12

### Object Measurement Worksheet: Sixteenths of an Inch

Measure the length of these objects to the nearest sixteenth of an inch. Write the measurements in words first, and then in numbers and symbols. The first one is done for you.



Object (example ) is: *a piece of wood*

(a) *three and five-sixteenths inches*

(b)  $3\frac{5}{16}$ "

Object #1 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #6 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #2 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #7 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #3 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #8 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #4 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #9 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #5 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #10 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

## Handout 13

### Activities for Practice: Sixteenths of an Inch

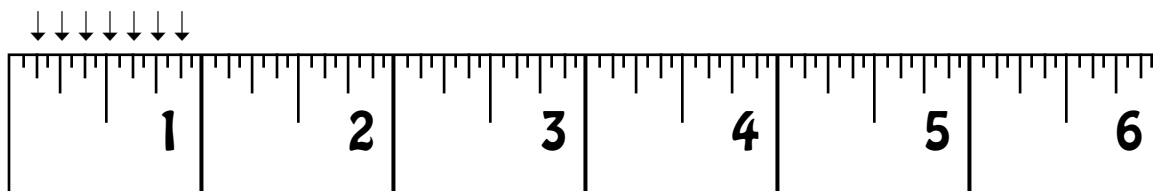
Have students do the following activities for practicing measuring and marking sixteenths of an inch. Students can work individually for practice, then check each other's work for accuracy. Or they can work in pairs or groups of three, each person doing a different part of the assignment.

- Tell students that they can always give a correct measurement even if they have not yet measured fractional equivalents. In other words, any measurement can be described in sixteenths. Give students lots of practice finding assorted measurements and then checking each other for accuracy.
- Measure the height of all the students in the room to the nearest sixteenth of an inch. On a large piece of newsprint (about seven feet long) make lines the same length as each student's height and compare.
- Measure the length of the table students work on to the nearest sixteenth of an inch.
- Make a drawing using straight lines, each measured in sixteenths.
- Make a list of the times when an accurate measurement — marked to the nearest sixteenth — might be essential. List other times when it might be better to not measure to the nearest sixteenth, or when it might not matter.
- Make a series of lines measured in sixteenths. Look at the ruler; are there any other names for these measures? Are there equivalent fractions that can be used to express the same number?

## Handout 14

### Eighths of an Inch

Every inch is divided into eighths.



An eighth of an inch is equal to two-sixteenths.

Two-eighths of an inch is equal to four-sixteenths.

Three-eighths of an inch is equal to how many sixteenths?

Four-eighths of an inch is equal to how many sixteenths?

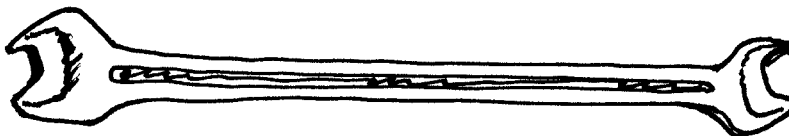
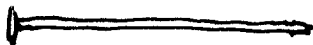
How many sixteenths are in five eighths of an inch?

How many sixteenths are in six eighths of an inch?

How many sixteenths are in seven eighths of an inch?

Line up the tape measure against the object you wish to measure.

How long are these objects?



## Handout 15

### Object Measurement Worksheet: Eighths of an Inch

Measure the length of these objects to the nearest eighth of an inch. Write the measurements in words first, and then in numbers and symbols. The first one is done for you.



Object (example ) is: *a piece of wood*

(a) *four and one-eighth inches*

(b)  $4\frac{1}{8}$ "

Object #1 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #2 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #3 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #4 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #5 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #6 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #7 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #8 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #9 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #10 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

## Handout 16

### Activities for Practice: Eighths of an Inch

Have students do the following activities for practicing measuring and marking eighths of an inch. Students can work individually for practice, then check each other's work for accuracy. Or they can work in pairs or groups of three, each person doing a different part of the assignment.

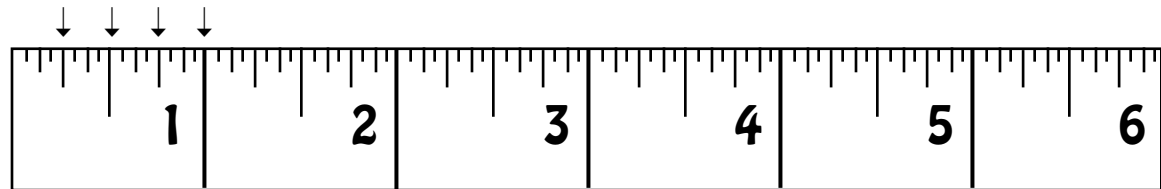
- Draw, on a large piece of paper, a scale drawing of the classroom, or a room on the worksite, or any room you choose. Measure the length and width of the room, then draw a picture of it, in which an inch is equal to one foot ( $1/8" = 1'$ ). Tape them together and display.
- Construct a cardboard box with the dimensions  $4\ 1/8" \times 2\ 1/8"$ . Cut six pieces of cardboard or posterboard with the measurements:
  - 2 pieces:  $4\ 1/8" \times 3\ 1/8"$
  - 2 pieces:  $4\ 1/8" \times 2\ 1/8"$
  - 2 pieces:  $3\ 1/8" \times 2\ 1/8"$

Tape all the pieces together to form a three-dimensional box. If the sides are measured and cut accurately, they should fit together perfectly!

## Handout 17

### Fourths of an Inch

Every inch is divided into fourths of an inch, also called quarter-inches.



Examine a ruler or tape measure to see how fourths of an inch are written.

A fourth of an inch is equal to two-eighths.

A fourth of an inch is also equal to four-sixteenths.

Two-fourths of an inch is equal to one-half inch.

Two-fourths of an inch is equal to how many eighths?

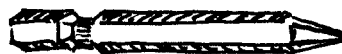
Two-fourths of an inch is equal to how many sixteenths?

Three-fourths of an inch is equal to how many eighths?

Three-fourths of an inch is equal to how many sixteenths?

Line up the tape measure against the object you wish to measure.

How long are these objects?



## Handout 18

### Object Measurement Worksheet: Fourths of an Inch

Measure the length of these objects to the nearest fourth of an inch. Write the measurements in words first, and then in numbers and symbols. The first one is done for you.



Object (example ) is: *a piece of wood*

(a) *two and one-fourth inches*

(b)  $2\frac{1}{4}$ "

Object #1 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #6 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #2 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #7 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #3 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #8 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #4 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #9 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #5 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

Object #10 is: \_\_\_\_\_

(a) \_\_\_\_\_

(b) \_\_\_\_\_

**Handout 19****Activities for Practice: Fourths of an Inch**

Have students do the following activities for practicing measuring and marking fourths of an inch. Students can work individually for practice, then check each other's work for accuracy. Or they can work in pairs or groups of three, each person doing a different part of the assignment.

- Draw, on a large piece of paper, a scale drawing of the classroom, or a room on the worksite, or any room you choose. Measure the length and width of the room, then draw a picture of it, in which one-fourth of an inch is equal to one foot ( $1/4" = 1'$ ).
- Build a model of the classroom, a floor of the worksite, or any area you choose. Measure the length, width and height of the room or rooms, then cut pieces of cardboard or posterboard to scale, where one-fourth of an inch is equal to one foot ( $1/4"=1'$ ). Tape them together and display.
- Construct a cardboard box with the dimensions  $4\ 1/4" \times 2\ 1/4"$ . Cut six pieces of cardboard or posterboard with the measurements:

2 pieces:  $4\ 1/4" \times 3\ 1/4"$

2 pieces:  $4\ 1/4" \times 2\ 1/4"$

2 pieces:  $3\ 1/4" \times 2\ 1/4"$

Tape all the pieces together to form a three-dimensional box. If the sides are measured and cut accurately, they should fit together perfectly!

- Create a set of building blocks for children in which ten blocks are  $2\ 1/4"$  wide and ten blocks are  $4\ 3/4"$  wide. Each student should mark a stud for twenty blocks, and have another student and the instructor check for accuracy before cutting. Then have students use a hand saw to cut and sand paper to smooth.