Name _____   Date _____

1. The picture graph below represents all the trees in the park.

Trees in the Park

🌳 = 4 trees

Maple   Spruce   Birch   Oak   Ash

Type of tree

a. Use the grid to create and label a scaled bar graph representing the data in the picture graph above.

b. How many more maple and oak trees are there than birch trees?
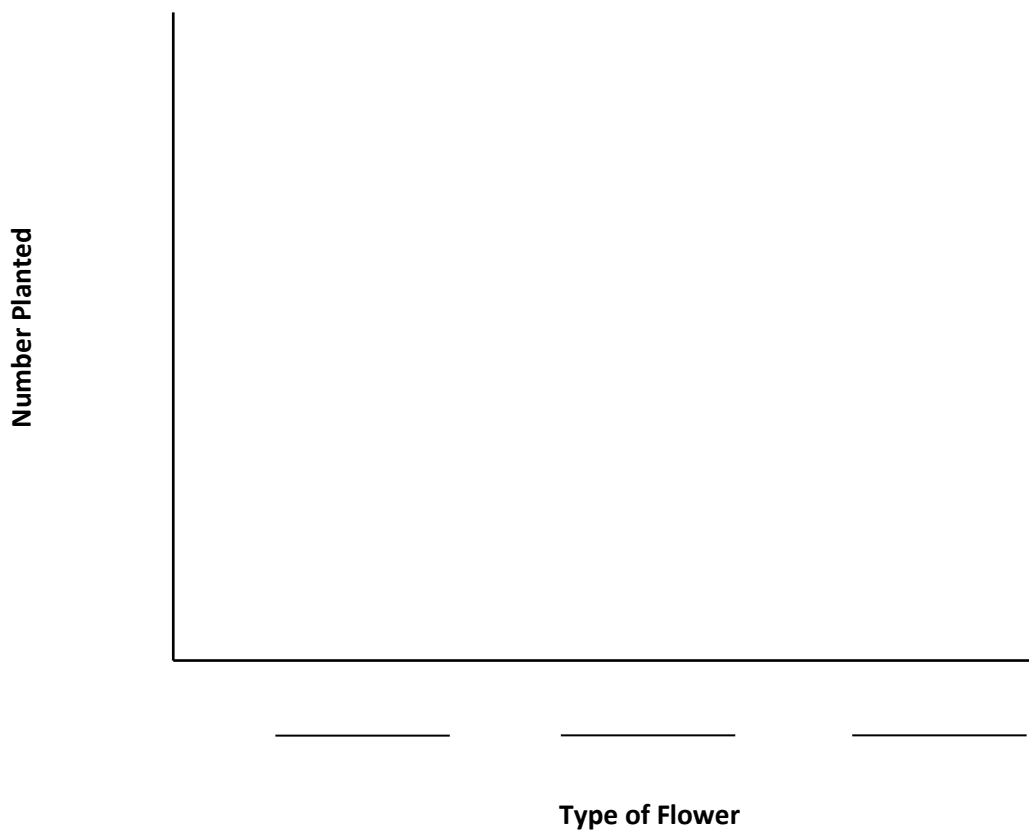
2. The table below shows the number of flowers that were planted by the science club.

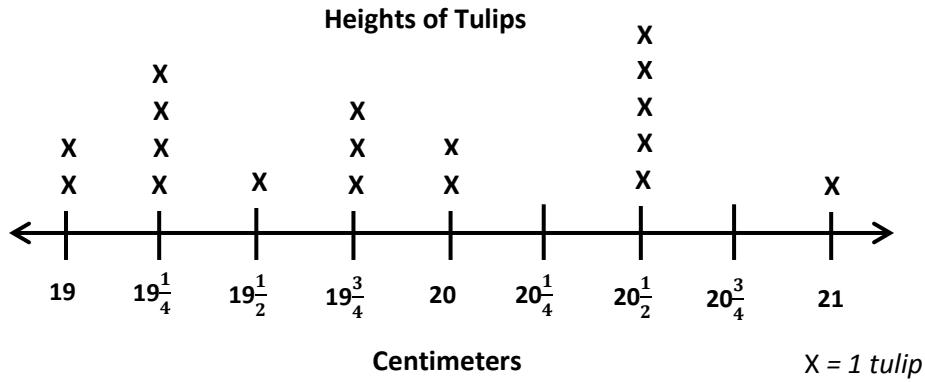   a. Complete the table by filling in the number of marigolds that were planted.

Flowers Planted by Science Club	
Type of Flower	**Number Planted**
Roses	24
Lilies	12
Marigolds	_____
TOTAL Flowers Planted:	54

    b. Use the lines below to create and label a picture graph using the data in the table. Determine a picture and scale to represent the number of each type of flower.

```
                                                    ┌─────────────────────┐
                                                    │  = _____ flowers  │
                                                    └─────────────────────┘
```

Number Planted

_____   _____   _____

Type of Flower

3. Fred measures the height of all the tulips in his backyard. His measurements in centimeters are shown on the line plot below.

Heights of Tulips

```
                                                    X
              X                                     X
              X                     X               X
        X     X                     X     X         X
        X     X           X         X     X         X                   X
       ←─┼─────┼─────┼─────┼─────┼─────┼─────┼─────┼─────┼──→
         19   19¼   19½   19¾    20   20¼   20½   20¾    21
```

19 $19\frac{1}{4}$ $19\frac{1}{2}$ $19\frac{3}{4}$ 20 $20\frac{1}{4}$ $20\frac{1}{2}$ $20\frac{3}{4}$ 21

Centimeters   X = 1 tulip

a. How many tulips are in Fred's backyard? Explain how you know.

b. What are the three most frequent measurements on the line plot? Write them in order from shortest to longest.

4. Carol measures 16 bamboo shoots. Her measurements are recorded in the table below.

Height of Bamboo Shoot in Inches			
$94\frac{1}{2}$	$94\frac{1}{4}$	$93\frac{3}{4}$	$94\frac{3}{4}$
$94\frac{3}{4}$	95	$94\frac{3}{4}$	$95\frac{1}{4}$
$94\frac{1}{2}$	$94\frac{3}{4}$	$94\frac{3}{4}$	$94\frac{1}{2}$
95	$94\frac{3}{4}$	$94\frac{3}{4}$	95

a. Make a line plot of the bamboo shoot data. Explain your choice of scale.

b. How many more bamboo shoots measured $94\frac{3}{4}$ than both 95 and $94\frac{1}{2}$ combined?

End-of-Module Assessment Task	**Topics A–B**
Standards Addressed	

Represent and interpret data.

3MD.3   Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. *For example, draw a bar graph in which each square in the bar graph might represent 5 pets.*

3.MD.4   Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.

Evaluating Student Learning Outcomes

A Progression Toward Mastery is provided to describe steps that illuminate the gradually increasing understandings that students develop *on their way to proficiency.* In this chart, this progress is presented from left (Step 1) to right (Step 4). The learning goal for each student is to achieve Step 4 mastery. These steps are meant to help teachers and students identify and celebrate what the student CAN do now and what they need to work on next.

COMMON CORE | **Module 6:**   Collecting and Displaying Data
Date: 3/29/14

engage^{ny}

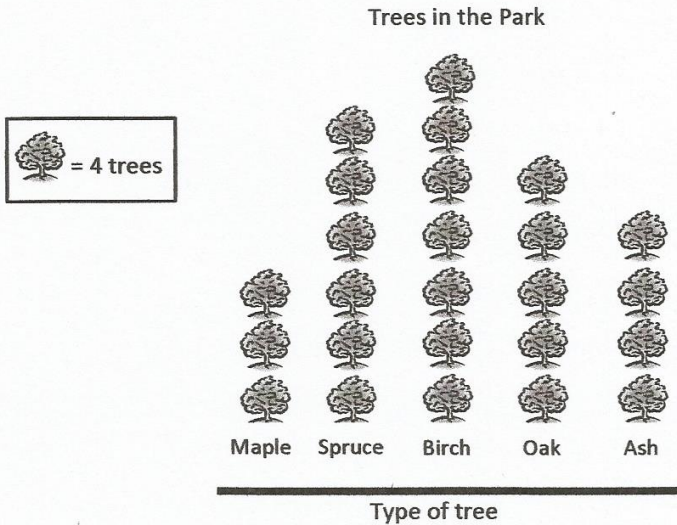| A Progression Toward Mastery				
Assessment Task Item and Standards Assessed	STEP 1 Little evidence of reasoning without a correct answer. (1 Point)	STEP 2 Evidence of some reasoning without a correct answer. (2 Points)	STEP 3 Evidence of some reasoning with a correct answer or evidence of solid reasoning with an incorrect answer. (3 Points)	STEP 4 Evidence of solid reasoning with a correct answer. (4 Points)
1 **3.MD.3**	Student is unable to answer either question correctly.	Student attempts to draw and label the bar graph, but does not use an appropriate scale.	The student creates an accurate bar graph with labels and an appropriate scale, but does not answer Part (b) correctly. Or, the student creates a graph that is missing labels but otherwise correct, and Part (b) is correct.	The student: a. Creates an accurate, labeled bar graph with a scale of 4. b. Finds that there are 4 more maple and oak trees than birch trees.
2 **3.MD.3**	Student attempts to complete the table, but finds the incorrect number of marigolds in Part (a).	Student correctly calculates the number of marigolds and attempts to scale, create, and label a picture graph in Part (b).	The student correctly calculates 18 marigolds in Part (a), and correctly scales and labels the picture graph in Part (b), but incorrectly represents the number flowers for one or more types in Part (b).	The student correctly: a. Calculates 18 marigolds. b. Determines an appropriate scale and graphic representation; creates an accurate, labeled picture graph based on the data in the table.
3 **3.MD.4**	Student is unable to answer any question correctly.	Student correctly answers Part (a), but answers Part (b) completely incorrectly.	The student correctly answers Part (a), and correctly identifies $19\frac{1}{4}$, $19\frac{3}{4}$, and $20\frac{1}{2}$ in Part (b), but may not list the measurements in order.	The student: a. Finds 18 tulips in Fred's backyard and provides sound reasoning to support the answer. b. Lists $19\frac{1}{4}$, $19\frac{3}{4}$, and $20\frac{1}{2}$ in order.

A Progression Toward Mastery

4 **3.MD.4**	Student attempts, but is unable to complete either question correctly.	Student draws the line plot correctly but may not explain her choice of scale. The student may make a minor error calculating Part (b).	Student answers Part (a) completely correctly, but may make a minor error calculating Part (b).	The student: a. Creates an appropriate scale, draws a line plot to accurately display the data, and provides sound explanation for the choice of scale. b. Finds 1 more shoot that measured $94\frac{3}{4}$ than 95 and $94\frac{1}{2}$ combined.

Name ___Gina_____   Date _____

1. The picture graph below represents all the trees in the park.

Trees in the Park

= 4 trees

Maple   Spruce   Birch   Oak   Ash

Type of tree

a. Use the grid to create and label a scaled bar graph representing the data in the picture graph above.

Trees in the Park

Number of trees

32
28
24
20
16
12
8
4

Maple Spruce Birch Oak Ash

Type of Tree
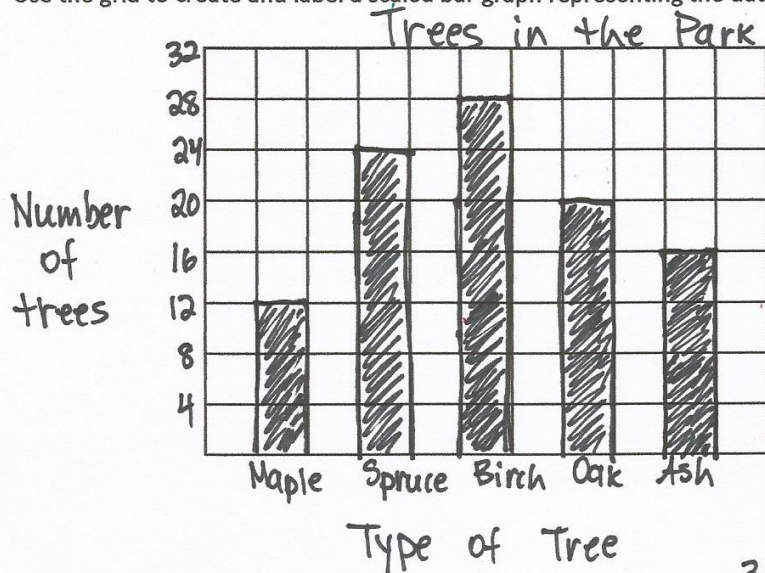
b. How many more maple and oak trees are there than birch trees?

32 Maple and Oak

| 12 Maple | 20 Oak | 12 + 20 = 32

?

| 28 Birch | ? | 32 - 28 = 4
                    2 (30) 2

There are 4 more
Maple and Oak than Birch trees.

2. The table below shows the number of flowers that were planted by the science club.

   a. Complete the table by filling in the number of marigolds that were planted.

Flowers Planted by Science Club	
Type of Flower	**Number Planted**
Roses	24
Lilies	12
Marigolds	18
TOTAL Flowers Planted:	54

$$54 \; 36) = 18$$
$$14 \quad 40 \quad 4$$

   b. Use the lines below to create and label a picture graph using the data in the table. Determine a picture and scale to represent the number of each type of flower.

Flowers Planted by the Science Club
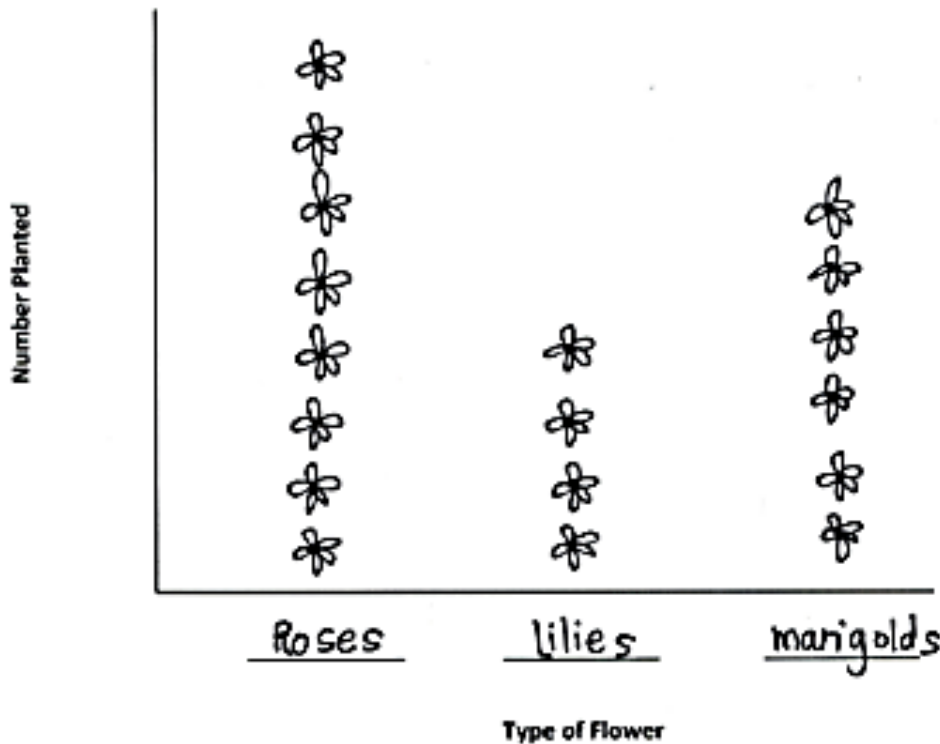
❀ = _3_ flowers

Number Planted

Roses   lilies   marigolds

Type of Flower

3. Fred measures the height of all the tulips in his backyard. His measurements in centimeters are shown on the line plot below.

Heights of Tulips

Centimeters
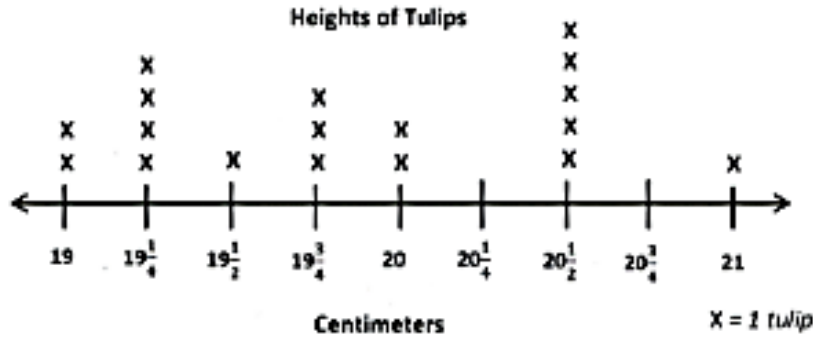
X = 1 tulip

a. How many tulips are in Fred's backyard? Explain how you know.

There are 18 tulips in Fred's backyard. Each 'x' represents 1 tulip, so I found the total number of tulips by counting all the 'x's.'
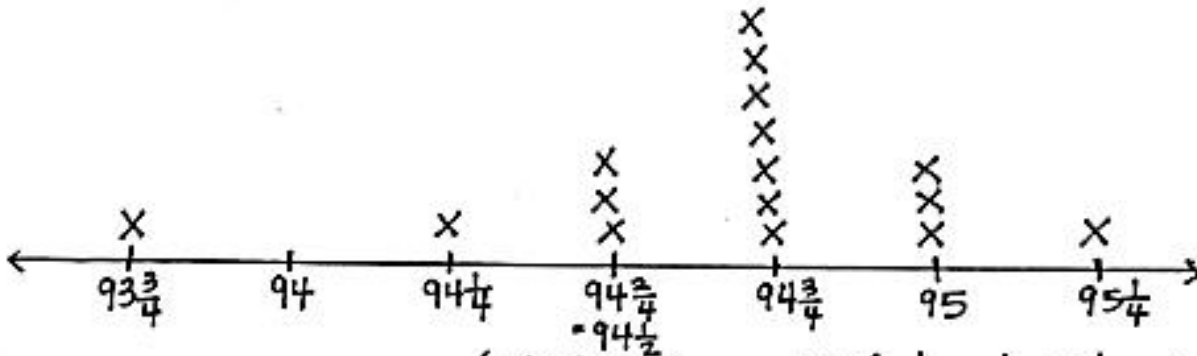
b. What are the three most frequent measurements on the line plot? Write them in order from shortest to longest.

The three most frequent measurements on the line plot from shortest to longest are $19\frac{1}{4}$ cm, $19\frac{3}{4}$ cm, and $20\frac{1}{2}$ cm.

4. Carol measures 16 bamboo shoots. Her measurements are recorded in the table below.

Height of Bamboo Shoot in Inches			
$94\frac{1}{2}$	$94\frac{1}{4}$	$93\frac{3}{4}$	$94\frac{3}{4}$
$94\frac{3}{4}$	95	$94\frac{3}{4}$	$95\frac{1}{4}$
$94\frac{1}{2}$	$94\frac{3}{4}$	$94\frac{3}{4}$	$94\frac{1}{2}$
95	$94\frac{3}{4}$	$94\frac{3}{4}$	95

a. Make a line plot of the bamboo shoot data. Explain your choice of scale.

I used fourths for my scale, because I looked at all the heights and saw that fourths was the smallest unit.

b. How many more bamboo shoots measured $94\frac{3}{4}$ than both 95 and $94\frac{1}{2}$ combined?

$94\frac{3}{4}$: 7 shoots

$95 + 94\frac{1}{2}$: $3 + 3 = 6$ shoots

1 more bamboo shoot measured $94\frac{3}{4}$ inches than 95 and $94\frac{1}{2}$ inches combined.