

## Sales Goals

**Overview:** Students use the context of sales goals to further refine their understanding of the line  $y = x$  by contrasting points above and below the line.

**Objective:** **Algebra I TEKS**  
 b.2.a The student identifies and sketches the general forms of linear ( $y = x$ ) and quadratic ( $y = x^2$ ) parent functions.  
 b.2.c The student interprets situations in terms of given graphs or creates situations that fit given graphs.

**Terms:** linear parent function

**Materials:** markers, 1" grid paper

**Procedures:** **Activity: Sales Goals**  
 Begin by orienting students to the graphs using the following discussion questions.

The management for a clothing store sets up weekly sales goals for their employees. The graphs show the results for a quarter of a year (12 weeks). Each data point represents a week's (actual sales, sales goals) for an employee.

- What is represented on the  $x$ -axis? [Actual sales.]
- What is represented on the  $y$ -axis? [Sales goals.]
- What is the meaning of an ordered pair in this situation? [An ordered pair is (actual sales, sales goals).]
- Why might some employees have higher goals set for them? [Some examples may include: more experienced employees, employees with strong sales in the previous quarter, employees that work at peak sales times of the day or week.]
- Why do employees have such different levels of goals in the same quarter? [If these graphs represent the second quarter of the year, the goals for the two weeks before Father's Day would be higher than the week following. The goals for the weeks previous to Easter would be higher than the weeks after Easter.]

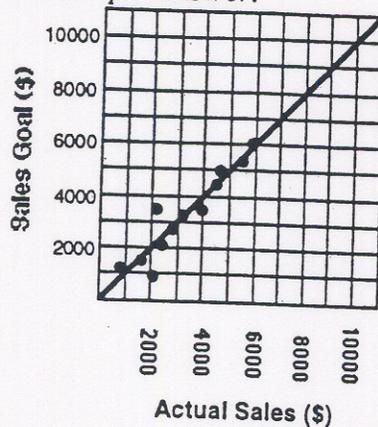
Pick a specific point on a graph and discuss the meaning. For example, circle the lowest point on Amber's graph.

- What does this point mean for Amber? [Amber set a goal to sell about \$2600 for a particular week. She actually sold about \$6800, exceeding her goal.]
- What are the meanings for the points under the line  $\text{goals} = \text{actual}$ ? [The employees exceeded their goals.]
- What are the meanings for the points over the line  $\text{goals} = \text{actual}$ ? [The employees failed to meet their goals.]

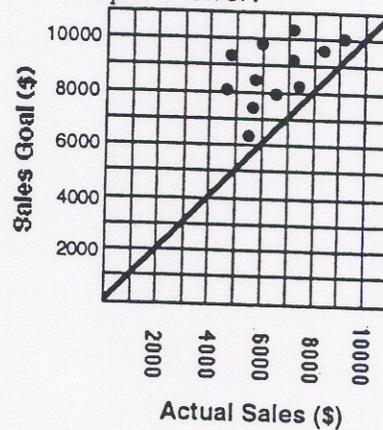
Have students answer the questions on the following page in their groups and sketching their graphs for Exercises 6 – 8 on 1" grid paper. Have students view other groups' graphs.

1. Enrique and Amber met and exceeded their goals.
2. Seth failed to meet his weekly goals.
3. Moesha most often met her weekly goals.
4. Moesha and Enrique had the higher goals.
5. Seth and Amber had the lower goals.

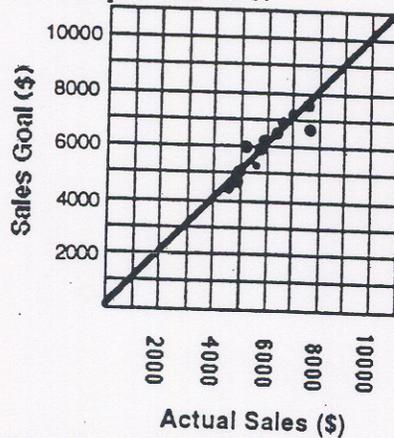
6. *Sample answer:*



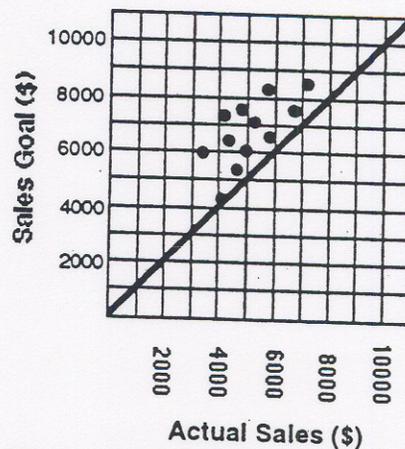
7. *Sample answer:*



8. *Sample answers:*



Wardrobe consultant with middle goals who often matched the goals.



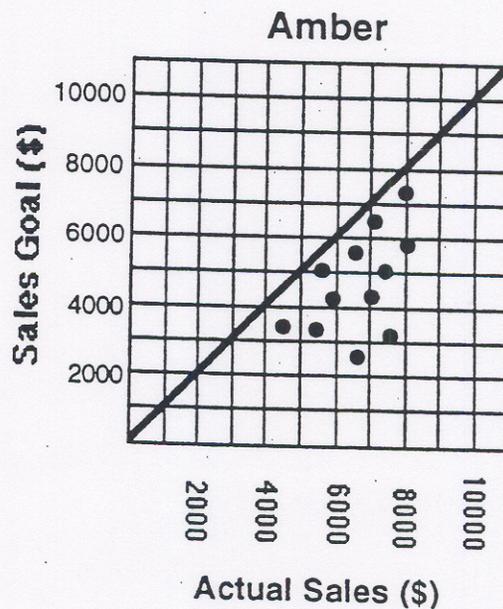
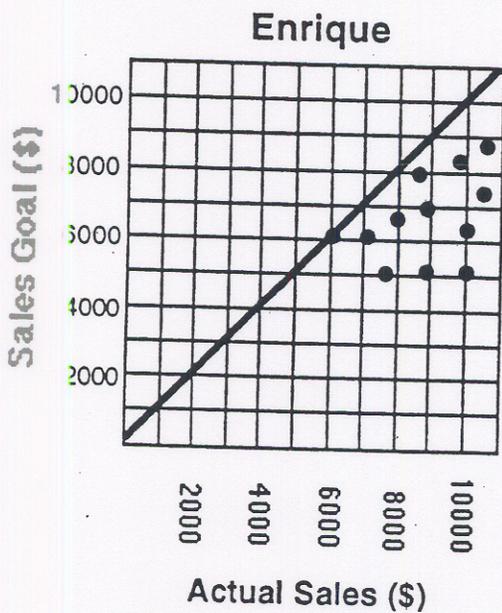
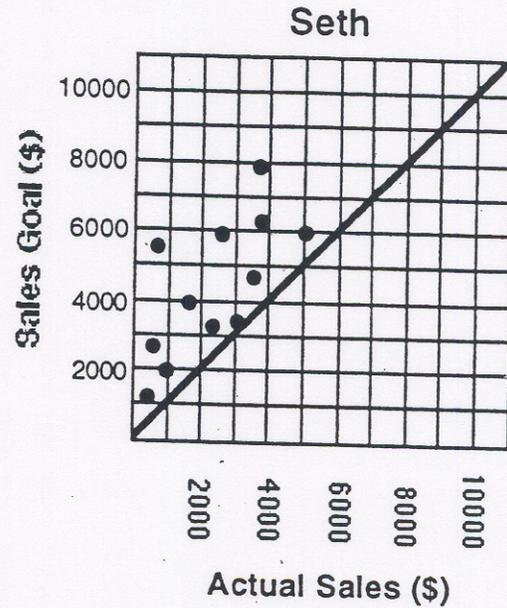
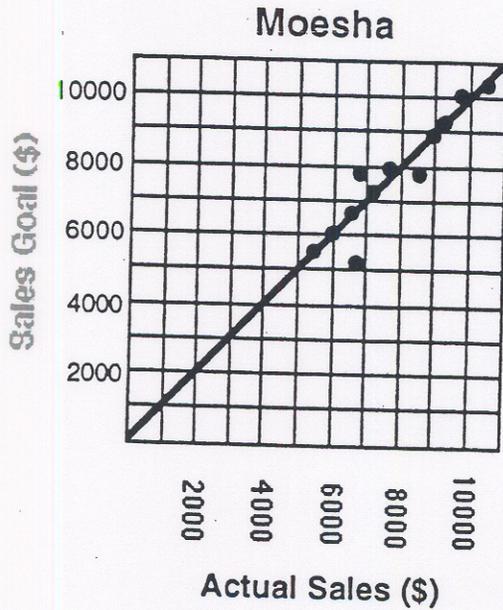
Wardrobe consultant with middle goals who often failed to meet the goals.

**Summary:**

Reading and interpreting scatter plots of points above and below the line  $y = x$  helps students further refine their understanding of the linear parent function.

### Student Activity 2: Sales Goals

A local clothing store sets weekly sales goals for their employees. The graphs below show the quarterly results for four employees, (actual sales, sales goals).



1. Which consultant(s) most often met and exceeded their weekly goals?
2. Which consultant(s) most often failed to meet their weekly goals?
3. Which wardrobe consultant(s) most often matched their weekly goals?
4. Which consultant(s) had the higher goals?
5. Which consultant(s) had the lower goals?
6. Sketch a graph of a consultant who has low goals and consistently matched them.
7. Sketch a graph of a consultant who has high goals and did not meet them.
8. Name a scenario that is not represented by the four original graphs or in Exercise 6 and 7 above. Sketch a graph to match the scenario.