

Functions - Earning Money

Functions - Earning Money

Click [here](#) to download lesson.

Summary	The students will create tables and equations from given stories. The functions are additive and multiplicative.
Goals	1. To discover and understand the underlying function as a general expression, and to generate new stories that support that same notation
Materials	Overheads, White Board or Chart Paper, Handouts
Keywords	Contextualized Situations Full Class Discussion Interpretation of Stories Linear Functions Production of Algebraic Expressions Production of Equations Production of Stories Production of Tables Representing Variables Small Group Work

Activity Plan:

1. Representing a verbal problem [Whole Class]

Introduce the first problem by displaying the overhead on Page 1 and distributing the corresponding handout (also Page 1).

Tom starts a new job and earns \$4 every day. He adds all his money to his piggy bank. He started with \$1 in his piggy bank that his grandmother had given him.

Ask students to talk about the problem. Can they know how much Tom will have in his piggy bank after one day? Ten days? 100 days?

Ask students to show this in an equation. How can we write the equation to reflect any number of days?

2. Representing in a table [Whole Class]

Begin constructing a three-column table on the overhead (Page 2). As you enter each row, be sure to relate it back to the original equation and problem.

Complete with the class 10 days on the table. Ask them to say in their own words what is happening, using what happened in the original story problem.

Possible questions:

If Tom has 401 (or 25, or 101) dollars total, how many days have passed? How do you know?

3. Changing the story [Group Work]

Present this challenge to students: What is another story they could create using the same numbers. (Some students may have already noticed that these numbers are the same as those that appeared during the Dots Lesson, if this lesson was used.) What is another story they could create?

4. Individual/Small Group Work

Distribute the handout (Page 3). As you observe the students, ask them to use their original story to talk about the table, or about X .

5. Whole Class Work

Clear up any confusing points from the handout, but quickly move on to what the generalized expression is for the story. Ask students if they could create other stories that use the same numbers.

6. Homework (Page 4)

Students will create a rule involving multiplication and addition, will complete a table using the rule they created, and will create a problem that can be solved using the rule.

Name: _____ Date: _____

Tom starts a new job.
He gets paid \$4.00 at the end of each day of work.
He will put all the money he earns into his piggy bank and he will spend none of it.
When he starts his new job, he already has \$1.00 in his piggy bank.

Tom wants to know how much money he will have in his piggy bank after his first day of work. Tell him how much. Then explain it to him so he understands.

Tom wants to know how much money he will have in his piggy bank after five days of work. Tell him the answer. Then explain it to him.

Tom wants to know how much money is in his piggy bank whenever you are not around to help him.
He always knows how many days he worked. But he doesn't know how to find out how much money is in his piggy bank. Explain what he should do to find out.

Name: _____ Date: _____

Jane collects marbles. Each day she buys 3 more marbles and adds them to her collection. She started with 5 marbles that her father gave her.

Complete the following table:

Day	Marbles bought <u>ON</u> that day	Marbles bought <u>THROUGH</u> that day	<u>TOTAL</u> marbles in Jane's collection
0	0		
1	3		
2			
			35
100			
			3,005
X			

Write an expression that shows Jane's total amount of marbles after 10 days.

Write an expression that shows Jane's total amount of marbles for any number of days.

On the back of this paper, make up a new story that uses the same values as this story.

Overhead and Homework: Guess My Rule**(Page 4)**

Name: _____ Date: _____

Create your own secret rule that uses both multiplication and addition.

My rule is:

Use your rule to complete the following table:

Input	Times _____	Plus _____	Output
1			
2			

Now make up a story that shows this rule. Your story can be about anything (for example: money, marbles, newspapers, or anything you can think of!). Write your story on the back of this paper.