



Cassy Turner
Cassy@MathChampions.com



Beth Curran
Beth@mathchampions.com

Bar Model or Tape Diagram

A drawing that looks like a segment of tape, used to illustrate number relationships. Also known as a *strip diagram*, *bar model*, *fraction strip*, or *length model*.

Progressions Documents for The Common Core Math Standards

<http://ime.math.arizona.edu/progressions/>

Technology – Drawing Models

- Thinking Blocks: MathPlayground.com and iPad
- Conceptua Math: ConceptuaMath.com/bar-models-tool
- The Singapore Maths Teacher: thesingaporemaths.com
- Xyla and Yabu - app
- Visual Math Word Problems - app

Essential Discussions & Questions:

What is the word problem about? What is happening? Can you visualize the story? Can you restate the word problem without any numbers?

What will the answer look like? Can you make an estimate? (Units of measurement, multiple answers, level of accuracy, etc)

How can we draw a picture to solve this problem?

What do the bars represent?

What information do we know? What do we need to find?

Are we given the total? Parts?

How do you find a missing part?

Is the problem asking for the difference between two numbers or are we given the difference?

Are we comparing two amounts?

Is there a more efficient strategy to solve this problem? Are there other approaches that would work?

Can we check the answer?

Word Problems

There were ____ chocolates in a box. After eating some of them, Tara found that she had $\frac{5}{8}$ of the chocolates left.

A scooter costs _____. A bike costs _____ less than the scooter. Mr. Turner bought both the scooter and the bike. How much did he spend?

Cole bought a bag of jellybeans. $\frac{1}{4}$ of the jellybeans were cherry, $\frac{1}{8}$ were grape and $\frac{1}{5}$ of the remainder were lemon. If there were _____ lemon jellybeans, how many jellybeans did he buy?

Running errands, Mr. Turner spends $\frac{1}{3}$ of his money at the thrift store. He then spends $\frac{1}{3}$ of the money he has left at the dollar store. He spends his remaining \$_____ on Powerball tickets.

The sides of a triangle are in the ratio 4:5:6. If the perimeter of the triangle is 60 cm, find the length of the shortest side.

The difference between two numbers is 2184. If the larger number is three times the smaller number, find the sum of the two numbers.

$\frac{4}{5}$ of Rosanne's savings is equal to $\frac{2}{3}$ of Libby's savings. If their total savings is \$132, how much is Libby's savings?

A shopkeeper had 150 lb. of rice in his bag. He sold $\frac{2}{5}$ of it and packed the remainder equally into 5 bags. Find the weight of rice in each bag.

Word Problem Assessment Rubric

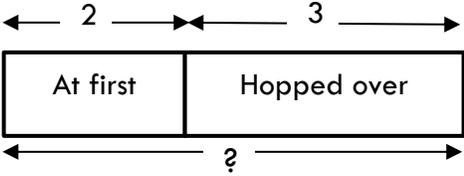
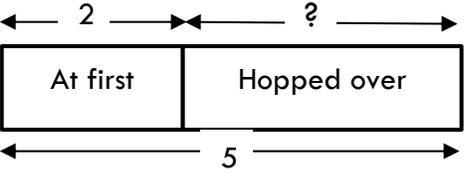
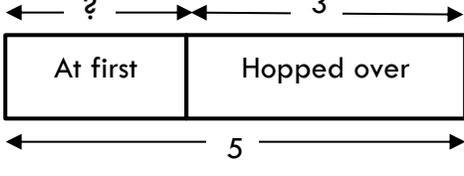
One option:

- 1 point for a representative diagram
- 1 point for correct labeling, including the “?” to represent what is unknown.
- 1 point for computation on the first step
- 1 point for computation on the second step
- 1 point for a correct answer in a complete sentence

As students progress, the rubric may change. At the end of a unit/school year, the same problem might be worth three points; one apiece for diagram, computation, solution.

Addition & Subtraction Situations in Common Core Standards

ADD TO:

<p>Result Unknown</p>	<p>Two bunnies sat on the grass. Three more bunnies hopped there. How many bunnies are on the grass now?</p>	
<p>Change Unknown</p>	<p>Two bunnies were sitting on the grass. Some more bunnies hopped there. Then there were five bunnies. How many bunnies hopped over to the first two?</p>	
<p>Start Unknown</p>	<p>Some bunnies were sitting on the grass. Three more bunnies hopped there. Then there were five bunnies. How many bunnies were on the grass before?</p>	

TAKE FROM:

<p>Result Unknown</p>	<p>Five apples were on the table. I ate two apples. How many apples are on the table now?</p>	
<p>Change Unknown</p>	<p>Five apples were on the table. I ate some apples. Then there were three apples. How many apples did I eat?</p>	
<p>Start Unknown</p>	<p>Some apples were on the table. I ate two apples. Then there were three apples. How many apples were on the table before??</p>	

PUT TOGETHER/TAKE APART

<p>Total Unknown</p>	<p>Three red apples and two green apples are on the table. How many apples are on the table?</p>	
<p>Addend Unknown</p>	<p>Five apples are on the table. Three are red and the rest are green. How many apples are green?</p>	

COMPARE

<p>Difference Unknown</p>	<p>Lucy has two apples. Julie has five apples. How many more apples does Julie have than Lucy?</p> <p>OR: Lucy has two apples. Julie has five apples. How many fewer apples does Lucy have than Julie?</p>	
<p>Bigger Unknown</p>	<p>Julie has three more apples than Lucy. Lucy has two apples. How many apples does Julie have?</p> <p>OR: Lucy has 3 fewer apples than Julie. Julie has five apples. How many apples does Lucy have?</p>	
<p>Smaller Unknown</p>	<p>Julie has three more apples than Lucy. Julie has five apples. How many apples does Lucy have?</p> <p>OR: Lucy has 3 fewer apples than Julie. Julie has five apples. How many apples does Lucy have?</p>	

Multiplication & Division Situations in Common Core Standards

EQUAL GROUPS:

Unknown Product	There are 3 bags with 6 plums in each bag. How many plums are there in all?	
Group Size Unknown	If 18 plums are shared equally into 3 bags, then how many plums will be in each bag?	
Number of Groups Unknown	If 18 plums are to be packed 6 to a bag, then how many bags are needed?	

COMPARE:

Unknown Product	A blue hat costs \$6. A red hat costs 3 times as much as the blue hat. How much does the red hat cost?	
Group Size Unknown	A red hat costs \$18 and that is 3 times as much as a blue hat costs. How much does a blue hat cost?	
Number of Groups Unknown	A red hat costs \$18 and a blue hat costs \$6. How many times as much does the red hat cost as the blue hat?	