

# Need To Know

Identifying relevant information in an engaging, tangible context—and then determining specific values by measuring—provides students with an opportunity to strengthen their understanding of key pieces of information. Developing these skills now will help students solve problems in new contexts as well.



**Materials**  
Textbooks (about 10 identical copies)  
Meter sticks (2) or tape measure  
Doorway

WITHOUT GIVING THEM ANY INFORMATION, ASK STUDENTS TO MAKE A GUESS. CONSIDER COUNTING DOWN FROM 10 TO SPEED THINGS UP.

MAKE SURE YOU'RE NOT STANDING ANYWHERE NEAR THE BOOKS OR THE DOORWAY WHEN YOU ASK FOR INITIAL GUESSES.

MAKE ALL MEASUREMENTS IN CENTIMETERS.

FOR INCREASED ACCURACY WHEN MEASURING BOOK THICKNESS, STUDENTS MIGHT REQUEST TO MEASURE THE THICKNESS OF A "SQUISHED BOOK" (WITH YOU STANDING ON IT).

**Using the Balance Method**

## Need To Know

How many books would your teacher have to stand on to be as tall as the doorway?

DEFINITELY TOO BIG!  
MY GUESS  
DEFINITELY TOO SMALL!

What do you need to know?	Information	Revised Estimate
1.		
2.		
3.		

- How many books were needed?
- If your estimate was off, what things might have contributed to this inaccuracy?

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HAVE STUDENTS MAKE A "TOO HIGH" GUESS (ONE THAT THEY ARE CERTAIN IS TOO HIGH), AS WELL AS A "TOO LOW" GUESS.

STUDENTS SHOULD ASK FOR AND MEASURE (IN ANY ORDER) YOUR HEIGHT, THE HEIGHT OF THE DOORWAY, AND THE THICKNESS OF EACH BOOK.

**Using the Balance Method**

## Need To Know

Use the pictures and fill-in-the-blank sentences below to create two story problems. After writing your story problems, create solution keys. In addition to the answers, your solution keys must show how you arrived at the answers.

(name) wants to purchase a new \_\_\_\_\_ (item) that costs \$\_\_\_\_\_. He/She has \$\_\_\_\_\_ saved (number) up already, and can earn an additional \$\_\_\_\_\_ per (number) hour by \_\_\_\_\_ (job). How many hours will he/she have to work to save up enough money to buy the item?

\_\_\_\_\_ is waiting in line for an ice cream at the \_\_\_\_\_ (name) Snack Shack. He is currently the \_\_\_\_\_ (number) person in line. Each person takes \_\_\_\_\_ (number) minutes to order. He/She has already been waiting in line for \_\_\_\_\_ (number) minutes. When he finishes ordering, how much time will he have spent in line altogether?

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STUDENTS WILL CREATE STORY PROBLEMS AND ANSWER KEYS TO BE SHARED WITH OTHER STUDENTS.

# Need To Know



USING THE BALANCE METHOD

## Need To Know

WRITE AN EQUATION TO REPRESENT THE SITUATION, THEN SOLVE THE EQUATION.



1. Twelve cans of soda and 300 grams of candy balance six cans of soda and 2400 grams of candy. What is the mass of a can of soda weigh in grams?



IT'S RUDE TO GUESS A SODA CAN'S MASS!

2. Twenty cups of punch plus a 64-ounce pitcher is the same volume as 25 cups of punch and a 24-ounce pitcher. How many ounces are in a cup?

3. Two pirates buried treasure together and followed different codes, but they ended up at the same spot. Bad Bart's code is  $-2(x - 4)$ . Long John's code is  $3(x + 6)$ . Where is the treasure buried?

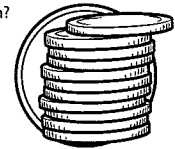
4. You can move between the numbers on the face of a clock in many ways. One way to move is to multiply the starting number by four and then subtract six. Another way is to subtract one and then triple that number. With what starting number can you follow either set of instructions and end up at the same number?

5. You receive two different shipments, each with the same number of thing-a-ma-jigs. One shipment is made up of 10 cases with a total of five missing from the cases. The second shipment came as eight cases and seven loose thing-a-ma-jigs. How many thing-a-ma-jigs are in a case?

6. Six cartons of candy and seven loose boxes is the same amount of candy as nine cartons with a total of eight boxes missing. How many boxes of candy are in each carton?

7. The bank will exchange seven Euros and 23 coins for 10 Euros and 11 coins. How many coins is each Euro worth?

8. You can get the prize of your dreams at the arcade for 150 tickets. If you don't have enough tickets, they will take 125 tickets plus two dollars instead. How much is a ticket worth?



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Answers -

USING THE BALANCE METHOD

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WRITE AN EQUATION TO REPRESENT THE SITUATION, THEN SOLVE THE EQUATION.



1. Adrian wants to purchase a new video game system for \$199. He currently has \$50, and makes money mowing lawns for his neighbors. If he makes \$7 per lawn, how many lawns will he have to mow before he has enough money to make his purchase?

2. Bianca has \$43 in the bank. She earns money babysitting her neighbors' kids at the rate of \$12 per hour. How many hours does Bianca need to work in order to earn enough money to purchase a \$139 digital music player?

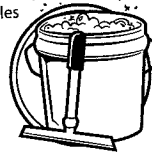
3. Carlos earns \$15 per hour tutoring his classmates in math. He wants to buy a new skateboard deck. He has his sights set on a \$120 model. If he already has \$30 saved up, how many more hours does he need to tutor in order to have enough money?

4. Dennis and Ethan wash windows to earn money. They receive the same amount of money per window. Suppose Dennis started with \$15 and Ethan with \$7. After Dennis washed 10 windows and Ethan washed 26 windows, they had the same amount of money. How much did they earn per window?

5. Fiona and Giada are keeping track of their exercise in a journal. On a day when they ran the same total distance, Fiona ran 3 laps plus another 1000 feet, while Giada ran 5 laps plus another 200 feet. How long is each lap?



6. Helen leaves town in her rusty old pickup truck at noon traveling 45 miles per hour. One hour later, Ivan follows in his speedy red sports car traveling 60 miles per hour. After how many hours will Ivan catch Helen?



7. Juan stands in line to buy a sno-cone at the county fair. He is 11th in line. If Juan started waiting in line at 12:34 PM, and gets to the front of the line at 12:56 PM, on average how long does it take for one person to get through the line?

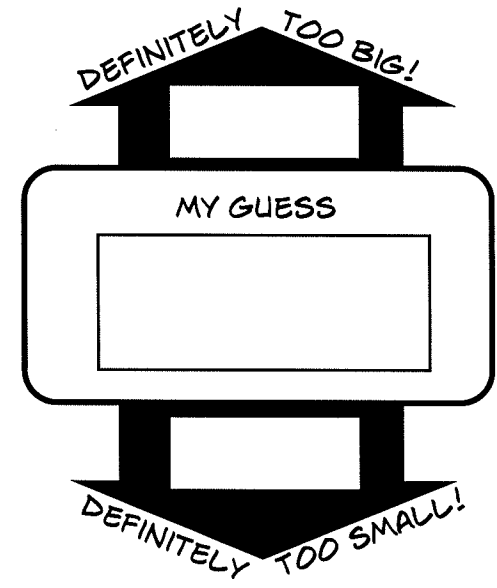
8. Over the weekend, Katherine reads 31 pages of her new book. She plans to finish the 276-page book by reading the same number of pages on each of the five days in the week ahead. How many pages will she have to read each day?

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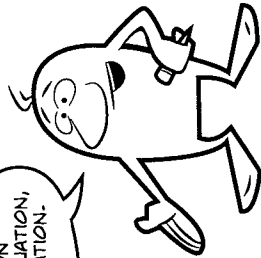
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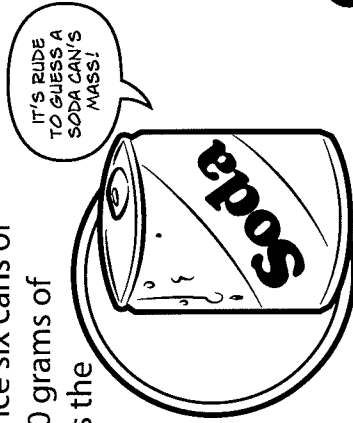
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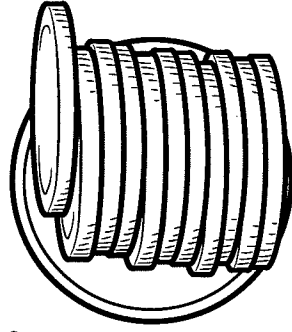
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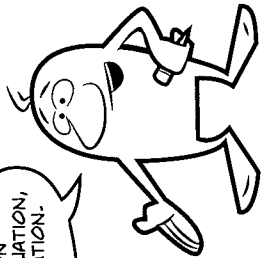
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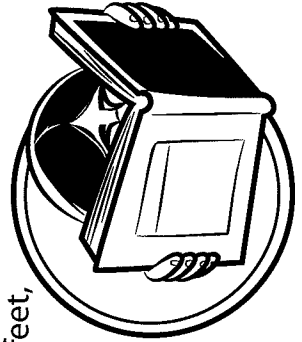


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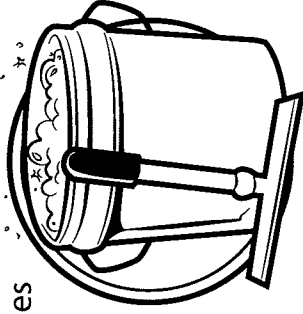
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