

LESSON
4.7

Spreadsheet Activity: Predicting with Linear Models

For use before the lesson "Predict with Linear Models"

QUESTION How can you use a spreadsheet to predict the total U.S. annual fuel consumption by all vehicles in 2010?

EXAMPLE Predict using a spreadsheet

The table shows the annual fuel consumption by all vehicles in the U.S. during the period 1996–2002. Use a spreadsheet to predict the total U.S. annual fuel consumption by all vehicles in 2010.

Year	1996	1997	1998	1999	2000	2001	2002
Annual fuel consumption (billions of gallons)	147.4	150.4	155.4	161.4	162.5	163.5	167.7

STEP 1 Enter data. Label columns for years since 1996, annual fuel consumption, and prediction for 2010. Enter the integers 0 through 6 as years since 1996 in column A. Enter the annual fuel consumption data in column B. Enter the formula to predict the annual fuel consumption in 2010. In the formula, $=\text{TREND}(B2:B8, A2:A8, 14)$, cells B2:B8 are the y -values, cells A2:A8 are the x -values, and 14 is the years since 1996.

	A	B	C
1	Years since 1996	Annual fuel consumption	Prediction for 2010
2	0	147.4	$=\text{TREND}(B2:B8, A2:A8, 14)$
3	1	150.4	
4	2	155.4	
5	3	161.4	
6	4	162.5	
7	5	163.5	
8	6	167.7	

STEP 2 Calculate prediction. The formula predicts that about 195 billion gallons of fuel will be consumed by all vehicles in 2010.

PRACTICE The table shows the annual fuel consumption by all cars in the U.S. during the period 1996–2002. Use a spreadsheet to predict the total U.S. annual fuel consumption by all cars in 2010.

Year	1996	1997	1998	1999	2000	2001	2002
Annual fuel consumption (billions of gallons)	69.2	69.9	71.7	73.2	73.1	73.6	74.9

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4.7**Spreadsheet Activity:**
Predicting with Linear Models *continued**For use before the lesson "Predict with Linear Models"***EXCEL**

Select cell A1.

Years since 1996 **TAB** Annual fuel consumption **TAB** Prediction for 2010 **ENTER**

Select cell A2.

0 **ENTER** 1 **ENTER** 2 **ENTER** 3 **ENTER** 4 **ENTER** 5 **ENTER** 6 **ENTER**

Select cell B2.

147.4 **ENTER** 150.4 **ENTER** 155.4 **ENTER** 161.4 **ENTER** 162.5 **ENTER** 163.5
ENTER 167.7 **ENTER**

Select cell C2.

=TREND(B2:B8, A2:A8, 14) **ENTER**