Math Activity: Rate of Water Use

1. Choose the year closest to when your teacher was born.

2. How much water was withdrawn for public supply during the year closest to when you were born? (Make sure to use the correct units.)

3. How much water was withdrawn for public supply in 2005?

4. What is the percent change for the amount of water withdrawn for public supply between the year closest to when you were born and 2005?

5. What is the percent change for the population between the year closest to when you were born and 2005?

6. What conclusions can you make from this data?

Math Activity: Rate of Water Use

Sample Answer Key

1. Choose the year closest to when your teacher was born.
   1980

2. How much water was withdrawn for public supply during that year? (Make sure to use the correct units.)
   33 billion gallons per day

3. How much water was withdrawn for public supply in 2005?
   44.2 billion gallons per day

4. What is the percent change for the amount of water withdrawn for public supply between the year you chose when you were born and 2005?
   43% increase

5. What is the percent change for the population between the year you chose and 2005?
   31% increase

6. What conclusions can you make from this data?
   The water public supply grew 12% more than the population growth between 1980 and 2005.

http://pubs.usgs.gov/circ/1344/pdf/c1344.pdf

Table 14. Trends in estimated water use in the United States, 1950–2005.

[Data for 2000 and earlier from Hutson and others (2004). Water-use data are in billion gallons per day (thousand million gallons per day) and are rounded to two significant figures for 1950–80, and to three significant figures for 1985–2005; percentage change is calculated from unrounded numbers. Geographic extent: 1950, 48 States and District of Columbia, and Hawaii; 1955, 48 States and District of Columbia; 1960 and 1975–2005, 50 States and District of Columbia, Puerto Rico, and U.S. Virgin Islands; 1965–1970, 50 States and District of Columbia, and Puerto Rico; —, not available]

	Year											
	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005
Population, in millions	150.7	164.0	179.3	193.8	205.9	216.4	229.6	242.4	252.3	267.1	285.3	300.7
Total withdrawals	180	240	270	310	370	420	[1]430	[1]397	[1]404	[1]399	[1]413	410
Public supply	14	17	21	24	27	29	[1]33	[1]36.4	[1]38.8	40.2	43.2	44.2
Rural domestic and livestock												
Self-supplied domestic	2.1	2.1	2.0	2.3	2.6	2.8	3.4	3.32	3.39	3.39	[1]3.58	3.83
Livestock	1.5	1.5	1.6	1.7	1.9	2.1	2.2	2.23	2.25	2.28	[2]2.38	2.14
Irrigation	89	110	110	120	130	140	150	[1]135	[1]134	[1]130	[1]139	128
Thermoelectric power	40	72	100	130	170	200	210	187	[1]194	190	195	201
Other												
Self-supplied industrial	37	39	38	46	47	45	45	[1]25.9	22.6	22.4	19.7	18.2
Mining	[3]	[3]	[3]	[3]	[3]	[3]	[3]	3.44	4.93	3.72	[2]4.50	4.02
Commercial	[3]	[3]	[3]	[3]	[3]	[3]	[3]	1.23	2.39	2.89	[4]	[4]
Aquaculture	[3]	[3]	[3]	[3]	[3]	[3]	[3]	2.24	[5]2.25	[5]3.22	[2]5.77	8.78
Source of water												
Ground												
Fresh	34	47	50	60	68	82	83	[1]73.4	[1]79.6	76.4	[1]84.3	79.6
Saline	[4]	.6	.4	.5	1.0	1.0	.93	[1].66	1.22	1.11	[1]2.67	3.02
Surface												
Fresh	140	180	190	210	250	260	[1]280	[1]263	[1]255	[1]261	[1]265	270
Saline	10	18	31	43	53	69	71	59.6	68.2	59.7	61.0	58.0