

Data Change Detectives

Use percent change to compare science data.

GRADE 7 • TEKS 7.2.C

7.2.C "use mathematical calculations to assess quantitative relationships in data; and"

NAME _____

DATE _____

FINDING PERCENT CHANGE

Find the amount of change by subtracting the starting value from the new value. Divide the change by the starting value, then multiply by 100%. Name the result as an increase or a decrease.

WORKED EXAMPLE

A soil sample has 18 pill bugs before a shelter is added. Later, the sample has 27 pill bugs. What is the percent change?

1. Find the change: $27 - 18 = 9$.
2. Divide by the starting count: $9/18 = 1/2$.
3. Convert to a percent: $1/2$ of $100\% = 50\%$.
4. The count went up, so it is an increase.

Answer: 50% increase

PRACTICE 6 problems

- 1 A water-quality sensor records 28 units of dissolved oxygen in the morning and 35 units at noon. What is the percent increase?

ANSWER _____

- 2 A field sensor battery has 64% charge at the start of a study and 48% charge at the end. What is the percent decrease in charge?

ANSWER _____

- 3 A student counts 70 cricket chirps in one minute before a lamp is turned on and 84 chirps in one minute after it is turned on. What is the percent increase?

ANSWER _____

- 4 A metal sample has a mass of 75 g before a reaction and 60 g after the reaction. What is the percent decrease in mass?

ANSWER _____

- 5 A school garden has 110 seedlings in April and 132 seedlings in May. How many more seedlings are there, and what is the percent increase?

ANSWER _____

- 6 A plant has 55 leaves. Its leaf count increases by 20%. What is the new leaf count?

ANSWER _____

APPLY IT Show your work

- 1** Use the table. Maya and Jon each run for the same amount of time. Calculate each student's percentage decrease in pulse rate after two minutes. Whose pulse rate decreased by the greater percentage?

PULSE RATE RECOVERY

Student	Pulse just after running, beats/min	Pulse after 2 minutes, beats/min
Maya	168	126
Jon	150	120

ANSWER _____

- 2** Use the table. A wildlife club counts butterflies near a native-flower strip before and after planting more flowers. What is the percent increase in the butterfly count?

BUTTERFLY COUNTS

Time	Butterflies counted
Before more flowers	35
Four weeks later	49

ANSWER _____

CHALLENGE One step up

Use the table. Three teams test filters on equal water samples. Which filter causes the greatest percentage decrease in dirt particles? Explain why comparing only the number of particles removed could lead to the wrong conclusion.

DIRT PARTICLES BEFORE AND AFTER FILTERING

Filter	Particles before filtering	Particles after filtering
A	84	63
B	80	56
C	96	72

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A water-quality sensor records 28 units of dissolved oxygen in the morning and 35 units at noon. What is the percent increase?	25% increase
2	A field sensor battery has 64% charge at the start of a study and 48% charge at the end. What is the percent decrease in charge?	25% decrease
3	A student counts 70 cricket chirps in one minute before a lamp is turned on and 84 chirps in one minute after it is turned on. What is the percent increase?	20% increase
4	A metal sample has a mass of 75 g before a reaction and 60 g after the reaction. What is the percent decrease in mass?	20% decrease
5	A school garden has 110 seedlings in April and 132 seedlings in May. How many more seedlings are there, and what is the percent increase?	22 more seedlings; 20% increase
6	A plant has 55 leaves. Its leaf count increases by 20%. What is the new leaf count?	66 leaves

PART 2 • APPLY IT

1. **Maya: 25% decrease. Jon: 20% decrease. Maya's pulse rate decreased by the greater percentage.** Subtract each recovery pulse rate from the pulse rate just after running. Divide each difference by that student's starting pulse rate.
2. **40% increase** The count increased by 14 butterflies. Divide 14 by the starting count of 35, then convert the result to a percent.

CHALLENGE

Filter B causes the greatest decrease, 30%. Filters B and C each remove 24 particles, but filter B starts with fewer particles, so its percentage decrease is greater.

Accept equivalent fraction work and correctly rounded whole-number percentages only when the exact result is a whole percent. Students must divide by the starting value, not the final value.