

Data Detective

Use frequencies and relative frequencies to compare data.

GRADE 7 • MA.7.DP.1

MA.7.DP.1 "Represent and interpret numerical and categorical data."

NAME _____

DATE _____

COMPARE COUNTS FAIRLY

Use a frequency table to organize data. A relative frequency compares one count with the total: $\text{count}/\text{total}$. Multiply by 100 to write a relative frequency as a percent.

WORKED EXAMPLE

At a club meeting, 22 students vote. Eleven students choose photography. What are the relative frequency and percent for photography?

1. Write the count over the total: $11/22$.
2. Simplify: $11/22 = 1/2$.
3. Convert to a percent: $1/2 \times 100\% = 50\%$.

Answer: $1/2$, or 50%

PRACTICE 6 problems

- 1** Make a frequency table for this numerical data set: 5, 7, 5, 9, 7, 5, 8, 7.

ANSWER _____

- 2** In a survey of 15 students, 5 students choose chess as an after-school activity. What is the relative frequency of students who choose chess?

ANSWER _____

- 3** The numbers of songs added to playlists are 6, 8, 8, 9, 10, 10, 10, 12. What is the frequency of 10?

ANSWER _____

- 4** A book survey shows mystery: 4, fantasy: 8, realistic fiction: 5, and science fiction: 7. What is the relative frequency for fantasy?

ANSWER _____

- 5** A score table shows 70-79: 5 students, 80-89: 7 students, and 90-99: 4 students. What percent of students scored from 80 to 89?

ANSWER _____

- 6** In a poll, students choose games: 9, music: 6, videos: 5, or reading: 4. Which category has the greatest relative frequency, and what is that relative frequency?

ANSWER _____

APPLY IT Show your work

- 1** Student council is choosing a spirit-day theme. Fourteen of 20 seventh graders choose a neon theme. Twenty-one of 30 eighth graders choose the same theme. Which grade has the higher relative frequency for the neon theme, or are the relative frequencies equal?

WORK SPACE

ANSWER _____

- 2** At a game design club, students record the number of levels they tested: 4, 6, 6, 7, 8, 8, 8, 9, 9. What is the relative frequency of students who tested at least 8 levels?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Team A has 9 of 15 players who want an extra practice day. Team B has 12 of 24 players who want an extra practice day. Which team has the greater relative frequency? Explain your reasoning in 2 sentences.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Make a frequency table for this numerical data set: 5, 7, 5, 9, 7, 5, 8, 7.	5: 3, 7: 3, 8: 1, 9: 1
2	In a survey of 15 students, 5 students choose chess as an after-school activity. What is the relative frequency of students who choose chess?	1/3
3	The numbers of songs added to playlists are 6, 8, 8, 9, 10, 10, 10, 12. What is the frequency of 10?	3
4	A book survey shows mystery: 4, fantasy: 8, realistic fiction: 5, and science fiction: 7. What is the relative frequency for fantasy?	1/3
5	A score table shows 70-79: 5 students, 80-89: 7 students, and 90-99: 4 students. What percent of students scored from 80 to 89?	43.75%
6	In a poll, students choose games: 9, music: 6, videos: 5, or reading: 4. Which category has the greatest relative frequency, and what is that relative frequency?	Games, 3/8 or 37.5%

PART 2 • APPLY IT

1. **The relative frequencies are equal at 70%.** Seventh grade: $14/20 = 7/10 = 70\%$. Eighth grade: $21/30 = 7/10 = 70\%$.
2. **5/9** Five of the nine students tested 8 or more levels. The relative frequency is 5/9.

CHALLENGE

Team A has the greater relative frequency. Its rate is $9/15 = 3/5 = 60\%$, while Team B's rate is $12/24 = 1/2 = 50\%$.

Accept equivalent fractions, decimals, and percents when they represent the same relative frequency. For comparison items, students should compare proportions rather than only the raw counts.