

The Water Princess Data Interpretation - Student Handout Answer Key

PART 1:

Answer the following questions using Figure 1: Trends in access to water and sanitation services, 2000-2020 (% of global population).

1. Identify which category of water had the highest number of people in 2000.
 - Safely managed
2. Identify which category of sanitation had the lowest number of people in 2020.
 - Open defecation
3. Calculate the percentage difference between unimproved water access in 2000 vs 2020.
 - $12\% - 5\% = 7\%$ decrease
4. Calculate how many people your answer for question 3 represents.
 - $721 \text{ million} - 367 \text{ million} = 354 \text{ million people}$
5. State which categories decreased from 2000 to 2020.
 - Water: Surface water, Unimproved, Basic
 - Sanitation: Open defecation, Unimproved, Basic
6. State which categories increased.
 - Both water and sanitation: Limited, Safely managed
7. State whether water or sanitation access is improving the most. Justify your answer using the data from Figure 1.
 - It appears that water access has improved the most, with 90% of the population having access to basic or safely managed water.
 - However, students might notice that the numbers for basic or safely managed water started off higher in the first place. If we look at percentage change (Part 2) we might have a different answer.

PART 2:

Answer the following questions using both Figure 1 and Figure 2.

8. How are percentage difference and percentage change different?
 - Percentage difference shows us the difference between the same kind of raw numbers. For example, 4% of the world only had access to surface water in 2000, and in 2020 that number went down to 2%. This means that 2% less of the world population now accesses surface water.
 - Percentage change shows us the change based on the initial value. In the example above, it has gone down by 2%, but because it was initially 4%, this represents a 50% decrease between 2000-2020. In other words, percentage change can tell us that we cut the initial number in half.
9. Using Figure 1, calculate the percentage difference for:
 - limited water: increased by 1%, from 3 to 4
 - limited sanitation: increased by 1%, from 6 to 7

10. Using Figure 2, state the percentage change for:

- limited water: increased by 33%
- limited sanitation: increased by 17%

11. Using data from both figures, discuss the claim that limited water access has improved more than limited access to sanitation.

- Arguably, limited water access has changed more significantly because it has increased by a third.
- However, they both only increased by 1% of the global population.
- In terms of the number of people this represents though, limited water access was gained by 128 million people (from 154M in 2000 to 282M in 2020) whereas limited access to sanitation was gained by 235 million people (from 345M in 2000 to 580M in 2020).
- So although limited water access increased faster than sanitation between 2000 and 2020, there are almost twice as many people in the world with access to limited sanitation vs limited water access.