The Changing Tap

How a scientific discovery reshaped public services

S.7.6 "Examine how technological innovations and scientific discoveries have influenced major social institutions"

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline the discovery about disease, circle the two water-treatment methods, and number three links between an institution and a change it experienced.

When Cities Cleaned Their Water

1 In 1900, a glass of water from a city tap could carry a hidden threat. Sewage sometimes entered rivers that also supplied drinking water. Scientists had shown that certain microbes in contaminated water could cause diseases such as typhoid fever. This discovery changed how city leaders understood an outbreak: dirty water, not simply bad luck, could spread illness through a neighborhood. Knowing the cause suggested a public solution. Rather than leaving each household to judge whether water looked safe, city governments could treat the water before it reached homes.

2 During the early twentieth century, many U.S. cities expanded filtration and began adding chlorine to public water supplies. Filters removed particles, while carefully controlled chlorine killed many disease-causing microbes. Water departments hired trained workers to run treatment plants and test supplies. City budgets now had to cover equipment, chemicals, and regular checks, not just pipes. As treated water reached more residents, deaths from waterborne illnesses, including typhoid, declined sharply in many places. The change was not automatic: officials had to fund the systems, and workers had to maintain them.

3 Safer water also reshaped institutions beyond city hall. Hospitals could use treated water for cleaning and patient care, reducing one possible route for infection, although clean water alone could not prevent every illness. Schools benefited when fewer students became sick from contaminated water, making regular attendance easier. Yet these gains were uneven. Some rural communities and poorer neighborhoods lacked reliable treatment or safe pipes for years. A scientific discovery helped make a new public service possible, but decisions about investment determined who received its protection. The history of the tap is also a history of public choices.

2 ANSWER WITH EVIDENCE

Use the passage

1. How did the discovery about microbes change the way city leaders could respond to outbreaks?

2. How did filtration and chlorination change the work of city water departments?

3. How could treated water affect schools, even though schools did not operate the treatment plants?

4. Why did the discovery and treatment methods not protect every community equally?

3 YOUR TURN

Your own words

Choose a technological innovation or scientific discovery not named in the passage. In one paragraph, explain how it changes two different social institutions, including a benefit and a limitation, with specific cause-and-effect links.

The Changing Tap

PART 1 · READ AND MARK

Underline the discovery about disease, circle the two water-treatment methods, and number three links between an institution and a change it experienced. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	How did the discovery about microbes change the way city leaders could respond to outbreaks?	**It showed that contaminated water could spread disease, giving city leaders a reason to treat the public water supply.**
2	How did filtration and chlorination change the work of city water departments?	**Departments needed trained workers to operate treatment plants and test water, while city budgets had to pay for equipment, chemicals, and checks.**
3	How could treated water affect schools, even though schools did not operate the treatment plants?	**Fewer students could become sick from contaminated water, making regular attendance easier.**
4	Why did the discovery and treatment methods not protect every community equally?	**Protection depended on investment in treatment and safe pipes, which some rural communities and poorer neighborhoods lacked for years.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Video calling changed schools by allowing teachers to meet with students who could not enter a classroom during an emergency. It also changed local government: councils could hold public meetings online, so residents could comment without traveling to city hall. Both institutions gained a way to continue work when people could not gather in person. However, households without reliable internet or private space could be left out of lessons and meetings. Schools and councils would need other ways for those households to participate.

Accept other evidence-based cause-and-effect explanations from the passage. For Part 3, look for two distinct institutions, a clear effect on each, one benefit, and one limitation.