Clues on Broad Street

Analyze how historical visuals build and test an explanation.

9.RI.1.B "Explain the purpose and interpret the use of data and information in maps, charts, graphs, timelines, tables, and diagrams in informational, historical, scientific, or technical texts."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline each sentence that names a visual, and circle the words that explain what the visual helps readers understand. Your marks should show how each visual supports a different part of the investigation. Paragraphs 2–3 describe possible classroom displays, not authenticated Snow graphics. Inspect the supplied historical-data table for Question 5; its source and limits are stated below.

Mapping a Cholera Outbreak

(1) In 1854, a severe cholera outbreak struck the Soho neighborhood of London. Physician John Snow investigated whether the disease spread through the air or through contaminated water. His famous street map placed a short bar beside each address where a death occurred and labeled nearby water pumps. The bars clustered around the Broad Street pump, rather than spreading evenly across the neighborhood. The map's purpose was not simply to show streets. By connecting locations of deaths to water sources, it gave readers spatial evidence that could test Snow's explanation.

(2) A classroom bar graph could compare deaths at homes located different distances from the Broad Street pump. A graph could help readers compare groups without studying every address. The supplied table adds information a distance graph would not show. It lists nearby groups with differing reported water access and numbers of deaths. The table's purpose is to examine exceptions. Workhouse residents and brewery workers were near the pump but reportedly did not use its water, which strengthened the argument that water, not distance alone, mattered.

③ A classroom timeline could place the outbreak, Snow's investigation, and the removal of the pump handle in order. Its purpose would be to help readers judge sequence, including whether an action happened before or after deaths declined. A classroom cutaway diagram could show the pump well below ground beside possible sources of waste. Unlike the map, the diagram would not count deaths or prove the route of infection. Instead, it would illustrate a possible physical mechanism for contamination. Together, the visuals serve different purposes: the map and graph reveal patterns, the table tests exceptions, and the timeline and diagram explain sequence and process. Table source: John Snow, On the Mode of Communication of Cholera (1855), Part 2, transcribed by UCLA: epi-snow.ph.ucla.edu/Stream1_introduction_d9.html. Counts describe different groups, not a controlled experiment.

CLASSROOM TABLE ADAPTED FROM SNOW'S 1855 ACCOUNT (UCLA TRANSCRIPTION)

Group near Broad Street	People reported	Cholera deaths reported	Reported water access
Poland Street workhouse	535 residents	5 (excludes people admitted already ill)	Own well and water company; did not fetch Broad Street water
Broad Street brewery	More than 70 workers	0	Beer allowance, deep well and other supply; no street-pump water
Percussion-cap factory	About 200 workers	18	Broad Street pump water available in tubs

2 ANSWER WITH EVIDENCE

Use the passage

1. How do the map's death bars and pump labels work together to support Snow's explanation?

2. Why did the writer include both a bar graph and a table?

3. What can the timeline help a reader judge that the map cannot show clearly?

4. Why does the passage say that the cutaway diagram does not prove the route of infection?

5. Use the supplied table. Compare the workhouse and factory deaths with their group sizes and water access. How does the brewery row complicate a claim that living or working near the pump was enough to determine the outcome? Explain the table's purpose and one limit.

3 YOUR TURN

Your own words

In three sentences, propose one visual for a school investigation into indoor air quality. Name the visual, explain what data or information it would show and why, then state one limit of that visual.

ANSWER KEY # Clues on Broad Street

PART 1 · READ AND MARK

Underline each sentence that names a visual, and circle the words that explain what the visual helps readers understand. Your marks should show how each visual supports a different part of the investigation. Paragraphs 2–3 describe possible classroom displays, not authenticated Snow graphics. Inspect the supplied historical-data table for Question 5; its source and limits are stated below. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	How do the map's death bars and pump labels work together to support Snow's explanation?	**They connect where deaths occurred with nearby water sources, showing a cluster around the Broad Street pump and providing spatial evidence for contaminated water.**
2	Why did the writer include both a bar graph and a table?	**The bar graph allows quick comparison of deaths by distance from the pump, while the table examines exceptions involving groups that used other drinks or water supplies.**
3	What can the timeline help a reader judge that the map cannot show clearly?	**The timeline helps the reader judge sequence, including whether an action occurred before or after deaths declined.**
4	Why does the passage say that the cutaway diagram does not prove the route of infection?	**The diagram illustrates a possible physical mechanism for contamination, but it does not provide death data or establish cause and effect.**
5	Use the supplied table. Compare the workhouse and factory deaths with their group sizes and water access. How does the brewery row complicate a claim that living or working near the pump was enough to determine the outcome? Explain the table's purpose and one limit.	**The workhouse lists 5 deaths among 535 residents and its own water supplies; the factory lists 18 among about 200 workers with Broad Street water available. The brewery was nearby but lists 0 deaths among more than 70 workers without street-pump water. The table compares exceptions and supports investigating water exposure rather than distance alone. Groups differ in size and other conditions, so raw counts alone are not comparable risks or proof of causation; this is not a controlled experiment.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

For a school investigation, I would use a line graph to show carbon dioxide readings in one classroom every hour from 8 a.m. to 3 p.m. Its purpose would be to reveal when ventilation may be lower and whether opening windows changes the pattern. The graph could show a pattern, but it could not prove that one specific event caused each change.

Accept equivalent explanations that connect each visual's form and information to its purpose. For Part 3, accept any appropriate visual if the response identifies its data, intended interpretation, and a reasonable limitation. For Question 5, require use of at least two numeric rows and the water-access column plus a reasoned limitation. Do not treat 5 and 18 as rates, assume everyone used an available supply, or claim zero deaths proves immunity. The workhouse 5 excludes those admitted already ill. Source facts were checked against Snow's 1855 public-domain account; the table is a new classroom arrangement, not a facsimile. Original four answers remain source-analysis scaffolds.