When Warnings Travel

Weigh the tradeoffs of digital messages and records

PH.PS4.2 "Evaluate questions about the advantages and disadvantages of using digital transmission and storage of information.*"

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline two advantages of digital information and circle two limits or risks. Number each mark 1 for transmission or 2 for storage so you can use the evidence to evaluate a choice.

A Flood Warning's Journey

1 At 2:10 a.m., a river sensor detects rising water near a town. The emergency office sends a digital warning: the text becomes bits, patterns of 0s and 1s, carried by radio waves to phones. The same message can reach thousands of phones quickly, and a phone that receives the complete message displays the words that were sent. Unlike a live voice announcement, the text can be translated, reread, and forwarded without someone having to repeat it. But a phone with no battery cannot display the warning. If a cell tower loses power or its network becomes crowded, some residents may not receive it in time.

2 The office also broadcasts a warning over an analog radio station with backup power. Its spoken message may reach people whose phones cannot connect, but listeners must be tuned in at the right time. Static can make a weak voice hard to understand. A digital message may include error-checking information that helps a receiver detect or correct some transmission errors; it cannot restore a message that never arrives. For this town, asking "Which method reaches more people during a blackout?" is more useful than asking "Is digital better?" The answer depends on tower power, radio coverage, and what devices residents have.

3 After the flood, the office stores the warning text and sensor records as digital files. Staff can search them by date and make identical copies for separate backup drives. This helps investigators compare when the river rose with when the warning went out. Yet a damaged drive, deleted file, or stolen password can block access. An old file format may also require software the office no longer has. Paper printouts can be read without software, although they take space and are harder to search. Before choosing a storage plan, the office must weigh access speed against long-term access and protection.

2 ANSWER WITH EVIDENCE

Use the passage

1. Which question would better guide the town's warning plan: “Are digital alerts modern?” or “Will tower outages keep digital alerts from reaching residents?” Explain using the passage.

2. A planner asks, “Will error-checking make phone warnings reliable if a cell tower fails?” How does the passage help answer this question?

3. The office asks whether to keep only digital files or keep digital files and paper printouts. Which choice better balances quick searching with access if software is unavailable? Explain.

4. A resident says analog radio is always better during a blackout. What question should the office ask before agreeing? Use two conditions from the passage.

3 YOUR TURN

Your own words

A school wants to send digital recordings of student interviews to families and store them for future classes. Write one question about sending the recordings and one about storing them. Answer both using tradeoffs from the passage, then recommend one precaution.

ANSWER KEY

When Warnings Travel

HIGH SCHOOL · PH.PS4.2

PART 1 · READ AND MARK

Underline two advantages of digital information and circle two limits or risks. Number each mark 1 for transmission or 2 for storage so you can use the evidence to evaluate a choice. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Which question would better guide the town's warning plan: "Are digital alerts modern?" or "Will tower outages keep digital alerts from reaching residents?" Explain using the passage.	**The tower-outage question is better because the passage says a tower without power may prevent residents from receiving a digital warning.**
2	A planner asks, "Will error-checking make phone warnings reliable if a cell tower fails?" How does the passage help answer this question?	**Error-checking can detect or correct some errors in a message that arrives, but it cannot restore a message that never reaches a phone.**
3	The office asks whether to keep only digital files or keep digital files and paper printouts. Which choice better balances quick searching with access if software is unavailable? Explain.	**Keeping both balances the needs: staff can search the digital files quickly, while paper printouts remain readable without software.**
4	A resident says analog radio is always better during a blackout. What question should the office ask before agreeing? Use two conditions from the passage.	**The office could ask, "Does the radio station have backup power, and do residents have radios they can tune in?" Both conditions affect whether the broadcast reaches listeners.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Sending question: Will every family receive the recordings if the network goes down? Digital files are easy to copy and send, but a message that never arrives cannot be restored by error-checking. Storage question: Will future classes have software that opens the recordings? Separate digital backups protect against one damaged drive, but an old file format could still block access. I recommend keeping copies on separate drives and checking each year that the files still open.

Accept other specific questions and conclusions supported by the passage. For the open task, look for one transmission tradeoff, one storage tradeoff, and a precaution that addresses an identified risk.