Name: _____   **Date:** _____

Answer Key: Your Digital Compass: 8th Grade Data Literacy Quest

Sharpen your analytical instincts by identifying sampling bias, verifying digital footprints, and organizing complex datasets for clear communication.

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1. A local urban planning committee wants to know how residents feel about a new bike lane. They only survey people currently at a high-end cycling shop. What is the primary issue with this data collection?

Answer: B) Sampling bias

> Sampling bias occurs when the collected data does not represent the whole population fairly; in this case, only cyclists were asked about cycling infrastructure.

2. When checking the reliability of a scientific dataset about deep-sea biodiversity, a researcher looks for _____, which is the process of other experts reviewing the work before publication.

Answer: C) Peer review

> Peer review is a critical standard in data literacy that ensures data and methods have been vetted by independent experts in the same field.

3. If two variables in a dataset show a strong correlation, it proves that one variable definitely caused the other to change.

Answer: B) False

> Correlation (things happening together) does not equal causation (one thing making the other happen). External factors often influence both variables.

4. You are organizing a dataset of 5,000 global bird migrations. Which method best ensures the data remains searchable and 'clean' for future use?

Answer: A) Using consistent naming conventions and metadata tags

> Consistent naming and metadata (data about data) are essential for data management and making large datasets usable by others.

5. An environmentalist uses a _____ to display the relationship between industrial CO2 emissions and global temperature increases over 50 years.

Answer: B) Scatter plot

Scatter plots are effective tools for visualizing the relationship (correlation) between two different numerical variables.

6. Data cleaning is the process of removing or correcting inaccurate, incomplete, or improperly formatted data within a dataset.

Answer: A) True

Data cleaning is a vital step in data literacy to ensure that analysis is based on high-quality, accurate information.

7. Which of these is the most 'authoritative' source for a student researching the success rates of various renewable energy technologies across Europe?

Answer: C) The International Energy Agency (IEA) annual report

Official international agencies provide high-quality, verified data compared to social media or outdated personal blogs.

8. To protect sensitive medical research data from unauthorized access, a hospital would use _____, which scrambles the data into a code.

Answer: B) Encryption

Encryption is a key part of data management and security, ensuring that even if data is stolen, it cannot be read without a key.

9. A nutritionist finds a study that says 'Sugar improves focus.' Upon closer inspection, she sees the study was funded by a large soda company. This is an example of checking for:

Answer: A) Conflict of interest

Evaluating the source often involves looking for conflicts of interest that might cause the researchers to interpret data in a biased way.

10. Qualitative data refers to information that can be measured and written down with numbers, such as height or price.

Answer: B) False

Qualitative data is descriptive (words, observations), while numerical data is called quantitative data.