Name: _____   Date: _____

Neural Networks and Algorithmic Bias: 6th Grade CS Quiz

Students analyze how training data shapes AI outcomes and identify potential bias in automated systems during this rigorous assessment or bell-ringer activity.

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1. If a developer trains a computer vision model using only photos of golden retrievers, why might the AI fail to identify a Siamese cat?

    A.   The AI hardware is not powerful enough to process feline images.
    B.   The training data lacked diversity, causing the model to have a narrow understanding.
    C.   The AI chose to ignore the cat based on its own personal preference.
    D.   Neural networks are physically incapable of recognizing more than one species.

2. True or False: A 'Black Box' algorithm refers to a system where the internal decision-making process is difficult for humans to see or understand.

    A.   True
    B.   False

3. In the context of AI ethics, when a system consistently produces unfair results against a specific group, it is known as algorithmic _____.

    A.   Intelligence
    B.   Efficiency
    C.   Bias
    D.   Memory

4. Which of the following describes the function of 'Weights' within an artificial neural network node?

    A.   The physical heaviness of the computer server.
    B.   The importance or strength assigned to a specific input signal.
    C.   The number of hours it takes to train the model.
    D.   The total amount of memory the AI consumes on a hard drive.

5. True or False: Natural Language Processing (NLP) is the field of AI that allows a smart assistant to interpret the sarcasm in a human's voice.

    A.   True
    B.   False

6. When an AI improves its performance on a task without being explicitly programmed for every scenario, it is utilizing _____ learning.

    A.   Manual
    B.   Machine
    C.   Rote
    D.   Static

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7. Consider an AI designed to predict weather patterns. If the model is 'Overfitting,' what is happening?

    A.   The AI is too large to fit on a standard laptop.

    B.   The AI is working perfectly across all types of new data.

    C.   The AI memorized the training data so well it cannot handle new, unseen data.

    D.   The AI has stopped learning because it ran out of storage.

8. True or False: Generative AI creates new content, whereas Discriminative AI focuses on classifying existing data into categories.

    A.   True

    B.   False

9. A city uses AI to optimize traffic lights. What is the most likely ethical concern regarding this specific application?

    A.   The AI might give priority to wealthier neighborhoods if the data is biased.

    B.   The AI will eventually replace all human drivers with robots.

    C.   The traffic lights will change colors too fast for the human eye to see.

    D.   The AI will drain the entire city's power grid in one day.

10. The process of a human checking an AI's output to ensure it is correct and safe is called 'Human-in-the-_____.'

    A.   Box

    B.   Lead

    C.   Loop

    D.   Mind