Name _____

Feature Match-Up - Small Models vs. Big Models in AI

Artificial Intelligence tools called Large Language Models (LLMs) can be trained in very different sizes. Some are considered **small**, and others are considered **big**. Small models are designed with fewer "parameters," which are the adjustable settings that allow the model to learn from data. Because of this, they are much lighter in terms of memory and storage. A small model can sometimes run directly on a smartphone or a laptop without needing a connection to the internet. This makes them faster in many cases and cheaper to operate, although they may not handle complex reasoning or advanced tasks very well.

By contrast, big models are built with billions or even trillions of parameters. They are trained on far larger collections of data and can generate more sophisticated and nuanced responses. They are also strong at handling many different languages and can perform tasks that require deeper knowledge or reasoning. However, these benefits come at a cost: they need powerful servers, enormous amounts of memory, and very high energy usage. Running such a model is slow and expensive, which means they are rarely placed directly on small devices.

Despite these differences, both small and big models share certain abilities. Both can write essays, summarize short articles, and provide creative or useful responses to questions. Both also share limitations: they can sometimes make mistakes, produce confusing answers, or provide information that sounds right but is actually inaccurate. For this reason, users must always think critically when relying on the output of any model.

Feature Match-Up Activity

Now that you have read the passage, look at each of the features below. Decide whether it applies more strongly to **Small Models**, **Big Models**, or to **Both**. Place a checkmark in the correct column. Some features may have more than one correct answer.

Feature	Small	Big	Both
1. Uses less memory and storage	☐	☐	☐
2. Can run on a smartphone without internet	☐	☐	☐
3. Handles multiple languages with high accuracy	☐	☐	☐
4. Often faster at giving answers	☐	☐	☐
5. Needs powerful servers and high electricity	☐	☐	☐
6. Sometimes gives incorrect answers	☐	☐	☐
7. Can summarize a short article	☐	☐	☐
8. More expensive to train and use	☐	☐	☐
9. May not do well on very complex reasoning tasks	☐	☐	☐
10. Used for tasks like tutoring, writing help, or coding	☐	☐	☐

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