

Name \_\_\_\_\_

## Case Study Snapshots - Choosing Small or Big AI Models

Large Language Models (LLMs) are computer systems that generate and understand text. These models exist in many different sizes, from smaller, lighter versions to very large, complex ones. Choosing which size of model to use often depends on the situation.

Small models are designed to be efficient. They use less memory, respond quickly, and can even run directly on laptops, tablets, or smartphones without needing an internet connection. Because they are less expensive to operate, they are useful in schools, small businesses, or places with limited resources. However, small models may not perform well on tasks that require deep reasoning or advanced knowledge.

Big models, in contrast, are trained with billions or even trillions of parameters. They are powerful enough to handle complex reasoning, explain technical subjects, and switch smoothly between multiple languages. They are well-suited for researchers, large companies, and anyone needing very accurate and detailed responses. But these advantages come at a cost: big models require strong servers, consume a great deal of electricity, and are expensive to run.

In both cases, the best choice depends on the needs of the user. There is no single “right” answer for every problem. Instead, choosing between a small or big model is about weighing trade-offs such as speed, cost, complexity, and accuracy.

**Instructions:** Read each real-world scenario below. Decide whether a **Small Model** or a **Big Model** would fit best. Write your answer and then explain your reasoning in 1–2 complete sentences. Use evidence from the reading passage.

1. A teacher in a rural school wants an AI tool to help students practice writing paragraphs. The internet connection at school is very slow.

Best choice: \_\_\_\_\_ Explain: \_\_\_\_\_

2. A global company needs an AI assistant that can translate documents into ten different languages with high accuracy.

Best choice: \_\_\_\_\_ Explain: \_\_\_\_\_

3. A college student wants a study helper that can summarize articles quickly on their personal laptop without needing Wi-Fi.

Best choice: \_\_\_\_\_ Explain: \_\_\_\_\_

4. A team of medical researchers needs detailed explanations of complex scientific papers and advanced reasoning about biology.

Best choice: \_\_\_\_\_ Explain: \_\_\_\_\_

5. A small bakery wants a customer chatbot that can answer simple questions about hours and menu items.

Best choice: \_\_\_\_\_ Explain: \_\_\_\_\_

6. An author wants help brainstorming creative story ideas in multiple styles and voices.

Best choice: \_\_\_\_\_ Explain: \_\_\_\_\_

