

Puzzle: Which Material is the Best Conductor?

You are tasked with identifying the best electrical conductor based on the following clues:

1. **Clue 1:** This material has only **one valence electron** per atom, making it highly effective in conducting electricity because there are many free electrons available for current flow.
2. **Clue 2:** It belongs to the same group on the periodic table as other good conductors but stands out because it has the **lowest resistivity** among all pure metals at room temperature.
3. **Clue 3:** It is often used in electrical wiring, especially in high-performance applications where minimizing energy loss is crucial.
4. **Clue 4:** This material is also used in various electronic devices, printed circuit boards, and connectors due to its excellent conductivity.
5. **Clue 5:** Despite being an excellent conductor, it is often coated or alloyed with other metals to improve its durability and resistance to oxidation.

Questions:

1. What **element** is this describing?
2. What makes it the **best conductor** compared to other elements?

Hint: This element is commonly used but might not always be the most cost-effective option compared to alternatives.