

Name _____

Building Blocks of Architecture

Open-Ended Response Answer Key

1. Concrete and steel are both commonly used in construction, but they have distinct characteristics. Concrete is valued for its versatility, affordability, and fire resistance. It is often used for foundations, walls, and floors. Steel, on the other hand, is known for its exceptional strength and durability, making it suitable for structural elements like columns, beams, and bridges. Concrete is more affordable, while steel is more robust and flexible in design.
2. The choice of architectural materials for a modern home would depend on factors like aesthetics, energy efficiency, and sustainability. For walls, insulated concrete forms (ICFs) could be used for energy efficiency. Wood could be employed for flooring due to its warmth and aesthetic appeal, while energy-efficient glass could be used for windows to maximize natural light.
3. Architectural materials have varying environmental impacts. Some, like wood from sustainably managed forests, can be eco-friendly. Concrete production has a high carbon footprint but can be made more sustainable through the use of recycled aggregates and supplementary cementitious materials. Glass production consumes energy but contributes to energy-efficient building designs. Evaluating materials' life cycle, resource use, and recyclability is crucial for sustainable choices.
4. Stone and wood have played significant roles in various architectural styles throughout history. In Gothic cathedrals, stone was used for its structural capabilities and intricate carvings. Traditional Japanese homes often featured wooden construction due to the abundance of wood in Japan's forests. These materials influenced the architectural aesthetics and functionality of these structures.

