Name: _____ **Date:** _____

Answer Key: Eco-Architect Challenge: Designing Our Changing World (Grade 5)

Synthesize complex data to evaluate how human innovation and environmental needs collide in this high-level geography mission.

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1. In the arid regions of Peru, ancient civilizations built 'puquios' (underground aqueducts) to transport water. This is an example of which interaction strategy?

Answer: B) Adapting to water scarcity through engineering

By building underground channels to prevent evaporation, these civilizations adapted to a dry climate by managing limited water resources effectively.

2. The construction of the _____ Great Green Wall across Africa is a massive human modification intended to stop the spread of the Sahara Desert through reforestation.

Answer: B) Pan-African

The Pan-African Great Green Wall is a modification project involving 20+ countries to plant a corridor of trees to combat land degradation.

3. True or False: Using 'biomimicry'—designing buildings to stay cool like termite mounds—is a form of adaptation that reduces human dependence on fossil fuels.

Answer: A) True

Adapting architectural designs to mimic natural cooling systems reduces the need for electricity used in air conditioning.

4. When the Aral Sea shrank due to river diversion for cotton farming, what was a critical unintended consequence for the local population?

Answer: C) The collapse of the fishing industry and rising respiratory issues

The diversion of water (modification) led to the drying of the sea, which destroyed the fishing economy and caused toxic salt dust storms.

5. The Venice MOSE project uses giant _____ to adapt to rising sea levels and protect the city from flooding during 'acqua alta' events.

Name: _____ **Date:** _____

Answer: B) retractable gates

The MOSE project consists of retractable gates placed at the lagoon's openings to temporarily isolate Venice from the Adriatic Sea.

6. True or False: Terrace farming used by the Inca in the Andes Mountains is a modification that helps prevent soil erosion on steep slopes.

Answer: A) True

By carving steps into mountainsides, humans modify the terrain to create flat land for crops and slow down rainwater runoff.

7. Which of these scenarios best demonstrates human 'dependence' on the environment for renewable energy integration?

Answer: A) Costa Rica using its high rainfall and volcanic rivers for hydropower

Dependence involves relying on specific geographic features (like rivers) to provide vital services like electricity.

8. The 'urban heat island' effect is a consequence of _____ where dark surfaces like asphalt absorb more heat than natural landscapes.

Answer: D) modification

Replacing soil and plants with roads and buildings is a modification that changes the local temperature and climate.

9. Bhutan's policy of 'Gross National Happiness' requires at least 60% of its land to remain forested. This choice reflects a human decision to minimize _____.

Answer: C) negative environmental modification

Bhutan limits deforestation to protect biodiversity and prevent the negative consequences usually associated with industrial development.

10. True or False: A positive consequence of human-environment interaction is the creation of 'marine protected areas' to restore coral reefs.

Answer: A) True

Interactions are not always negative; humans can interact with the environment through conservation to fix previous damage.