Stakeholder Roles for Dam Debate (Teacher Key)

This key provides the core perspective and main arguments each stakeholder group is expected to present. Use this to guide student research and ensure a comprehensive debate.

Role: Hydropower Company Representative

Description: Your priority is to promote the dam as a source of clean, renewable energy, reducing reliance on fossil fuels and providing economic benefits through power generation. **Teacher Key: Core Perspective: Pro-Dam.** Focus on renewable energy, reduced carbon emissions compared to fossil fuels (though acknowledge reservoir methane), energy independence, economic development (jobs during construction and operation), and the stability of power supply. May argue that modern dam designs can mitigate some ecological impacts (e.g., specific water release schedules, fish passage technologies) and that the benefits outweigh the costs. Students should research energy output, grid stability, and comparison to other energy sources.

Role: Local Farmer / Agricultural Community

Description: You depend on a reliable water supply for your crops and livestock. You're concerned about irrigation needs, flood protection for your fields, and the overall economic stability of the farming community. **Teacher Key: Core Perspective: Pro-Dam.** Emphasize consistent and controlled water supply for irrigation, protection of valuable crops and farmland from unpredictable floods, increased agricultural productivity, and the overall economic stability this brings to the region. Students should research local crop water needs, historical flood damage, and the economic value of agricultural output. They might argue that food security and economic stability are paramount.

Role: Environmental Conservationist / River Advocate

Description: Your main concern is the health of the river ecosystem. You focus on protecting biodiversity, preserving natural habitats, ensuring fish migration, and maintaining the ecological balance of the river. **Teacher Key: Core Perspective: Anti-Dam.** Highlight negative ecological impacts: habitat fragmentation (blocking fish migration, e.g., salmon, sturgeon), loss of riverine biodiversity, altered natural flow regimes (affecting riparian zones and downstream ecosystems), changes in water temperature and dissolved oxygen (impacting aquatic life), sediment starvation downstream (leading to erosion and loss of habitat), and the potential for increased greenhouse gas emissions from reservoirs (methane). Advocate for river restoration, dam removal where feasible, and alternative solutions for energy/water. Students should research specific endangered species, river health indicators, and the concept of a free-flowing river.

Role: Local Resident / Community Leader (Upstream/Downstream)

Description: You represent the people living in the area. Your concerns might include access to clean water, recreational opportunities, potential displacement, property values, and the preservation of local cultural heritage. **Teacher Key: Core Perspective: Mixed/Nuanced.** Can argue for or against depending on specific local impacts. Focus on quality of life: impacts on drinking water supply and quality, changes in recreational access (e.g., loss of whitewater rafting vs. gain of lake-based recreation like boating/fishing), potential

displacement of homes and communities for reservoir creation, impacts on property values, and the preservation of local cultural/historical sites (e.g., ancestral lands, historical landmarks). Students should research local demographics, historical land use, and community values.

Role: Fisheries Biologist / Angler

Description: You are passionate about fish populations and aquatic life. You'll focus on how the dam impacts fish migration, water quality for fish habitats (temperature, oxygen), and the overall health of the aquatic food web. **Teacher Key: Core Perspective: Strongly Anti-Dam (Ecologically Focused).** Emphasize the direct biological harm to fish populations and aquatic ecosystems: blocked migration routes for anadromous/catadromous species, changes in water temperature and dissolved oxygen levels in the reservoir and downstream (impacting fish survival and reproduction), altered food webs due to changes in invertebrate populations, and loss of specific riverine fish habitats (e.g., spawning grounds). May also discuss the economic impact on commercial and recreational fishing industries. Students should research specific fish species, their life cycles, and water quality parameters.

Role: Flood Control Engineer / Emergency Management

Description: Your primary responsibility is public safety and infrastructure protection. You will focus on the dam's role in preventing floods, managing water levels, and ensuring the safety of communities downstream. **Teacher Key: Core Perspective: Pro-Dam.** Stress the dam's vital role in public safety by preventing catastrophic floods, protecting existing infrastructure (homes, businesses, roads, utilities), and providing controlled water release for downstream management. Will focus on historical flood data, projected flood risks, and the economic and social costs of uncontrolled flooding. Students should research flood plain mapping, historical flood events, and the concept of risk management.