

Rationale for Using *Jurassic World Dominion* in Biotechnology

Course: Applications of Biotechnology (AB)

Objective: This rationale justifies the use of *Jurassic World Dominion* to analyze complex genetic concepts, bioethics, and agricultural impacts as aligned with the **2025 Georgia Standards of Excellence**.

Summary for Administration: By viewing *Jurassic World Dominion*, students perform a high-level **critique of modern biotechnology**. They use the **2025 AB Standards** to identify scientific breakthroughs and ethical failures, preparing them to be the responsible, informed scientists of the future. 🚀



Detailed Rationale

1. Advanced Genetic Engineering & Molecular Delivery 🧬 **Standard 2.2 & 2.3:** Students analyze how DNA structure is exploited to create "genetic constructs" and the development of molecular delivery systems. **Connection:** The film features "hexapod" locusts created by splicing ancient DNA with modern genomes. Students evaluate the realism of using **viral vectors** (Standard 2.3) and **enzymatic replication** (Standard 2.4) to alter an organism's traits. This serves as a visual hook for discussing how cell membranes are manipulated (Standard 2.1) to allow the passage of macromolecules.

2. Agricultural Biotech & Global Impact 🌾 **Standard 3.1 & 3.5:** Discussing biotechnology's role in agriculture and its impact on food production and quality of life. **Connection:** The "BioSyn" locusts are engineered to consume all crops except those grown with proprietary seeds. This provides a case study for discussing **monocultures**, **food security**, and the **unintended ecological consequences** (Standard 3.2) when releasing GMOs into the wild. It directly addresses the impact of DNA technology on the global economy.

3. Human Genetics, Cloning & Bioinformatics 🧑🏫 **Standard 2.13, 3.3 & 3.6:** Understanding human genetics, cloning, and the use of bioinformatics in healthcare. **Connection:** The character Maisie Lockwood bridges the gap to discuss **human cloning** and **germline editing**. Her story allows students to explore the "correction" of genetic sequences via viral delivery—a direct application of advanced therapeutic techniques. Students can also discuss how **bioinformatics** (Standard 3.6) is used to predict biological outcomes.

4. Bioethics, Integrity & Regulation ⚖️ **Standard 6.3, 6.4, 6.6 & 6.7:** Examining integrity, ethical use of data, and the role of federal regulatory agencies. **Connection:** The film focuses on the "uncontrolled" nature of the biotech industry. Students will debate **bioethical issues related to human dignity** (Standard 6.6) and the responsibility of scientists. Furthermore, BioSyn's lack of oversight allows for a discussion on why **FDA, EPA, and USDA regulations** (Standard 6.7) and **Good Laboratory Practices (GLP)** (Standard 6.9) are vital to prevent environmental catastrophe.

5. Professionalism & Career Exploration 🧑🏫 **Standard 1.4 & 1.5:** Modeling work readiness traits including integrity, honesty, and accountability. **Connection:** By analyzing characters like Dr. Henry Wu versus the protagonist scientists, students can evaluate **integrity and accountability** in the workplace. The film showcases a variety of career paths (Standard 1.3) from field ecologists to corporate lab researchers, highlighting the diverse skills needed in a changing technological world.

6. Scientific Literacy & Current Trends 🤖 **Standard 6.1 & 6.2:** Monitoring scientific journals and mass media to identify current trends and distinguish between marketing and validated info. **Connection:** Students will perform a "Science vs. Fiction" critique, using the film to identify where Hollywood science deviates from **experimentally validated information** found in real-world biotechnology journals.