🧬 Science in the Movies: Jurassic Park (1993)

Grade Level: 8–12
Topics: Genetics · DNA · Biotechnology · Ethics in Science
Scene: The "Mr. DNA" animation explaining dinosaur cloning.
Approx. Timestamp: 00:35:00 – 00:40:00

🌱 Before You Watch

1. How do scientists use DNA to learn about extinct species?
2. What ethical questions arise when humans alter nature?
3. What do you already know about cloning or genetic engineering?

💭 Prediction Time!
How might scientists in the movie bring dinosaurs back — and what could go wrong?

🧪 A. Science Connections

1. How does *Jurassic Park* explain DNA extraction and cloning?
2. What role does biotechnology play in recreating life forms?
3. Why is it impossible to clone a dinosaur in real life (based on modern science)?
4. What safety or ethical safeguards were ignored in the movie?

📊 B. Data & Analysis

1. If DNA degrades **1 % every 1,000 years**, how much usable DNA would remain after **65 million years**?
   (Hint: Use exponential decay — essentially none!)
2. Scientists sequence about **3 billion base pairs** in the human genome.
   If 95 % accuracy is required, how many bases must be correct?
3. How does incomplete or corrupted DNA affect genetic outcomes?

🌎 C. Real-World Connection

1. What are modern uses of genetic engineering (medicine, agriculture, conservation)?
2. How do scientists ensure ethical responsibility when editing genes (e.g., CRISPR)?
3. Why is public communication important when science raises moral concerns?

💡 D. Reflection

- What lesson does *Jurassic Park* teach about scientific power and responsibility?
- Should everything that is scientifically possible also be done?
- Complete: ✨ *"Science gives us power, but..."*

🎞️ Did You Know?

Real amber-preserved insects exist, but **DNA breaks down too quickly** to clone dinosaurs. However, scientists do study **ancient DNA (aDNA)** from mammoths and Neanderthals.

💭 "Your scientists were so preoccupied with whether they could, they didn't stop to think if they should." — Dr. Ian Malcolm

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🎯 Extension (Optional)

Design a short **Bioethics Debate!**
Form two teams: one supports scientific freedom, the other defends ethical limits.
Use examples from the movie and modern biotechnology.
