To Clone or Not to Clone

**WebQuest Description:** Is cloning ethical? Should we clone people or other animals?

**Grade Level:** 9-12

**Curriculum:** Life Skills / Careers

**Keywords:** science, biology, cloning

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**Introduction**

Some 60 years ago amphibians were used to produce clones, but the embryos died at tadpole stage. During the last six decades, the cloning of a mammal was only possible in the imagination of the scientific community. (Cloning Timeline) Hello Dolly! Out of the blue, Ian Wilmut, a researcher from the Roslin Institute in Scotland, announced that his team had successfully cloned a lamb from an adult cell. The next day, the Pope denounced the discovery as a “lack of respect for life”. The scientific community hailed the discovery as a break through for mankind.

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**Tasks**

On February 27th, 2003, the 108th US Congress passed the Human Cloning Prohibition Act of 2003. Sec. 302. Prohibition on human cloning (a) IN GENERAL- It shall be unlawful for any person or entity, public or private, in or affecting interstate commerce, knowingly—(1) to perform or attempt to perform human cloning;(2) to participate in an attempt to perform human cloning; or (3) to ship or receive for any purpose an embryo produced by human cloning or any product derived from such embryo. (b) IMPORTATION- It shall be unlawful for any person or entity, public or private, knowingly to import for any purpose an embryo produced by human cloning or any product derived from such embryo. (c) PENALTIES- (1) CRIMINAL PENALTY- Any person or entity that violates this section shall be fined under this title or imprisoned not more than 10 years, or both. (2) CIVIL PENALTY- Any person or entity that violates any provision of this section shall be subject to, in the case of a violation that involves the derivation of a pecuniary gain, a civil penalty of not less than $1,000,000 and not more than an amount equal to the amount of the gross gain multiplied by 2, if that amount is greater than $1,000,000. (d) SCIENTIFIC RESEARCH- Nothing in this section restricts areas of scientific research not specifically prohibited by this section, including research in the use of nuclear transfer or other cloning techniques to produce molecules, DNA, cells other than human embryos, tissues, organs, plants, or animals other than humans. The bill only addresses the cloning of humans. Placing a ban on all cloning activities would be easy, but it may prove to be very short sighted. Cloning technologies may have a profound impact on society in the 21st century. Cloning research has the potential to impact: World Hunger Animal Rights Infertility Disease Treatment Economics Scientific Research Immortality Overpopulation

Your task will be to ask good questions, access current information, analyze the validity of sources, reach consensus with your peers, take action, and explain the consequences. All in an effort to answer one primary question: What government policy should be established to regulate cloning? Keep an open mind, and try not to reach a conclusion before your investigation is complete.

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**Process**

The United States House of Representatives is assembling a group of specialists to investigate the wide spread implications of cloning on the social, economic, and political fabric of American society. Each specialist team will present their findings during a Cloning Summit. It will be the responsibility of the team members to evaluate the proposed Human Cloning Prohibition Act, and determine if the bill should be expanded to include other types of cloning research. Step 1: Dr. Frankenstein, I Presume? Step 2: Walking a Mile in My Shoes Step 3: The Cloning Summit Step 4: Building Consensus Step 5: Tell the World Step 1: DR. FRANKENSTEIN, I PRESUME? Andrew Ross, managing editor for Salon Magazine, posed several questions to Dolly’s creator Dr. Ian Wilmut. The questions focus on many of the hopes and fears about human cloning. Get together with your teammates, and visit DR. FRANKENSTEIN, I PRESUME? [http://www.salon.com/feb97/news/news970224.html](http://www.salon.com/feb97/news/news970224.html). As a group, determine how to attack the following small activity. Use the interview to identify three hopes and three fears about human cloning. Craft three additional questions that your group would ask Dr. Wilmut. Get together with your teammates, and visit DR. FRANKENSTEIN, I PRESUME? (http://www.salon.com/feb97/news/news970224.html). As a group, determine how to attack the following small activity. Use the interview to identify three hopes and three fears about human cloning. Craft three additional questions that your group would ask Dr. Wilmut. After you have explored each role, open the role your group has been assigned, and start your quest. Step 2: Walking a Mile in My Shoes Step 3: The Summit: It is time for your team to share what it has learned about cloning. You have become an expert on your role's point of view, and the people attending the Cloning Summit need to learn about cloning from your perspective. Your team will be given ten minutes to explain how the proposed Human Cloning Prohibition Act should be expanded or maintained, and you must explain your reasoning. Pictures, video & audio clips, and quotes from your research can only strengthen your presentation. It is your job to present
your perspective effectively. If you choose to do a PowerPoint presentation, it is your responsibility to make sure the program will work before the day of the Cloning Summit. If you are not using PowerPoint, you may create a butcher paper mural, or you may choose to create a video presentation. Be creative. Audience Responsibilities As a member of the Cloning Summit Audience, your job is to listen carefully to each presentation. &nbsp; You will be called upon to participate on a Summit Subcommittee that will ultimately decide how the government should proceed. &nbsp; While listening to the other perspectives, write down the other role’s “Big Question.” &nbsp; Create a list of points your role would support and reject.

Step 4: Take a Stand Several separate Summit Subcommittees have been established to develop a recommendation on how the government should proceed. &nbsp; Each Subcommittee should consist of one expert from each role, so developing a recommendation will not be an easy task. &nbsp; What’s good for science research may not be good for animal rights or religious beliefs. &nbsp; You must discuss, persuade, argue, deal, and brainstorm a plan of attack. You will not all agree on the best way to present your action plan, but you must reach a consensus. &nbsp; You may find that you must agree to disagree in order to find the best solution. Step 5: Tell the World Your final responsibility will be to share your Cloning Summit Subcommittee report with a "real-world" contact. &nbsp; This will give you the opportunity to receive feedback from an expert that has not been part of the project. First, you must find a contact. &nbsp; Your group should consider sending your recommendations to a government official. &nbsp; In which case, you can find a list of email addresses at: Email The White House Email A US Senator Email A US House of Representatives Member Write an introduction to your email that will provide your contact with the background information they will need to understand your recommendations. &nbsp; Be sure to tell your contact that you are seeking feedback. Cut and paste your Take A Stand report into the body of the email or send your report as an attachment. Make sure that all the members in your group have proof read the email message before sending it. Send your email. &nbsp; Make sure that you ‘cc’ (carbon copy) your teacher, so that he or she has a copy of your work. Research sources. &nbsp; Primary- &nbsp; http://search.ebscohost.com/ &nbsp; &nbsp; &nbsp; &nbsp; &nbsp; &nbsp; &nbsp; &nbsp; &nbsp; &nbsp; &nbsp; &nbsp; Clonaidhttp://www.clonaid.com/ Cloning/Embryonic Stem Cells National Human Genome Research Institutehttp://www.genome.gov/page.cfm?pageID=10004765 Cloning Fact Sheet Human Genome Project Information http://www.ornl.gov/hgmsis/elsi/cloning.html


Conclusion

CONCLUSION &nbsp; Cloning may be the most important scientific discovery of the current century, and its impact will be felt long into the next century. &nbsp; "Most human events go through three phases of growth. First is the fear and abhorrence, and the second phase is sort of a tolerance, acceptance, and passivity, and the third phase is enthusiastic endorsement." &nbsp; (Dr. Richard Seed) &nbsp; It's time for our students to take a stand and tell the world what they believe. &nbsp; &nbsp;
TIMELINE: "Things take longer than you expect them to." If you decide to dedicate your entire class time to the project, you should be able to finish To Clone or Not to Clone in two weeks or less. I have decided to run the project concurrently with my already established classroom curriculum. Relying on students to complete the project "on their own" time.

Standards

Credits

Other