NAME _____ DATE _____

You've Come A Long Way, Dolly!

Cloning Timeline Activity

Introduction

During the 1990's, cloning stole the limelight. Dinosaurs came back to life in the Jurassic Park movies, Dolly the sheep burst onto the scene, and suddenly we faced the possibility that humans too could be cloned.

Less obvious in the midst of all the buzz was the fact that cloning is nothing new: its rich scientific history spans the past 100 years, and continues to progress quite rapidly. In this activity, you and your classmates will construct a timeline on the history of cloning.

Part 1 Instructions

1. Silently read through your Cloning Times newspaper article. Think about whether your event might have occurred before or after the cloning of Dolly the sheep in 1996. Write at least one reason for your decision below.

2. When called upon, present the headline and summary sentences (in boldface type) of your newspaper article to the class. Then, place the article on the timeline where you think the event might have happened relative to those that are already posted. Explain why you placed it where you did.

3. As you listen to other students present their events, think of where your event might have occurred relative to theirs on the timeline. Does your event seem less or more advanced than what has been presented? Be prepared to explain your reasoning.

4. Your teacher will instruct you to fill out a few significant headlines in the correct place on your Cloning Times Record (on the next page) when your classmates present them.

5. After all of the events are in the correct order, you will be given time to add the rest of the summary sentences to your Cloning Times Record.

Part 2 Discussion

- Which scientific event do you think is the most significant in the history of cloning? Place a sticker on that event on the timeline. Be prepared to discuss and defend why you think that discovery had a large impact on scientific research.
- What social or political event do you think is the most significant in the history of cloning? Place a different sticker on that event on the timeline. Be prepared to discuss and defend why you think that event was important.

NAME _____ DATE _____

The Cloning Times Record

1885
1902
1928
1952
1968
1975
1986
1987
1995
1996
1996 Sheep cloned by somatic cell nuclear transfer.
1997
1997
1997
1998
1998
1999
2001
2001
2001
2002
2002

What does the timeline spell out? ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

Part 3 Questions

1. Outline a brief history of cloning, highlighting breakthrough events that show different techniques.

2. What do you notice about the progression of organisms that have been cloned? What factors might influence the ease of cloning a particular organism?

3. Describe how cloning techniques have changed through time. Which techniques or principles have endured?

4. Explain the difference between using embryonic cells and differentiated adult somatic cells for cloning. What characteristics of embryonic cells led scientists to use them for the first cloning experiments? What characteristics of differentiated adult somatic cells made them more difficult to use for cloning?

5. Throughout the history of cloning, have there been periods of low or high scientific activity? Why do you think this has or has not happened?

6. Explain why the cloning of Dolly the sheep was such a major scientific breakthrough.

7. Are scientists as close to cloning humans as you thought? Support your answer with timeline entries.