

Who or what would you clone?

Views about whether cloning is an ethically or socially acceptable form of biotechnology often depend on what is being cloned, and why.

In this activity, you will consider ethical, economic and social issues involved in supporting or opposing cloning in a variety of contexts. You will also clarify your own views on cloning.

You will need:

- five cards with following words clearly printed on them:
 - Card 1: strongly agree
 - Card 2: agree
 - Card 3: neutral
 - Card 4: disagree
 - Card 5: strongly disagree.
- a length of string or cord long enough to reach from one side of the classroom to the other.

What to do:

Part 1

1. Attach the cards at equal distances along the string and suspend the string across the room, away from furniture and above head height.
2. Nominate someone to read out each of the possible applications of cloning technology in the list below. As each application is read out, stand beneath the card that best reflects your view on that application. Be prepared to explain why you have positioned yourself under a particular card.

Applications of cloning technology

Cloning should be used to:

- produce high yielding crops or animals (for example, dairy cows)
- grow your own skin cells to treat burns
- grow adult stem cells or bone marrow cells to treat yourself for leukaemia or haemophilia
- save species close to extinction
- produce organs for transplant (using embryonic stem cells)

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- produce a whole human e.g. using the genes of the mother or father in a donated egg when the two parents are infertile
 - produce animals that have become extinct
 - produce a copy of yourself to provide organs if any of yours should fail
 - produce a copy of yourself after your death so that you don't really 'die'
 - produce copies of certain people, for example Albert Einstein, Britney Spears, Kerry Packer, Nelson Mandela.
3. Nominate a student to keep a tally (on the board) of the numbers of students under each card.
 4. Repeat steps 2 and 3 for each of the applications listed.
 5. Look at the class results and write down how your opinions compare with those of the rest of the class.

Part 2

1. Working in a small group of 3–4 students, choose two of the applications of cloning to consider further. Make sure that all of the applications are considered by at least one group in the class.

For two of the above applications, consider:

- whether there is an alternative to cloning (e.g. replacement organs can be obtained from baboons, or pigs). Is the alternative preferable?
 - the costs (economic and social) of cloning versus the alternative (e.g. it might make more sense to look after your body with a healthy lifestyle so that cloned organs are not needed)
 - how effective cloning would be, if at all (e.g. an individual is a product of his/her environment, as well as his/her genetic inheritance)
 - that cloning is very expensive; would it be fair if only rich people are able to clone themselves?
 - whether there are any associated moral or ethical issues and whether they would be different for different cultures or religious groups.
2. Choose a spokesperson to present the findings of your discussion to the class.
 3. Write down your view on cloning. State clearly where you think cloning could be used and where it shouldn't be used. State in which areas you believe more discussion is required before you can decide.

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Part 3

Some groups claim to have cloned humans and that healthy babies have been born using this process. However, scientists have been sceptical of these claims, as there are still serious problems and limitations in animal cloning.

Read the following stories from the time the first claim was made of a human clone and answer the questions that follow.

'World's first human clone born'

27 December 2002

A sect claims the world's first cloned human - a girl - has been born.

The child was born by caesarean section and the birth "went very well," said Brigitte Boisselier, a French chemist and member of the Raelian sect. Boisselier called a news conference in Florida to make the announcement and said she would have an "independent inspector" take DNA evidence from the baby and her 30-year-old mother.

The Raelians, who claim 55,000 followers worldwide, believe that life on Earth was established by extra-terrestrials who arrived in flying saucers 25,000 years ago, and that humans themselves were created by cloning. Founder Claude Vorilhon, a former French journalist and leader of the Raelians, says it is a commercial company which wanted to make "as much money as possible". But the long-term goal is to create "eternal life through cloning".

He told the Miami Herald that within 25 years the sect hope to develop technology to create a full-grown human clone in only a few hours. The mind of the cloned adult would receive instant knowledge via the "uploading" of information directly from the brain of another person. Mr Vorilhon claims a space alien visiting him in 1973 revealed that extraterrestrials had created all life on Earth through genetic engineering.

'Wave of condemnation after clone claim'

29 December 2002

The leader of a religious sect that claimed to have created the first human clone called the development 'just the first step' toward human immortality through cloning.

But the announcement was met with scepticism and concern, since other cloned mammals have had serious birth defects or developed health problems.

Scientists, including one who leads a rival cloning project, condemned the claim, and religious organisations are outraged.

"Without any scientific data, one has to be very, very sceptical," said Dr Robert Lanza, the head of medical and scientific development for the private research firm Advanced Cell Technologies.

"This is a group that has no scientific track record, never published a single scientific paper in this area," Lanza said.

"They have no research experience in this area. In fact, they have never even cloned a mouse or a rabbit."

The announcement was also greeted with dismay in Australia, with stem cell researcher Professor Alan Trounson describing the sect behind the human cloning as being "from outer space".

He said the alleged cloning offered nothing to science and medicine.

"There is no scientific gain (that has) been linked scientifically to this group and there has never been any confirmation of their claims," Professor Trounson said. He also said the sect would need to demonstrate the exact likeness of the child to another human.

'Clone baby could be a hoax: investigator'

7 January 2003

US journalist Michael Guillen, who has been trying to verify claims a human clone baby has been born, says the claims could be "an elaborate hoax" by the Raelian sect.

Mr Guillen says he has suspended the verification process, after Clonaid, a company founded by the sect, claimed it had created the first human clone.

"This morning, I suspended the independent review process designed to determine whether or not a cloned human baby has been born," Mr Guillen said in a statement.

"The team of scientists has had no access to the alleged family and therefore cannot verify first hand the claim that a human baby has been cloned. In other words, it's still entirely possible Clonaid's announcement is part of an elaborate hoax intended to bring publicity to the Raelian movement," he said.

Clonaid spokeswoman Nadine Gary says she is surprised by Guillen's announcement and that she was unaware of the suspension.

Although all forms of cloning are illegal in Australia (and reproductive cloning is banned in many countries) it is widely discussed in the media and in speculative fiction as a possibility or reality. With this in mind:

- Do you believe the claim of a human clone having been born?
- What did the scientists have to say about the claim?
- How do you think the Raelians could have successfully cloned a healthy human if scientists are having difficulty in achieving this with other mammals?
- Assuming that the claims are true:
 - Is this fair on 'Eve', the cloned baby?
 - How do you think 'Eve' would feel about being the first human clone?
 - What happens if there are developmental or health problems? Who would be responsible? Would 'Eve' have legal recourse?
 - If 'Eve' had children in the normal way, what would it mean for her children?
- What if a cloned person was cloned themselves? What does that mean for their parentage?

For further investigation:

Do some research on announcements of human clones since this first claim.

- How many claims have been made, and who made them?
- How clear have they been about the process they are undertaking?
- Why are they doing this type of research?
- Is research still going on to try and make a human clone?

Is reproductive cloning illegal in every country in the world? Why would there be differences between countries?