

Cloning

Lead-in: Science Quiz

Read the questions and choose the correct answers.

What do you know about science?

1. What percentage of the world's inventions in the past 100 years have been British?
A. 44% B. 54% C. 34%
2. How many Nobel Prizes have UK scientists received since 1901?
A. 36 B. 56 C. 99
3. What percentage of Europe's top growing technology companies are from the UK?
A. 33% B. 50% C. 100%
4. Marie Curie was a
A. Chemist B. Biologist C. Physicist
5. Alexander Graham Bell invented the
A. Radio B. Telephone C. Computer
6. Alexander Fleming discovered penicillin in
A. 1898 B. 1908 C. 1928

Task 1: Discussion

Discuss with a partner:

- Do you think studying science is important? Why or Why not?
- Who do you think are the world's most famous scientists? What did they discover or invent?
- Can you name any famous scientists from your country or from the UK?
- Do you think girls and boys have equal opportunities to study science at school and at University?

Task 2: Science and Modern Life

Which of the following scientific discoveries do you think is most important for modern life?

First, rank the following scientific achievements from 1-10 in order of importance (1= most important, 10 = least important).

- Atomic Bomb
- Wireless technology
- Computers
- Cloning
- Penicillin/Antibiotics
- Solar Power
- Air Travel
- Plastic
- Electricity
- Robots

Compare your answers with a partner. Are there any other discoveries that you would add to the list?

Task 3: Dolly the sheep

Put the text that your teacher gives you in order, then answer these questions:

1. Where was Dolly the Sheep cloned?
2. When was she born?
3. How old was Dolly when she died?
4. Why do researchers think she may have died so young?

Task 4: Follow- up discussion

After reading the text, discuss these questions in pairs:

- Do you think humans should be allowed to be cloned?
- What benefits do you think cloning can have?
- What negative aspects do you think that cloning can have?
- Do you know what your country's policy on cloning is?
- Would you like to clone yourself or anyone else?
- If you could clone someone famous, who would it be and why?

Dolly the Sheep text: Cut ups

Dolly the Sheep, the first animal cloned from an adult cell, died in 2003.

It had taken hundreds of attempts to produce Dolly and since many people believed that it was impossible to clone something as complex as a sheep, Dolly was a real scientific breakthrough.

However, Dolly who was born in the Roslin Institute near Edinburgh, Scotland in 1996 died at only six years old.

Sheep normally live between 10 to 16 years so Dolly was quite young when she died.

Since Dolly was cloned from an adult sheep that was also six years old, investigators are researching into whether this may have had something to do with her early death.

They believe that there is a strong possibility that the fact that Dolly's genetic material came from a six-year-old sheep may have caused her to age faster than normal.

Dolly's death has sparked off further debate into the safety of cloning, and the ethics of cloning humans.

Task 5: To clone or not to clone?

<p>Card 1</p> <p>Jane is blind and has a guide dog called Bobby.</p> <p>Bobby has been her guide dog for 10 years but is getting old. Bobby is Jayne's best friend and she feels that without him she couldn't live.</p> <p>Should Jayne be allowed to clone Bobby before he dies?</p> <p>Should people be allowed to clone their pets?</p>	<p>Card 2</p> <p>There is only one Giant Panda left on earth. It does not have a partner to breed with so once it dies the species will be extinct.</p> <p>Should scientists be allowed to clone another Giant Panda to keep the species alive?</p> <p>Should scientists be allowed to clone endangered species?</p>
<p>Card 3</p> <p>Scientists believe that <i>stem cells</i> found in human embryos could be used to cure a range of diseases.</p> <p>Should scientists be allowed to clone human embryos to create stems cells for medical purposes?</p>	<p>Card 4</p> <p>Mrs. Jones eldest son Mark is 10 years old and is dying with cancer. Should Mrs. Jones be allowed to clone Mark before he dies?</p> <p>Should people be allowed to clone other humans or clone themselves?</p>
<p>Card 5</p> <p>John Green is a farmer in Texas and he wants to clone his prize bull to sell it and make money.</p> <p>Should farmers be allowed to clone their best animals to make money?</p>	<p>Card 6</p> <p>A developing country with food shortages want to clone their best food producing animals, cows, chickens, pigs etc. to try and produce more food per animal to solve their food shortages.</p> <p>Should countries be allowed to clone animals to increase food production?</p>

Task 6: Science and English

Put the words in the correct category – some words may appear in more than one.

Addition	Plant	Liquid	Chemicals	Leaf	Program	Root	Earth
Equation	Input	Hard Drive	Subtraction	Solution		Acid	Network
Division	Mouse	Test Tube	Habitat			Experiment	Virus
<i>Words used in Biology</i>	<i>Words used in Chemistry</i>	<i>Words used in Computer Science</i>	<i>Words used in Maths</i>				

Discussion:

- What language are most scientific documents in your country written in?
- Do you think it is important for scientists to be able to read and write in English. Why (not)?
- Can you describe in English a recent science experiment you have done in your science class at school to your partner?

Task 7: Debate

You will be put into groups, “For” and “Against”. Choose a topic you would like to debate, prepare some arguments, and then try to convince your opponents.

Topic 1

Scientific experiments on animals are cruel and should be banned.

Topic 2

Young Children and Teens spend too much time using computers and playing video games. Children and Teens should be restricted to using computers for a maximum of 2 hours per day.

Topic 3

Nuclear energy is better than solar or wind energy.

Topic 4

Mobile Phones and hand-held electronic games are noisy and disruptive and should be banned in public places.

Topic 5

Less government money should be spent on defence and more money should be spent on protecting the environment.

Topic 6

Science should be a compulsory subject at school for all students at all levels.

Topic 7

Global warming is not a serious threat to human survival.