you do

Scientists make first human-monkey embryo

Monkey business: Human cells injected into macaque embryos survived for up to 20 days. © Getty

Are scientists opening a Pandora's box? The latest breakthrough could make it possible to grow human organs inside animals. It will save lives, but the ethical implications are enormous.

One fact I remember from the article yesterday is....

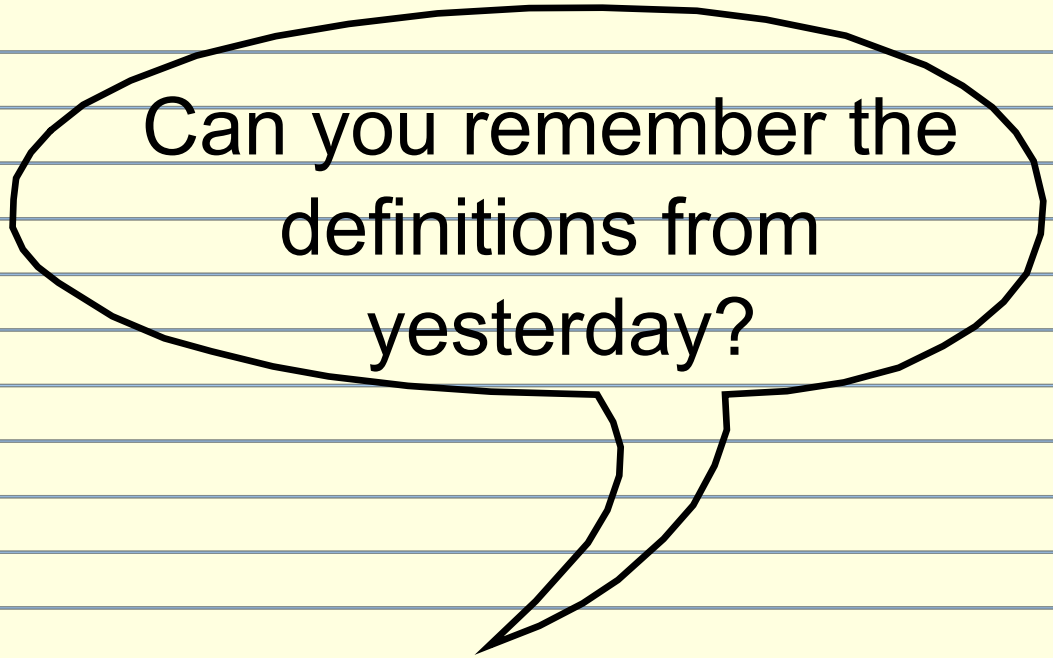
The most interesting thing I read was....

I think it is a ..... idea because...

we do

Glossary

laboratory
transplants
modified
organisms
organ donations
accomplished
procedure
suppress
moral
harvest



Glossary

laboratory - a room with special equipment to carry out experiments

transplant- take (living tissue/organ) from one body and put into another.

modified - changed

organisms - an individual animal, plant or single-celled life form.

organ donations - the process when a person allows an organ of their own to be removed and transplanted to another person.

accomplished - achieved

procedure - a surgical operation

suppress - prevent a reaction

moral- behaving in the right way

harvest - remove organs to experiment on

Glossary

Embryos – A small cluster of fertilised cells that will develop into a new organism. Research on human embryos is limited to the first 14 days of development but the exact point it becomes a living being is a hotly debated and highly emotional issue.

Stem cells – A special embryonic cell with the ability to develop into many different cells and repair damaged tissue. In 2006, researchers discovered how to reprogramme adult cells to become stem cells, overcoming ethical concerns surrounding embryo research.

Chimeras – In Greek mythology, the fire-breathing Chimera had the head of a lion, the body of a goat and a snake for a tail.

Red market – Iran is the only country where it is legal to sell organs. In the rest of the world, they are traded illegally by criminal gangs who exploit vulnerable and desperate groups.

Immune response – The body attacks the organ, treating the transplant like an invading virus.

Bioethicist – Bioethics is the study of moral and philosophical questions arising from advances in biology and medicine.

Pandora's box – In Greek mythology, a jar that, when opened, released sickness and death into the world.

Dystopian – For example, in Kazuo Ishiguro's 2005 science fiction novel Never Let Me Go, self-aware clones discover their fate as organ donors.

3D bioprinting – Instead of ink and plastic, tissue engineering uses a "bio-ink" of living cells to make artificial tissue and organs.

Alvin Roth – The Nobel Prize-winning economist devised a "kidney exchange", using economic theory to link up matching pairs of patients and donors.

Reading

LO: to sequence information from the text

you do

2nd Read: Structure

Read the text with your partner - take it in turns to read a sentence or paragraph each.

Use the glossary to help you understand the unfamiliar words.

Think carefully about the order information is given.

I do

A Chimeras are created in a hope they will solve the global shortage in organ donation.

B The key issue is the moral status of the animals.

C Scientist confirm they have created the world's first human-monkey in a laboratory in China.

D Alvin Roth thinks the solution is simple: change the transplant system to encourage more people to donate.

E Xenotransplantation does not always work as it is difficult to match blood types between species.

F Chimeras could solve the xenotransplantation problem as they allow human organs to grow inside animals.

G Tao Tan describes the amazing results: human cells multiplying and interacting with monkey cells.

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3rd Read: Authors Intent

Summarise the article in less than 50 words.

I do

1st human-monkey embryo
human stem cells into 132 embryos
US-Chinese team

we do

chimeras
cells too different
human organs to grow in animals

global shortage in organ donations

you do

moral issue
alternatives

we do

Should animals be used to grow chimeras?

After reading the article, I believe.....

When the article talked about....., it made me think.....

On the one hand, I believe it is..... because.....

However, there are ..... arguments such as....