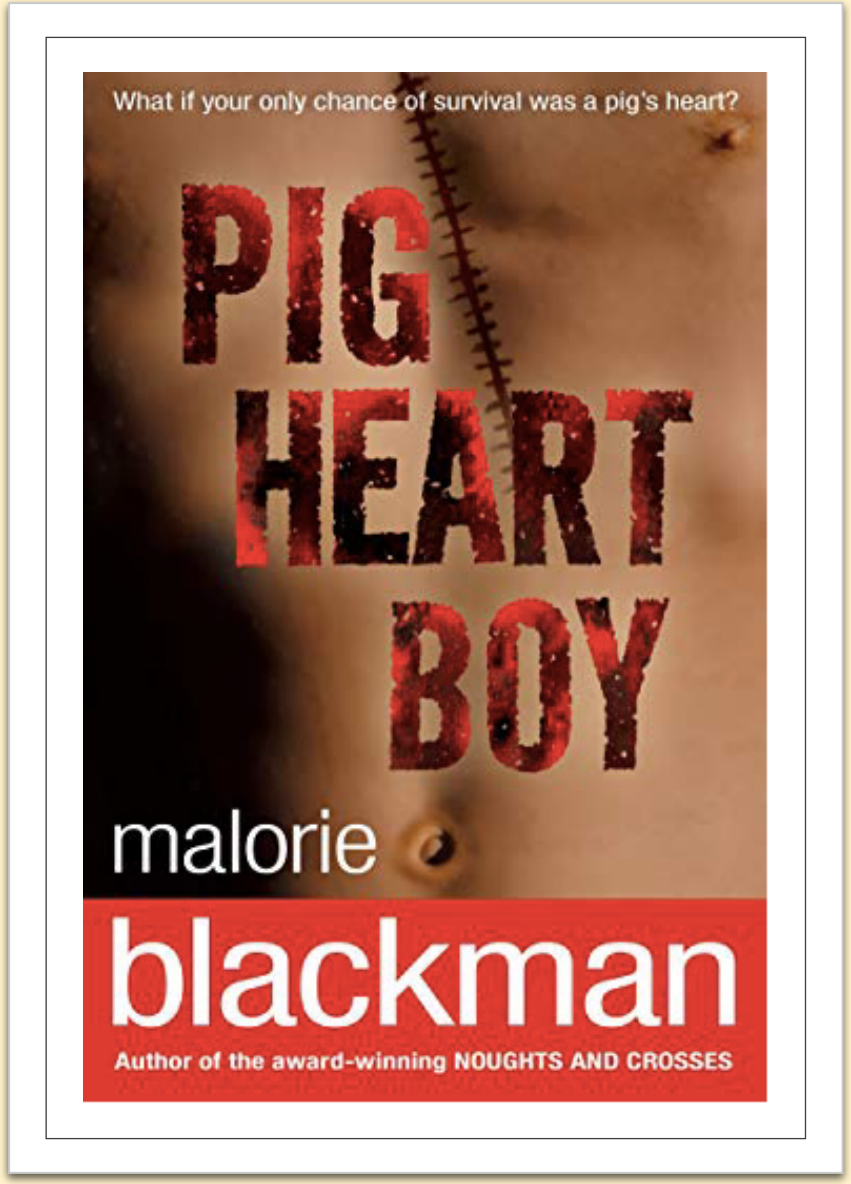
https://youtu.be/IWSpsky-w9A
Today's lesson on Youtube!

Wednesday 3rd February

L.O: To summarise information to form an opinion

Success Criteria:
To break down information using subtitles
To identify key words and important facts
To use a wide range of research



Today we are going to read, 'Chapter 4: Dr Bryce'.
Watch the following video to listen:

https://www.youtube.com/watch?v=CghWuEKnp1Y

As you are listening, reflect on your reaction to the transplant. Which character do you most agree with?

Key Vocabulary

Transplant = Transfer/move an organ from **one individual** to another

Xenotransplantation

Or Transgenics = Transfer/move an organ from **one species** to another

It is important for you to discover your own opinion on the possibility of a pig-heart transplant. Therefore, today is an independent research lesson.
You will make notes on what you have found out.

Think about what questions you might want to find out about xenotransplantation or transplants in general.

What is the history of organ transplants?
When was the first human-human heart transplant?

What are some common opinions of organ transplants?

Does transgenics exist?
Has a pig-heart transplant ever occurred?

Why Take Notes?

To gather information about a specific topic.

To use within a piece of writing at a later date.

To analyse a text.

Don’t Panic!

There are a few different tricks and tools that you can use to make this easier.

Find out what you need to know.

Examine the pictures and headings.

Read and take notes on one subheading at a time.

Take regular brain breaks.

Make helpful notes.

Top Tips for Note-Taking

1. Summarise the information - Avoid copying line after line!
2. Seperate your notes into subtitles of different topics
3. Use bullet points to separate your writing
4. Make sure to write in full sentences so that your notes still make sense.

Task

1. Spend 30 minutes researching 'Organ Transplants'
2. Make notes as you research using appropriate subtitles and bullet points.

You might want to use these subtitles and websites to help you:

History of Heart Transplants (Human-Human)

https://www.bhf.org.uk/informationsupport/heart-matters-magazine/medical/50-years-of-heart-transplant/heart-transplant-timeline#2015

Xenotransplantation (Organ Transplants Between Species)

https://www.academickids.com/encyclopedia/index.php/Xenotransplantation'

Potential of Pig Heart Transplant

https://www.theguardian.com/science/2019/aug/19/pig-to-human-heart-transplants-possible-within-three-years-terence-english

Your research might look like this…
Find the answers to the questions to help you!

Organ Transplants

History of Heart Transplants
- When was the first human heart transplant?
- How has the surgery developed or changed?

Xenotransplantation
- What is xenotransplantation?
- Does this surgery exist?
- What are the main advantages or disadvantages?

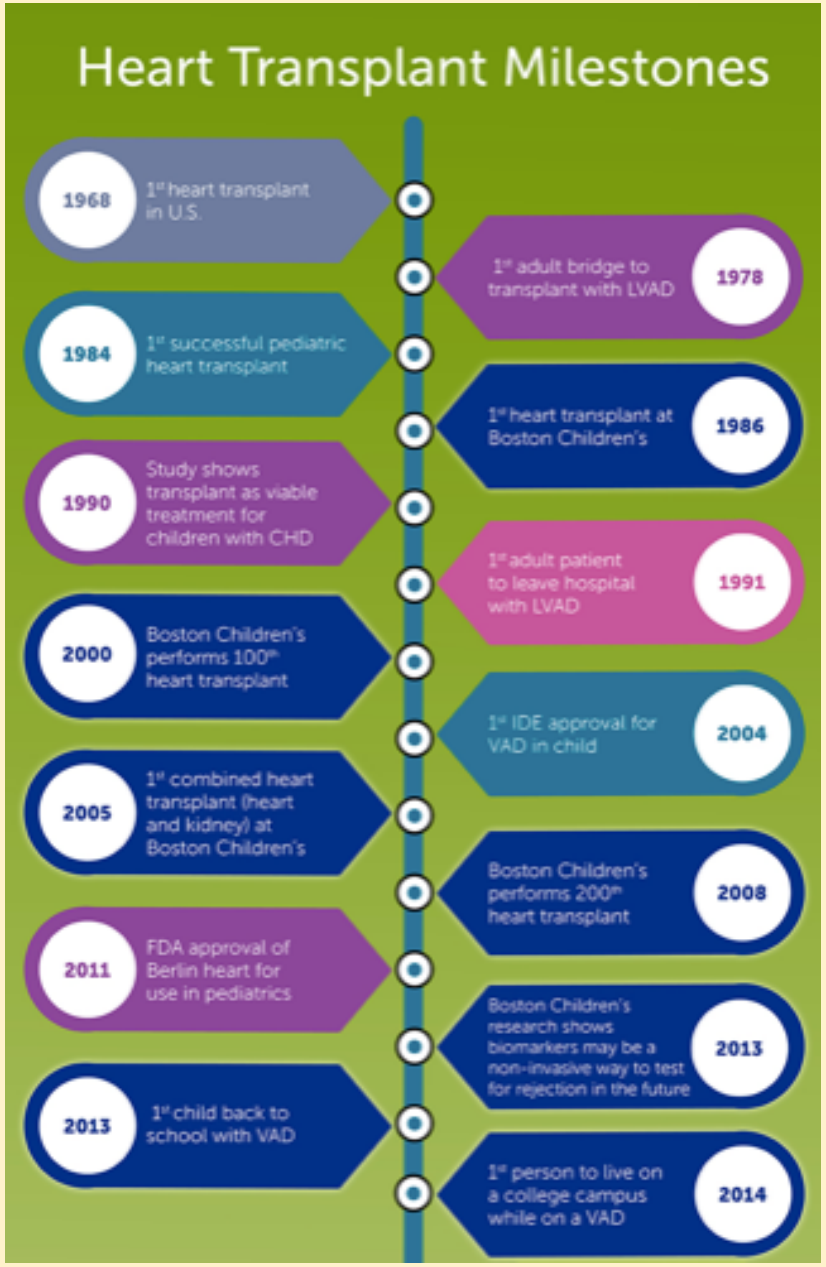
Potential of Pig Heart Transplant
- Do medical experts think this surgery will be possible?
- Why pigs over any other animal?

Success Criteria:
Subtitles
Bullet Points
Full and complex sentences
Summarized information

Can you present your work to the class or someone at home?

What is the most interesting fact that you have found?

What is YOUR opinion of organ transplants? Can you explain?


Heart Transplant Milestones
1968
1st heart transplant in U.S.
1978
1st adult bridge to transplant with LVAD
1984
1st successful pediatric heart transplant
1986
1st heart transplant at Boston Children's
1990
Study shows transplant as viable treatment for children with CHD
1991
1st adult patient to leave hospital with LVAD
2000
Boston Children's performs 100th heart transplant
2004
1st IDE approval for VAD in child
2005
1st combined heart transplant (heart and kidney) at Boston Children's
2008
Boston Children's performs 200th heart transplant
2011
FDA approval of Berlin heart for use in pediatrics
2013
Boston Children's research shows biomarkers may be a non-invasive way to test for rejection in the future
2013
1st child back to school with VAD
2014
1st person to live on a college campus while on a VAD

Xenotransplantation

From Academic Kids

Xenotransplantation is the transplantation of cells, tissues or organs from one species to another such as from pigs to humans. Such cells, tissues or organs are called xenografts (xenotransplants).

Xenotransplantation offers a potential treatment for end-stage organ failure, one of the most important health problems facing the industrialized world today. It also raises many novel medical, legal and ethical issues. Disease transmission (xenozoonosis), and possible long-term effects of xenotransplantation on the human gene pool and permanent alteration to the genetic code of animals are a cause for concern.

Because there is a worldwide shortage of organs for clinical transplantation about 60% of patients needing new organs die on the waiting list. In many cases there is so little chance of a person actually receiving a transplant doctors do not even add the person to the list, causing an underrepresentation of the shortage. Recent advances in understanding the mechanisms of transplant organ rejection have brought science to a stage where it is reasonable to consider that organs from other species, probably pigs, may soon be engineered to minimize the risk of serious rejection and used as an alternative to human tissues, possibly ending organ shortages.

Other procedures, some of which are being investigated in early clinical trials, aim to use cells or tissues from other species to treat life-threatening and debilitating illnesses such as cancer, diabetes, liver failure and Parkinson's disease. If vitrification can be perfected it could allow for long-term storage of xenogenic cells, tissues and organs so they would be more readily available for transplant.

There are only a few published successful xenotransplantations. Some patients who were in need of liver transplants were able to use pig livers that were on a trolley by their bedside successfully until a proper donor liver was available. Some recipients of pig neural cells with paralysis due to stroke (CVA) and Parkinson's disease have experienced dramatic improvements.

Immune rejection remains the biggest challenge for xenotransplantation. The problem exists even for human to human transplants (known as allotransplantation), but is more serious for transplants between different species. Nearly all mammalian cells have markers which enable the immune system to recognise them not being foreign. The more different the genetic code between the donor organ and recipient, the greater the difference between a "self" marker and a "foreign" marker. Some companies are currently developing transgenic animals such as pigs, that produce human markers.

Medical research

This article is more than **1 year old**

Pig to human heart transplants 'possible within three years'

Pioneer UK surgeon Sir Terence English says adapted organs could transform treatment

PA Media

Mon 19 Aug 2019 09.52 BST

594

▲ Surgeons will try to replace a human kidney with a pig's this year as a precursor to working with hearts.
Photograph: Thierry Dosogne/Getty Images

Adapted pig hearts could be transplanted into patients within three years, according to a report citing the surgeon who pioneered heart transplantation in the UK.

On the 40th anniversary of the first successful heart transplant, Sir Terence English told The Sunday Telegraph that his protege from that operation would try to replace a human kidney with a pig's this year.

"If the result of xenotransplantation is satisfactory with porcine kidneys to humans, then it is likely that hearts would be used with good effects in humans within a few years," the 87-year-old said. "If it works with a kidney, it will work with a heart. That will transform the issue."

The anatomy and physiology of a pig's heart is similar to that of a human's, so they are used as models for developing new treatments. Hopes for a successful heart attack treatment were raised in May after a genetic therapy showed promise in pigs.

An international team of researchers, including UK scientists, found that delivering a small piece of genetic material called microRNA-199 into a heart damaged by an attack caused cells to regenerate.

Myocardial infarction, caused by the sudden blocking of one of the coronary arteries, is the main reason for heart failure. Survivors are often left with permanent structural damage to their heart.

An estimated 900,000 people in the UK live with heart disease, and millions more have high blood pressure, another risk factor in heart attacks.

Read your writing to make sure that your notes make sense!

Fantastic work today ☺

Email your finished work to:

ksutherland@kingsavenue.Lambeth.sch.uk