

Lesson 1: Humanimal Trust and One Medicine

This lesson teaches you about One Medicine, the definition and also the history of Humanimal Trust and what our aims are as a charity. This lesson plan includes notes to accompany the powerpoint, though I recorded it for you so you don't need to teach all this lesson yourself, rather you can support your students learning.



Learning Objectives

Students will learn:

- About the charity, Humanimal Trust
- The definition of One Medicine
- How One Medicine is important for human and animal health



Learning Outcomes

By the end of the lesson, students will be able to:

- Understand the work that Humanimal Trust do
- Identify why this means One Medicine is important to our health and the health of animals



Resources Required

Resource 1:

Powerpoint

Resource 2:

Teacher's notes

Resource 3:

Worksheet 1



Key Words

Humanimal Trust, One Medicine, research, bone disease, cancer, osteosarcoma,

NC Links

Aims and objectives of Science: understand how society makes decisions about scientific issues and how the sciences contribute to the success of the economy and society

Subject content:

13. Biodiversity: recent approaches draw on a wider range of evidence to clarify relationships between organisms.

Working scientifically - informing students of the role of science in understanding the causes of and solutions to some of the challenges facing society.

Development of scientific thinking: appreciating the power and limitations of science and considering ethical issues which may arise

Working scientifically - informing students of the role of science in understanding the causes of and solutions to some of the challenges facing society.

Lesson Plan

Activity	Description	Timing
Introduction	Explain the series of lessons and what today's lesson is about, who Humanimal Trust are as a charity and the importance of One Medicine	5 min
The powerpoint	Watch and listen to the presentation, further information to accompany the powerpoint are in the teacher's notes	30 mins
Activity	Complete worksheet on the benefits of One Medicine for one area of disease	15 mins
Plenary	Discuss the comments and ideas in the activity above. List three things that you have learnt in this lesson	10 mins

Key questions:

Can you name any other zoonotic or reverse zoonotic diseases?

What are Humanimal Trust's aims?

Who was the founder of Humanimal Trust?

How many years have Humanimal Trust been a charity?

Plenary/ Assessment of learning



Assessing Progress

Are the students able to explain the difference between One Health and One Medicine?
This is quite challenging, so some guidance may be needed.

List 3 things you have learnt today

Extension activities/Homework



Write a newspaper headline/article headline and by line relating to the key concepts of this lesson: What is One Medicine and what are the benefits of the human and veterinary medical working together.



Teacher's Notes/Observations

The powerpoint gives a definition of One Medicine, the Values and Mission statement of Humanimal Trust and One Medicine as well as a brief history of One Medicine.

Below are notes on the slides for you to elaborate on and give you further background information. There are also links for you to find out further information, that is mentioned in the lesson.

Teacher's Notes

Additional Information:

Slide 1: Introduction page

Slide 2: A definition of One Health and One Medicine. These two terms are often used interchangeably with each other however, there is a noticeable difference between the two. One Medicine looks for collaboration between vets, doctors, researchers and other professionals for the benefit of humans and animals health as well as an aim for the use of animals in laboratory testing to become obsolete

Slide 3: Humanimal Trust's the origins, our founder

Slide 4: A quote from Professor Noel Fitzpatrick on why he set up Humanimal Trust and why One Medicine is so important

Slide 5: Humanimal Trust's definition of One Medicine

Slide 6: At the moment the information is much more in one direction, for the benefit of humans, with the benefits not being reciprocated. The number of animals used in animal testing in the UK, from www.gov.org.uk is as follows: In 2020, 2.88 million procedures were carried out in Great Britain involving living animals.

The majority (92%) of procedures (both for experimental and breeding purposes) used mice, fish, or rats.

Over half (53%) of experimental procedures were for the purpose of basic research Most commonly focusing on the immune system, the nervous system and cancer

Slide 7: The benefits of a One Medicine approach to healthcare for animals humans and the planet.

Slide 8: Further reasons why One Medicine is so important

Slide 9: These are all examples of One Medicine in practice, published and peer-reviewed articles <https://pubmed.ncbi.nlm.nih.gov/30268334/> Companion Animals in comparative Oncology <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8718270/#:~:text=Whilst%20One%20Medicine%20primarily%20examines,management%20of%20comparable%20human%20conditions.> The One Medicine Concept

<https://pubmed.ncbi.nlm.nih.gov/30953036/> Spontaneous Dog Osteoarthritis

<https://pubmed.ncbi.nlm.nih.gov/29904638/> Big Data - The language and future of One Medicine, One Science

Teacher's Notes

Additional Information:

Slide 10: One Medicine faces a number of challenges and obstacles that it needs to overcome. One such question is whether the two medical professions can ever be equitable given that human medicine is far bigger than veterinary medicine. Also, in the UK, human healthcare is predominantly state funded whereas animal healthcare is privately funded.

If we consider the ratio of practicing doctors to veterinary surgeons for 2018, the ratio works out at approx. 10 doctors for every vet and 40 human medical nurses for each veterinary nurse!

Slide 11: Although human medicine is much larger than veterinary medicine, if we compare the human and animal (companion and livestock) populations as reported for 2018, the UK human population was approx. 66 million whilst the combined pet and livestock population for 2018 was 88 million. Therefore in terms of the population size that doctors and vets treat, they are comparable.

Slide 12: World Health Organisation were founded in 1948, WHO is the United Nations agency that connects nations, partners and people to promote health, keep the world safe and serve the vulnerable – so everyone, everywhere can attain the highest level of health. They direct and coordinate the world's response to health emergencies. You will have heard them quoted during the Covid-19 pandemic government updates.

Slide 13: Zoonosis is an infectious disease that can be passed from a non-human animal to humans. Reverse zoonosis, in which a disease transmits from humans to animals, poses threats to animal health as well as public health

The examples on the slide are but a few of the possible diseases we can share with animals. These are typically better known health problems, but please do add to the list with your own, or ask the students if they know of any.

Teacher's Notes

Additional Information:

Slide 14: The United Nations, referred to informally as the UN, is an intergovernmental organization whose stated purposes are to maintain international peace and security, develop friendly relations among nations, achieve international cooperation, and serve as a centre for harmonizing the actions of nations. They were very much at the fore during the pandemic.

In 75 years, the United Nations, its specialised agencies, related agencies, funds, programmes and staff were awarded the prestigious Nobel Peace Prize twelve times. Two secretary-Generals have also won the Nobel Peace prize.

Slide 15: Our charitable activities can be placed into the acronym, I CARE. Further details of these can be found here:

https://www.humanimaltrust.org.uk/sites/default/files/inline-files/HT_Science_Booklet_Web_Ready_0.pdf

Slide 16: Influence – the general public, human medicine, veterinary medicine, researchers and other medical professionals. So that, together we can influence change at the highest level – for us all. We all have our part to play in making that happen.

Slide 17: Collaboration - The Humanimal Hub was launched in 2020, and is an online forum - a vital, interactive space that is free to join and use, where leading minds in human and animal medicine can meet, collaborate, initiate and share knowledge and research, driving forward closer cooperation for the benefit of humans and animals. Collaboration Café is the Hub's e-zine. our Collaboration Cafe is an e-zine that features discussions with some of our Hub members and One Medicine focused projects they have been, or are currently, involved with.

It's a great way for Hub members to get to know each other, and to discover opportunities and shared interests for potential future collaborations. There are a selection of these on the Humanimal Trust website.

Teacher's Notes

Additional Information:

Our first One Medicine Symposium was held virtually on One Medicine day, 6th May 2021. This marked our 7th Anniversary and was attended by over 100 human, veterinary and bioscience professionals from all over the world for some fascinating talks and discussion.

One Medicine Day will continue to be celebrated each year as a focal point of our work to drive fairer and more ethical approaches to healthcare research and practice for all humans and animals. Each year's event is different, so do look out for them!

Eventually we plan to create a physical centre for One Medicine so that specialists and practitioners can work together in a dedicated space as well as our virtual Humanimal Hub.

Slide 18: Awareness -Our staff and volunteers give talks and presentations to many different groups

community, special interest groups, medical and professional, schools and FE students, the list is endless, we are happy to come and talk to your school or students, just get in touch here: <https://www.humanimaltrust.org.uk/contact-us-0>

The Humanimal Connection Podcast series can be accessed via our website. They give many examples of One Medicine in action around the world and are fascinating. Series two is currently being released. <https://www.humanimaltrust.org.uk/get-involved/humanimal-connection-podcasts>

We also attend professional and public events with a stand to talk about our work throughout the UK.

Teacher's Notes

Additional Information:

Slide 19 and 20: Slide 19: Research – the type of grants and research we fund

Slide 20: The five disease groups we focus on:-

Infection Control and antimicrobial resistance – this is a massive problem that is emerging both in humans and animals. Infections are highly virulent and can mutate – they can also stay dormant for a while and then flare up again. Antibiotics are given too often, they are sometimes used as a preventative in some farming methods. If doctors and vets study infections together, we can study antibiotic resistance together, saving time, money and lives.

Cancer – It is impossible to see from a sample whether a tumour came from an animal or a human. Osteosarcoma, which is cancer of the bone is highly prevalent in dogs. They have 10 times the incidence as humans. Consider this, they live in our environments, they share our space, we travel to the same places. If we study osteosarcoma in dogs (naturally occurring) think how much this would teach us about osteosarcoma in humans.

Brain and spine disease – Dogs and humans are affected by a similar range of spinal diseases. Like us, dogs suffer from degenerative diseases of the spine. The treatments currently available include disc replacements and decompression surgery are directly comparable between the species. These similarities create a great opportunity for collaboration.

Bone, muscle and joint disease – one example is osteoarthritis. A massive source of pain and mobility problems in humans and other species. Canine arthritis has been classified as a welfare issue within the species.

Regenerative medicine – this helps to restore tissues and organs affected by trauma or disease by stimulating the body's own repair mechanisms to heal and regenerate.

Teacher's Notes

Additional Information:

Slide 21: Data can be collated from treating animals with real, naturally occurring disease, living in the real world to help save the lives of others, and potentially other species. In laboratory animal testing, virtually all animals are killed at the end of an experiment. Modern technology means this is often no longer necessary, and we can study the treatment of naturally occurring disease. Animals do not need to die.

Slide 22: Two research studies in collaboration with action medical research for children,

Further details on these studies can be found here:

<https://www.humanimaltrust.org.uk/what-we-do/research/small-project-awards/supporting-research-potential-help-children-and-animals>

Slide 23: Further details can be found here: <https://www.humanimaltrust.org.uk/what-we-do/research/phd-studentships/bacteriophages-alternative-antibiotics>

Slide 24: Education has a key role to play in facilitating One Medicine, it underpins all the work we do. We are now developing our education programme to cater for children from early years to graduation and beyond with CPD opportunities to inspire and encourage the understanding one One Medicine and its many benefits.

Slide 25 The Creative Awards 2023 were a great success - with over 110 fabulous entries. This will be an annual event - so look out for future awards.

Slide 26-29: The podcasts: Series 1 episode 1, an introduction to Humanimal Trust and then an interview with Dr Johan Marias of Saving the Survivors. The next four slides are about their work and how a One Medicine approach has helped save wildlife.

<https://www.savingthesurvivors.org/> Please be aware there are graphic photos on the website

Teacher's Notes

Additional Information:

Slide 31: This activity enables the students to consider the benefits of One Medicine for humans and animals.

Please see worksheet 1 below.

Slide 32: A recap on the contents of the powerpoint and a starting point for your plenary.

One Medicine in Action

With a partner or in a small group, Chose one illness that you can envisage One Medicine helping in the future.

Chose from a a bone, joint or muscle disease, brain or spine disease, cancer or an infection that may be antimicrobial resistant.

The disease or health issue

What kind of research do you see happening?

How will the animals and humans benefit?

How can you be part of this change?