

Lesson 2 Comparative Anatomy and One Medicine

This is the second lesson in the series exploring Humanimal Trust and One Medicine. In this lesson we compare the anatomy of some animal species and human animals, focussing on the similarities and why One Medicine makes sense. How this also transfers to how we look after ourselves and animals when injured.



Learning Objectives

Students will learn:

- Some of the similarities between human and animal physiology
- Why One Medicine benefits humans and other species
- Appropriate items to be in a canine first aid kit
- Appropriate items to be in a human first aid kit



Learning Outcomes

By the end of the lesson, the students will have an understanding of:

- Identify some of the ways humans and animals are physically similar
- Create a first aid kit suitable for dogs or humans
- Understand that animals should not be given human medications



Resources Required

Resource 1:

Powerpoint Comparative anatomy and health

Resource 2:

Human and canine first aid kit worksheet

Resource 3:

Images of items for first aid kits

Resource 4:

Human and canine first aid kit answer sheet



Key Words

muscles, wounds, tendons, ligaments, muscle atrophy, central nervous system, referral vet, antibiotics, radiographs (x-rays)

Curriculum 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: 8.

Biology. Knowledge and Understanding:

11. Biology specifications must ensure that there is an appropriate balance between plant biology, animal biology and microbiology and include an appreciation of the relevance of sustainability to all aspects of scientific developments.

13. Biodiversity: originally classification systems were based on observable features but more 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.

Activity	Description	Timing
Introduction	Introduce the topic of the lesson, and outline the objectives and outcomes	5 min
Quiz	Students complete the quiz activity on muscles verbally with teacher/tutor and class. Discuss answers which can be found on Teacher's notes page	10 min
Fact finding	Slide 4: How similar are we? Discuss some of the similarities as in powerpoint. Ask students to work in pairs to find some more similarities between humans and animals. Feedback to class and create a list	15 min
Exploring healthcare	Slides 5-7: Discuss the process we go through for ourselves and animals when they are sick to obtain a diagnosis. How do the two healthcare systems differ?	15 min
First Aid Kit Creation	Students work in pairs or small groups to decide on which items belong in a canine, human or both first aid kits. There are illustrations of each item which can be printed out and laminated in the resources section. What can be in a human and animal's first aid kit? Alternatively, use the worksheet for students to complete individually or in pairs.	20 mins
Right or wrong?	Discuss answers and go through slide 11 carefully, so the students do not give their companion animals any human medications.	10 mins
Plenary	Find the Fib: Give the students 3 statements, two true and one false about first aid kits, write on whiteboard and hold up answer. (a few examples are in your teacher notes.	5 mins



Support / Key questions

In activities, pair students together who can work collaboratively together.

Plenary/ Assessment of learning



Assessing Progress

See lesson activities

Ask students to share what they have learnt in the lesson today about:

Muscles and anatomy

First aid kits

Safe use and storage of medication

List the similarities and differences between the species and why we need One Medicine.

Can the students explain what One Medicine means?

Extension/homework activity



Poster campaign

Create a poster to highlight the importance of safety and not giving animals human medications.



Lesson overview

The purpose of this lesson is to compare the anatomy of some animals with humans.

The need for a first aid kit in a home is useful for both humans and animals, but does not replace medical care for any species, please ensure that you make this clear to your students.

We want to ensure appropriate health care for everyone. While there are some medications that are safe for some species to share, there are many that are not. If a drug is safe for use with animals it is vital that this recommendation comes FROM A VET ONLY, as the animal may have other health problems that mean they can't take that drug. The vet is also able to give the correct dose for the size of the animal.

Teacher's Guidance

Additional Information:

Slide 2: QUIZ ANSWERS

How many muscles does an adult human have in their body? Approx. 650

How many muscles does a dog have? Approx. 350 pairs, about 700

How many muscles does a horse have? About 700 muscles

Can you name any muscles that might be the same?

Slide 3: The three main types of muscle include skeletal, smooth and cardiac. The brain, nerves and skeletal muscles work together to cause movement – this is collectively known as the neuromuscular system.

All muscles, regardless of species are prone to the same types of damage. Muscle strains, may be called a pulled muscle, muscle tears and muscle contusion or bruise.

What does a tendon do? A tendon attaches a muscle to a bone, which is how we all move, the muscles contract and flex or straighten a joint.

Slide 4: Article regarding imaging and how we and animals process voices and emotions.

[https://www.cell.com/current-biology/fulltext/S0960-9822\(14\)00123-7?](https://www.cell.com/current-biology/fulltext/S0960-9822(14)00123-7?_returnURL=https%3A%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS0960982214001237%3Fshowall%3Dtrue)

[_returnURL=https%3A%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS0960982214001237%3Fshowall%3Dtrue](https://www.cell.com/current-biology/fulltext/S0960-9822(14)00123-7?_returnURL=https%3A%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS0960982214001237%3Fshowall%3Dtrue)

Without enough sleep, humans are susceptible to changes in mood, impaired memory, illness, and even death. These risks are true for many animals as well, such as rats. Rats that are sleep-deprived quickly lose weight and develop infections. After just a few weeks without proper sleep, rats die.

These rats will have really suffered as part of us learning that, and this is why it is essential that we really invest in alternative methods to learn from, so that we can do so in a more ethical way without suffering, and still help those who need support moving forward. [Rat study](#)

Teacher's Notes

Additional Information:

Tell students - I am going to hold up an illustration of an item that may be in a human, companion animal or both. Write down whether you think it will be in human, canine or both first aid kits on your worksheet.

Slide 11: Answer sheet

BOTH Human and Companion Animal First Aid Kit

Bandages: used to keep dressings in place, or a support device such as a splint www.sja.org.uk

Gauze swabs: recommended for skin cleansing, wound debridement as well as for use in dressing wounds. www.sja.org.uk

Petroleum jelly (Vaseline): People use petroleum jelly for nappy rash, as a moisturizer on the skin and lips, to treat skin conditions such as [eczema](#), and as a lubricant. In dogs it is used by vets to lubricate a thermometer, as the temperature is taken rectally.

Adhesive wound dressing: Steroplast - used to dress a wide range of cuts, abrasions, and post-surgery wounds. When treating a wound, adhesive dressing products are ideal for protection and healing because they stick to the skin around the wound site securely, but the sterile wound pad doesn't stick to the wound area, reducing the risk of disruption when removing and replacing dressings.

For animals you would be better using a low-adhesive wound dressing such as [ALLEVYN](#)

Saline wash: Saline solution is a mixture of salt and water. Normal saline solution contains 0.9 percent sodium chloride (salt). It is used as a wound cleanser.

Blunt ended scissors: used to cut bandages or sticky tape or someone's clothing if you need to get to a wound. www.sja.org.uk

Foil blanket: Foil blankets are an effective method of prevention against hypothermia. The use of a foil survival blanket or radiation blanket helps the body retain its own body heat by reflecting escaping heat back towards the body. www.safetyfirst.co.uk

Tweezers: a useful addition to any first aid kit. Use for removing splinters, debris, glass or dirt from a wound. This would be more appropriate for your vet to do. www.sja.org.uk

Adhesive tape: to hold dressings in place or to hold the loose end of bandages www.sja.org.uk

Sterile gloves: Disposable first aid gloves are a vital part of a first aid kit to reduce the risk of infection and cross-contamination www.sja.org.uk

Saline eye wash: Sterile eye wash solution for irrigation and cleansing of the eyes. www.sja.org.uk

For animals: For irrigating eyes that have been contaminated with particles. www.pawaid.co.uk Then they should go to the vets to be assessed and a diagnosis. Don't hesitate with eyes, take your animal to the vet

Ice pack: Ideal for treating soft tissue injuries, bruising and reducing inflammation www.sja.org.uk

Non adhesive wound dressing: Dressings are used to cover a wound to help prevent infection. Used for the management of wounds that may still be exuding. Dressing pads attached to a roller bandage are the most useful bandage. They are easy to apply and so are ideal for an emergency. www.sja.org.uk

Teacher's Notes

Additional Information:

HUMAN ONLY

Triangular bandage: These are made of cloth and can be folded to make bandages or slings. If they are individually wrapped and sterile they can also be used as dressings for large wounds and burns.

www.sja.org.uk

Crepe Bandage: High stretch properties for support and compression of muscle strains and sprains. Use for compression and muscle strain bandaging in humans.

Forehead thermometer: To take the temperature of any age human.

Your normal body temperature is approximately 37°C. A fever is usually when your body temperature is 37.8°C or higher. You may feel warm, cold or shivery. You can find out if you have a fever by using a thermometer to take your temperature. www.NHS.co.uk

Plasters: protective dressing for small wounds. www.sja.org.uk

Wound wipes: To clean wounds

Hydrocortisone cream: Hydrocortisone skin treatments can be used to treat swelling, itching and irritation of the skin. You can buy a mild version from your pharmacy, but speak to your pharmacist first about your problem. www.nhs.uk It is a form of steroid cream. Should only be used for people ten years and over, plus some people should not use it.

Paracetamol: Paracetamol is a common painkiller used to treat aches and pain. It can also be used to reduce a high temperature also. There is a maximum dose that must not be exceeded and there are some other medications that paracetamol should not be taken with. Suitable for people over 16, usually. Only adults should decide if you should take any tablets, and on doctor's advice. www.nhs.uk

Antihistamine tablets: Antihistamines are medicines often used to relieve symptoms of allergies, such as hay fever, hives, conjunctivitis and reactions to insect bites or stings. Like all medicines, antihistamines can cause side effects, including drowsiness. www.nhs.uk

Sudocrem: suitable for: nappy rash, acne, eczema, cuts and grazes, sunburn, minor burns and chilblains. Soothes sore skin and protects against irritants. A water-repellent base forms a protective barrier, helping to stop any irritants from coming into contact with the skin. Contains a mild local anaesthetic to help ease pain and irritation. www.sudocrem.co.uk

Teacher's Notes

Additional Information:

COMPANION ANIMAL ONLY

Tick remover: Tick Removers have been developed to make removing ticks from your pet as easy and painless as possible. Ticks can carry various diseases and the longer they remain attached to your pet's skin, the more they are at risk of an infectious organism being transmitted. www.vetuk.co.uk (can be useful for us too if you go out hiking and have bare legs).

Ticks need removing quickly and for them not to put saliva into the body or leave a body part behind. Use a proper tick remover if you can. www.lymediseaseaction.org.uk/

Self adhesive bandage (vet wrap) A multi-purpose cohesive bandage used mainly for wound dressings. It keeps dressings in place and because it sticks back onto itself it is easier to keep a dressing on with. Typically there is a dressing, then a layer of padding to prevent rubbing and protect the wound, then the self adhesive bandage. It shouldn't get wet nor should it be on tightly, as it can cut off the circulation. www.vcahospitals.com

Leucillin (antiseptic spray) Leucillin, the most powerful, non toxic, non irritant antiseptic available. Working in harmony with the bodies' own defence mechanism, providing an extremely effective yet totally safe antiseptic. www.leucillin.co.uk

Digital thermometer: Rectal Technique is still mainly used. The tip of the thermometer should be covered with petroleum jelly to ease insertion. For small dogs and cats, the thermometer should be advanced slowly about an inch. For larger dogs, insert the thermometer about 2-3 inches into the rectum. Many animals do not like this so it is best to let your vet check your dogs/cats temperature.

Normal human body temperature is 98.6°F (37°C). Normal body temperature for dogs and cats is 101.0 to 102.5°F (38.3 to 39.2°C). Some people and some pets maintain a baseline temperature a little above or below the average, but if your pet's temperature rises above 104°F (40.0°C) or falls below 99°F (37.2°C), take your pet to your veterinarian.

www.vcahospitals.com

For further information on companion animal first aid kits, you can visit: <https://www.skylarkvets.co.uk/information-sheets/first-aid-for-pets>

Slide 12: Warning regarding giving animals human drugs, this is an ESSENTIAL SLIDE TO INCLUDE and should be emphasised that drugs should only be given to a companion animal if the vet has prescribed it and informed you of the correct dose to give.

Slide 13: PLENARY; Ask the children if there was anything in the first aid kits that surprised them. Create true/false statements for the children to answer.

Eg; antihistamine tablets are in both first aid kits
The normal human temperature is 98.6°F (37°C)
It doesn't harm us or animals to have insufficient sleep
You can give your dog or cat your medicines

False it is in the human kit
True
False
False, only your vet can decide on what to give your pet

Items for first aid kits



Items for first aid kits



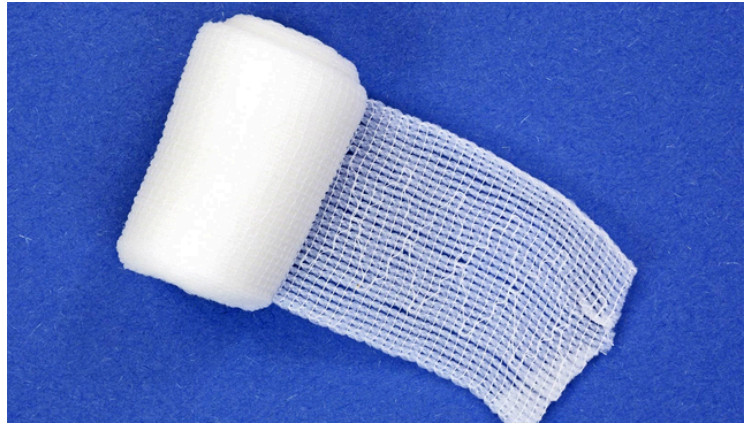
Items for first aid kits



Items for first aid kits



Items for first aid kits



Human or canine first aid kit?

Answer sheet

Human First Aid Kit	Both First Aid Kits	Canine First Aid Kit
<p>Triangular bandages Forehead thermometer Plasters Wound wipe Hydrocortisone cream Paracetamol (pain relief) Antihistamine tablets (Piriton) Sudocrem (antiseptic cream) Crepe bandage</p>	<p>Bandages Gauze swabs Petroleum jelly (Vaseline) Adhesive wound dressing Saline wash Blunt ended scissors Foil blanket Tweezers Adhesive tape Sterile disposable gloves Saline eye wash Ice pack Non adhesive wound dressing</p>	<p>Tick remover Self adhesive bandage (Vetwrap) Leucillin (Antiseptic spray) Digital thermometer</p>

Human or canine first aid kit?



**Humanimal
Trust**
ONE Medicine for humans and animals

Human First Aid Kit	Both First Aid Kits	Canine First Aid Kit