

Dogs Trust's Science week Investigation for primary schools.

Teacher Guidance

DOG SENSES



www.dogstrust.ie

www.learnwithdogstrust.ie

Teacher Information.

Welcome to Dog Trust's Science week investigation. The aim of this week long investigation is for your pupils to find out about the main dog senses, and to use that knowledge to design a dog toy.

We have put together a student pack for your pupils to use to guide their senses investigation. Ideally your scientists should work in groups and each group should have a pack.

There are a number of activities and small experiments for the children to carry out. Most of the tasks/activities only require some photocopying, however one of the experiments requires some additional preparation by you, their teacher. The instructions for this are included in this pack. There is also a lot of research to carry out, so access to reference books/the internet is essential.

We have designed this investigation so that each sense takes place on a single day (ie. Sight=Monday, Smell=Tuesday etc), with the last 2 days of the week used to put together research and carry out the last two activities. However the entire project should be flexible should you need more/less time.

Included in this teachers guide:

Answers to research questions

List of any equipment needed

Guide to setting up the 'smell' experiment

Master copies of items needing printing/copying.



Answers to research questions:

Sight

Q: Are dogs eyes on the front of their faces, or on the side?

A: Dogs are predators and so have eyes at the front. This allows them to be able to determine distance really well.

Prey, such as rabbits, deer etc, have eyes on the sides of their head which allows them to have a much wider view of their surroundings.

Q: Can dogs see better up close, or far away?

A: Dogs have better long distance sight. In human terms they would be classed as long sighted, as things that are close to their faces appear blurry to them.

Q: Is their eyesight better or worse than ours?

A: Both! They have much better long distance sight than us humans, but we can see more detail up close.

Q: Are dogs colourblind? Does this mean that they only see in black and white? Can they see any other colours?

A: Yes dogs are colourblind. However this doesn't mean that they see in black and white. Dogs are red/green colourblind meaning that they cannot see these two colours. Most things appear to be shades of blue and yellow to a dog!



Human



Dog



Smell

Q: Can dogs smell things that human's can't?

A: Yes, dogs can smell many things that human's can't. They use this sense the most for this reason.

Q: Why do dogs have a wet nose?

A: There are numerous reasons but one is that a wet/moist nose helps dogs pick up scents more easily.

Q: here are special cells in noses that pick up smells, can you find out what they are called?

A: These are called scent receptor cells in their simplest form. Scientifically they're called olfactory receptors .

Q: Do dogs have more or less of these cells than humans?

A: Dogs have many more of these cells. The number depends on the breed but humans have approx. 5-6 million, and dogs 200-300 million

Q: How do we use a dog's sense of smell to help humans?

A: Detector dogs—police/airports. Medical detection dogs. Search and Rescue dogs. Drug detector dogs, bomb detector dogs etc etc.

Hearing

Q: Compared to us humans, how good is a dog's hearing?

A: Dogs have much better hearing than us humans, they can hear about 4 times further than we can. This is why some dogs seem to predict the arrival of someone at the door before they even get there. Dogs can hear much higher frequencies than human's can.

Q: Dogs can move each ear independently, how does this help their hearing?

A: Because they can move their ears independently they can orient their ears to where the noise is without moving their whole heads. One ear could be facing forward and the other backward!

Q: Are some dogs better hearers than others?

A: Yes, will be explained below.

Q: How does the shape of a dog's ears affect its hearing?

A: Ears that stand up can 'catch' sound waves better and so these dogs have better hearing. Floppy ears tend to block sound waves from entering the ear so these dogs don't hear as well.

Equipment needed for experiments/ Activities

SIGHT:

Colouring sheets (1 per student) - master copy provided

Colouring pencils/pens

Colour chart Dogs Vs Humans—provided. **students may not need these as they may grasp from their research that dogs cannot see green/red and only see in yellows/blues.*

HEARING:

Watch/stop clock—1 per group

Measuring Tape— 1 per group

Calculator—1 per group

Paper to make dog ears from

Additional activity:

Dogs can hear higher sound frequencies than humans, which is the premise of dog whistles. However, children can also hear quite high frequencies compared to adults. Head over to <https://www.youtube.com/watch?v=VxcbppCX6Rk> and play the video up to about 40seconds.

Hopefully the children will be able to hear all the frequencies, and you, their teacher, won't!

If the link doesn't work: Search ASAP Science 'how old are your ears'.

SMELL

You will need (per group) :

1. 10 small sealable containers— they should be opaque so that the students cannot view the contents. You will also need to put a few smelling holes in the top for the students to sniff through. Salt/pepper shakers are ideal.
2. Sticky labels to label containers
3. Five different and recognisable smelly foods. We have used :
 - A. Chocolate
 - B. Garlic
 - C. Cheese and onion crisps
 - D. Jelly sweets
 - E. Sausage

These are just the examples we have used before— feel free to choose other smelly foods.

Method:

Divide your 10 containers into 2 sets of 5. Set 1 and Set 2

In Set 1—label your 5 containers a-e, and put in a very small amount of your corresponding smelly food. There is no need to weigh out the food items.

In Set 2—again label your 5 containers a-e. Put in approximately 4 times the amount of the corresponding food item as you did in set 1.

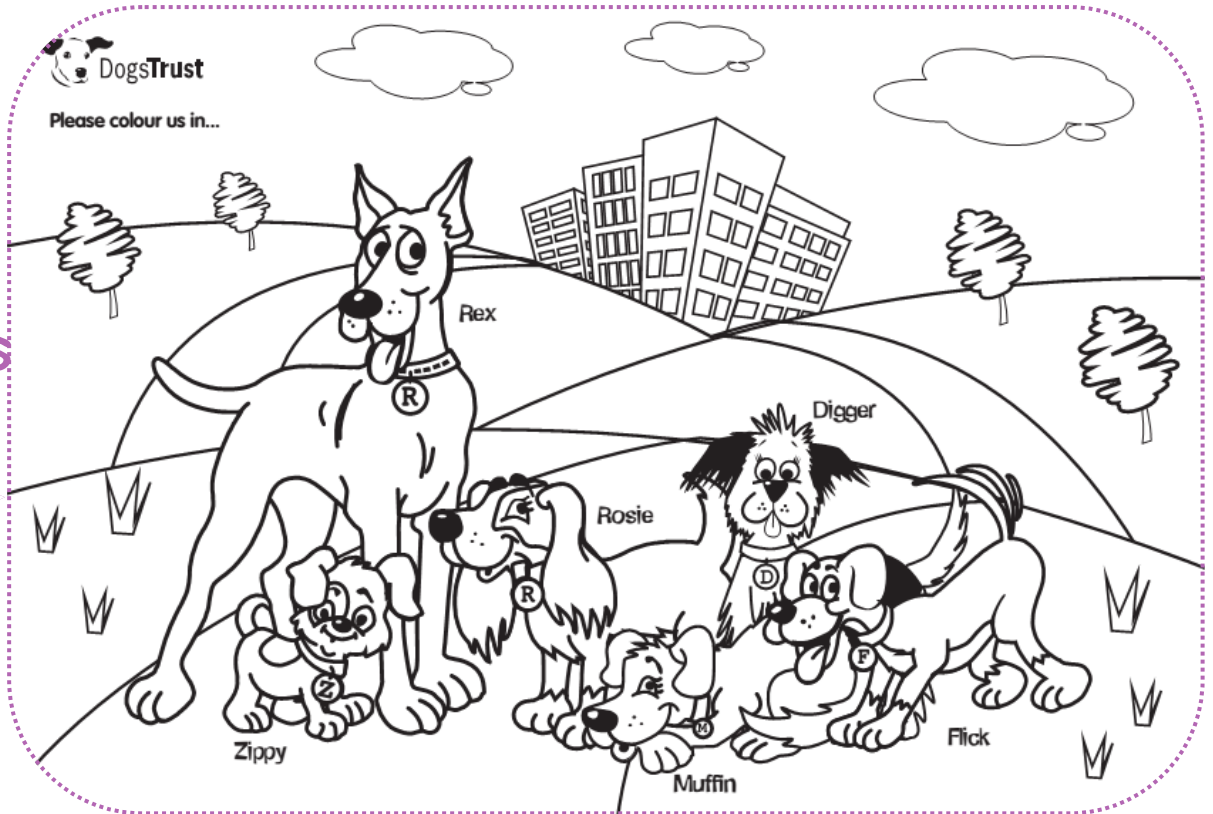
So, for example 1a= garlic, 2a= garlic x 4

Ideally when you smell set 1 you shouldn't really be able to identify what's in there, but when you smell set 2 you should.

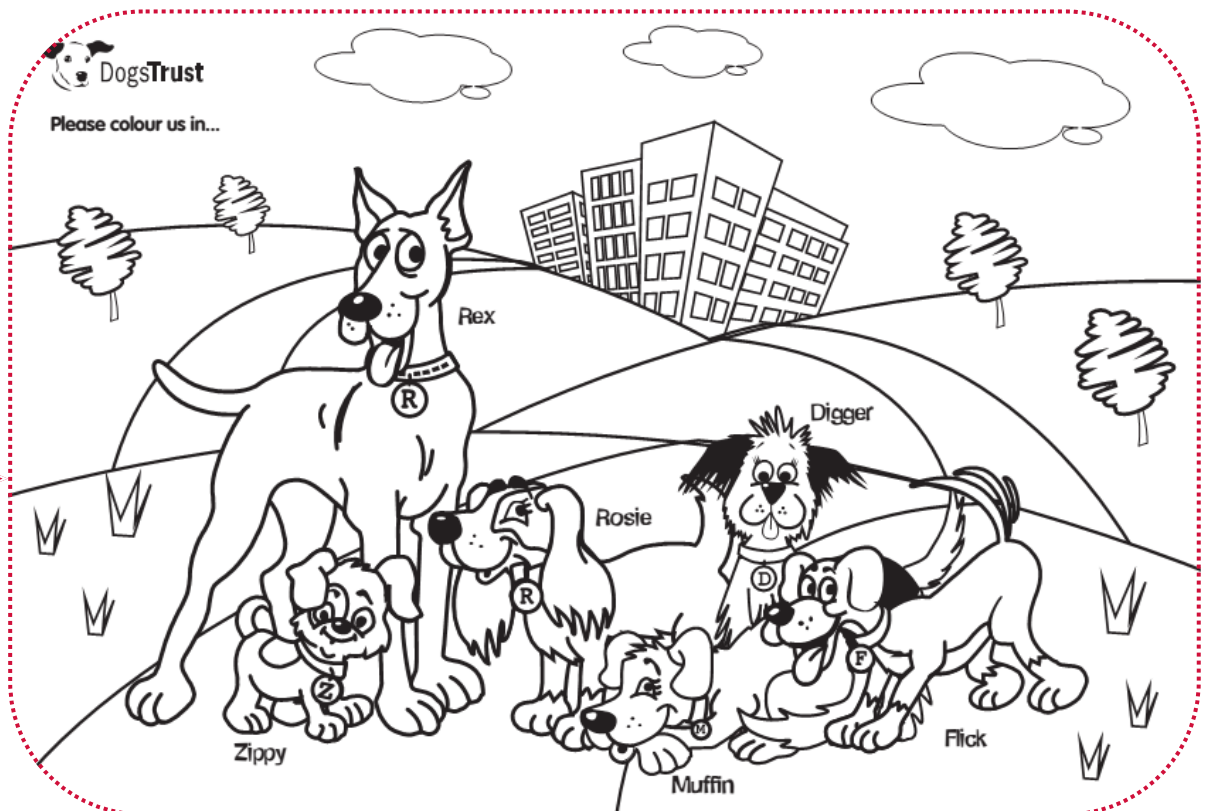
If you wish, you can also make a list of the foods that are in the containers (out of sequence) if you think that the children may not be able to identify the smells without a hint.

Create an answer sheet for your students to check their results. We've given them a table to copy out but depending on age/ability you may want to provide this table already printed for them.

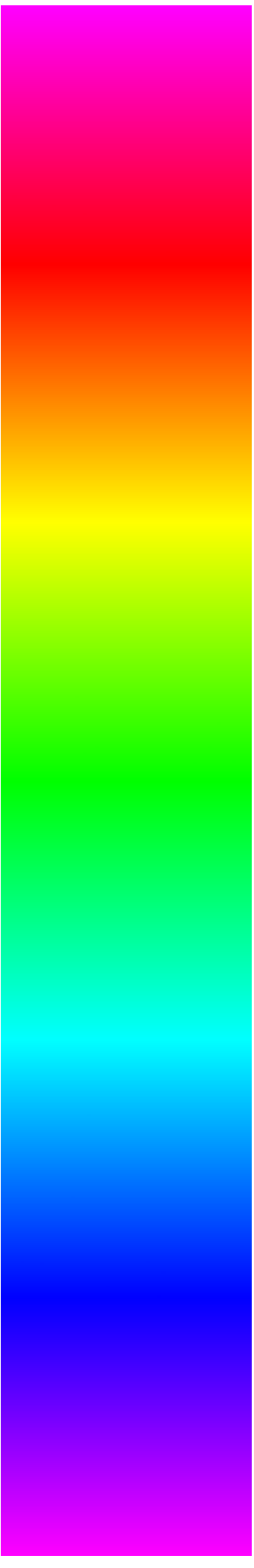
Humans
see



Dogs
see



Dogs Vs Humans Colour bar



Colours that us humans
can see!



What they look like to a
dog!

About Dogs Trust Ireland:

Dogs Trust is Ireland's largest dog welfare charity, and currently has over 200 dogs looking for their forever homes.

Dogs Trust receives no Government funding.

Dogs Trust has been working in Ireland since 2005 and its mission is to bring an end to the destruction of stray and abandoned dogs. For more information on Dogs Trust please go to www.dogstrust.ie

Dogs Trust is working towards the day when all dogs can enjoy a happy life, free from the threat of unnecessary destruction.

Dogs Trust has a non destruction policy; we never destroy a healthy dog.

The Centre is based at:

Dogs Trust Rehoming Centre
Ashbourne Road,
Finglas
Dublin 11

Open to visitors 12pm-4pm 6
days a week (closed Tuesdays).



For more education resources, and to find out if there's an Education and Community Officer in your area, visit www.learnwithdogstrust.ie.



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