

Maths resource

For 7-11 year olds



www.learnwithdogstrust.co.uk

Contents



Teacher's Notes

4

'You Are Me And I Am Chew' Film Script
and Paws Points

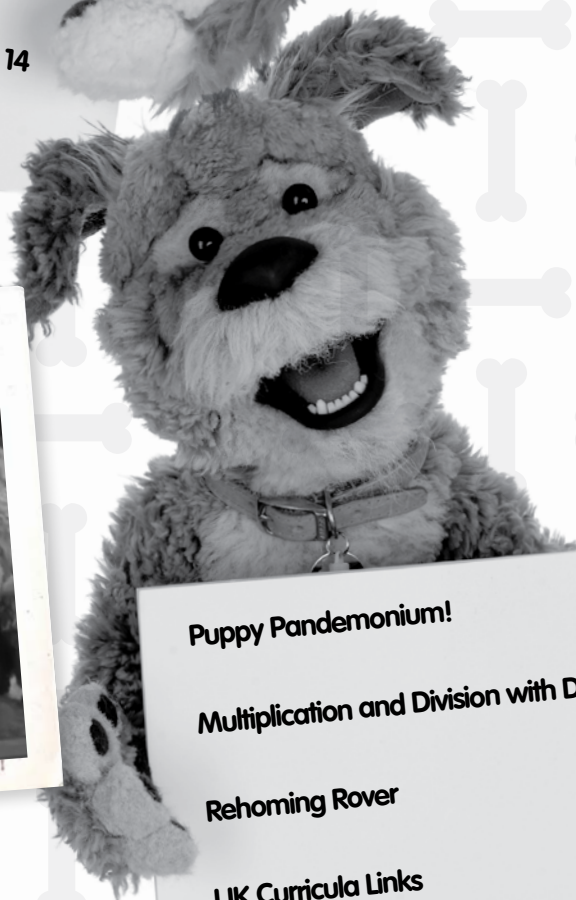
5

Chew's Problem Solving

10

Canine Cashflow

14



Puppy Pandemonium!

17

Multiplication and Division with Dogs!

19

Rehoming Rover

22

UK Curricula Links

25

Stimulus Material

26

Introduction

Welcome to your Dogs Trust Maths resource. Every year Dogs Trust cares for over 16,000 dogs in Rehoming Centres across the country.

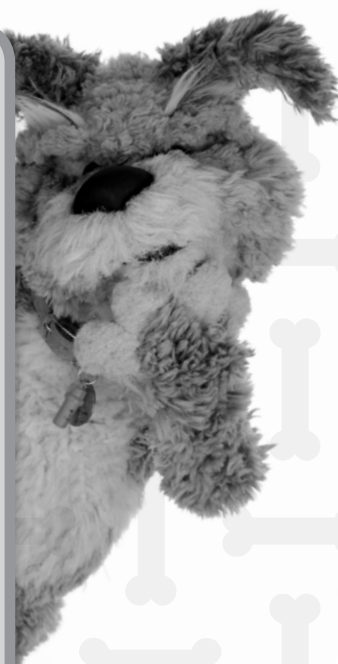
Dogs are abandoned for all kinds of reasons, such as lifestyle changes or lack of time and money. However, many owners simply haven't understood the needs of their dog, the level of commitment and responsibility it takes to care for him or how different the puppy would become once adult. Dogs Trust work hard to find families who will give rescued dogs everything they need to be healthy and happy.

We also educate people through our outreach and campaigning work to encourage and promote responsible dog ownership, and safety around dogs.

You can find out more about our work at www.dogstrust.org.uk

This Maths resource consists of:

- Teacher's Notes
- 'You Are Me And I Am Chew' film
- Film script with Paws Point questions for reflection and discussion stimulus
- 'Chew's Problem Solving' – real life word problems using weights and measures
- 'How Much is that Doggy?' – adding up and comparing the cost of owning a dog
- 'Puppy Pandemonium!' – 3x, 6x, 7x, 8x, 9x and 12x tables
- 'Multiplication and Division with Dogs!' – problem solving with 1x, 2x, 4x, 5x tables
- 'Rehoming Rover' – rehoming data handling activity
- UK Curricula Links



Teacher's Notes

This resource aims to educate pupils about dogs' needs using an engaging film introduction to develop pupils' application of number through five fun, dog themed maths activities linked to real life problem solving! The maths activities present various levels of difficulty and can be used as required across the whole age range. Look out for Jimmy's Challenges to extend your pupils learning.

The five dog themed maths activities are introduced by the film 'You Are Me And I Am Chew', which provides stimulus for pupil discussion and response. The film uses the reflections and experiences of the two dog puppets called Jimmy and Chew who have magically swapped bodies, allowing them to view their everyday lives from each other's perspective, therefore, providing lots of opportunities for pupils to explore the language of comparison.

The puppets have been specially created for Dogs Trust in order to bridge the gap in understanding between dogs and children by providing a dog's perspective on life in human terms, which helps children to keep themselves and dogs happy, safe and healthy.



Jimmy represents a small to medium sized older terrier type dog with a wire haired coat typical of the average household pet.



Chew represents a big, bull-type puppy with a short haired coat, who will be an even bigger adult dog; a breed type often popular because of their size and power. Some owners wrongly acquire bull-type dogs as they believe their breed confers status. For this reason they can be referred to as so called 'status dogs'.

The Jimmy and Chew characters provide an engaging interface with which to introduce Dogs Trust key messages for responsible dog ownership to pupils. The characters provide stimulus for discussion and pupil reflection upon topics such as responsibility, financial commitment, morality and care.

The full script of 'You Are Me And I Am Chew' is included in the resource together with the Paws Point key messages displayed at the end of the film, supported by bullet pointed information to help develop pupil's discussion and understanding.

'You Are Me And I Am Chew' Film Script and Paws Points



Play the film 'You Are Me And I Am Chew'

Ask pupils to watch the film and note when Jimmy and Chew use maths language. At the end of the film elicit pupil's responses. Use the script below to identify when and how **maths language** was being used by our canine duo, before challenging pupils to engage with the maths activities provided.

Script

Chew interrupts Jimmy who is counting his dog biscuits

MATHS LANGUAGE: COUNTING

CHEW: Look, look what I've found!!

JIMMY: Oh! You seemed to have found an incredibly...

CHEW: Yeah? Yeah?

JIMMY: ...muddy toy!

CHEW: No. Look it's got a message written on it. See.

JIMMY: Message? Don't be ridicul...Oh! I think you might be right!

CHEW: What's it say? Read it, go on, read it.

JIMMY: THIS MYSTERIOUS MESSAGE YOU HAVE FOUND HAS MAGIC POWERS WHEN READ OUT LOUD. FOR JUST ONE HOUR A SWAP YOU'LL SEE, OF BIG AND SMALL DOGS 1...2...

JIMMY: NOOOOOOOOO.

CHEW: 3!

MATHS LANGUAGE: COUNTING



Script

CHEW (IN JIMMY'S BODY): Wha. Wh. Wha. What happened? Ohhhhh!!!!!! Look!!!!!! I've turned into you!!!

JIMMY (IN CHEW'S BODY): And...I've.. turned.. into you! Well done, you've managed to swap our bodies!!

CHEW (IN JIMMY'S BODY): That message must have been magic!! Brilliant!!!!!!

JIMMY (IN CHEW'S BODY): Brilliant?

HANNAH: MUM can we take JIMMY and CHEW for a walk.

MUM: Yes, okay after lunch.

CHEW (IN JIMMY'S BODY): Oh no, a walk!? I won't be able to get very far with these stubby little legs.

JIMMY (IN CHEW'S BODY): My legs are not stubby it's just that my body is closer to the ground than yours.

CHEW (IN JIMMY'S BODY): Oh...yeah!

JIMMY (IN CHEW'S BODY): Only some breeds of small dogs need less exercise than larger dogs, but other breeds of small dogs, especially terriers, can go for miles.

MATHS LANGUAGE: COMPARISONS

CHEW (IN JIMMY'S BODY): Miles? What with shorter legs?

MATHS LANGUAGE: DISTANCE

JIMMY (IN CHEW'S BODY): Yes, but all dogs need exercise, twice a day, 7 days a week, 365 days a year.

MATHS LANGUAGE: COUNTING



Script

CHEW (IN JIMMY'S BODY): Yeah! Ooooh! All this talk of exercise is making your little tummy rumble.

JIMMY (IN CHEW'S BODY): Right. Food. Follow me.

CHEW (IN JIMMY'S BODY): Lots of food.

JIMMY (IN CHEW'S BODY): Come on then!

CHEW (IN JIMMY'S BODY): Alright.

JIMMY (IN CHEW'S BODY): Aren't you forgetting something?

CHEW (IN JIMMY'S BODY): Eh? Oh, yeah.

CHEW (IN JIMMY'S BODY): That's nearly half the amount I'd normally eat. You poor thing.

MATHS LANGUAGE: FRACTIONS

JIMMY (IN CHEW'S BODY): Not really. Dogs my size need less to keep them going which means we cost less to feed than a big strong dog like you.

MATHS LANGUAGE: COMPARISON

CHEW (IN JIMMY'S BODY): Why's that then?

JIMMY (IN CHEW'S BODY): Well. Think about it, if a small dog eats only 1 tin a day and that costs 80p and a bigger dog eats 3 tins a day, you can work out for yourself how much more a big dog will cost to feed a day or a week, or a month or even a year.

MATHS LANGUAGE: COMPARISON AND MONEY

CHEW (IN JIMMY'S BODY): Oh! Yes, I think I get it. So for a little dog, errr like me, you, me you. Anyway! It would cost errr 80p a day. And for a big strong dog like you, me it would cost oh...errr more!!



Script

JIMMY (IN CHEW'S BODY): Yes, exactly...more! Even though we all need feeding at least once a day, smaller dogs are better value. There are other things that cost less too.

CHEW (IN JIMMY'S BODY): Yeah?

JIMMY (IN CHEW'S BODY): Yes, take our beds for example. A smaller bed could cost £13.99 but a bigger bed could cost say £20.00. Do you understand the difference?

MATHS LANGUAGE: COMPARISON AND MONEY

CHEW (IN JIMMY'S BODY): I think so, because you are smaller, you need less of everything, like collars, leads, toys and (sniggering) smaller poop bags for your smaller po...

JIMMY (IN CHEW'S BODY): Yes, yes, alright, but don't think that a smaller dog is any less of a responsibility than a big dog because a small dog can actually live a lot longer than a gentle giant like you.

MATHS LANGUAGE: TIME

CHEW (IN JIMMY'S BODY): So, big or small, long or short fur, stubby or long legs, boy or girls - all dogs have the same needs, don't they?

MATHS LANGUAGE: COMPARISON

JIMMY (IN CHEW'S BODY): Well all dogs needs tend to change as they get older. But puppies are the most needy of all.

CHEW (IN JIMMY'S BODY): Oh yes, I love puppies, lovely, fluffy, wuffy, little things...

JIMMY (IN CHEW'S BODY): Puppies, soon grow into adult dogs, and there could be four, six, or more in a litter.

MATHS LANGUAGE: COUNTING

CHEW (IN JIMMY'S BODY): Wow, imagine that, six lots of exercise, six lots of grooming, six lots of care and six lots of lovely food... food.

MATHS LANGUAGE: MULTIPLICATION

JIMMY (IN CHEW'S BODY): Yes, it all adds up.

MATHS LANGUAGE: ADDITION

CHEW (IN JIMMY'S BODY): But we all need the same amount of love.

JIMMY (IN CHEW'S BODY): Yes, you're right we all need the same amount love. Hang on!!! I'm getting a strange tingle in your tail.



Script

CHEW (IN JIMMY'S BODY): Shall I get a great big poo bag?

JIMMY (IN CHEW'S BODY): No, it's not that!!! I think our magical swapping hour has come to an end. Whooooaaaa.

MATHS LANGUAGE: TIME

CHEW (IN JIMMY'S BODY): Oooh yeah I can feel it too. Oooohhhhhhh!

JIMMY: Thank goodness for that.

CHEW: It was good being you for a bit but it ever so nice being me again.

JIMMY: Yes. It is nice. Being me!

HANNAH: JIMMY, CHEW, walkies.

JIMMY: Come on, I'll race you to the swings.

CHEW: Hey, wait for me.

The Paws Points below are the important responsible dog ownership messages contained in the film.



PAWS POINTS

- Owning a dog is a long term commitment, as most dogs live for 10 to 15 years.
- The cost of owning a dog varies according to their breed, age, size and type of coat.
- Dogs need access to fresh water and a suitable diet for their age and size.
- Dogs Trust believe all dogs should be microchipped, neutered and insured.
- Dogs need to be vaccinated, flea treated and wormed regularly to keep them healthy.

Chew's Problem Solving

Jimmy and Chew referred to lots of different areas of maths during their body swap. Can you use your number skills to help Chew solve these related problems?

Below is a diagram of Jimmy and Chew's local park.

FENCE 500M

LINE B

HEDGE 200M

As soon as Chew is let off his lead at the gate, he likes to run along the fence to the oak tree on the opposite side of the park and back (along line B). Jimmy, however, prefers to walk and sniff around the whole perimeter of the park.

1. How far does Chew run at the park?
2. How far does Jimmy walk at the park?
3. If Chew goes to the oak tree and back twice, how much further does Chew walk than Jimmy?
4. Using your answers from 1 and 2. If Jimmy and Chew go to the park twice a day, how far does each dog walk every day?



Don't forget
to show your
working!

Chew's Problem Solving

When they get home it's dinner time. Jimmy eats 1 can of dog food per day and Chew eats 3 cans.

1. If a can of dog food costs 80p how much does it cost to feed both dogs per day?
2. How much does it cost to feed both dogs per week?
3. How many more cans of dog food per week does Chew eat than Jimmy?
4. If Jimmy and Chew changed bodies for 1 hour at 11.30am, at what time did the spell wear off?



Chew's Problem Solving



A 3 years 2 months
36 kg



B 5 years 8 months
24 kg



C 0 years 2 months
4 kg



D 8 years 11 months
30 kg



E 12 years 9 months
6 kg

1. Which of these dogs is the heaviest?
2. Which of these dogs is the lightest?
3. Can you number the dogs from 1 to 5 in age order, starting with the youngest?

Remember big or small, old or young, all dogs need exercise twice a day and lots of care and attention

Canine Cashflow

Use the information below to solve the 'Canine Cashflow' maths problems that follow:



Canine Cashflow

At the Vets	Microchip	Vaccination	Flea Treatment	Wormer	Neutering	Insurance
Large dog	£35.00	£26.00	£7.60	£14.00	£400	£120.00
Small dog	£35.00	£15.00	£7.60	£7.00	£150	£120.00

1. Millie takes her **small** dog to the vet to be microchipped, vaccinated, flea treated and wormed. Calculate the cost of Millie's visit?

Joe takes his **large** dog to the vet to be microchipped, vaccinated, flea treated and wormed. Calculate the cost of Joe's visit?

How much more did Joe pay for his dog's treatment than Millie?

2. Hannah and Michael are rehoming two dogs from Dogs Trust. Both dogs will already be vaccinated, neutered and microchipped, but they still need to buy 2 small bowls, one large bed, 2 short leads, 2 small collars and two tags. How much will it cost them to buy everything they need?
3. A dog needs to be wormed and flea treated every 3 months. How much does it cost to treat a large dog for one year? How much does it cost to treat a small dog each year?

Canine Cashflow

4. Harry's large dog eats 2 tins of dog food per day. How much does it cost Harry to feed his dog each week?

Sam's small dog eats 3 pouches of dog food per day. How much does it cost Sam to feed his dog each week?

5. Sally's dog has a long coat, which needs grooming every day. On Saturday she bought a new brush, a dog toy and some doggy chocs. How much change did she get from £10.00?



JIMMY'S CHALLENGE

Can you make up 3 more questions using the 'Canine Cashflow' information provided, for a friend to answer?

1

2

3

Puppy Pandemonium!

Dogs can have up to two litters of puppies per year and depending on the size of the dog this can mean between **3 and 12** puppies arriving every six months! Use your **3x, 6x, 7x, 8x, 9x and 12x tables** to calculate how many unwanted puppies could have been prevented if these owners had been responsible and neutered their dogs.

Use the information about the puppy litters below to help complete the table on the next page:



Puppy Pandemonium!

	Number of puppies per litter					
Time	Lady 3	Honey 6	Tess 7	Titch 8	Holly 9	Mabel 12
6 months (1x)						
1 year (2x)						
18 months (3x)						
2 years (4x)						
2.5 years (5x)						
3 years (6x)						
3.5 years (7x)						
4 years (8x)						
4.5 years (9x)						
5 years (10x)						
5.5 years (11x)						
6 years (12x)						
How many puppies TOTAL						



JIMMY'S CHALLENGE

If 10 of the puppies born in the first litters were girls and continued to have more puppies at the same rate as their mothers, how many puppies would there be then?

Answer:

Multiplication and Division with Dogs!

EXAMPLE:

There are 12 dogs sniffing.

How many wet noses?

$$12 \times 1 = 12$$

How many clipped claws?

$$4 \times 5 = 20 \times 12 = 240$$

There are 5 waggy tails.

How many dogs?

$$5 \div 1 = 5$$

Each Dogs Trust dog has 1 waggy tail, 1 wet nose, 2 floppy ears, 2 bright eyes, 4 long legs and 5 clipped claws on each foot – use this information together with your 1x, 2x, 4x and 5x tables to solve the rehoming problems below.

There are 10 dogs in the exercise area.

How many long legs?

How many wet noses?

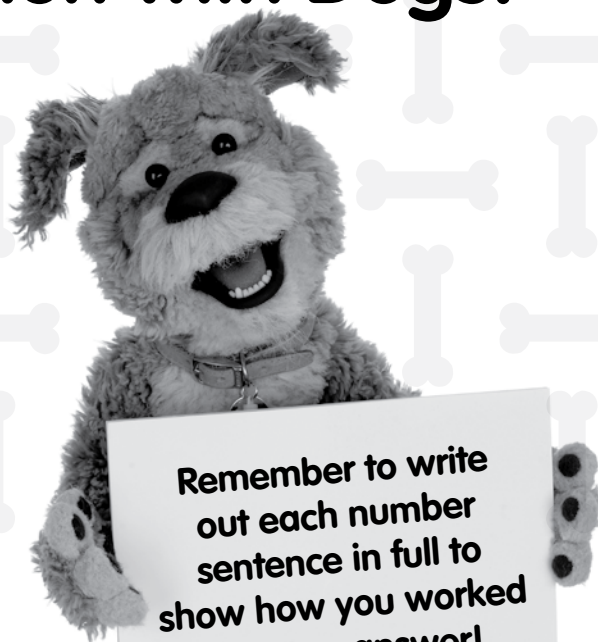
How many floppy ears?

There are 11 dogs eating their breakfast.

How many waggy tails?

How many long legs?

How many bright eyes?



Multiplication and Division with Dogs!

My local rehoming centre has rehomed 9 dogs this week.

How many long legs?

How many clipped claws?

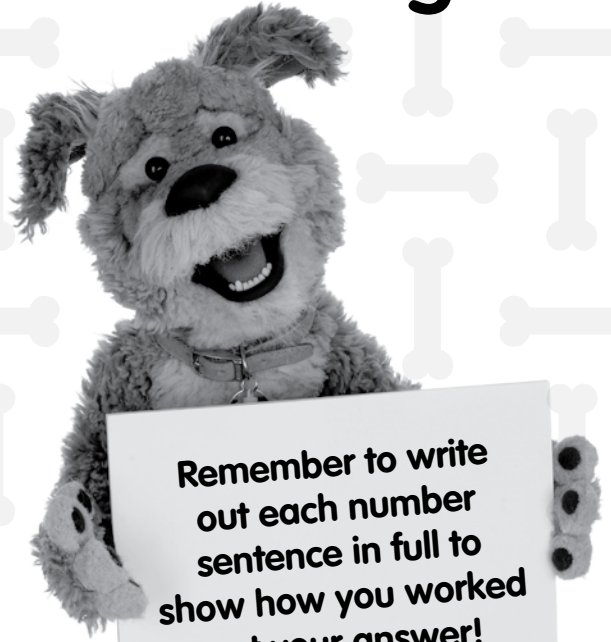
How many floppy ears?

There are 7 dogs waiting for their new owners.

How many bright eyes?

How many waggy tails?

How many clipped claws?



Multiplication and Division with Dogs!

There are 12 long legs out for a walk.

How many dogs?

There are 20 floppy ears and bright eyes.

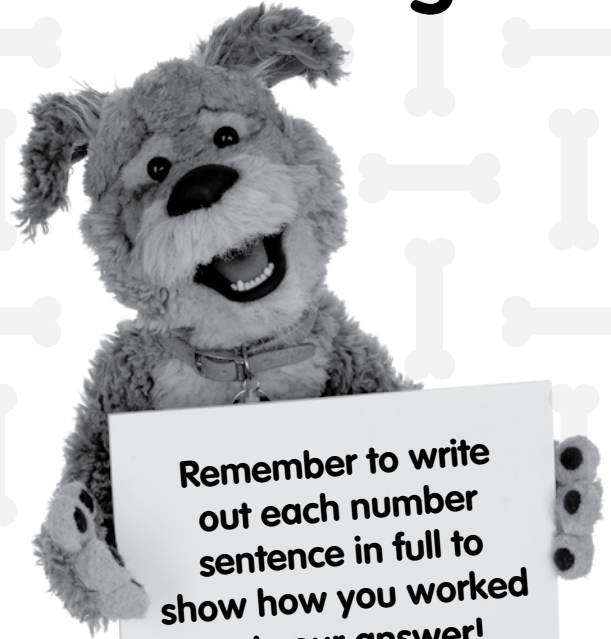
How many dogs?

8 wet noses are sniffing around.

How many dogs?

100 clipped claws are playing outside.

How many dogs?



JIMMY'S CHALLENGE

Can you make up 4 more questions using the information provided for a friend to answer?

1

3

2

4

Rehoming Rover

Dogs Trust cares for thousands of dogs each year whilst they are waiting for forever homes. Use the data from the table to answer the questions about the dogs rehomed by Dogs Trust.

	2010		2011		2012	
Dogs Trust Rehoming Centre	Dogs Admitted	Total Rehomed	Dogs Admitted	Total Rehomed	Dogs Admitted	Total Rehomed
Ballymena	338	309	353	281	439	375
Bridgend	561	605	500	524	540	548
Canterbury	542	622	629	704	544	702
Darlington	1090	1183	1013	1154	1147	1337
Evesham	902	1023	843	962	854	1003
Glasgow	909	1017	801	933	908	1041
Harefield	942	1054	684	773	719	787
Ilfracombe	511	612	480	576	196	260
Kenilworth	1355	1605	1628	1835	1507	1802
Leeds	1189	1251	1140	1220	1090	1186
Merseyside	556	600	557	596	691	846
Newbury	349	406	385	407	343	381
Salisbury	466	509	329	405	415	484
Shoreham	496	524	366	410	387	430
Shrewsbury	805	1051	942	1128	996	1191
Snetterton	498	553	477	502	524	599
West Calder	460	514	458	468	417	496
Totals	11969	13438	11585	12878	12395	14054

Dogs that do not find homes remain in the care of Dogs Trust.

Rehoming Rover

1. In 2010 which rehoming centre rehomed the most dogs?
2. Which rehoming centre rehomed more dogs each year than the previous year?
3. In 2010, which rehoming centre admitted the least number of dogs?
4. In which year did Dogs Trust admit the most dogs?
5. Which rehoming centre admits more dogs than they rehome?
6. In which year did West Calder rehome the most dogs?
7. In which year were the most dogs rehomed by a single centre? Which centre was it?
8. Which centre admitted the most dogs in 2012?
9. Which centre admitted the least number of dogs in 2012?
10. Which year saw the biggest number of dogs admitted across all the rehoming centres?
11. Which year saw the smallest number of dogs admitted across all the rehoming centres?
12. How many more dogs did Glasgow rehome in 2012 compared to 2010?
13. How many less dogs did Evesham rehome in 2012 compared to 2010?
14. How many more dogs were admitted in Merseyside in 2011 than in 2010?
15. In which year did Harefield rehome the most dogs?

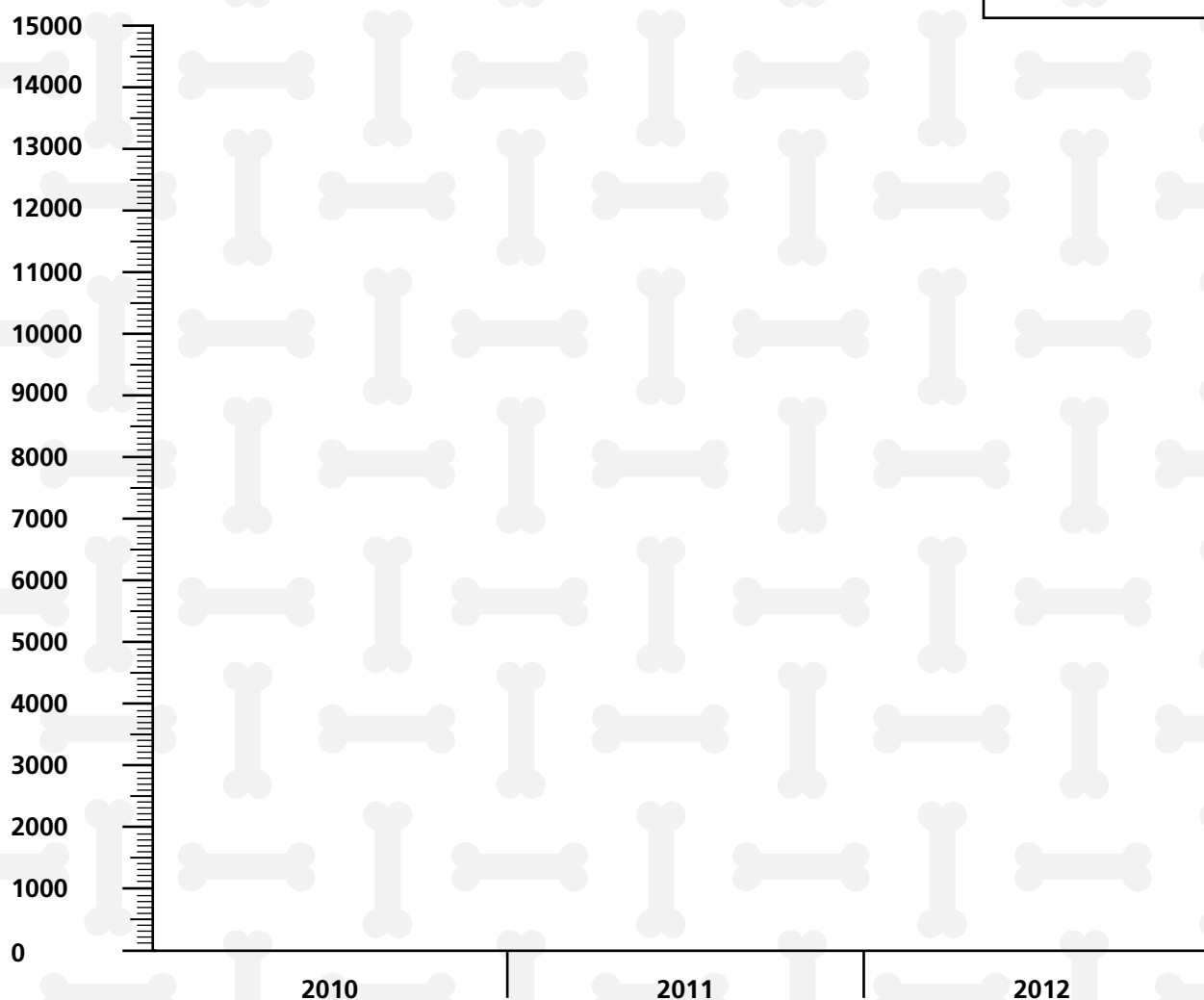
Rehoming Rover



JIMMY'S CHALLENGE

Can you complete the bar chart to show how many dogs in total were admitted and rehomed in each year? Remember to use 2 different colours with a key to show which colour shows dogs admitted and which shows dogs rehomed.

Now calculate how many dogs stayed in the care of Dogs Trust each year.



KEY



Dogs admitted



Dogs rehomed

Number of dogs which stayed in the care of Dogs Trust: 2010 () 2011 () 2012 ()

UK Curricula Links



England



Northern
Ireland



Scotland



Wales

Maths

Addition and Subtraction

- solve word problems, using number facts, place value, and more complex addition and subtraction.

Multiplication and division

- recall multiplication and division facts for multiplication tables up to 12×12
- solve word problems involving the four operations.

Measures

- measure, compare, add and subtract: lengths (m/cm/mm); and time (hours/minutes/seconds)
- measure and calculate the perimeter of a rectilinear figure, where each side is labelled in centimetres and metres

Mathematics and Numeracy

Operations and their applications

- know the multiplication facts up to 10×10 ;
- engage in a range of activities to develop understanding of the four operations of number; use these operations to solve problems
- use the four operations to solve problems involving money.

Measures

- calculate perimeter of simple shapes.

Mathematics; Experiences and Outcomes

- 3. Number and Number Processes
- 9. Money

Mathematics

Number

1. **Understand number and number notation**
 - understand place value in relation to the position of digits; multiply and divide numbers by 10 and 100.
2. **Calculate in a variety of ways**
 - use the relationships between the four operations, including inverses; recognise situations to which the different operations apply.

- compare durations of events, for example to calculate the time taken up by particular events or tasks
- add and subtract amounts of money to give change, using both £ and p.

Data

- read, interpret and present data using bar charts with scales
- solve problems using information presented in tables.

Handling Data

- present data drawn from a range of meaningful situations, using tables and diagrams.

- 10. Time
- 11. Measurement
- 20. Data and Analysis

Measures and money

1. **Understand and use measures**
 - find perimeters of simple shapes.
2. **Understand and use money**
 - know and use the conventional way to record money
 - find approximate solutions to, and use the four operations to solve, problems involving money.

Handling data

1. **Collect, represent and interpret data**
 - use and present data in a variety of ways including tables and bar charts.