Cambridgeshire County Council

The Mathematical Zoo

Click on the picture to enter the zoo and begin your adventure.

Cambs Maths Team

The Entrance

Welcome to the Mathematical Zoo.

There are 7 mathematical challenges to have a go at. All you have to do to reach them is to click on the animals on this page. The challenges can be done in any order.

Good luck and have fun!

When you have finished all the challenges just click on the gates to leave.

The Snakes

Joe, the keeper who looks after the snakes has been measuring how long they are.

Can you work out the length of each snake in cm from the clues below?

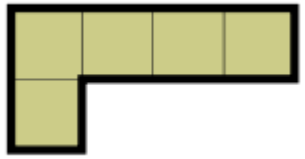
The cobra is 12cm shorter than 1 metre.
The adder is half the length of the cobra.
The viper is 24cm longer than the adder.
The boa constrictor is ¼ of a metre longer than the cobra.

Go back to the entrance and choose your next animal.

The Camels

The camels are kept in a pen made up of 5 gigantic square pieces and to stop the camels from getting bored the shape of the pen is changed every week.
Week 1 the pen looked like this:

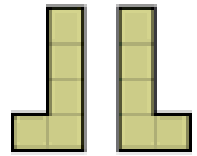
Week 2 the pen looked like this:



Can you work out how many different shaped pens there could be?

<u>Rules</u>

1. To allow the camels to move about the squares must be fitted together on a full side and not just at their corners.
2. These two shapes are the same as week 2 and only count as one possible pen shape.

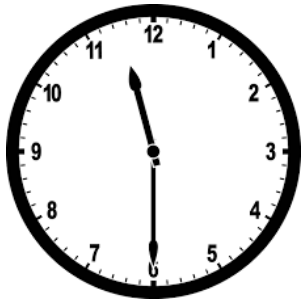


Go back to the entrance and choose your next animal.

The Lions

In the week the Lions are fed 4 times a day at these times:

Feed 1
Morning



Feed 2
Morning

Feed 3
Afternoon

Feed 4
Evening

On a Saturday and Sunday the times change and are half an hour later.
What time would each feed be at the weekends?

Go back to the entrance and choose your next animal.

The Elephants

Each day 5 visitors help the keepers feed the elephants. Knowing this can you work out the answers to the following questions?

a) How many visitors would have fed the elephants in 3 days?

b) In one week how many visitors feed the elephants? (The zoo is open every day)

c) How many visitors would feed the elephants in a fortnight?

d) How many visitors would feed the elephants in April?

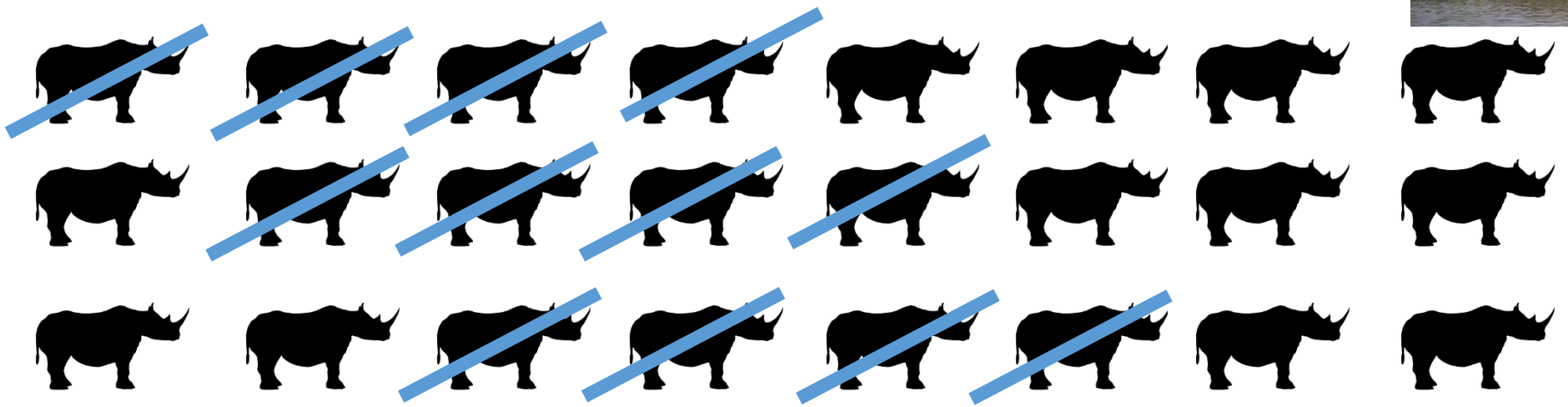
e) Joe, the elephant keeper has worked with 65 visitors feeding the elephants. How many days has Joe fed the elephants?

Go back to the entrance and choose your next animal.

The Rhinos

The Mathematical Zoo has 24 rhinos.

a)



Joe says $\frac{1}{2}$ are crossed through, Jane says that $\frac{2}{4}$ are crossed through. Who is right? Explain how you know.

b) Joe can see $\frac{3}{4}$ of the rhinos. How many rhinos can he see?

c) 8 of the rhinos are under 5 years old. What fraction of the rhinos are under 5 years old?

Go back to the entrance and choose your next animal.

The Giraffes

In the Mathematical Zoo the giraffes share their enclosure with the flamingos.

a) When Grace looks through the fence around the enclosure she sees 16 legs. How many giraffes and flamingos could she be looking at?. It might help to write out a list:

Giraffes	Flamingos
4	0
3	2 …

b) What if she could see 22 legs?

c) What is she could see 36 legs?

d) What if she could see 48 legs?

As you work out the answers can you spot any patterns? Can you predict the next answer before you work it out?

Go back to the entrance and choose your next animal.

The Birds of Prey

Bird of Prey	Wing width
Buzzard	70cm
Falcon	60cm
Red-tailed Hawk	72cm
Vulture	75cm
Booted Eagle	59cm
Sharp shinned Hawk	32cm

Use the information in the table to help you to answer these questions:

a) Which bird of prey has the shortest wing width?

b) Order the birds in order from the shortest wing width to the longest.

c) Which two birds would have a total wing width of 104cm?

d) Which two birds have a difference of 15cm in their wing width?

e) Can you turn the information in the table above into a bar chart?

Go back to the entrance and choose your next animal.

Goodbye

Congratulations on answering all of the questions in the Mathematical Zoo.

If, when someone checks your answers, you got some of them wrong you are more than welcome to come back and try again. The gates are always open.