Dinosaur Maths Challenge

Jump right in to the world of the dinosaur with this fun mathematical challenge!

These 3 activities can be completed in groups in a carousel system.

Footprints!

Investigate the area of the footprints and the mass of two types of dinosaur using the foot casts in the museum.

On The Move

Investigate the step of a *Brachiosaur*.

You will need to find out the known distance of an adult *Brachiosaur* step and the length of its leg to the hip.

Your investigation will include:
Estimates
Use of data
Comparisons
Calculations

You will also travel back in time by constructing a timeline!

Dinosaur Data

Use scale and ratio to find out the facts about dinosaurs!

Make a scale drawing of an adult *Brachiosaur*.

Compare, measure and calculate!

Estimate the height of the *Brachiosaur* and work out the actual height compared to an average man.

Student name: _____

ON THE MOVE

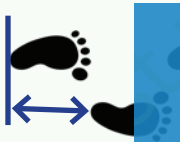
Walking with Dinosaurs

DINOSAUR EXPEDITIONS

Let's investigate the length of a step.

Compare your step to that of a *Brachiosaur*.

Firstly, measure your own walking step. Measure from heel to heel.



My step measures _____ centimetres

Look at the *Brachiosaur* leg and estimate the length of its foot _____ centimetres

Now find out and then measure out the length of an adult Brachiosaur step.

How many of your steps would fit into a *Brachiosaur* step? _____

What is the difference in length between your step and the *Brachiosaur* step? _____ centimetres

How long is your running stride? _____cm

Roughly how many times longer than your walking step is your running stride? _____ times

On this basis, calculate what length a *Brachiosaur* running stride may have been:

_____

Consider

What would you have to consider when estimating the speed the *Brachiosaur* could go? _____

_____

ON THE MOVE

DINOSAUR EXPEDITIONS

INFORMATION

- The first d… million ye…
- *Brachiosa… years ago (Jurassic Period)
- The last dinosaurs disappeared 65 million years ago
- Man's ancestors appeared about 6 million years ago
- Modern man has been around for the last 200,000 years (0.2 million yrs).

Time Travel

How could you draw a timeline showing 230 million years?

CHALLENGE

If you were to draw a timeline where 1 metre represented 1 million years, how long would the timeline be?

What if 1 metre represented 10 million years?

Or 1 metre represented 100 million years?

Mark out a timeline showing 230 million years.

Label it with the events in the information box (left).

- What do you notice?

1million = 1000,000
1000 x 1000
100 x 10,000
10 x 100,000

1 metre = 100cm
1000mm

1 kilometre = 1000m

EXTENSION TASK

- If you were to draw a timeline where 1mm represented 1 year, how long would the timeline be?

If you can, find out how far this would be on a map.

- Is it further than you travelled to get here?
- How long would your lifetime be on this timeline?

DINOSAUR DATA!

Find the large drawing on the back wall.

Look and Estimate

Estimate the height of the *Brachiosaur* _____m _____cm

Why do you think this is? _____

_____

_____

Measure and Calculate

If the skeleton of the man represents the height of 2 metres, use the measuring bar at the side of the wall chart to work out the actual height of a *Brachiosaur.*

_____m _____cm

Compare

- Notice how far up the *Brachiosaur* leg the man's head is on the drawing.
- Find this place on the mounted *Brachiosaur* leg.

Measure how high this is from the base: _____cm

What do you notice? _____

_____

How could you explain this difference? _____

_____

DRAWING TO SCALE

Using the information available to you, make a scale drawing of an adult *Brachiosaur* on cm squared paper.

Top Tip: Start your drawing with the scale used.

Each square is one metre long.

Alternatively, you could have to alter the size of an image to match the required scale.

Adult *Brachiosaur* height _____m length _____m

Scale drawing where 1 centimetre represents 100cm (1m)

To scale 1:100 height _____cm length _____cm

✓ Use the data below to make some comparisons.

	Length	Height
Brachiosaur		
Double decker bus	10m	4m
Family car	4m	1.5m
Bed	2m	
Me		

FOOTPRINTS!

Find the two casts of dinosaur footprints.

One is from a *Brachiosaur*, the other is from an *Iguanodon*.

Measure and compare

Working in a group, use one of the card templates to measure the area

How many of your feet fit inside the dinosaur footprint?

- ✓ Draw around your foot on squared paper
- ✓ Cut it out
- ✓ Work out the area by counting the squares

How many squares does one of your feet cover? _____

How could you use this to estimate the number of squares the dinosaur footprint would cover?

_____

These are the shapes of the front and back footprints of a *Brachiosaur.*

Which do you think the foot cast in the museum is?

_____

Explain why: _____

_____

The area of the dinosaur footprint

My estimate : _____cm²

Now find the area of the dinosaur footprint

Hint: 100 squares

My measurement: _____cm²

Now do the same with the other dinosaur footprint.

Record

I estimate the area of the ***Brachiosaur*** footprint is _____cm²

I estimate the area of the ***Iguanodon*** footprint is _____cm²

Write sentences to compare the footprints using the words greater than and less than:

_____

_____

Can you write a number sentence using the signs < or > ?

_____

_____

MASS

Find out your mass. Use some weighing scales.

My mass = _____kilograms

We believe an adult *Brachiosaurus* would have weighed [illegible] metric tons.

Brachiosaur mass = _____kilograms

Calculate the mass:

2 x my mass = _____kg

10 x my mass = _____kg

100 x my mass = _____kg

1000 x my mass = _____kg

Use "chunking" to calculate:

How many times greater than your mass is 56 metric tons? _____

Extension (back at school)

Find out the mass of other objects to compare with the dinosaur.

E.g. How many elephants?

How many buses?