Dinosaur Maths Challenge

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

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These 3 activities should 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
Ratios
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 and contrast!

Find the ratio between the length of skull and overall length of a Utahraptor and a Velociraptor.

Student name: _____

ON THE MOVE

Walking with Dinosaurs

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.

If you attempt t[illegible] large adult.

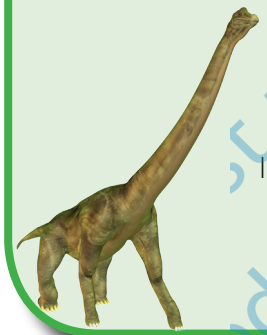
Your investigat[illegible] should include:

- ✓ Estimates
- ✓ Use of data
- ✓ Comparisons
- ✓ Ratios
- ✓ Calculations

Discuss how you might set up the investigation before you visit. The tasks can be started on site and completed back at school.

Useful links: http://www.bbc.co.uk/programmes/p00bkqxv

Extension Task: Calculate the length of the step taken by the mounted *Brachiosaur* leg.



Is the representation of footsteps to the right accurate? Explain your reasoning.

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Time Travel

DINOSAUR EXPEDITIONS

Did you know that:

- The first dinosaurs appeared about 230 million years ago
- *Brachiosaurs* lived from 150 to 100 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)

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CHALLENGE

Imagine a time line from the time the first dinosaurs appeared to the present day. Each year was represented by 1mm.

1. Very quickly, estimate how long it would be: _____
2. Calculate how long it would be: _____
3. Calculate the scale needed to fit the timeline in a building e.g. **The Dinosaur Farm** or your school hall.
4. What scale would you use to fit it onto a page of A4?

ACTIVITY: Construct a timeline and mark on it the key events (use the box on the right to help you)

KEY EVENTS

- The first dinosaurs appeared about 231.4 million years ago.
- *Brachiosaurs* lived from 150 to 100 million years ago.
- 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)

✓ Research some more information you could add to your timeline.

DINOSAUR DATA!

USING SCALE

Task 1

Using the inform[illegible] *Brachiosaur* on [illegible] squared paper.

Don't forget to l[illegible] 1cm=1m (1:100)

Note: The human skeleton on the wall represents 1.80m

Note down the measurements you will need in order to create your scale drawing:

Measurement	Length in m	To scale in cm

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Now investigate the mounted *Brachiosaur* leg.

Compare its size with that of the adult *Brachiosaur* on the wall.

What do you notice? _____

_____

_____

Can you give a possible reason for this? _____

_____

_____

Extension task

Draw this *Brachiosaur* to the same scale as your first drawing.

Can you work out what fraction it will be?

DINOSAUR DATA!

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Task 2

Have you seen the film *Jurassic Park*?

The fast running dinosaurs that are called *Velociraptors* in the film are actually larger and more like *Utahraptor*.

Although we only have a model head of *Utahraptor* here in the museum, we do have a complete ½ size model of *Velociraptor* and its full size skull.

Using ratio

Calculate the full length of ***Utahraptor.***

Hint

Find the ratio between the length of skull (L.S.) and overall length (O.L.) of ***Velociraptor*.**

O.L. of model _____cm O.L. full size _____ cm = _____ m

L.S. full size _____cm

What fraction of the O.L. is the L.S.? _____ $\frac{\text{O.L.}}{\text{L.S.}}$

What is the ratio? 1 : ___

Utahraptor

Now measure the length of the ***Utahraptor*** head (L.S.).

L.S. _____cm

How will you calculate its O.L. ? (use the above ratio)

Utahraptor O.L. _____ cm

O.L. _____m

DINOSAUR DATA!

Dinosaur	Length of Skull cm	Overall Length cm	Ratio
Velociraptor			
Utahraptor			

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Explain how you calculated the length of the *Utahraptor*.

DINOSAUR EXPEDITIONS

FOOTPRINTS!

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

Your investigation should include:

- ✓ Measurements of area
- ✓ Conversion of units
- ✓ Comparison of data

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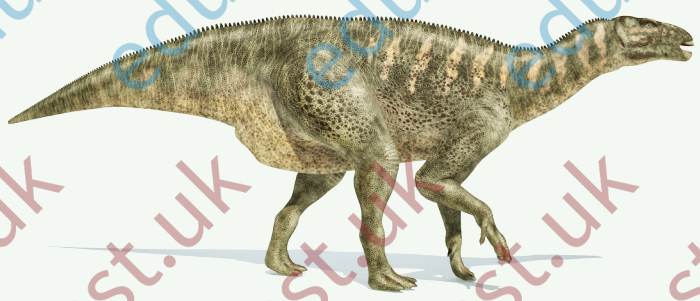
Now do the same with Mass.

Extension task

Investigate the relationship between mass and foot size.



DINOSAUR EXPEDITIONS

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