

OUT AND ABOUT

OUTDOOR ACTIVITIES FOR KEY STAGE 2 MATHEMATICS

www.sfran.ac.uk/resource-centre/outandabout/



MEASURE

Dino Park

Adapted from 'Scale Dinosaurs' available on Learning through Landscapes.

<https://ltl.org.uk/resources/scale-dinosaurs/>

Learning focus

- Make a simple scale drawing
- Record scale using appropriate mathematical notation
- Record information in a table

Key vocabulary

- Scale drawing
- Scale
- True length
- Life-size
- Measure

Resources

- Trundle wheels
- 30 cm rulers
- Natural resources (sticks, leaves, pine cones, flowers, etc.)
- Pencils, A4 paper, squared paper and clipboards



Activity

Introduce the activity by discussing what the children already know about dinosaurs.

*What are dinosaurs?
When did they live?
What did they look like?
What did they eat?
How did they move?*

Assign children to groups and give each group the name of a dinosaur to investigate. They must research interesting facts about their dinosaur, including dimensions such as its length and weight. Useful sources of information include The Natural History Museum and National Geographic websites. Discuss with the class how they might record their findings. For example, they may decide to record key facts in a table.

Display a model of a dinosaur. Explain that this is a scale model and that it is just like the real thing, only smaller in each dimension (length, breadth, height, etc.). Explain that each group will make a scale drawing of their dinosaur on squared paper. This scale drawing is the plan from which they will then create a life-size outline of their dinosaur outdoors.

Recap what a scale drawing is and discuss what might be an appropriate scale to use for their drawings.

*What is a scale drawing?
What are scale drawings used for?
Who uses scale drawings?*

Teaching point

A scale drawing is a drawing that shows a real object with accurate sizes reduced or enlarged by a certain amount (called the scale). When a drawing is described as 'to scale', it means that each element in the drawing is in the same proportion, related to the real object.

The scale is recorded as the length in the drawing, then a colon and then the corresponding length on the real object. For example, a drawing at a scale of 1:10 means that 1 unit in the drawing is equal to 10 units in real life. This means that the true length of the real object is 10 times the length on the scale drawing.

It is important to note that scale drawings represent the same units. So, if a drawing is at 1:50 in cm, 1 cm in the drawing will represent 50 cm in real life. Similarly, if a drawing is at 1:200 in mm, 1 mm unit in the drawing will represent 200 mm in real life.

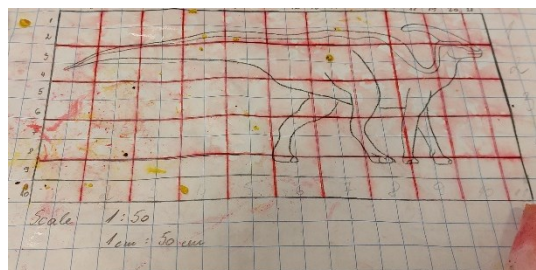
Ask each group to produce a scale drawing of their dinosaur on squared paper. They should record the scale used. Encourage children to explain their scale.

What scale did you choose? Why?

What is the dinosaur's actual length?

How did you represent this in your drawing?

For example, a scale of 1:100 could be used for a dinosaur of length 17.5 m. This means that 1 cm in the drawing is equal to 100 cm or 1 m in real life. The length of the scale drawing would therefore be 17.5 cm. A scale of 1:200 could be used for a dinosaur of length 30 m. This means that 1 cm in the drawing is equal to 2 m in real life. The length of the scale drawing would therefore be 15 cm. (A much larger area would be needed to create the life size outline in this case.)



Then ask each group to create their life-size outline using chalk on the playground. They should use an appropriate measuring device such as a trundle wheel to measure the length.



Once they have marked out their dinosaur, they could use natural resources to decorate it with features such as scales, claws, wings, eyes, teeth, and so on.



Encourage the children to explore their dinosaur outline and record interesting facts. For example:

How many children lying down head to toe match the length of the dinosaur?

How much taller is the dinosaur than you?

How does the height of this dinosaur compare to the height of the front door of our school?

Children could explore other interesting dinosaur features. For example, they could investigate the shape and size of dinosaur footprints and create life-size drawings on the playground.

Taking ideas further

This activity could be adapted for other animals, such as the giant squid.

It could also be related to other areas of the curriculum. Children could make a simple scale drawing of the Titanic or a Viking longboat.

Explore other examples of scale models, such as farm animals, toy vehicles, furniture from a doll's house, and so on.

Take for instance the 'car park'. Display a scale drawing of a car with the scale labelled. Ask children to create a life-size outline of the car using chalk on the playground.

Alternatively, ask children to research the actual measurements of a chosen car and then create a scale drawing on paper with the scale labelled. In these examples, children could show the length and height of the car (side view). They could compare the various cars drawn and record interesting facts.

Assessment opportunities

Are the children able to:

- Explain how scale is used to represent objects
- Make a simple scale drawing of an actual object
- Create a life-size outline from a simple scale drawing
- Record information in a table