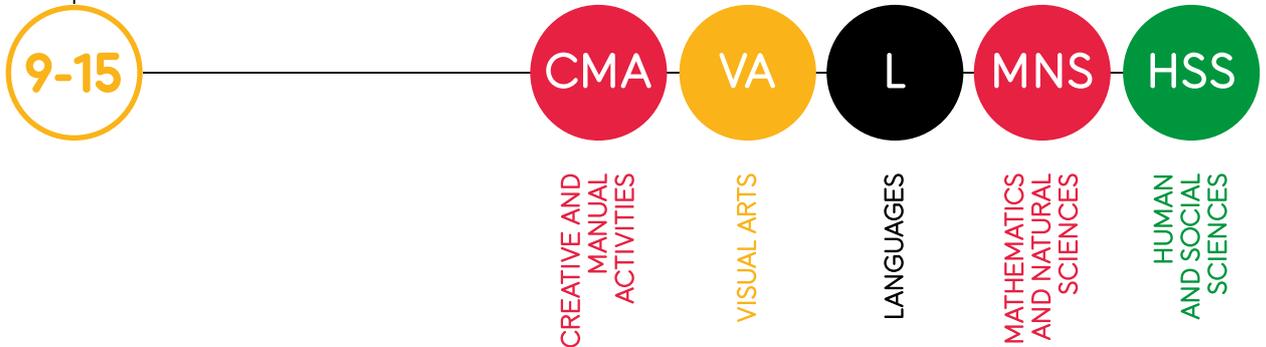


TIME & SPORT

ANALYSING MOTION,
PERFORMANCE
AND SPORTING RECORDS



Analysing motion, performance and sporting records

Information Sheet

Introduction

This sheet summarises the idea of records from the Ancient Greek Olympic Games to today.

It serves as a companion to the **Activity Sheet** on the same topic. This suggests activities to perform in class which will help students learn about this concept in a perceptual, theoretical and reflective way.

RELATED DOCUMENTS

- TOM SCHOOLS Activity Sheet
"Analysing motion, performance and sports records"
- TOM SCHOOLS Information Sheet
"Measuring Time"
- TOM SCHOOLS Activity Sheet
"Measuring Time"

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Sports performance in the Ancient World

In the era of the ancient Olympic Games, from 776 BC to 394 AD, contestants pitted themselves against each other in a variety of equestrian and athletic events such as horse racing, chariot racing, running, the discus, the long jump, wrestling, boxing and pankration.

At the end of these trials, one athlete was designated the sole victor, winning honour, glory and renown. This title raised him to the rank of a hero and his glory reflected back on his city.

Despite the Greeks' knowledge of mathematics and technology, times and scores were not recorded, as beating your adversaries was the only thing that mattered.

(For more information, see the folder on the Ancient Olympic Games)

Analysing the components of motion

In the late 19th century, an argument was raging amongst intellectuals and painters: were all four hooves of a galloping horse off the ground at the same time? Taking inspiration from the work of the Frenchman Etienne-Jules Marey, the British photographer Eadweard Muybridge joined the debate, but the imprecision of the photographic equipment of the time meant his experiments were inconclusive. In 1878, Muybridge set up an array of twelve cameras to take a rapid sequence of shots when a horse galloped past them, thus creating the first photographic breakdown of the motion of a living creature. He later continued his experiments with an array of 24 cameras. His work inspired other researchers interested in understanding the components of motion, as well as artists.

In 1882, Etienne-Jules Marey invented the technique known as chronophotography. This involved using a dark chamber to record a series of consecutive images on a single photographic plate. Marey also perfected other forms of equipment which produced graphical representations of motions and impressions in the ground, the interpretation of which requires special expertise. Using chronophotography, he was able to create highly interesting photographs in which a person or animal is shown in various phases of a particular movement. His inventions thus enabled human and animal motion to be broken down visually into individual components while simultaneously recording the time taken to complete the movement. Working in collaboration with Georges Demeny, Marey was especially interested in analysing motion for the purposes of physiological study. Demeny was later to publish a number of treatises on physical education and gymnastics. Marey and Demeny thus made important contributions to the history of sport, as well as to the birth of biodynamics, an essential element in improving sporting performance.

The idea of a record

Modern society attaches a great deal of significance to the idea of “beating a record”. There are a number of reasons for this: the eagerness of athletes to outdo and defeat their competitors, the spectator’s hope of witnessing a “historic moment”, the media’s desire to capture such moments and most of all the general wish to quantify a performance so that we can better appreciate its exceptional character.

Today’s athletes perform under the eyes of the world. Without taking anything away from their undeniable merits, it is important that our idea of performance and record-breaking takes account of technological progress and scientific advances – the nutrition, training methods, developments in equipment etc. – that have made improvements in sporting performance possible. Science, technology and the human body come together in pursuit of the goal of surpassing oneself and going beyond the limits.

The record: a symbol of modern times

Unlike the Ancient Games, the modern Olympic Games carefully quantify and record the performance of every competitor. Rather than choosing a sole overall victor, they also honour the three best performers in each event. They also include team sports, whereas the Ancient Olympic Games only comprised individual events.

Olympic records – like world records – are objectively measured with extreme precision using ever more sophisticated equipment. Such records are symbols of an exceptional achievement, an act that pushes back the bounds of the possible and sets a challenge to others. When it comes to breaking records, high technology and the desire to surpass oneself come together. Sporting records are poised between the twin ideas of the exact and the extraordinary.