Diploma Programme

Sports, exercise and health science data booklet

For use during the course and in the examinations
First assessment 2026

Version 1.0

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Diploma Programme
Sports, exercise and health science data booklet

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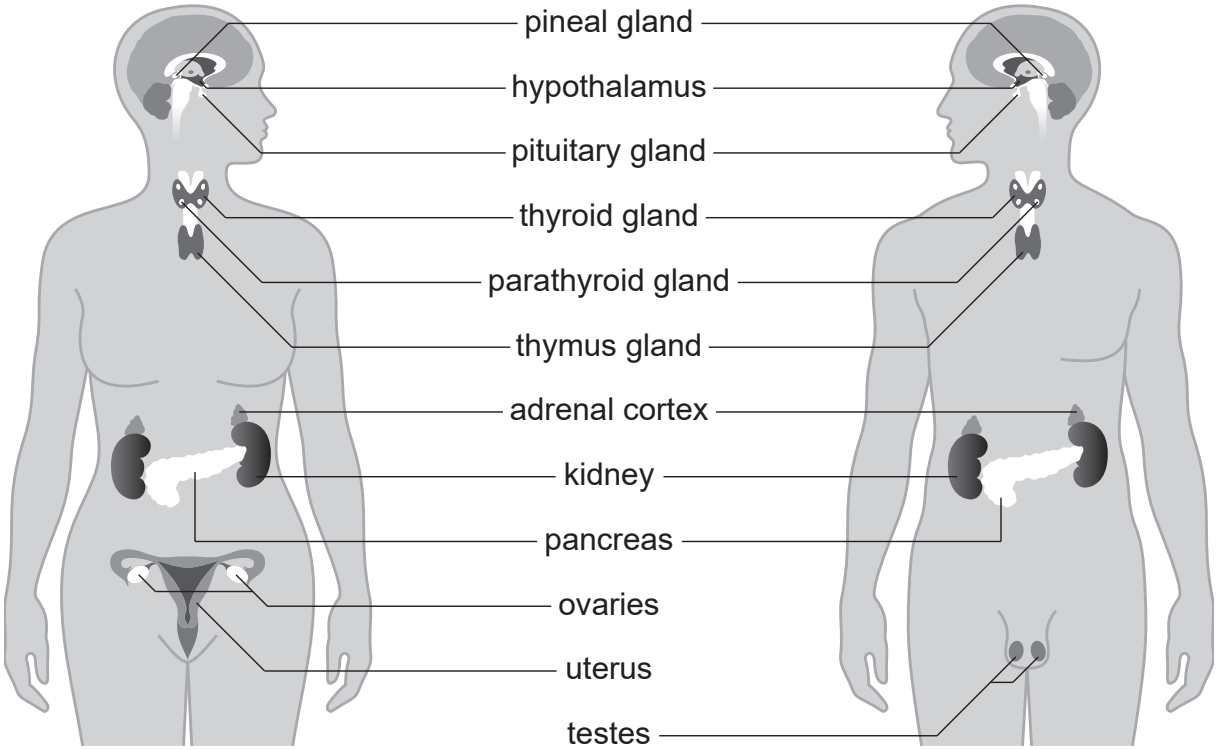
Introduction

This Diploma Programme (DP) *Sports, exercise and health science data booklet* accompanies the DP *Sports, exercise and health science guide* and DP *Sports, exercise and health science teacher support material*. It contains physiology diagrams, physical equations and constants, and other data relevant to the course.

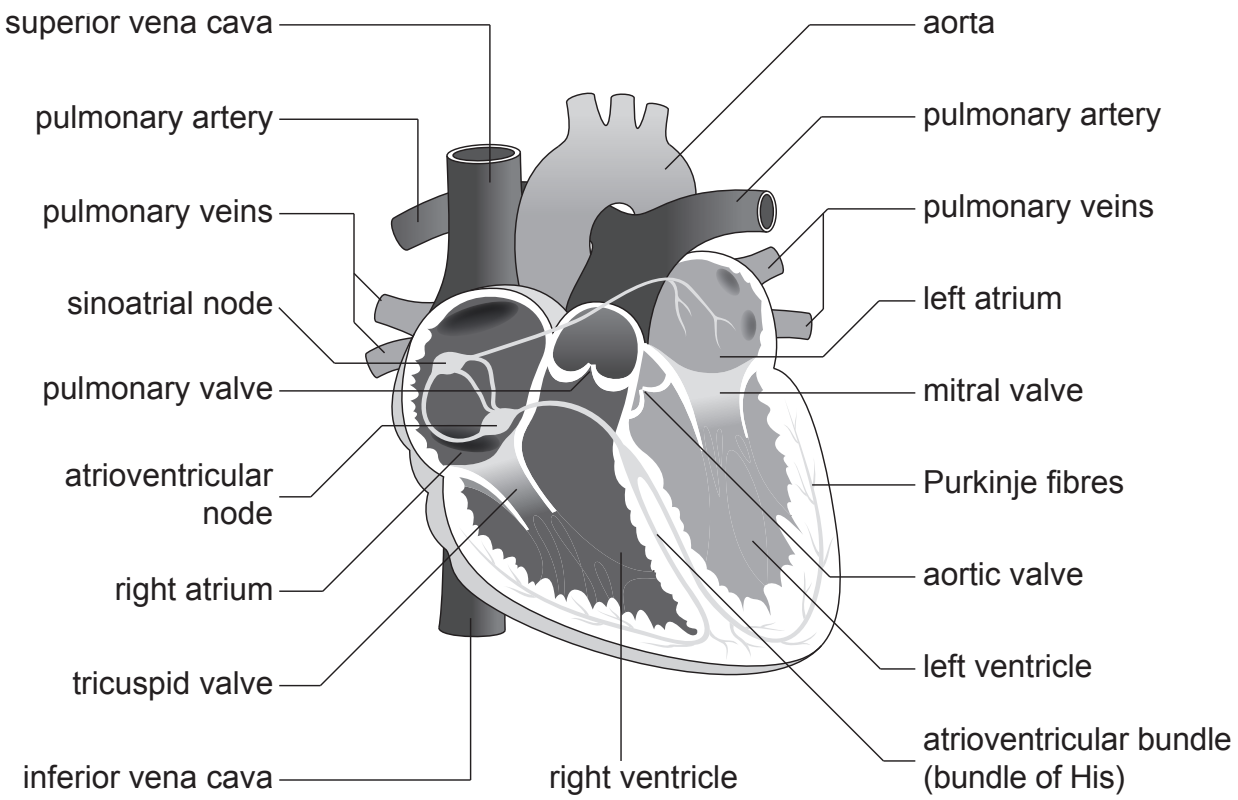
Students must have access to a copy of this booklet for the duration of the course, so that they can become familiar with its contents. Direct reference is made to relevant equations in the "Understandings" of the guide. This helps to maintain the emphasis on interpretation and application rather than memorization of symbols, constants and equations.

Each student must have access to a clean copy of the *Sports, exercise and health science data booklet* during examinations. It is the responsibility of the school to download a copy of this booklet from IBIS or the Programme Resource Centre and to ensure that there are sufficient copies available for all students.

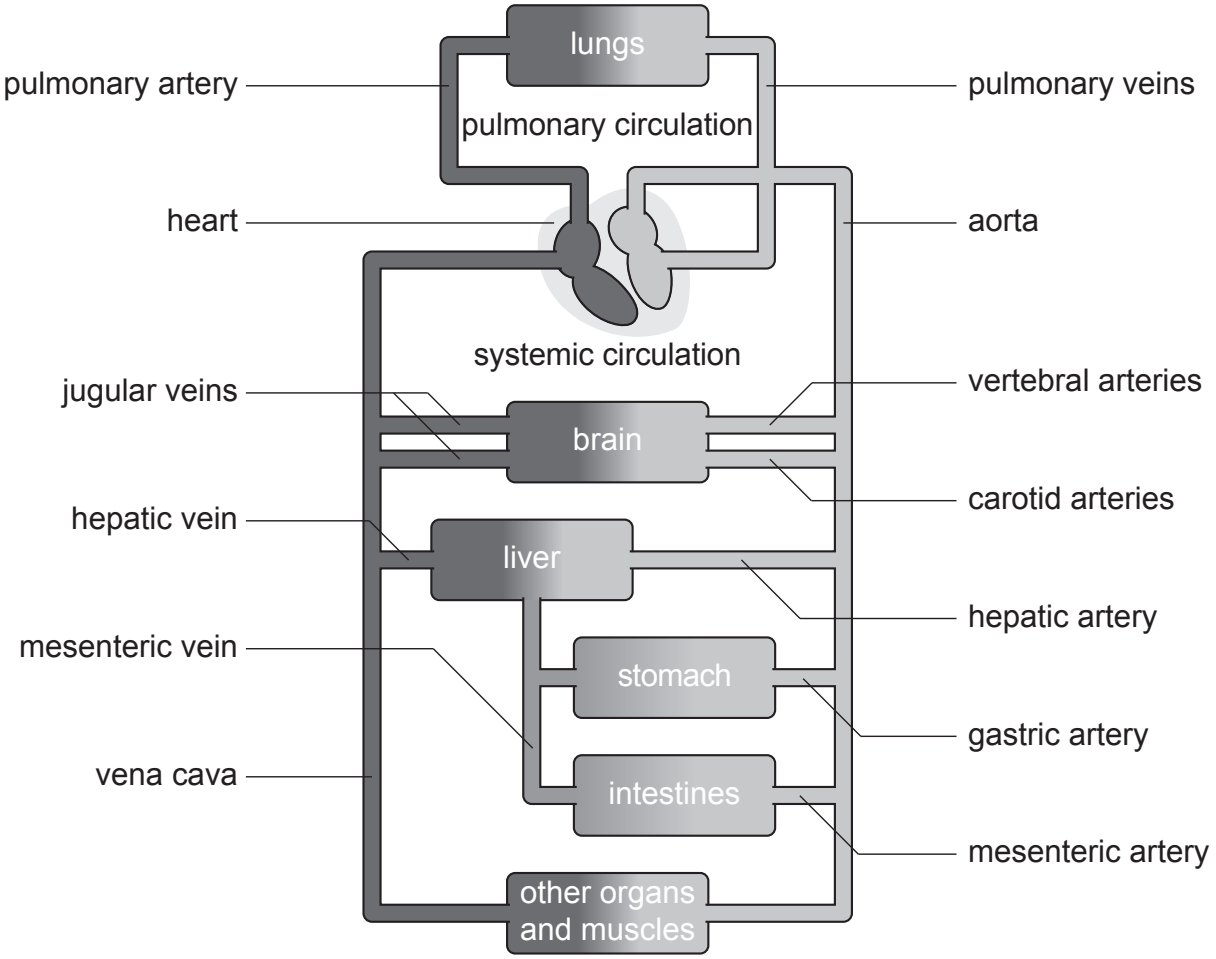
1. Endocrine glands



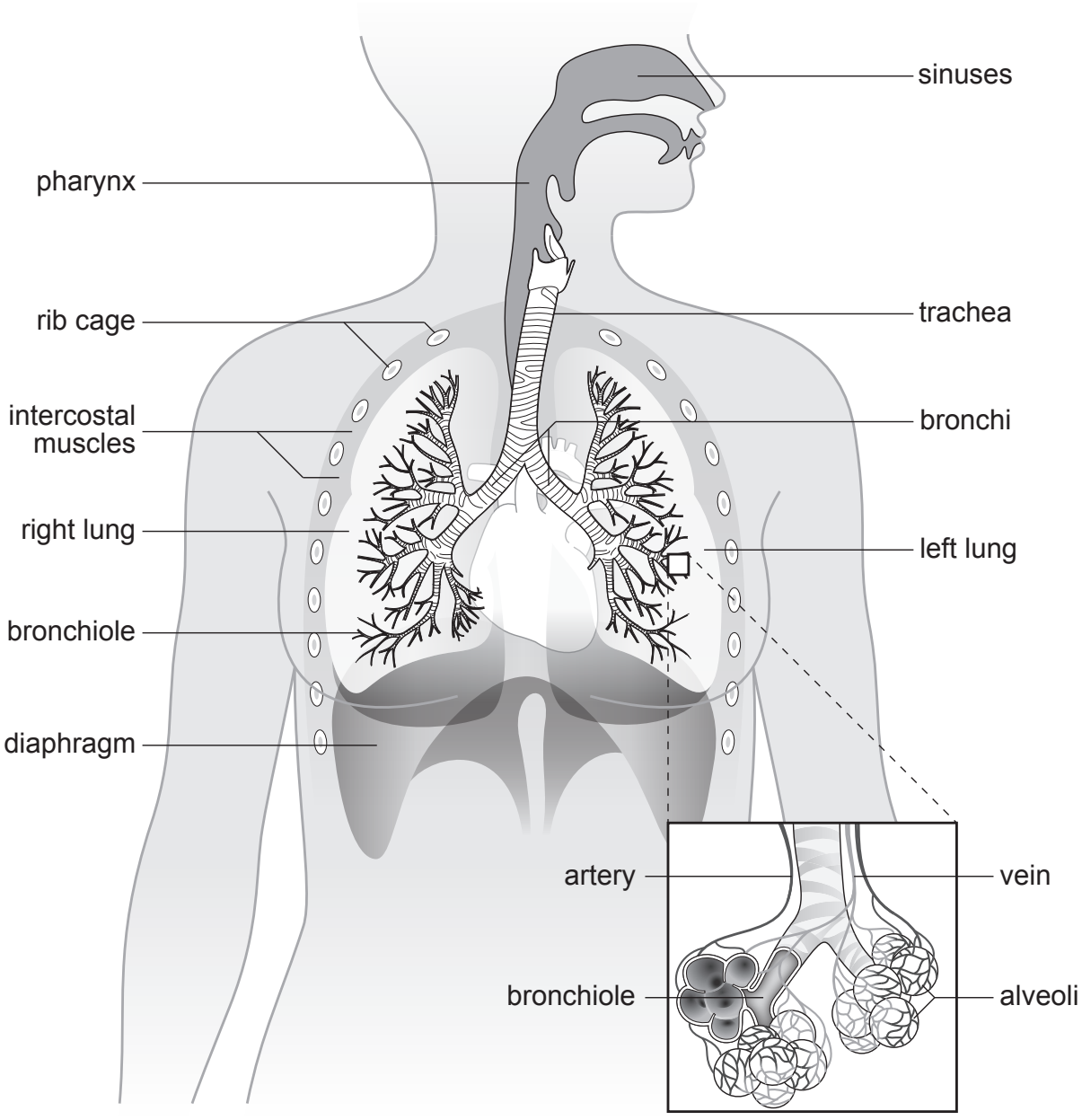
2. Structure of the heart



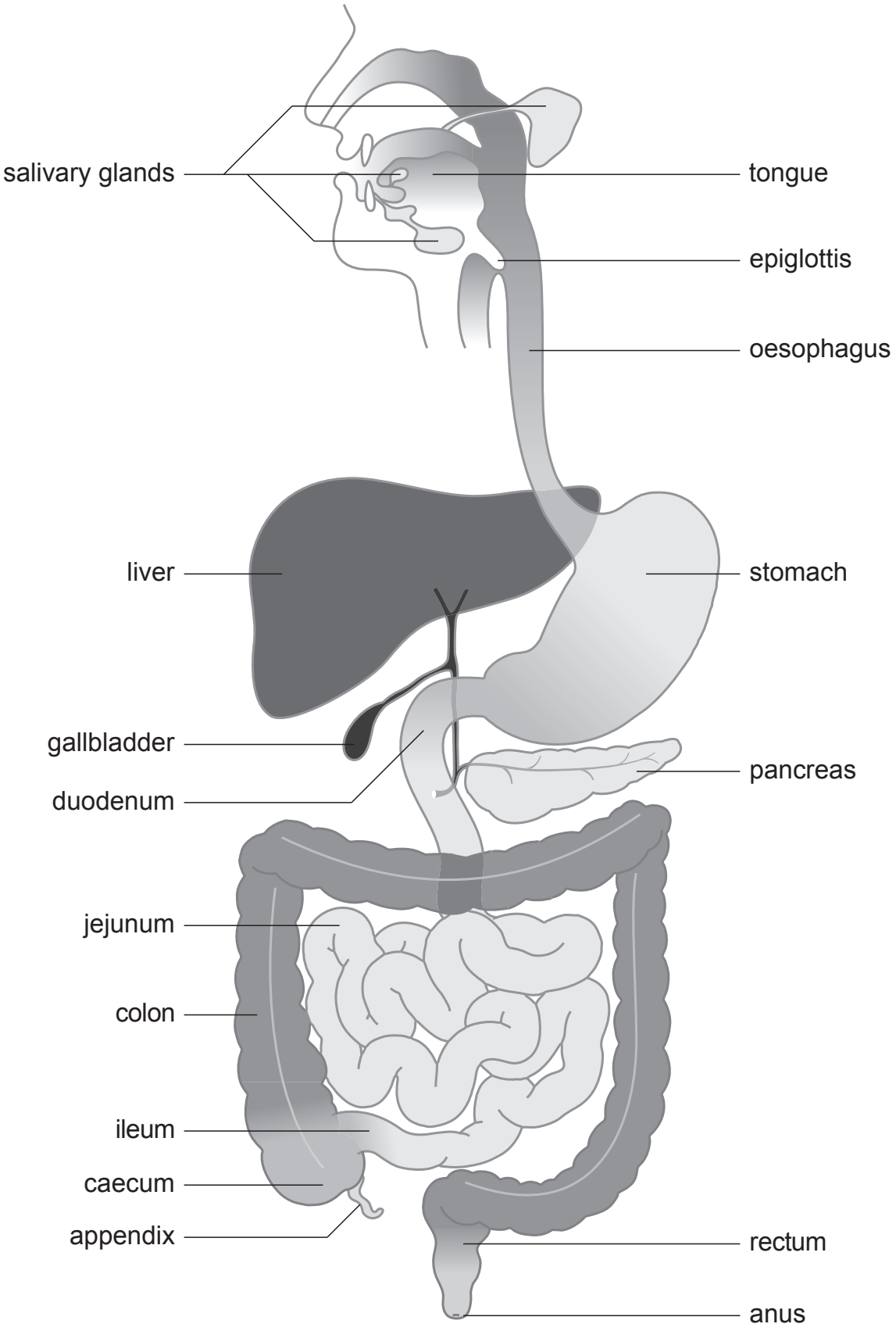
3. Cardiovascular system



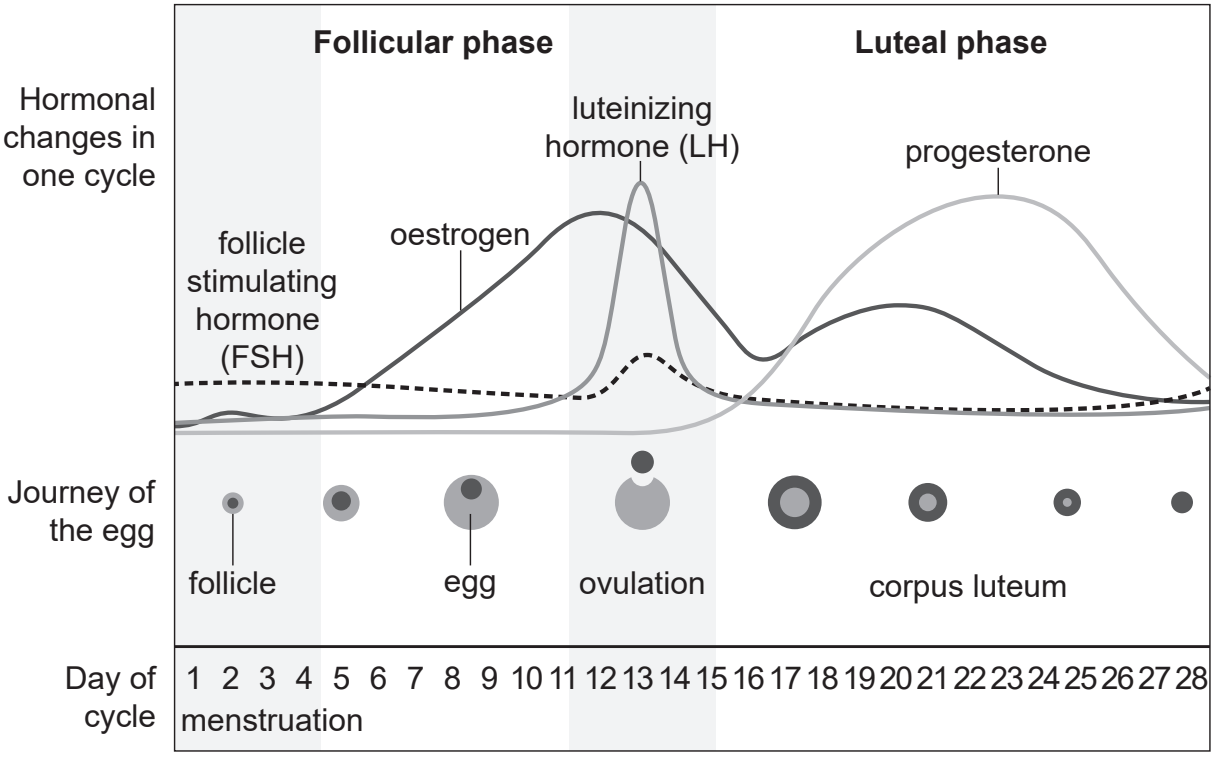
4. Respiratory system



5. Digestive system

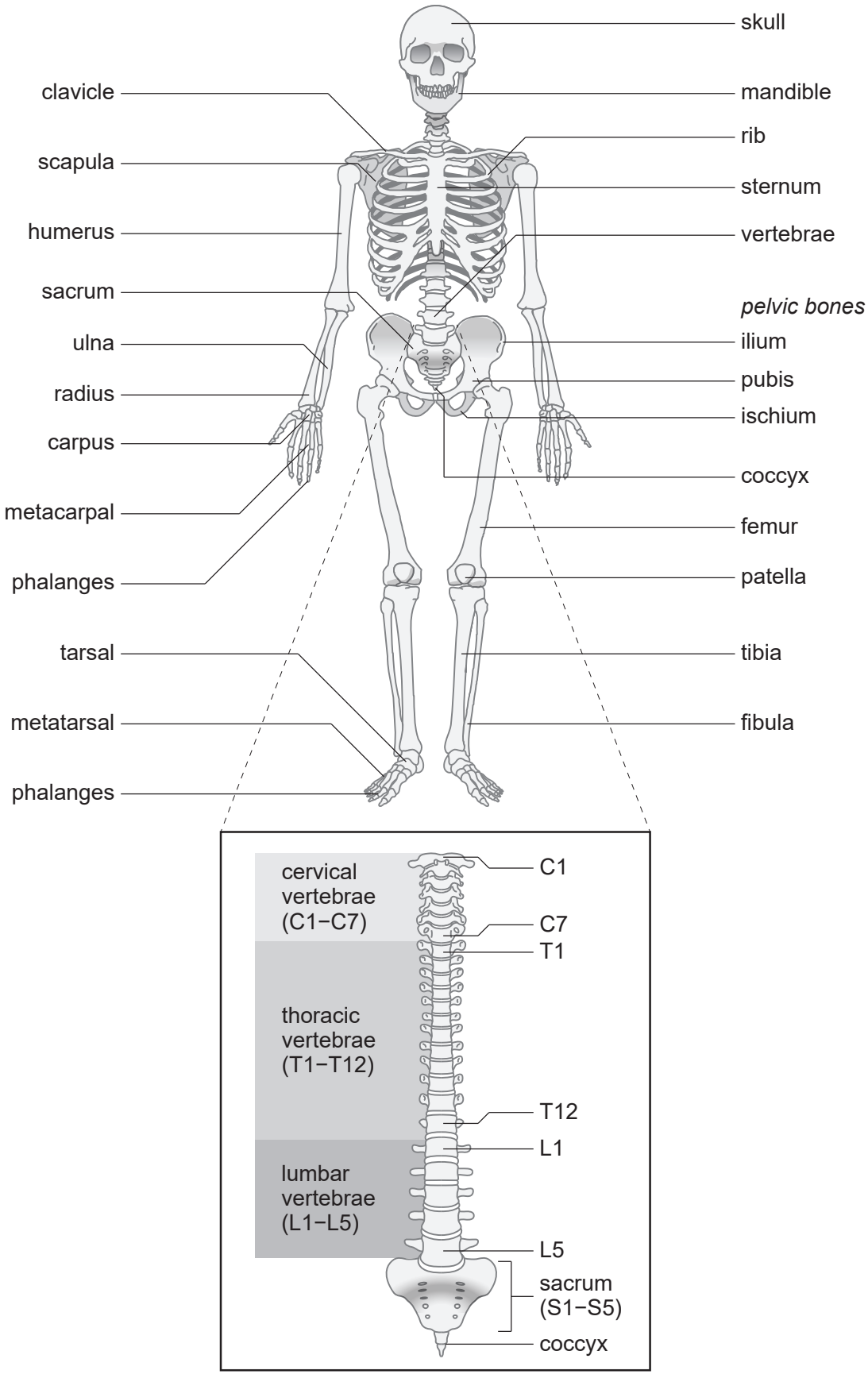


6. Menstrual cycle

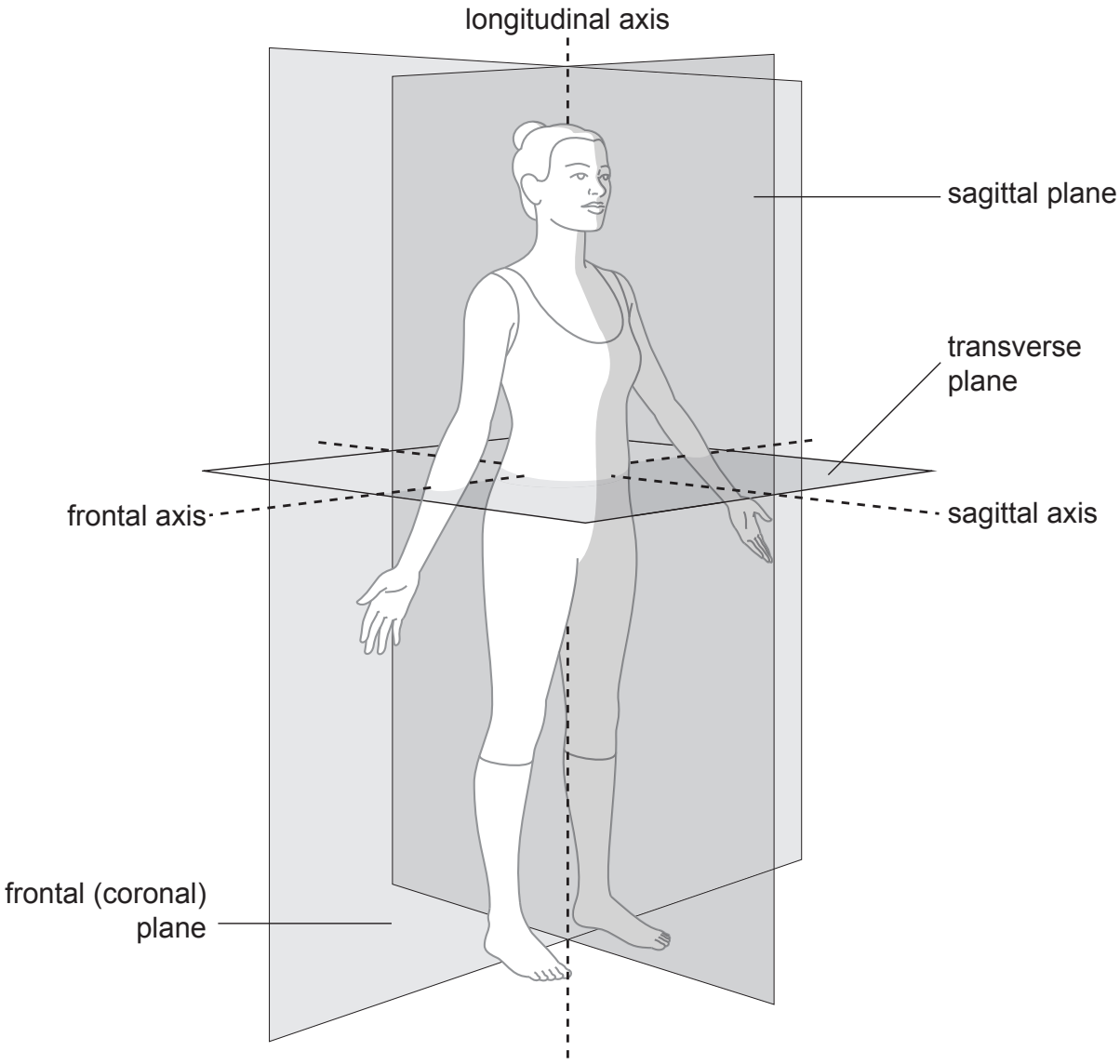


This example illustrates a 28-day cycle.
The day of ovulation and hormone levels can vary if the cycle length varies

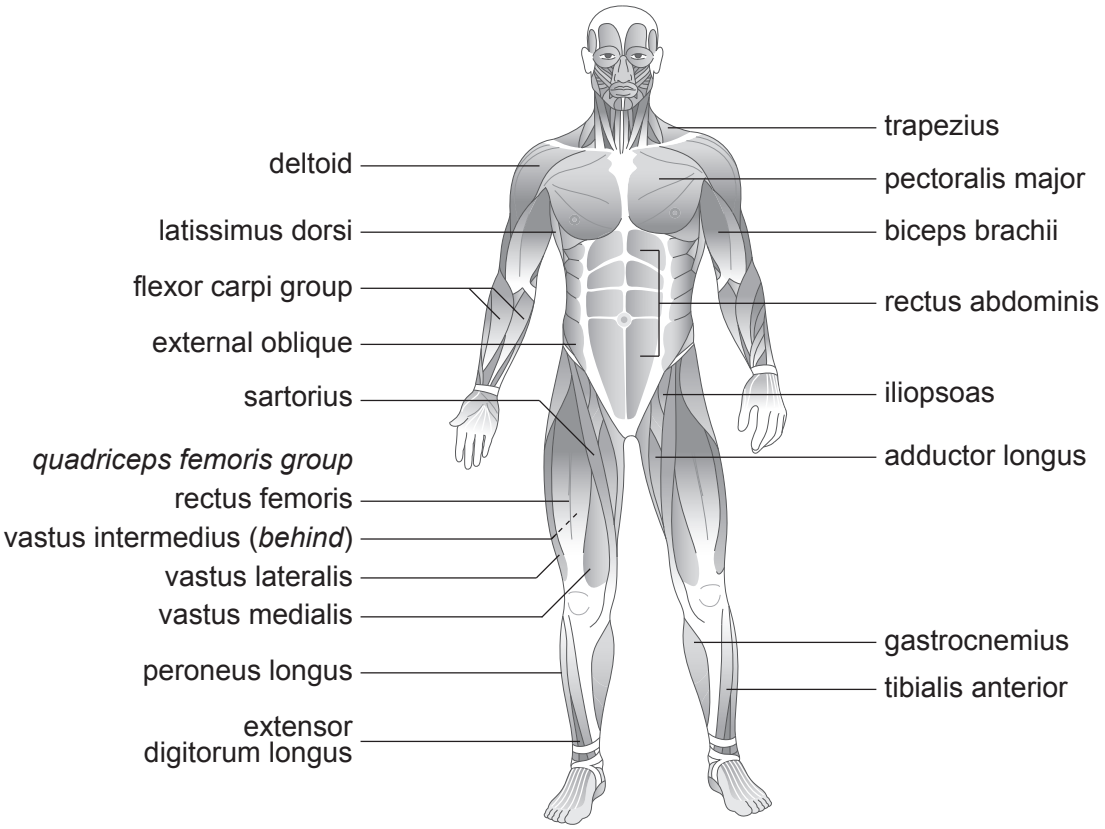
7. Skeletal system



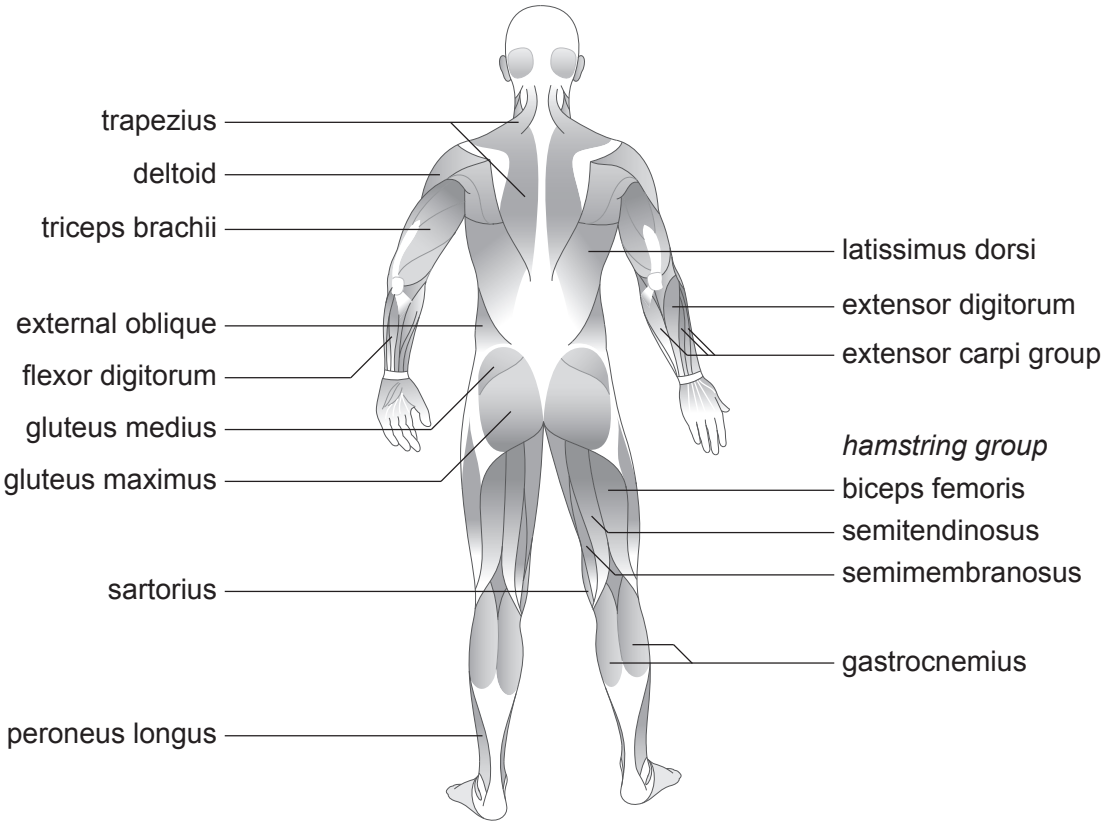
8. Anatomical planes and axes



9. Muscular system

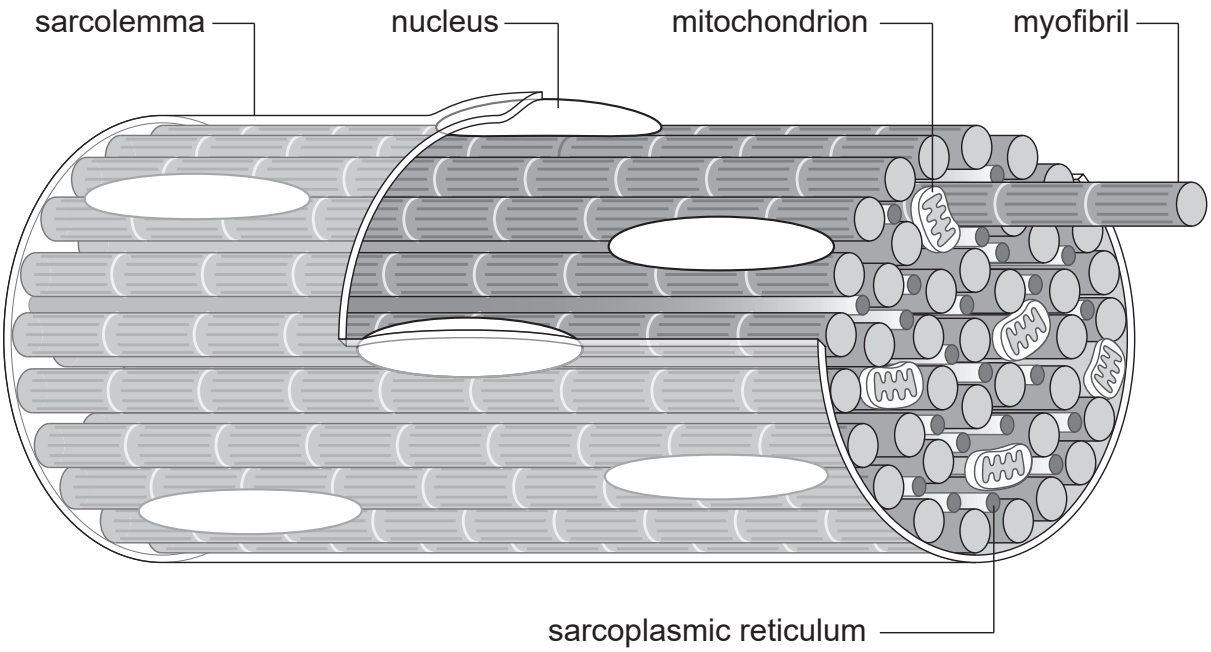


Anterior view

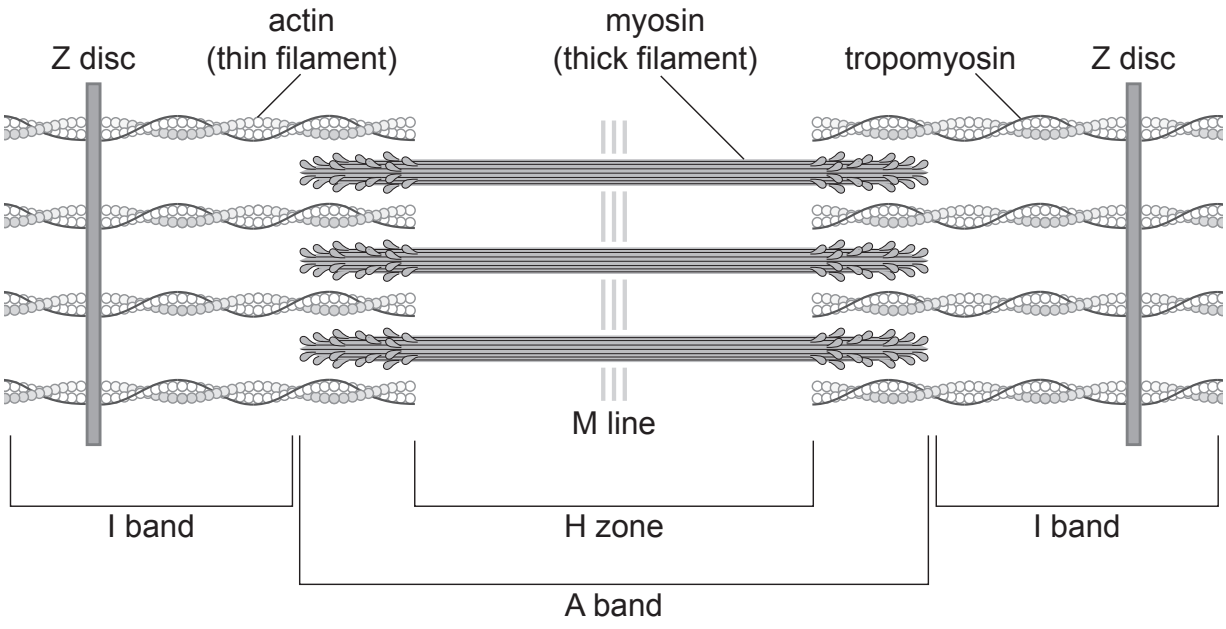


Posterior view

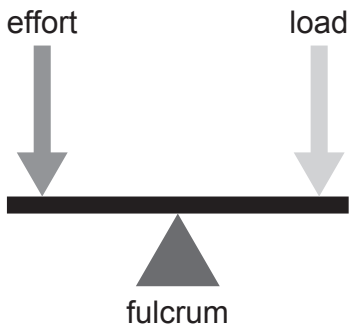
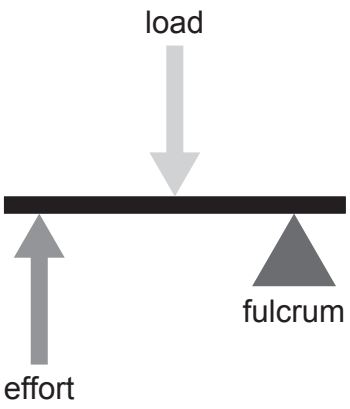
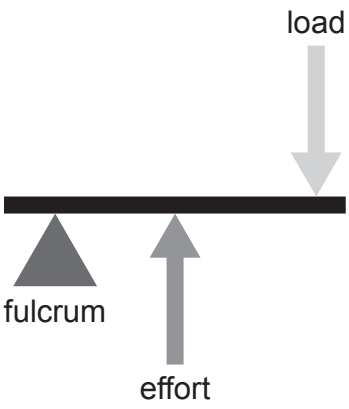
10. Muscle fibre



11. Sarcomere in a relaxed myofibril



12. Classes of lever

first-class lever	*second-class lever*	*third-class lever*
		

13. Metric (SI) multipliers

Prefix	Abbreviation	Value
mega	M	10^{6}
kilo	k	10^{3}
hecto	h	10^{2}
deca	da	10^{1}
deci	d	10^{-1}
centi	c	10^{-2}
milli	m	10^{-3}
micro	μ	10^{-6}
nano	n	10^{-9}
pico	p	10^{-12}

14. Unit conversion and constants

1 hour = 60 minutes = 3,600 seconds

1 litre = 1 dm^3

1 joule = 0.239 calories

Acceleration due to gravity on Earth (g) = 9.81 ms^{-2}

15. Equations of motion and mechanics

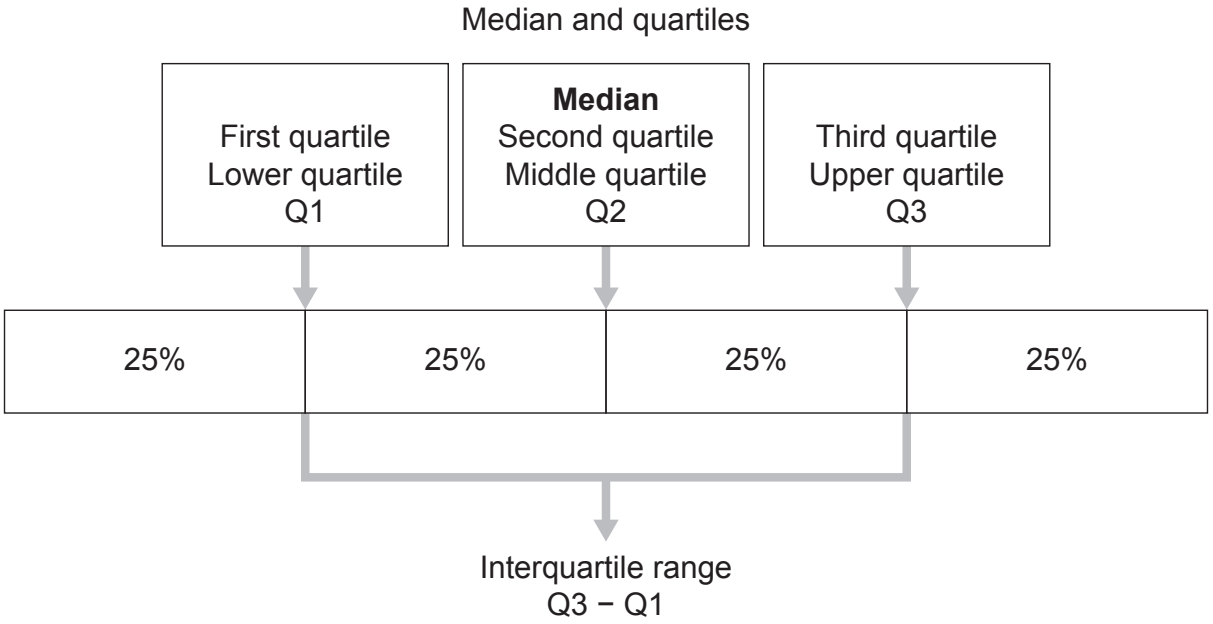
(a) Motion and mechanics	
Speed	$s = \frac{d}{t}$
Acceleration	$a = \frac{(v - u)}{t}$
Linear velocity	$v = \frac{\Delta s}{\Delta t}$
Angular velocity	$v = \frac{2\pi r}{T} = \omega r$
Force and weight	$F = ma = \frac{\Delta p}{\Delta t}$ $F_g = mg$
Impulse	$J = F\Delta t$
Linear momentum	$p = mv$
Coefficient of restitution	$C_R = \frac{v_b - v_a}{u_a - u_b}$
Coefficient of static friction	$F_f \leq \mu_s F_N$
Coefficient of dynamic friction	$F_f = \mu_d F_N$
(b) Energy, work and power	
Work done	$W = Fd$
Power	$P = \frac{\Delta W}{\Delta t} = Fv$

16. Uncertainties

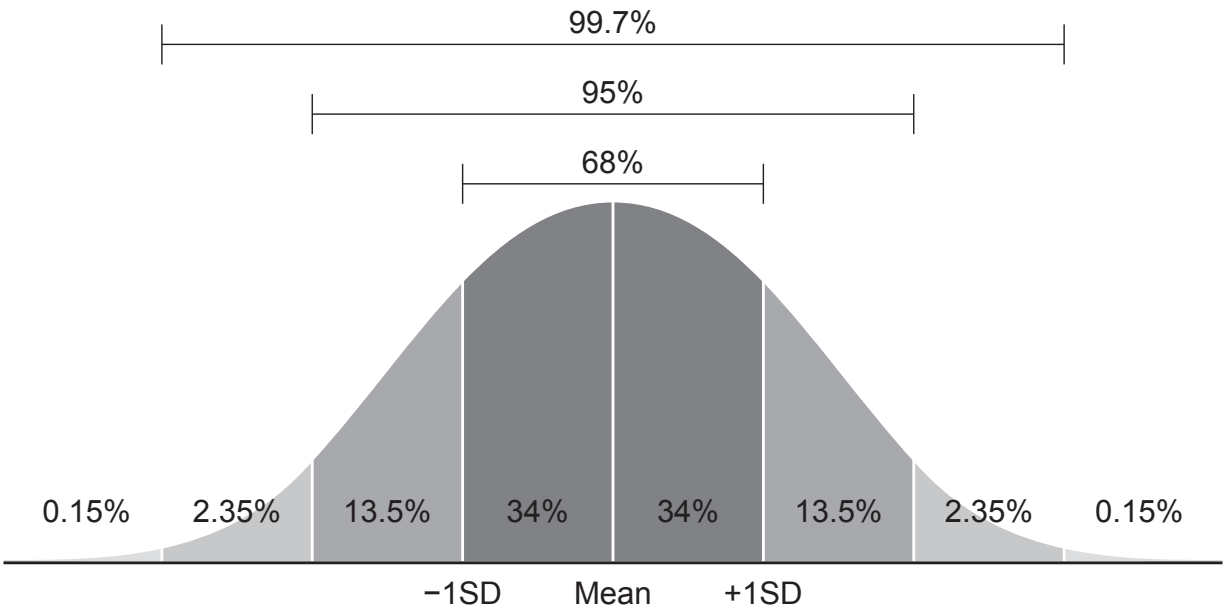
If: $y = a \pm b$	then: $\Delta y = \Delta a + \Delta b$
If: $y = \frac{ab}{c}$	then: $\frac{\Delta y}{y} = \frac{\Delta a}{a} + \frac{\Delta b}{b} + \frac{\Delta c}{c}$
If: $y = a^n$	then: $\frac{\Delta y}{y} = \left\lvert n \frac{\Delta a}{a} \right\rvert$

17. Variation in data sets

Interquartile range



Standard deviation



Coefficient of variation, V

$$V = \frac{100 \times SD}{mean}$$