

KS4 Information evening - Science



Science Mark



Science Mark is a quality standard designed to recognise and celebrate inspiring practice in secondary and FE science departments across the UK.





OCR Combined Science

There are **four** Science papers

1 hr 45 mins – Biology

1 hr 45 mins – Chemistry

1hr 45 mins – Physics

1hr 45 mins – Combined Science

OCR Triple Science

There are **six** Science papers

Breadth in Biology

Breadth in Chemistry

Breadth in Physics

Depth in Biology

Depth in Chemistry

Depth in Physics

Each paper is **1 hour and 45 minutes** long

Maths content of Papers

Biology - at least 10%

Chemistry - at least 20%

Physics - at least 30%

Combined Science - at least 20%



Students are required to memorise most of the equations.
 There are 16 -18 equations and students may be asked to rearrange them.

$$\frac{D}{m} = \frac{S}{m/s} = \frac{T}{s}$$

$$\frac{\text{Mom.}}{\text{Kg m/s}} = \frac{\text{Mass}}{\text{kg}} = \frac{\text{velocity}}{\text{m/s}}$$

Change of momentum = resultant force x time for which the force acts

$$\text{(kg m/s)} = \text{(N)} \times \text{(s)}$$

Change in G.P.E (J) = Weight (N) x Change in height (m) x 10

$$\frac{\text{Work Done}}{\text{J}} = \frac{\text{Force}}{\text{N}} = \frac{\text{Distance}}{\text{m}}$$

$$\frac{\text{Voltage}}{\text{V}} = \frac{\text{Current}}{\text{A}} = \frac{\text{Resistance}}{\Omega}$$

Energy Transferred = Power x Time

$$\text{(Joules)} = \text{(W)} \times \text{(s)}$$

Cost= Number of kWh x Cost per kWh

$$\frac{V}{\text{(m/s)}} = \frac{F}{\text{(Hz)}} = \frac{\lambda}{\text{(m)}}$$

$$\frac{2 \times \text{K.E.}}{M} = V$$

$$\frac{\text{Energy}}{\text{(J)}} = \frac{\text{Power}}{\text{(W)}} = \frac{\text{Time}}{\text{(s)}}$$

K.E= 0.5 x mass x velocity²

$$\frac{V_p}{V_s} = \frac{N_p}{N_s}$$

$$\frac{\text{Power}}{\text{Velocity}} = \text{current}$$

Energy Transferred = Power x Time

$$\text{(Kilowatt hours)} = \text{(kilowatts)} \times \text{(hours)}$$

Efficiency = $\frac{\text{ENERGY USEFULLY TRANSFERRED}}{\text{TOTAL ENERGY SUPPLIED}} \times 100$

Speed = Frequency x Wavelength

$$\text{m/s} = \text{Hz} \times \text{m}$$

Acceleration = $\frac{\text{m/s}^2}{\text{Time taken}}$

$$\frac{\text{Final speed} - \text{initial speed}}{\text{Time taken}}$$

Force = $\frac{\text{Change in momentum}}{\text{time}}$

Required Practical's – PAG's

At least 15% of the marks available will be on the required practical's.



There are different types of questions on the papers, and the papers are ramped according to their difficulty.

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- 1 Fig. 1.1 shows a student doing a push-up. A total force F acts upwards on his hands. There is also a force R upwards on his toes.

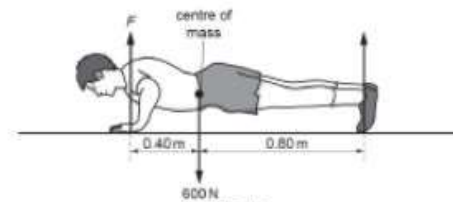


Fig. 1.1

The weight of the student is 600 N and this force acts downwards from his centre of gravity.

- (a) (i) Describe how the student does work as his body rises from the ground.

_____ [1]

- (ii) State the form of energy that the student uses to do this work.

_____ [1]

- (b) At the position shown in Fig. 1.1, the student is stationary. The weight of the student causes a moment about his toes.

- (i) Calculate the moment of the weight of the student about his toes.

moment = _____ [1]

- (ii) Calculate the value of the forces F and R .

Revision materials

- ✓ Kerboodle
- ✓ Revision guide/s
- ✓ BBC bitesize
- ✓ OCR website



Mock exams in Year 11

Mid November 2023

ALL students to sit three 1hr 45 minute papers in

Biology

Chemistry

Physics

Late February/early March 2021

Triple Scientists sit three 1hr 45 minute papers in

Biology

Chemistry

Physics

Combined Scientists one 1hr 45 minute Combined Science paper (Higher or Foundation)

Tiers of Entry

Triple Higher – Grades 5 and above

Triple Foundation – Grades 1 to 5

Combined Higher - Grades 5-5 to 9-9

Combination Foundation – Grades 1-1 to 5-5

Science Club Tuesday 3-4pm in room 32

Any questions?