



Ecole Internationale Provence-Alpes-Côte d'Azur



Forward Planning

Long-Term Semester Planning

Academic Year: 2020-2021

Class:	S5
Subject:	Physics
Teacher:	Erazmus
No. Students:	22

Curriculum – Long-Term Planning 2020-2021

Date	Objectives/ Connaissances	Activités	Resources	8 Compétences clés *	Evaluation
1/9/20 – 16/10/20	Use the concept of work to calculate change in energy; Calculate kinetic & gravitational potential energy; Calculate the stopping distance of a car; Application of the law of conservation of energy.	Lab measuring the average force of friction acting on a car by measuring the distance travelled and knowing the GPE; Discuss exchanges of energy and ways to reduce energy losses, for practical situations.	Textbook: GCSE physics; Tom Duncan & Heather Kennett (Chapters 24, 33); Classwork sheets.	1, 3, 5, 6, 8.	Notebook; Homework; Quiz(s); Test; Lab report; Participation both individual and in small lab groups
2/11/20 – 18/12/20	Describe the behavior of molecules in different states of matter; Determine the equivalent temperature in Kelvin from Celsius; Explain why a change of state involves energy exchange; Calculations involving specific heat capacity, latent heat, efficiency and the law of	Lab measuring the specific heat capacity of water; Measuring temperature in time by heating water and making diagrams; Discuss moderating maritime climate & coastal breezes.	Textbook: GCSE physics; Tom Duncan & Heather Kennett (Chapters 35, 37, 38, 39); Classwork sheets.	1, 3, 5, 6, 8.	BTESTS.

<p>4/1/21 – 19/2/21</p>	<p>conservation of energy.</p> <p>Describe momentum as the quantity of motion of a body and calculate its momentum; Identify objects within a closed system to which conservation of momentum applies; Describe interactions between objects where two concepts are required to predict the outcomes: momentum and energy.</p>	<p>Compare the momenta of various objects: low mass moving quickly like a bullet and large mass moving slowly like a bowling ball;</p> <p>Consider elastic collisions (e.g. billiard balls) and inelastic collisions (e.g. kinetic energy converted into deformation energy in a car accident.</p>	<p>Textbook: GCSE physics; Tom Duncan & Heather Kennett (Chapters 32);</p> <p>Classwork sheets.</p>	<p>1, 3, 5, 6, 8.</p>	
<p>8/3/21 – 23/4/21</p>	<p>Describe the charge, mass & dimensions of electrons, protons & neutrons and how they contribute to the structure of the atom; Identify the fundamental forces and qualitatively describe their role in the structure of the atom; Apply the notation A_ZX to describe the structure of the nucleus; Identify the decay product when an atom decays with alpha or</p>	<p>Discussion of how the numbers of neutrons and protons determine the stability of the nuclei they form;</p> <p>Discussion of the discovery of nuclear radiation and the sub-atomic particles;</p>	<p>Textbook: GCSE physics; Tom Duncan & Heather Kennett (Chapters 58, 59);</p> <p>Classwork sheets.</p>	<p>1, 3, 5, 6, 8.</p>	

<p>10/5/21 – 5/7/21</p>	<p>beta radiation; Explain the emission of gamma radiation as electromagnetic energy from the nucleus; Determine the activity, or amount of remaining mass, of a radioactive isotope after a few half-lives;</p> <p>Discuss the risk of radiation qualitatively in terms of activity, energy of radiation and time of exposure; State that when nuclear reactions release energy, the mass of the products is less than that of the reactants; Identify fission and fusion from reaction equations and construct balanced reaction equations.</p>	<p>Research examples of medical imaging and/or treatment or industrial applications that use ionising radiation;</p> <p>Research different energy sources with respect to need, time for construction, resources, environment and health risks;</p> <p>Advantages and disadvantages of fusion in relation to fission (e.g. nuclear waste, fusion temperature).</p>	<p>Textbook: GCSE physics; Tom Duncan & Heather Kennett (Chapters 58, 59);</p> <p>Classwork sheets.</p>	<p>1, 3, 4, 5, 6, 8.</p>	
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* Lien vers les 8 compétences clés:

1. Littératie (lecture et écriture)
2. Multilinguisme
3. Mathématiques, science, technologie et ingénierie
4. Numérique
5. Personnelles, sociales et capacité d'apprendre à apprendre
6. Citoyenne
7. Entrepreneuriale
8. Sensibilité et expression culturelles