Year 10 Physics Curriculum Summary

YEAR GROUP: 10 LETCH **SUBJECT: Physics**

When?	Knowledge	Understanding	Assessment
Radioactivity	**Be able to:** • Describe what a radioactive substance is • Describe the different types of radiation give out by a radioactive substance • Describe the different models of the atom • Describe the differences between alpha, beta and gamma radiation • Define and calculate half life	Students will carry out a range of practical experiments during these topics. **Radioactivity key words:** activity alpha radiation (α) atomic number beta radiation (β) gamma radiation (γ) half-life isotopes mass number nuclear fission nuclear fission reactor nuclear fusion radioactive contamination reactor core	**Radioactivity assessment**
Electric Circuits	**Be able to:** • Draw and interpret circuit diagrams • Recall and apply the potential difference equation • Describe how resistance changes under different conditions • Draw and describe parallel and series circuits	Students will carry out a range of practical experiments during these topics. **Electric Circuits key words:** diode electrons light-depending resistor (LDR) light-emitting diode (LED) Ohm's law parallel potential difference resistance	**Electric circuits assessment**

		series thermistor	
Electricity in the home	**Be able to:** • explain the difference between direct and alternating potential difference • explain that a live wire may be dangerous even when a switch in the mains circuit is open • explain the dangers of providing any connection between the live wire and earth. • Recall and apply the charge flow equation	Students will carry out a range of practical experiments during these topics. **Electricity in the home key words:** alternating current (a.c.) direct current (d.c.) earth wire fuse live wire neutral wire oscilloscope plugs step-down transformers step-up transformers three-pin plug	**Electricity in the home assessment**
Forces in balance	**Be able to:** • **Define displacement, vector quantity and scalar quantity** • **Define resultant force and describe what happens under different conditions** • **Define centre of mass and calculate for a**	Students will carry out a range of practical experiments during these topics. **Forces in balance key words:** displacement driving force effort force multiplier	**Forces in balance assessment**

	symmetrical object • **Describe the parallelogram of force and what it is used for**	forces free-body force diagram friction load magnitude moment Newton's first law of motion Newton's third law of motion parallelogram of forces principle of moments resultant force scalar vector	
Motion	**Be able to:** • **recall typical values of speed for a person walking, running and cycling as well as the typical values of speed for different types of transportation systems** • **make measurements of distance and time and then calculate speeds of objects** • **explain the vector–scalar distinction as it applies to displacement, distance, velocity and speed** • **determine speed from a distance–time graph**	Students will carry out a range of practical experiments during these topics. **Motion key words:** acceleration deceleration displacement gradient (of a straight line graph) tangent velocity	**Motion assessment**
forces and motion	**Be able to:** • **estimate the magnitude of everyday accelerations** • **draw velocity–time graphs from**	Students will carry out a range of practical experiments during these topics. **forces and motion key words:**	**forces and motion assessment**

	measurements and interpret lines and slopes to determine acceleration • **estimate the braking force of a vehicle** • **calculate momentum and describe what it means for a closed system** • **calculate the extension of an object when it is stretched and describe elasticity.**	braking distance conservation of momentum directly proportional elastic extension gravitational field strength, *g* inertia limit of proportionality mass momentum Newton's second law of motion stopping distance terminal velocity thinking distance weight	