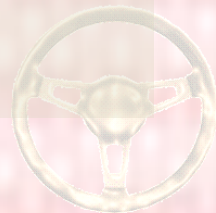
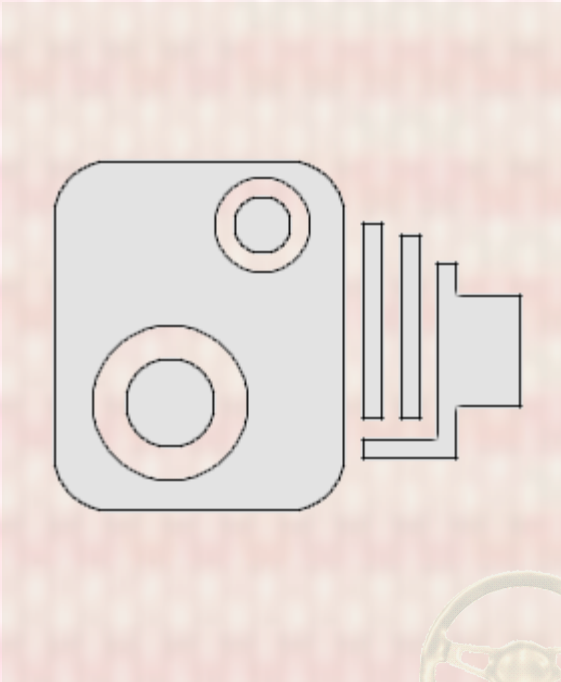




PHYSICS LICENCE



1. A SPEED CAMERA TAKES TWO PHOTOGRAPHS AT HALF-SECOND INTERVALS OF A MOTOR CYCLIST DRIVING ALONG THE MOTORWAY. DESCRIBE HOW THESE COULD BE USED TO CALCULATE THE SPEED OF THE MOTOR CYCLIST.

2. 'DESCRIBE':
TO GIVE AN ORDERED ACCOUNT.

3. FIRST, NEXT, THEN, SO, FINALLY, LASTLY,.....

4. *Physics P2. 1*

5. POSITION, PHOTOGRAPH, MARKINGS, INTERVAL, DISTANCE, SPEED

6. ADDITIONAL SCIENCE OR TRIPLE SCIENCE



6 Marks






1. Question
2. Command word
3. Connectives

4. Signature

5. Keywords

6. Course

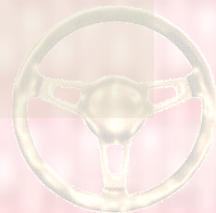
P2.1

	First, the camera takes two photographs which compare the position of the motorcyclist relative to road markings at known intervals.
	Next, the distance travelled by the motorcyclist is calculated.
	Finally, the speed of the motorcyclist is calculated using the formula $\text{speed} = \text{distance}/0.5\text{s}$.





PHYSICS LICENCE



6 Marks

1. THE VERTICAL VELOCITY OF A PARACHUTIST CHANGES FROM THE MOMENT THE PARACHUTIST JUMPS FROM AN AIRCRAFT UNTIL LANDING ON THE GROUND. USING THE IDEA OF FORCES, EXPLAIN WHY THE PARACHUTIST REACHES A TERMINAL VELOCITY AND WHY OPENING THE PARACHUTE REDUCES THE TERMINAL VELOCITY.

2. 'EXPLAIN':
TO LINK POINTS LOGICALLY.

3. SO, THIS MEANS, THEREFORE, AS A RESULT,....






4. *Physics P2. 2*

5. WEIGHT, DOWNWARDS, AIR RESISTANCE, UPWARDS, ACCELERATE, EQUAL, GREATER THAN, SURFACE AREA, DECELERATE, RESULTANT FORCE

6. ADDITIONAL SCIENCE OR TRIPLE SCIENCE



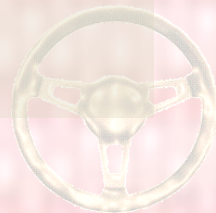
- 1. Question
 - 2. Command word
 - 3. Connectives
 - 4. Signature
 - 5. Keywords
 - 6. Course
- P2.2

	<p>0 marks: No relevant content.</p>
	<p>1-2 marks: There is brief attempt to explain why the velocity of the parachutist changes OR the effect of opening the parachute on velocity is given. Poor SPAG.</p>
	<p>3-4 marks: The change in velocity is clearly explained in terms of forces OR the change in velocity upon opening the parachute is clearly explained. Some SPAG errors.</p>
	<p>5-6 marks: There is a clear and detailed explanation as to why the parachutist reaches terminal velocity AS WELL AS a reasoned argument for the open parachute producing a lower terminal velocity is given. Almost faultless SPAG.</p>
	<p><i>When leaving the plane the only force acting on the parachutist is <u>weight</u>. As the parachutist begins to fall, <u>air resistance</u> acts <u>upwards</u>. As weight is <u>greater than</u> air resistance the <u>resultant force</u> is <u>downwards</u> so the parachutist <u>accelerates</u>. As velocity increases so does air resistance and terminal velocity is reached when both are <u>equal</u>. Upon opening the parachute, air resistance becomes greater than weight as the <u>surface area</u> has increased. The resultant force is now upwards which means that the parachutist <u>decelerates</u>. A lower velocity means that air resistance also decreases. When air resistance and weight are equal again, a new, lower terminal velocity is reached.</i></p>





PHYSICS LICENCE



1. DESCRIBE TOW SAFETY FEATURES, FOUND IN MODERN CARS, WHICH ARE DESIGNED TO PROTECT THE DRIVER AND PASSENGERS IN THE EVENT OF A CAR CRASH. USE THE IDEA OF ENERGY AND MOMENTUM TO EXPLAIN HOW EACH FEATURE PROTECTS PASSENGERS FROM SERIOUS INJURY.

2. 'DESCRIBE AND EXPLAIN':
TO GIVE AN ORDERED ACCOUNT AND LINK POINTS LOGICALLY.

3. FIRST, NEXT, ALSO, SO, THIS MEANS, THEREFORE, AS A RESULT,.....

4. *Physics P2. 3*

5. AIRBAG, CRUMPLE ZONE, SEAT BELT, IMPACT BAR, TIME, SPEED, DECELERATION, FORCE, ABSORB

6. ADDITIONAL SCIENCE OR TRIPLE SCIENCE








6 Marks



- 1. Question
 - 2. Command word
 - 3. Connectives

 - 4. Signature

 - 5. Keywords
 - 6. Course
- P2.3

	<p>0 marks: No relevant content.</p>
	<p>1-2 marks: An incomplete description of one or two safety features. There should be some description of energy changes or momentum changes during a collision. Poor SPAG.</p>
	<p>3-4 marks: Limited description of two safety features. There should also be a discussion, which describes what the features do, and some attempt to link this to momentum or reduced energy transfer. Some SPAG errors.</p>
	<p>5-6 marks: A detailed description of two safety features and a discussion of the momentum and energy changes taking place, linking increased impact duration with a reduced risk of serious injury. The answer should explain how the features increase the duration of the collision and absorb energy. Almost faultless SPAG.</p>
	<p><i>Safety features included in the car are airbags, seat belts, crumple zones and side impact bars. In a collision, the <u>airbag</u> will inflate and spread the <u>force</u> of the impact across a <u>larger surface area</u>. It also increases the duration of the <u>impact time</u> so the rate of change of momentum is decreased as is the force on the passenger. A <u>seat belt</u> stretches slightly and <u>slows down</u> forward motion. The time taken to stop the body from moving is increased, so the <u>decelerating force</u> is reduced. As the seat belt acts across the chest, it also spreads the force out and reduces injury. <u>Crumple zones</u> deform and absorb the <u>energy</u> of the impact. This also extends the time it takes for the car to stop.</i></p>





PHYSICS LICENCE



1. AN ELECTRIC SUBSTATION CONTAINS EQUIPMENT AT VERY HIGH VOLTAGES. AN INTRUDER COULD RECEIVE A DEADLY ELECTRIC SHOCK WITHOUT TOUCHING THE EQUIPMENT. EXPLAIN WHY THIS IS POSSIBLE.

2. 'EXPLAIN':
TO LINK POINTS LOGICALLY.

3. SO, THIS MEANS, THEREFORE, AS A RESULT,....

4. *Physics P2. 4*

5. STATIC, ELECTRICITY, DISCHARGE, SPARK, AIR

6. ADDITIONAL SCIENCE OR TRIPLE SCIENCE






6 Marks



- 1. Question
- 2. Command word
- 3. Connectives

4. Signature

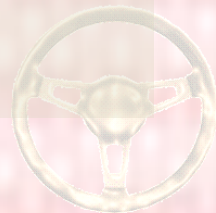
- 5. Keywords
- 6. Course

	Charge passes from a point of high concentration (substation equipment)
	to a point of low concentration (intruder). This means that the intruder would receive a potentially fatal electric shock.
	This can be seen as a spark travelling through the air.





PHYSICS LICENCE



1. BATHROOMS WITHIN THE UK DO NOT HAVE ANY ELECTRIC SOCKETS INSTALLED. EXPLAIN WHY.

2. 'EXPLAIN':
TO LINK POINTS LOGICALLY.

3. SO, THIS MEANS, THEREFORE, AS A RESULT,....

4. *Physics P2. 5*

5. RESISTANCE, WATER, WET, DRY, ELECTRICK SHOCK

6. ADDITIONAL SCIENCE OR TRIPLE SCIENCE






6 Marks



- 1. Question
- 2. Command word
- 3. Connectives

4. Signature

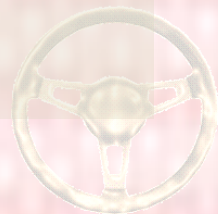
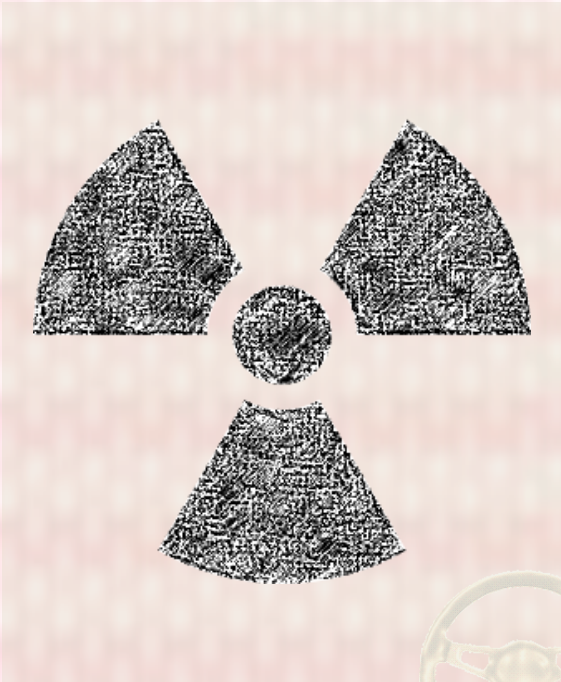
- 5. Keywords
- 6. Course

	When using the bathroom, people are more likely to have wet skin or be sitting/standing in water.
	Wet skin has a lower resistance than dry skin.
	This means that a person using an electrical item such as a hair dryer would be more likely to receive a potentially fatal electric shock.





PHYSICS LICENCE



1. EXPLAIN WHY ALPHA, BETA AND GAMMA RADIATION BEHAVE DIFFERENTLY IN AN ELECTROMAGNETIC FIELD.

2. 'EXPLAIN':
TO LINK POINTS LOGICALLY.

3. SO, THIS MEANS, THEREFORE, AS A RESULT,....

4. *Physics P2. 6*

5. CHARGE, DEFLECT, OPPOSITE, MASS, POSITIVE, NEGATIVE

6. ADDITIONAL SCIENCE OR TRIPLE SCIENCE






6 Marks



1. Question
2. Command word
3. Connectives

4. Signature

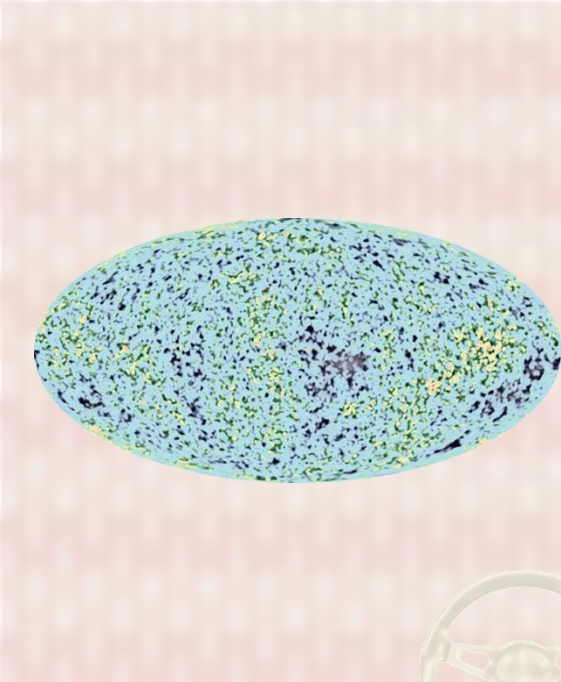
5. Keywords
6. Course

	Gamma radiation has no charge which means it is not deflected.
	Alpha and beta radiation have opposite charges (alpha is positively charged, whereas beta is negatively charged) which means that they are deflected in opposite directions.
	Beta has a smaller mass than alpha. As a result, beta is deflected more than alpha.





PHYSICS LICENCE



1. DISCUSS WHETHER BACKGROUND RADIATION IS A SIGNIFICANT HEALTH RISK.
2. 'DISCUSS':
EXAMIN CLOSELY TAKING INTO ACCOUNT STRENGTHS AND WEAKNESSES. GIVE A JUSTIFIED CONCLUSION.
3. HOWEVER, UNLESS, IF, AS WITH, ESPECIALLY,....
4. *Physics P2. 6a*
5. RADIOACTIVE, EARTH, CANCER, MAN-MADE, NATURAL, RADON, LIFESTYLE
6. ADDITIONAL SCIENCE OR TRIPLE SCIENCE







6 Marks



- 1. Question
- 2. Command word
- 3. Connectives

4. Signature

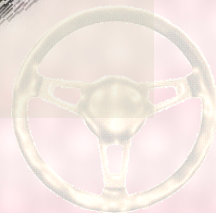
- 5. Keywords
- 6. Course

	<p>The Earth has always been slightly radioactive and has always been exposed to cosmic rays yet not every person on the planet has developed cancer.</p>
	<p>Many lifestyle choices however do increase the risk of developing cancer, such as smoking because smokers are more exposed to radioactive radon.</p>
	<p>On the other hand, natural sources of background radiation are more significant than man-made sources (e.g. medical equipment).</p>
	<p>Overall, I believe that background radiation does/does not pose a significant health risk as.....(develop one argument in more detail without repeating any of the above points).</p>





PHYSICS LICENCE



6 Marks

1. DESCRIBE WHAT HAPPENS TO A STAR MUCH BIGGER THAN THE SUN, ONCE THE STAR REACHES THE END OF THE 'MAIN SEQUENCE' PERIOD OF ITS LIFE CYCLE.
YOUR ANSWER SHOULD INCLUDE THE NAMES OF THE STAGES THE STAR PASSES THROUGH.

2. 'DESCRIBE':
TO GIVE AN ORDERED ACCOUNT.

3. FIRSTLY, NEXT, THEN, FINALLY, LAST,....

4. *Physics P2. 7*

5. HYDROGEN, FUEL, EXPAND, RED SUPER GIANT, COLLAPSE, EXPLODE, HEAVY, ELEMENT, IRON, CORE, NEUTRON STAR, MASS, BLACK HOLE






6. ADDITIONAL OR TRIPLE SCIENCE



1. Question
2. Command word
3. Connectives

4. Signature

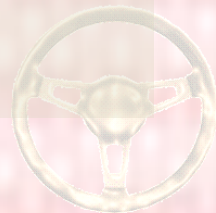
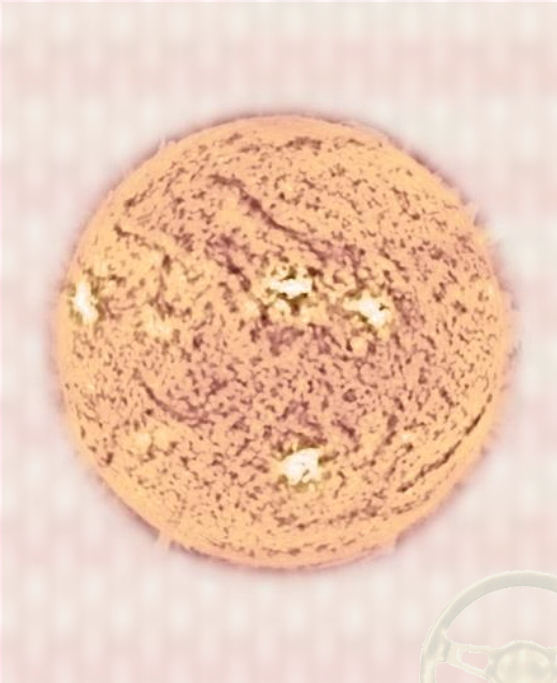
5. Keywords
6. Course

	<p>0 marks: No relevant content.</p>
	<p>1-2 marks: There is a basic description of what happens to a star much larger than the Sun after the 'main sequence' period OR two stages are correctly named and are in the correct sequence. Poor SPAG.</p>
	<p>3-4 marks: There is a clear description of what happens to a star much larger than the Sun after the 'main sequence' period AND at least two stages are correctly named and in the correct sequence. Some SPAG errors.</p>
	<p>5-6 marks: There is a detailed description of what happens to a star much larger than the Sun after the 'main sequence' period. At least three stages are named, in the correct order and no additional incorrect stages are given. Almost faultless SPAG.</p>
	<p><i>After the main sequence stage the star will run out of <u>hydrogen fuel</u> and as a result will <u>cool and expand</u> to form a <u>red supergiant</u>. The <u>outer layers</u> will eventually <u>explode</u> as a <u>supernova</u> and <u>heavier elements</u> such as <u>iron</u> are formed. The <u>core shrinks</u> and forms a <u>neutron star</u>. If the <u>mass of the shrinking core</u> is large enough, a <u>black hole</u> is formed instead.</i></p>





PHYSICS LICENCE



1. A STAR GOES THROUGH A LIFE CYCLE.
DESCRIBE THE LIFE CYCLE OF A STAR LIKE OUR SUN.

2. 'DESCRIBE':
TO GIVE AN ORDERED ACCOUNT.

3. FIRST, THEN, SO, NEXT, FINALLY, AS A RESULT,....

4. *Physics P2. 7a*

5. GAS, DUST, GRAVITY, FUSION, NUCLEAR, FORCE,
BALANCED, STABLE, EXPAND, COOL, RED GIANT,
COLLAPSE, HOT, GLOW, WHITE DWARF, BLACK DWARF






6. ADDITIONAL SCIENCE OR TRIPLE SCIENCE



6 Marks



- 1. Question
 - 2. Command word
 - 3. Connectives
 - 4. Signature
 - 5. Keywords
 - 6. Course
- P2.7a

	<p>0 marks: No relevant content.</p>
	<p>1-2 marks: There is a basic description of the life cycle of a star like the Sun. Poor SPAG.</p>
	<p>3-4 marks: There is some description of the life cycle of a star like the Sun. Some SPAG errors.</p>
	<p>5-6 marks: There is a clear and detailed description of the life cycle of a star like the Sun. Almost faultless SPAG.</p>
	<p><i>First, <u>hydrogen gas and dust</u> are pulled together by <u>gravity</u>. Then <u>nuclear fusion</u> begins and the star is formed. When the <u>forces</u> inside the star are <u>balanced</u> the star has reached the <u>stable</u> 'main sequence' stage. When the star begins to run out of hydrogen fuel it <u>expands, cools down</u> and forms a <u>red giant</u>. When fusion stops, the star <u>collapses</u> in on it self. This causes it to <u>heat up, glow brighter</u> and turn into a <u>white dwarf</u>. Finally, the white dwarf will fade out, cool down and become a <u>black dwarf</u>.</i></p>

