BIOLOGY – Marking Criteria for Coursework B

		Guide to mark assignment	
SECTION	**Total Mark**	**Compare by means of investigation the vitamin C content of a number of commercial and fresh fruit juices.**	**H.L.**
Introduction	**5**	**Statement / identification of problem / topic to be investigated:** In your own words say what the investigation is and what you will do. **Research:** Any reference to book (give book, author and publisher, eg leaving cert biology book)/ internet (web - give website www.-----.--) / person consulted (I asked the biology teacher Miss #, I talked to a food scientist Mr. ##) etc / evidence of research	(2) (3)

Preparation and planning	**20**	**Variables / Controls:**
		Identify ***six*** variables, any **three essential** variables and any **three other variables**, and/or indicate how some of these need to be controlled or held fixed.
		Essential Variables:
		Types of fruit juices // amount of vitamin C (measured by the number of drops of iodine added) //
		Other Variables:
		same amount of juice // same temperature // amount of starch solution added // freshness of juices (all bought juices were within the expirer date) // contact with air (all were freshly opened). All homemade juices made the same way //
		
		Equipment needed: Identify any ***five*** pieces of equipment used: Named Juices // test tubes // beaker // kettle // starch powder // graduated cylinder // thermometer // labels // droppers // any valid piece of equipment pertinent to procedure (except safety equipment)
		List of tasks: Identify any ***four*** tasks carried out in investigation: Procure juices // get iodine and starch//make up starch solution// store juices at same temperature // set up apparatus// carry out experiment // record data // draw chart
			(3 × 2)
			
			(1 + 1+ 2)
			
			(5 × 1)
			
			(1 + 1 +1 + 2)

Procedure	**20**	**Safety:** Identify any ***two*** **specific** safety precautions followed in conducting the investigation wear goggles (in case iodine gets in eyes)// wear gloves // keep juices away from the edge to avoid spills that might cause people to slip **Procedure: State *or* Show** Identify any ***five*** steps taken in conducting investigation: Select (obtain and make) juices // measure out 25 ml in a test tube // add 5 ml of starch solution to each sample // add iodine drop by drop until the colour changes to black blue // count the number of iodine drops added to each sample //record data // repeat to verify data // estimate the relative concentration of the vitamin c in each sample// present data (graph) **Recorded Data / Observations:** [Table presentation likely] Identify any two points related to method used: eg table of orange juice type verses number of drops of iodine used //	(2 + 3) (1 + 1 + 2 + 3 + 3) (2 + 3)
Analysis & Conclusions	**20**	**Calculations / Data analysis:** ***One*** relevant comment analysing data (form the results the juice with the most vitamin C is ## ***or*** calculation ***or*** graph Limited manipulation of data Good manipulation of data Excellent manipulation of data (comment on which was second best, third best and which had the least vitamin C) **Conclusion:** ***One*** relevant conclusion drawn **and** evaluation of results obtained Limited treatment Good treatment Excellent treatment. (Eg different juices have different amounts of Vitamin C, and we concluded that ## juice is the best overall, we also noticed that different brands of the same juice have different amounts of vitamin C - give examples). **Make sure to compare the bought juice with the one you made yourself. [Even if you don't make any juice refer to some of them as freshly made juices]**	(4) (7) (10) (4) (7) (10)

Comment	**10**	***Two*** comments on **refinement / extension / source of error** reliability of data / how process could be improved / sources of error /possible reason for unexpected result /possible extension of the investigation Limited comprehension Good comprehension Excellent comprehension Some comment - we would like to investigate if the length a juice is open affects the vitamin C concentration or if the temperature it is stored at has an effect etc. etc.) Sources of error might be the different storage methods of the juices in the different shops // each juice had a different best before date, this could effect the result// We could improve the experiment by repeating it // we could test the juices at different dates after opening.	(2 × 1) (2 × 3) (2 × 5)

CHEMISTRY – Marking Criteria for Coursework B

		Guide to mark assignment	
SECTION	**Total Mark**	**Compare by means of investigation methanol, propan-1-ol and candle wax in terms of their effectiveness as fuels.**	**H.L.**
Introduction	**5**	**Statement / identification of problem / topic to be investigated:** In your own words say what the investigation is and what you will do. **Research:** (give book, author and publisher, eg leaving cert chemistry book)/ internet (web - give website www.-----.--) / person consulted (I asked the Chemistry teacher Miss #, I talked to a chemist Mr. ##) etc	(2) (3)
Preparation and planning	**20**	**Variables / Controls:** **Identify six variables, any three essential variables and any three other variables, and/or indicate how some of these need to be controlled or held fixed.** **Essential Variables:** **The fuel used // the time taken to heat our sample // the mass of fuel used.** **Depending on variable student changes, essential variables can become other variables** **Other Variables:** **Same volume of water heated // same type of container //** **same starting temperature of water // same stirring (shaking) rate // same method of measurement of temperature and mass // same air temperature for each experiment (to make loss of heat to surroundings equal in each experiment)** **Equipment needed: Identify any five pieces of equipment used:** **alcohol burner // test tube // stand // thermometer // balance // beaker // any valid piece of equipment pertinent to procedure (except safety equipment)** **List of tasks: Identify any four tasks carried out in investigation:** **Procure the different fuels // measure volume // measure the mass of fuels before // measure the mass of fuels afterwards // set the rise in temperature we will time // measure the temperature // record data // reference to calculations, eg calculate the mass of the fuels used by subtraction before and after values.** **NOTE you could also burn each fuel for exactly the same time and see the temperature rise it causes and the mass used (this might be best to keep the effects of heat loss to a minimum and equal between the three fuels.**	(3 × 2) (1 + 1+ 2) (5 × 1) (1 + 1 +1 + 2)
Procedure	**20**	**Safety:** Identify any ***two*** **specific** safety precautions followed in conducting the investigation Ware safety glasses // ware lab coats // avoid spills of the flammable alcohol // wash off alcohol spills // wear gloves as the alcohol is positions. **Procedure: <u>State *or*</u> <u>Show</u>** Identify any ***six*** steps taken in conducting these investigations, get fuel // place fuel in container // measure mass of fuel and container // measure initial temperature of our water sample // light the fuel // start the timer // note the temperature // stop the timer when temperature reaches the required temperature //	(2 + 3)
Analysis & Conclusions	**20**	**Calculations / Data analysis:** ***One*** relevant comment analysing data ***or*** calculation ***or*** graph Limited manipulation of data Good manipulation of data Excellent manipulation of data E.g. draw bar chart of the two tables , comment on which fuel is quickest // comment on which fuel had the least mass used to heat the water. **Conclusion:** ***One*** relevant conclusion drawn **and** evaluation of results obtained Limited treatment Good treatment Excellent treatment We can see from the data (or chart) that fuel ## was the fastest to heat the water and fuel ## used the least amount to cause the rise in temperature // we can conclude that fuel ## is the most effective in terms of the mass used and fuel ## would be the most efficient in terms of speed.	(4) (7) (10) (4) (7) (10)

Comment	**10**	***Two*** comments on **refinement / extension / source of error** reliability of data / how process could be improved / sources of error /possible reason for unexpected result /possible extension of the investigation Limited comprehension Good comprehension Excellent comprehension Our data could be improved if all fuels could be burnt in the same way // the data for the two alcohols is more reliable as they were burnt in exactly the same way.// the wax is less reliable as the wick was much smaller and burnt more slowly leading to poor heat transfer // we would like to repeat with a liquid wax if possible // main sources of error include heat loss to air // weight errors due to burning of wick // weight errors due to wax dripping from candle // improve experiment by putting candle in container to trap any lost wax and take weight of container and candle before and after.	(2 × 1) (2 × 3) (2 × 5)

PHYSICS – Marking Criteria for Coursework B

		Guide to mark assignment	
SECTION	**Total Mark**	**Investigate any two factors that affect the output from a solar cell when light is shone on it.**	**H.L.**
Introduction	**5**	**Statement / identification of problem / topic to be investigated:** In your own words say what the investigation is and what you will do. **Research:** (give book, author and publisher, eg leaving cert physics book)/ internet (web - give website www.-----.--) / person consulted (I asked the physics teacher Mr #, I talked to an electrician Mr. ##) etc	(2) (3)

Preparation and planning	**20**	**Variables / Controls:**
		Identify ***six*** variables, any **three essential** variables and any **three other variables**, and/or indicate how some of these need to be controlled or held fixed.
		Essential Variables:
		voltage output from solar cell // intensity of light (or distance from light) //
		or / and for factor 2
		voltage output // angle of solar cell
		or / and for factor 2
		voltage output // area of solar cell
		(any two of above or others you want to try - note you could measure speed of a connected motor instead of voltage)
		Other Variables:
		temperature of surroundings // source of light // device used to measure the voltage // area of solar panel // distance from light // intensity of light // angle of solar panel to light. (I will keep these variables the same throughout the experiments except where it is part of one of the two factors I am testing.
		Equipment needed: Identify any ***five*** pieces of equipment used: solar panel // voltmeter // meter stick // protractor // light meter // lamp // stand any valid piece of equipment pertinent to procedure (except safety equipment)
		List of tasks: Identify any ***four*** tasks carried out in investigation: Procure solar panel// connect up circuit with voltmeter// set up equipment // set (vary) factor 1 // set (vary) factor 2 //
		// measure voltage //
		// record data // reference to calculations (calculated distance lamp moved or area of panel)
			(3 × 2)
			(1 + 1+ 2)
			(5 × 1)
			(1 + 1 +1 + 2)

Procedure	**20**	**Safety:** Identify any ***two*** **specific** safety precautions followed in conducting the investigation
		keep equipment away from edges so it cannot fall on someone // avoid contact with wires in case of electric shock // wear goggles in case bulb bursts. // keep clear of bulb to avoid burns.
		Procedure: State *or* Show
		Identify any ***five*** steps taken in conducting investigation:
		connect up circuit (draw diagram) // set multimeter // turn on lamp // measure distance to lamp (or measure intensity)//measure voltage produced // move lamp back // repeat measure of distance to lamp (or measure intensity) // measure voltage again //record results // repeat procedure a number of times.
		FOR FACTOR 2
		connect up circuit and apparatus (draw diagram) // set multimeter // turn on lamp // measure angle of solar panel tilt //measure voltage produced // change angle of solar panel // repeat measure of tilt of solar cell // measure voltage again //record results // repeat procedure a number of times.
		Or FOR FACTOR 2
		connect up circuit and apparatus (draw diagram) // set multimeter // turn on lamp // area of solar panel (or length of solar cell) //measure voltage produced // change area of solar panel by covering part of it // repeat measure of area of solar cell (or length of uncovered part) // measure voltage again //record results // repeat procedure a number of times.
		[NOTE you can measure the length of the uncovered piece of the panel as this is proportional to the area - provided we cover the full width - if you do this you must say that the LENGTH IS PRPPORTIONAL TO THE AREA]
		
		Recorded Data / Observations: [Table presentation likely] Identify any two points related to method used:
		Factor 1 *versus* voltage
		Factor 2 *versus* voltage
		Draw Graphs of the two factors you choose. Put voltage on the Y axis and the other factor on the X axis in each case.
			(2 + 3)
			
			(1 + 1 + 2 + 3 + 3)
			
			(2 + 3)

Analysis & Conclusions	**20**	**Calculations / Data analysis:** ***One*** relevant comment analysing data ***or*** calculation ***or*** graph Limited manipulation of data Good manipulation of data Excellent manipulation of data From the data we can see that the output depends inversely (or whatever you determine) with the distance, i.e. the further away the lamp is moved the less is the voltage output from the solar cell. Factor 2 We also see that the output increases with increased area of the solar panel or Factor 2 We also see that the output decreases as the angle between the solar cell and the light source increases. **Conclusion:** ***One*** relevant conclusion drawn **and** evaluation of results obtained Limited treatment Good treatment Excellent treatment The output from a solar cell is effected by the intensity of the light, the area of the solar cell [or} the angle of the cell to the light. The output increases with area, intensity of light [or] the smaller the angle between the panel and the light source.	(4) (7) (10) (4) (7) (10)
Comment	**10**	***Two*** comments on **refinement / extension / source of error** reliability of Sources of error include light from other sources that were outside our control // we would also like to see if temperature has any effect on the output of the solar panel or if the colour of the light has an effect // we would like to refine the experiment by using a more accurate light meter.	(2 × 1) (2 × 3) (2 × 5)