Student Name: _____

Semester: _____

TIJ1O - Exploring Technologies

Unit_03: Circuit Layout and Design Electronic Game Board

Teacher: Mr.Snyder

Unit Objective: Students are introduced to Photoshop to produce an electronic game board. 6 questions and answers will be included on the game board. The board will include 6 switches and LED lights which will allow players to test their environmental knowledge. Students will demonstrate and apply their knowledge of basic Photoshop skills, such as; layout, image manipulation, use of shapes and text, colour and font choices.

Electronic Game Board - Circuit Design and Layout	***Level R***	***Level 1***	***Level 2***	***Level 3***	***Level 4- 4++***	***Level***
Evidence of Planning (Thinking)						
• Sketch is neat and easily followed • Use of ruler and pencil to draw circuit paths	0 -1 circuits work	Sketch needs to be much neater in order to follow the circuits **Ruler not used**	Ruler was used but circuits lines are not square and parallel **Somewhat difficult to follow circuit paths**	Ruler was used and circuits lines are square and parallel **Circuits paths easy to follow**	Ruler was used and circuits lines are square and parallel **Circuit sketch extremely neat and is accurate reflection of final design**	
Circuit Design (Knowledge)				**Somewhat difficult to follow circuit paths**		
• All 6 circuits work	0 -1 circuits work	2 circuits work as expected	3-4 circuits work as expected	5 circuits work as expected	6 circuits work as expected	
Circuits are Applied Effectively (Application)						
• Wiring is neatly completed on the game board backing • Wires are easy to follow - travel horizontally and vertically only	Not completed or does not meet most requirements	Wiring needs significant changes **Many wires do not accurately reflect the sketched wire paths** Wiring does not present the horizontal and vertical paths for effective presentation	Some of the wiring is completed along the planned sketch **A significant number of wires leave the sketched path and corners are a rounded which gives a less precise look to the overall wiring** Wiring overall needs refinement	Most wiring is completed along the planned sketch - some modifications as required **Wiring is neat along the lines but corners are somewhat rounded** Overall look of the circuits wiring is easy to follow	All wiring is completed along the planned - minor modifications as required **Wiring travels in tight horizontal and vertical lines** Has abolished looked to the circuit layout and wiring	
Rat Tail Joints (Application)						
• Joints are properly stripped and twisted to create a proper connection - joints are neat • Wire and insulation sheathing are properly separated/spaced in the joint	Not completed or does not meet most requirements	Rat tail joints are not consistent in their lengths and tightness of twisting **Joints need to be re-one to prevent electrical malfunctions or to prevent wires from separating**	Rat tail joints are inconsistent length and/or are not twisted neatly **Many joints are likely to make a weak electrical connection or physical connection** Twists are inconsistent needs to be neater **Many lengths of sheathing need to be lengthened or shortened** Several of the joints have insulation intertwined with the bare wires	Most rat tail joints are correct length and make an effective physical and electrical connection **Joints are tightly and neatly twisted** Some lengths of insulating sheathing could have be lengthened or shortened to prevent electrical malfunctions	Almost all rat tail joints are correct length and make an effective physical and electrical connection **Joints are tightly and neatly twisted** Insulation sheathing is cut to appropriate lengths and is not likely to affect the electrical integrity of the joints	
Soldering (Application)						
• Solder is applied properly resulting in a solid physical and electronic connection between wires • Proper amount of solder applied to the rat tail joints	Not completed or does not meet most requirements	Many of the joints not soldered **Soldering is not effectively completed - blobs of solder, burns on foamcore or boring of insulating sheathing** Joints should be cut off and re-soldered for connection integrity	Many of the solder joints have too much solder (blobs) **Evidence of overheating on several joints on the insulating sheathing**	Most soldered joints demonstrate the correct amount of solder applies - very few blobs or open spaces between twisted wires **Little evidence of overheating on joints or on the insulating sheathing**	All soldered joints demonstrate the correct amount of solder applies - no blobs or open spaces between twisted wires **Virtually no evidence of overheating on joints or on the insulating sheathing**	

Comments: