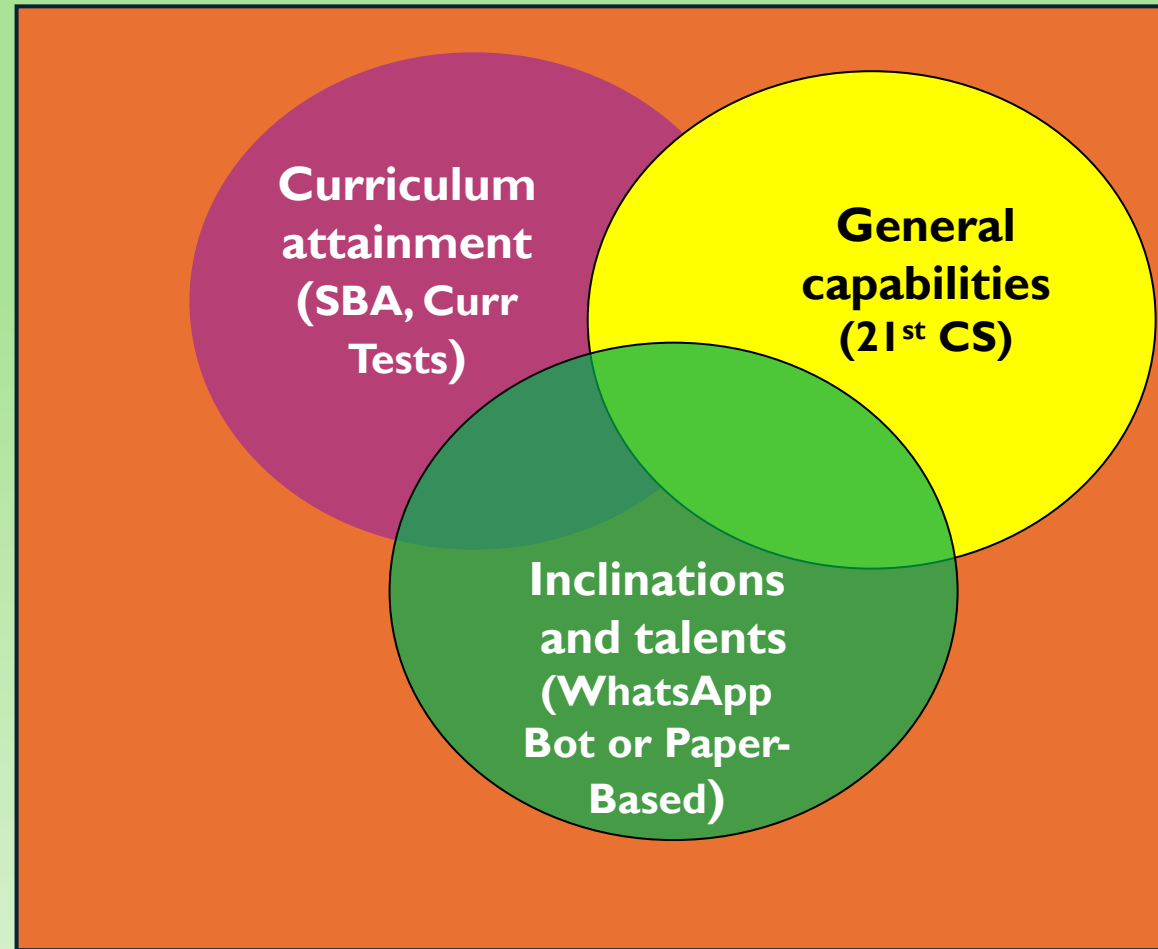


GENERAL EDUCATION CERTIFICATE Assessment

Framework of Integrated Projects & 21st Century Skills





The **roots**, labelled **self-awareness, reflection, and learning strategies**.

The **trunk of the tree represents metacognition**. Metacognition connects the roots to everything above. It refers to learners thinking about their own thinking—planning how to learn, monitoring understanding, and evaluating outcomes. This is what allows learners to apply their learning across subjects and real-life situations.

The **branches of the tree represent the four key 21st Century Skills**:

Creativity, which encourages innovation and original thinking

Critical Thinking, which develops reasoning, analysis, and judgement

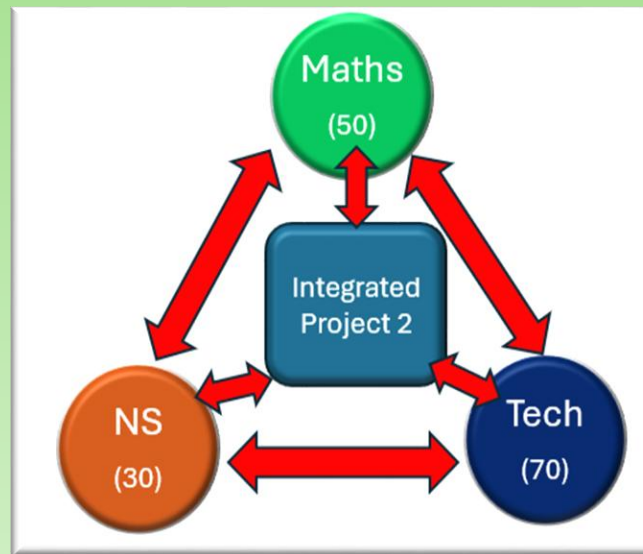
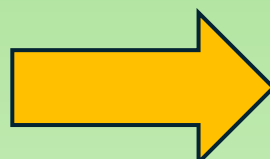
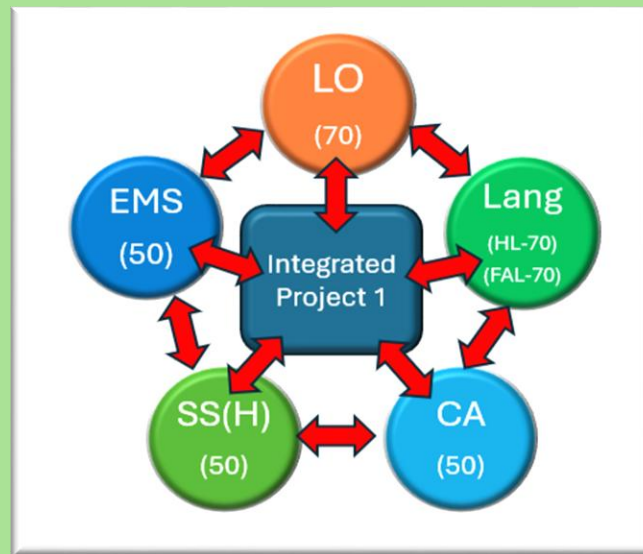
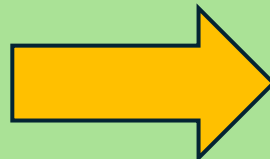
Communication, which enables learners to express ideas clearly and effectively

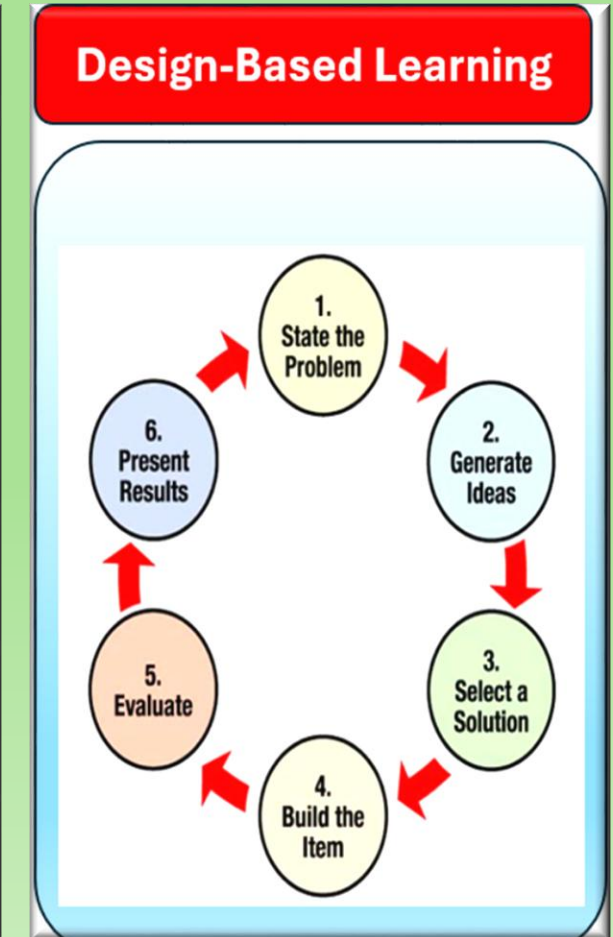
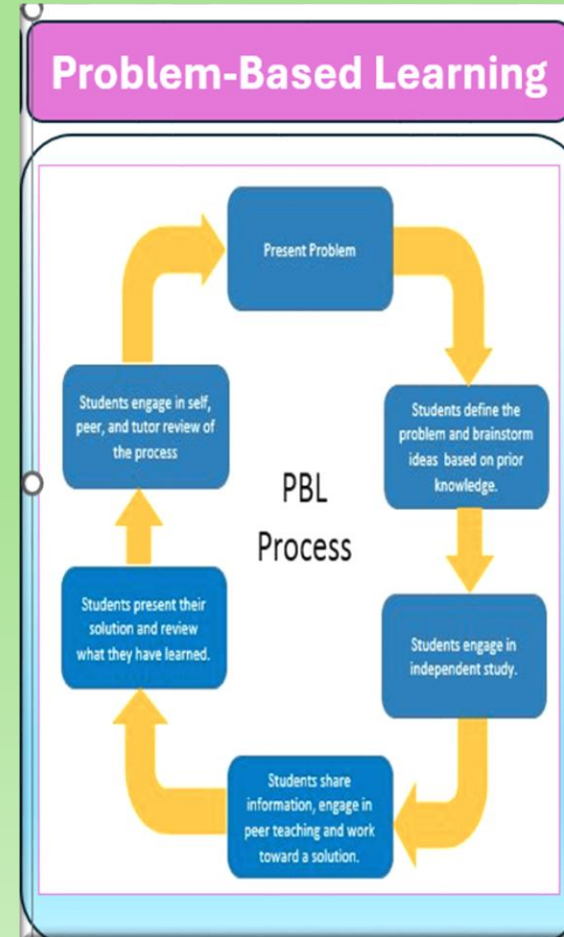
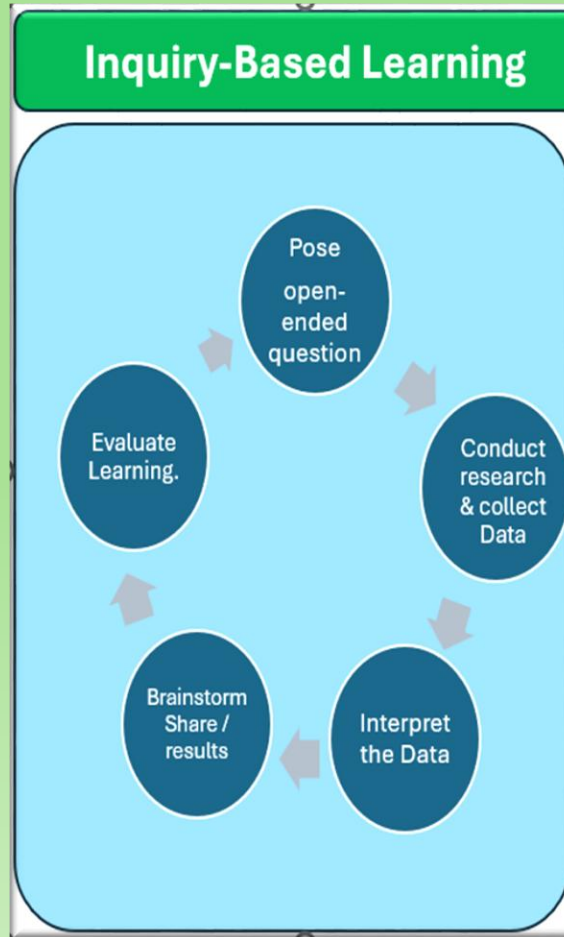
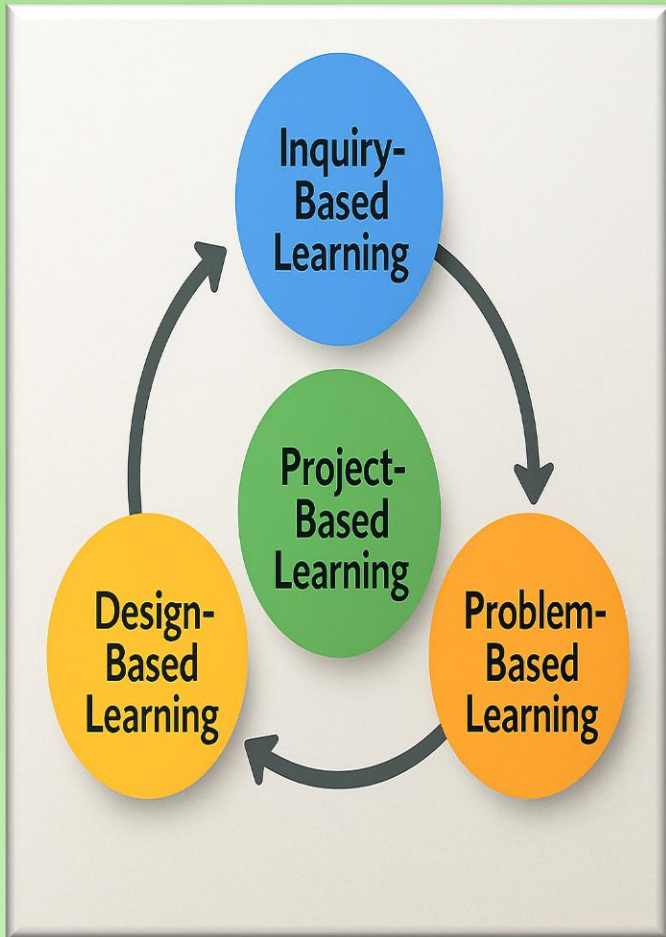
Collaboration, which supports teamwork, shared responsibility, and leadership

Each branch grows outward, showing that these skills develop in different ways, but all are supported by the same strong trunk and roots.

The **leaves of the tree represent visible learning outcomes**, such as projects, presentations, discussions, and problem-solving tasks.

The key message of this slide is that **21st Century Skills are developed through intentional teaching**, not taught in isolation. They grow through approaches such as **Integrated Projects, inquiry-based learning, problem-based learning, and design-based learning**, all of which strengthen metacognition and deep learning.

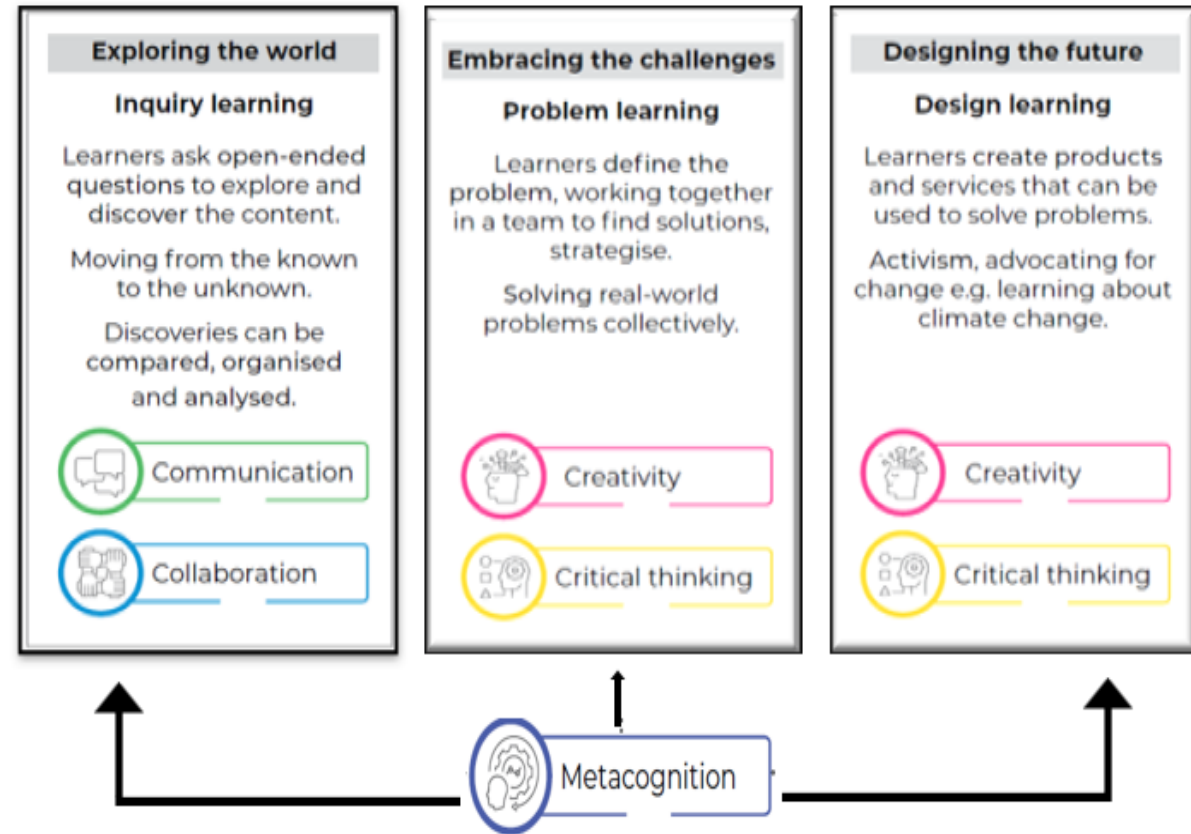




Unpacking the 21st Century Skills

The GEC Grade 9 Integrated Projects are grounded in Project-Based Learning (PBL)

PBL is a Learner-centred instructional approach, designed to give learners, the opportunity to develop knowledge and skills through the medium of engaging projects, set around problems and challenges they face in the real world.



During the process of reflection (metacognition), feedback (communication) and iteration (critical thinking) are used to improve the project.

Subject	Skills Assessed
Home Language	Critical Thinking, Creativity, Communication
First Additional Language	Communication, Collaboration, Creativity
Life Orientation	All FIVE 21 st Century Skills
Technology	Critical Thinking, Collaboration, Meta-cognition
Mathematics	Creativity, Communication, Meta-cognition
Natural Sciences	Critical Thinking, Creativity, Collaboration
Economic Management Sciences	All FIVE 21 st Century Skills
Creative Arts	Critical Thinking, Creativity, Meta-cognition
Social Sciences (History)	Critical Thinking, Communication, Metacognition

Score	Behaviour
0	Never: The behaviour was not seen
1	Rarely: The behaviour occurs but not often
2	Sometimes: The behaviour occurs about half of the time.
3	Often: The behaviour occurs most of the time.
4	Always: The behaviour is consistent and regular.

13 Steps of the Integrated Projects

INQUIRY BASED LEARNING

- Step 1 – Prior Knowledge –reflects and shares own knowledge
- Step 2 – New Knowledge – extension of prior knowledge.
- Step 3 – Order – organise and categorise existing knowledge
- Step 4 – Apply – applies knowledge to context

PROBLEM BASED LEARNING

- Step 5 – Define –push for clarity on questions
- Step 6 – Explore – considers different point of view for understanding
- Step 7 – Brainstorm – consider many solutions to the problem
- Step 8 – Present – present different points of view to an audience.

DESIGN BASED LEARNING

- Step 9 – Evaluate – Look at best solution to the problem
- Step 10 – Prototype – Build/make a prototype based on the design
- Step 11 – Feedback – Get expert advice on possible improvements.
- Step 12 – Integration – To iterate learning in a fun way (MADD)
- Step 13 – Exhibit – Present and celebrate the product.



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STEP 3: Order

Order and categorise your existing knowledge

Purpose of this step: To order and make sense of information and knowledge that emerged in *Knowledge* and *New knowledge* steps.



21st century skills to look out for

In this step, learners order and make sense of information and knowledge that emerged in the previous two steps.

In this step, you may have the opportunity to observe elements of **Critical Thinking**. Critical thinkers ask questions, find the right information, and apply it to solve a problem. Some of the sub-skills that make up critical thinking include **1.1 Asking questions**, **1.2 Evaluating ideas/information**, **1.3 Identifying patterns**.

3.1 (+NS) Learners use **Worksheet 4** to formulate an investigative question for the project. They write down an initial research question and then try to improve on it.



Learners Workbook

Worksheet 4 - NS - FORMAL



Formulate an investigative question for your project. Research questions can help to direct your research and make you think deeper about ordinary problems. An example of a research question is provided in line with scenario's.

EXAMPLE	Formulate your own investigative question
What is the effect of increasing the number of cells in series on the brightness of the light when the buzzer sounds. (inclusive example)	
	Example of research question 1
	Example of research question 2



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Assessment rubrics

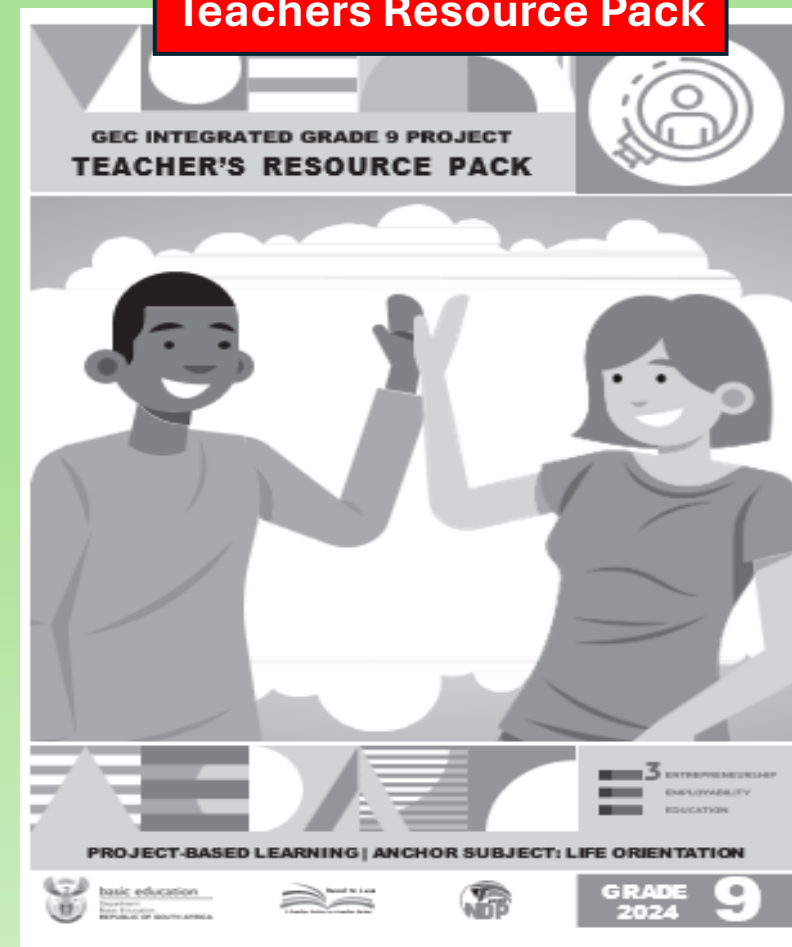


GRADE 9 INTEGRATED PROJECT – NATURAL SCIENCES RUBRIC

30 MARKS

Worksheet marks				
Worksheet 4: Assess the research question developed by learner				/ 5
Worksheet 5: number 5.4: Draw final circuit diagram (Design 2, Labeling 3)				/ 5
Subtotal Worksheets				/ 10
Circuit construction and Build (Worksheet 9 & 10)				
Item	Excellent 5	Good 4	Adequate 3	Poor 1-2
Identify dependent and independent variables.	Precisely, clearly describes all relevant variables. Identifies which variable is the independent and dependent variable.	Clearly describes all relevant variables. Identifies which variable is the independent and dependent variable.	Attempts to describe variables. Attempts to identify which variable is the independent and dependent variable.	Unsuccessful attempt to describe variables and cannot identify which variable is the independent and which is dependent.
Model of circuit construction	Excellent understanding of circuit construction. Innovative use of found materials to create mock components.	Good understanding of circuit construction. Good use of found materials to create mock components.	Adequate understanding of circuit construction. Could be more creative in the use of found materials to create mock components.	Limited understanding of circuit construction. Unsuccessful use of found materials to create mock components.
Output voltage vs input voltage – Graphical representation.	Neatly laid out. Axes clearly labelled. All points plotted correctly as well as linked.	Everything neatly plotted according to calculations, with small errors for example not giving a heading, or could have been neater.	In general, neatly done but due to some calculations errors, the graph is not a true presentation.	Untidy work, wrong calculations, missing the relationship between input voltage and output voltage completely.
Drawing conclusion on the relationship of variables	Hypothesis evaluated and correct relationship between variables stated, including control variables.	Hypothesis evaluated and correct relationship between variables stated,	Correct relationship between variables stated, but hypothesis not evaluated	Meaningful relationship between variables stated but incorrect (2) No valid relationship stated but mentions one variable (1)
Subtotal circuit construction and build				/ 20
FINAL MARK				/ 30

Teachers Resource Pack

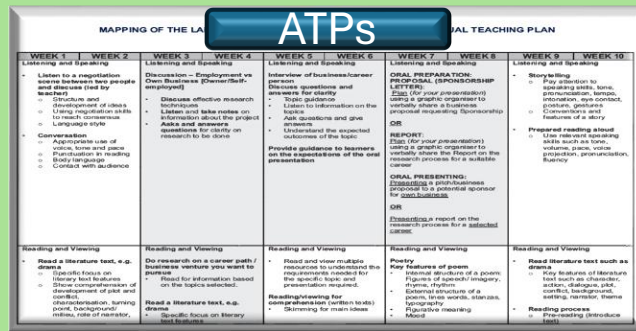


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Management of the GEC at School level



S	M	T	W	T	F	S
March 20	21	22 Choose Topic	23 Preliminary research	24 Write research questions and working thesis	25 Write research proposal	26
27	28 Research proposal due	29 Look for sources online	30 Library	31 Evaluate sources; make source cards	April 1 Take notes →	2
→ 3	4	5 Finish note cards	6 Organize notes	7	8 Write outline →	9
10	11 Outline due	12 Write draft	13	14	15 <i>Draft - Trip Co NYC</i>	16 <i>Draft - Trip Co NYC</i>
17	18 Conference with Prof. Habib 2:00	19 Finish writing draft	20	21 Revise draft	22 →	23 Library?
24	25	26 Finish revising draft	27 Edit draft	28 Writing Center 4:30	29 Finish editing draft	30 Create Works Cited page
May 1	2 Final draft due	3	4	5	6	7



“The Five Skills Beat” ...

by @ivasen



[Intro]

! [vocal ad-libs]

of areas, let them flow

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**THANK
YOU**



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