Alternative Energy Timeline

Week 1	min
Discussion	15
polution/warming	
scarcity/expense	
Concepts	30
generators	
photovoltaics	
bioelectrogenesis	
Skills	
voltage	
measurement	
Activity	45
example stations	
deliverable	
station write-up	15
Discussion	15
design criteria	
evaluation criteria	
Construction	90
kit prototypes	

Week 2	min
Concepts	15
Power	
Ohm's Law	
Skills	
current measurement	
Activity	
series & parallel stations	15
Construction	90
kit	
prototypes/optimization	
Skills	10
LabQuest recording	
Construction	75
kit	
prototypes/optimization	
Deliverable	
power recording	10
alpha prototype write-up	15
Beta proposal & parts list	30

Week 3	min
Discussions	
Individual groups	10
Construction	190
beta prototypes	
Deliverable	
revised parts list	15
Week 4+	
Testing and Revision	
beta prototypes	180
Deliverable	
power recording	20
group presentations	90
individual write-ups	120
black: in-class	
blue: out-of-class	
red: optional	

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Alpha Phase

Activity	Approximate Class Time (hrs)	Standard Addressed
Alpha build: students develop 2-4 focusing questions, then build small/basic model and experiment with a few parameters to inform beta design and optimization.	6	Analysis, Design, Evaluation

Beta Phase

Activity	Approximate Class Time (hrs)	Standard Addressed
Beta Design: Students lay out their plans for a scaled-up system. They report on performance and "lessons learned" from alpha.	0 (assignment)	Analysis, Design, Evaluation
Beta Build/Test: Students construct scaled-up beta system; optimization continues; energy production measurements	8	Analysis, Design, Evaluation
Final Presentations: students present results, further scale-up calculations, and environmental impact assessment.	2	Analysis, Design, Evaluation, Modelling
Final Report: students assess performance and efficiency; report on CO_2 savings; assess issues of scale-up	0 (individual assignment)	Analysis, Design, Evaluation, Modelling