

UNIT		# Days (Cycles)	Topics Covered Include:	Major Assignments
1	Introduction to Scientific Research	8 (1-2)	Scientific Method, Types of Research, Scientific Communications, Peer Review, Funding	Student Presentations: Interviewing a Researcher
2	Literature Search	8 (3-4)	Sources & Types of Scientific Literature, Reading Articles, Exploring Lines of Research	Student Presentations: Annotating Scientific Articles
3	Laboratory Communication	4 (5)	Concept Mapping Lines of Research, Collecting Resources, Emailing Professors / Scientists	
4	Literature Review	8 (6-7)	Components of a Successful Literature Review, Mechanics of Writing a Literature Review	Written Literature Review (Topic Assigned)
5	Formulating Hypotheses	8 (8-9)	Using a Lab Notebook, Scientific Questioning, Hypothesis Building, Statistical Considerations	
6	Practicing Lab Skills	4 (10)	Using Equipment, Practicing Procedures, Connecting Lab Skills to Summer Research	Student Presentations: Sharing New Lab Skills & Tips
7	Experimental Design	8 (11-12)	Sample size, Replication & Randomness, Control & Experimental Groups, Data Collection	Written Preliminary Proposal (Experiment to be run in class)
8	Conducting an Experiment	8 (13-14)	Running an Experiment, Documentation with Lab Notebook and Photos, Collection of Data	
9	Data Analysis	8 (15-16)	What Results Mean, Graphing Skills, Statistical Significance and Tests	Student Presentations: Data & Statistical Analysis
10	Making Conclusions	8 (17-18)	Connection of Results with Hypothesis, Refining Design, Communicating Outcomes	
11	Scientific Communication	8 (19-20)	Various Types of Scientific Communications, Creating a Scientific Poster for Exhibition	Student Exhibition: Poster on Experiments
12	Final Lab Preparations	12 (21-23)	Preparing for Lab Work, Comprehensive Literature Review for Summer Research	Written Literature Review (Summer Research)