Plasmid DNA Digestions

Grade Level: **11 & 12 Summer Intern**

Subject: **Biotechnology / Molecular Biology/ Techniques**

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Overview & Purpose	**Education Standards Addressed**
Instruction to properly setup and analyze DNA restriction digestion.	

	Teacher Guide	**Student Guide**	
Objectives (Specify skills/information that will be learned.)	Setup a plasmid DNA restriction digest along with hypothetical outcome.	Define conditions for a digestion and record experiment in lab book.	**Materials Needed** • Plasmid • Enzymes • Heating blocks • DNA electrophoresis • SOPs
Information (Give and/or demonstrate necessary information)	Define plasmid and restriction fragment size in base pairs (bp). Developing control digestions. Setting up double digestions.	Predict outcome for a single and double enzyme digestion for specific plasmid.	
Verification (Steps to check for student understanding)	Review lab book hypothesis for specified digestions. Confirm with actual results.	Perform DNA digestion and examine results on agarose gel.	**Other Resources** (e.g. Web, books, etc.) Short Protocols in Molecular Biology www.neb.com
Activity (Describe the independent activity to reinforce this lesson)	Develop protocol to move target gene into a new expression vector.	List digestions required to implement development protocol.	
Summary	Basic bread & butter molecular biology. Simple DNA manipulations.	Skills to define experiment including controls. Ability to implement experiment and analyze results.	**Additional Notes**