Worksheet 5-5— Lesson Plan Format

(adapted with permission)

Subject: Genetics	Teacher: Richards
Lesson Name: F1 Fruit Fly Cross	Location: Filer High School
Class: 10th grade biology	Unit Context: Heredity
Date: 3/24 to 4/12	

Activities	Big6™ Skills	Idaho Science Standards
Students will conduct a F1 cross (red eye X white eye, sepia X wild). Using their knowledge of medelian genetics and sex linked traits, they will predict the genotypic and phenotypic ratios of fruit fly and fast plant dihybrid and monohybrid crosses. They will write a formal lab report including background information, discussing procedures and analyzing results.	**Synthesis** Organize and present a power point from multiple sources. Organize data to write up a lab report. **Use of Information** Extract relevant information from research sources to form a hypothesis and lab procedure for a genetic cross. **Evaluation** Rubric to evaluate lab write up.	Students will use scientific inquiry to develop critical thinking skills Students will demonstrate an understanding of constancy, change and measurement of change as it pertains to genetic crosses. (Goal 1.3)

Learning Context: 10th grade biology lab, Genetics

Materials/Resources:F1 fruit fly crosses (P1 = sepia X wild, P1 = White Eye female X Wild Eye male) Fruit fly growth media with containers, Fly Nap, bushes and magnifying glasses or dissecting scopes.

Evaluation: Rubric Lab Report Evaluation

Notes:

Worksheet 5-5— Lesson Plan Format

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Subject: Probability	Teacher: Richards
Lesson Name: Games of Chance	Location: Filer High School
Class: 10th grade biology	Unit Context: Heredity
Date: 3/12/09	

Activities	Big6™ Skills	Idaho Science Standards
Use mathematical law governing probability to predict results of gambling games. (The mathematical probability of independent events occurring is the product of their individual probabilities.)	**Use of Information (Teacher)** Extract relevant information from research sources to predict the probability of specific games of chance. **Synthesis** Organize and complete a data chart including mathematical evidence of each prediction of each game of chance. **Evaluation** Students will use learned and applied knowledge to predict the results of a new game of chance.	Students will understand the concepts of genetics by using the process of evidence, models and explanations. (Goal 1.1) Students will demonstrate an understanding of constancy, change and measurement of change. (Goal 1.3) Students will use scientific inquiry to develop critical thinking skills

Learning Context: Introduction to genetics unit and link to Mendel's laws.

Materials/Resources: paper clips and chips to bet with, data table of games of chance, pennies, dice, colored candy draw, several large bags of M&M's to exchange for paper clips as a reward for those students that are lucky at the end of the games of chance.

Evaluation: A new game of chance will be introduced to the students and each student will use mathematical skills to determine the correct probability.

Worksheet 5-5— Lesson Plan Format

(adapted with permission)

Subject: Population Genetics	Teacher: Richards
Lesson Name: Can you twist your tongue?	Location: Filer High School
Class: 10th grade biology	Unit Context: Heredity
Date: 3/26/09	

Activities	Big6™ Skills	Idaho Science Standards
Students will use the Internet to determine the statistics of occurrence of several genetic disorders in the U.S. population (cystic fibrosis, sickle cell anemia, etc.). They will then use Hardy-Weinberg's Equation for population genetics to determine the number of carriers in our high school population for five single gene traits (widow's peak, hitch hikers thumb, tongue twist, PTC taster, mid-digit hair)	**Information Seeking Strategies (LMS)** Using LiLI database and library resources, students will research to determine the U.S. Population statistics for five given human genetic disorders. **Location & Access (LMS, Teacher)** computer lab, library **Use of Information (Teacher)** Extract relevant information to complete a data sheet on each genetic disorder. Extract relevant information from the Internet involving Hardy-Weinberg population genetics. **Synthesis** Conduct a survey of the high school population to determine the frequency of specific alleles controlling 5 single gene traits **Evaluation** Students, using the data from their research on the 5 given U.S. population disorders, will use Hardy-Weinberg's equation to determine the total number of carriers in the population for each trait.	Students will understand the concepts of genetics by using the process of evidence, models and explanations. (Goal 1.1)

Learning Context:
10th grade biology, high school population

Materials/Resources:
Library, computer lab, LiLI database

Evaluation:
Students will determine the percent of carriers in the US population for each of the 5 genetic disorders.

Worksheet 5-5— Lesson Plan Format
(adapted with permission)

Subject: Heredity	Teacher:E. Richards
Lesson Name: Human Disorder Ppt.	Location: Filer High School
Class: Biology	Unit Context: Genetics
Date: 3-10-09	

Activities	Big6™ Skills	Idaho Science Standards
Students will research a specific human disorder using three different sources to produce a 5 slide power point. Slide 1 - Introduction including the name of the disorder and brief description of characteristics. Slide 2 – Describe the specific cause of the genetic disorder or the specific location of the disorder of a chromosome. Slide 3 – Include pictures of individuals with the disorder Slide 4 – Include charts or graphs of the percentage of these disorders in the U.S. or world population. Slide 5 – Include the life expectancy, life alterations, special treatments or accommodations for productive life.	**Task definition (Teacher)** Students will develop and present a 5 to 7 slide power point on human genetic disorders. **Information Seeking Strategies (LMS)** Using LiLI database and library resources, students will research to develop a power point on human genetic disorders. **Location & Access (LMS, Teacher)** computer lab, library and lab stations **Use of Information (Teacher)** Extract relevant information to create a power point. **Synthesis** Organize and present a power point from multiple sources. **Evaluation** Use a rubric to evaluate peer power point presentations.	Students will understand the concepts of genetics by using the process of evidence, models and explanations. (Goal 1.1)

Learning Context:

Materials/Resources: Computer Lab, Internet, LiLI database, Librarian assistance

Evaluation:
Student will peer evaluate using a power point rubric. Teacher will also evaluate using the same rubric.

Notes:

Works Cited

Miller, Kenneth R., and Joseph Levine. Biology. Upper Saddle River, New Jersey: Prentice Hall, 2006.