

Portfolio

PBL Unit “Nanogenetics: The Battle Against Genetic Disease”

Stage 1: Nanotechnology (5 objectives).....due Friday of Week 1

Stage 2: DNA (3 objectives).....due Friday of Week 2

Stage 3: Heredity (3 objectives).....due Friday of Week 3

Final revisions of Portfolio (11 total objectives).....due Friday of Week 4

Instructions: You must complete each “Stage” of information before you can move onto the next Stage. Completion of the Stage is defined by mastery of the objectives. Each stage has objectives that can be completed by student’s choice. These objectives look like questions, however completion of the objective could look like:

- short answer
- labeled model or picture
- comic
- infographic

Each objective should make reference to an activity we completed in class for full credit. This portfolio allows for the student to gain individual accountability during the Problem Based Learning Unit.

Completion of the objectives in the Stages are due once a week and should be completed on your own time. There will be little to no classroom time available for working on these.

Rubric graded per objective

	5-4pts	3-2pts	1-0pts
Completion	Student addressed all parts of the objective	Student addressed most parts of the objective	Student addressed some/no parts of the objective
Accuracy of information	Completion of objective is accurate	Completion of objective is mostly accurate, contains some inaccuracies	Completion of objective is not accurate
Connection to class	Student made a reference to an activity in the objective and explained the relationship accurately	Student made a reference to an activity in the objective but did not explain the relationship accurately	Student did not make a reference to an activity in the objective nor explained the relationship accurately
Responsibility	Student turned in the objectives on time and to the best of their ability	Student turned in the objectives on time and but not at the best of their ability	Student did not turn in the objectives on time nor to the best of their ability

Name: _____

Stage 1: Nanotechnology:: Objective 1

Describe how nanotechnology is currently used in consumer products. Provide at least 3 examples of how an objects' characteristics change when at the nanoscale.

Name: _____

Stage 1: Nanotechnology:: Objective 2

Describe the effect of changing the surface area to volume ratio on an object.

Name: _____

Stage 1: Nanotechnology:: Objective 3

Create your own definition of self assembly,

Name: _____

Stage 1: Nanotechnology:: Objective 4

Place 3 items on the Macro world, Micro world, and the Nano world with their size measurements (total of 9). Include a metric scale.

Name: _____

Stage 1: Nanotechnology:: Objective 5

Draw the hierarchal organization of DNA into a chromosome.

Name: _____

Stage 2: DNA:: Objective 1

Compare and contrast the structure and function of DNA and RNA.

Name: _____

Stage 2: DNA:: Objective 2

Describe the process of transcription and translation.

Name: _____

Stage 2: DNA:: Objective 3

Describe how an alteration in the genetic code can affect a protein. Describe if all alterations of the genetic code will affect a protein.

Name: _____

Stage 3: Heredity:: Objective 1

Describe the difference between dominant and recessive alleles. Describe where alleles are found.

Name: _____

Stage 3: Heredity:: Objective 2

Use a Punnett Square to develop an example of the passing down of a trait with two heterogoneous parents. What are the genotypic and phenotypic ratios of the potential offspring?

Name: _____

Stage 3: Heredity:: Objective 3

Provide examples of all of the Non-Mendelian forms of inheritance.