

Grade 8 Exam Review Packet

Define/Describe/Draw the following terms. You should know what they mean and how to use them if they are in a sentence/instructions.

DNA:

Dominant:

Gene:

Recessive:

Chromosome:

Genotype:

Base Pair:

Homozygous dominant/recessive,  
heterozygous

Allele:

Phenotype:

\*Be able to draw and label a diagram of at least 4 of the vocabulary words above.

Fill in the missing base pairs in the short gene below:

A    T            C    G                    T    T    G            A    C            T

                  C                    T    A                    G                    C

When cells reproduce, the first thing they do is replicate (copy) their DNA. Use the gene above to show the steps of how this process happens. Be sure to include and label any important vocabulary.

A certain species of monster can either have brown hair (dominant phenotype) or a blonde hair (recessive phenotype.) Two monster couples decide to have a baby monster. Use the information below to calculate the genetic probability of different hair colors in their offspring.

**Couple 1:**

Parent 1: Heterozygous:

Genotype: \_\_\_\_\_

Phenotype: \_\_\_\_\_

Parent 2: Heterozygous:

Genotype: \_\_\_\_\_

Phenotype: \_\_\_\_\_


What is the probability of these two parents having a heterozygous offspring?

What is the probability of these two parents having a homozygous recessive offspring?

What is the probability of these two parents having an offspring with blonde hair?

What is the probability of these two parents having brown hair?

**Couple 2:**

Parent 1: Homozygous recessive

Genotype: \_\_\_\_\_

Phenotype: \_\_\_\_\_

Parent 2: Heterozygous:

Genotype: \_\_\_\_\_

Phenotype: \_\_\_\_\_


What is the probability of these two parents having a homozygous dominant offspring?

What is the probability of these two parents having a homozygous recessive offspring?

What is the probability of these two parents having a heterozygous offspring?

What is the probability of these two parents having an offspring with brown hair?

What is the probability of these two parents with blonde hair?

Complete the second helix of the gene:

T    T    C    T    G    C    G    A    G    T    T    T    T    A    G  
—    —    —    —    —    —    —    —    —    —    —    —    —    —

Use the space below to show each step of protein synthesis. Be sure to include the written steps, along with any diagrams (labeled drawings) that would be helpful. Include all important vocabulary.

Sometimes mistakes are made in protein synthesis, we call these mistakes: \_\_\_\_\_

Below are three transcriptions of the gene at the top of the page. For each, decide if there is a mistake, and if so, what kind. Then decide how that mistake would impact the protein.

Transcription 1:

U    U    C    U    G    C    C    A    G    U    U    U    U    A    G

Mistake(s)?

Transcription 2:

U    U    C    U    G    C    C    G    U    U    U    U    A    G    G

Mistake(s)?

Transcription 3:

U    U    C    U    G    C    C    C    A    G    U    U    U    U    G

Mistakes(s)?

4 Challenge: Create your own transcription below. Identify what you changed, and how it would impact your protein.

Define Natural Selection:

Fill in the table with short summaries of how the example animals have shown natural selection:

Example	Summary
Green & Grey Tree Frogs in the Western United States.	
More and more rattlesnakes without rattles in the Northern US	
Changes in populations of certain colors of peppered moths in Great Britain 1850-1950	

Be able to define/describe/draw:

Longitudinal Waves:

Trough:

Transverse Waves:

Amplitude:

Rarefaction:

Frequency:

Compression:

Wavelength:

Crest:

List the seven types of electromagnetic radiation in order from shortest wavelength to longest wavelength.

Be able to describe how humans use at least three of the wavelengths of electromagnetic radiation above.