Genetic Diseases

You are now familiar with the role of DNA in our bodies; how it is replicated and expressed within a cell. You also know how DNA can accumulate mutations and what this can do to the protein that may be coded by that sequence. Also keep in mind how DNA is organized into multiple chromosomes. During mitosis and meiosis, it is crucial that chromosomes be separated equally between the daughter cells.

In our current unit, we will discuss how traits (carried on our chromosomes) are inherited from one generation to the next. You will learn how to predict the probability of a trait being passed on and how this information is practical for potential parents and genetic counselors.

Through this assignment, you will choose a genetic disease which you will research. You will create a wiki page about your disease and post it on the Pingry server. In addition you will give a brief (5 minute) oral presentation to the class. And provide a brochure of your disease and syndrome.

During your research, look for the following:

- What is the genetic cause of the disease?
- What gene is mutated or chromosome altered?
- What is the pattern of inheritance of the disease (dominant or recessive)?
- What are the symptoms and characteristics of the disease?
- What are the current methods of treatment/cure for the disease?

Guidelines for the wiki page that you will be creating:

- Treat your wiki as if you are presenting the information live to a group of people.
- Create your own work. If you use material from another source, be certain that you give proper credit to that source.
- Follow appropriate formatting.
- You will use at least three (3) citations. One of which has to be print sources.
- Include the following:
    - Introduction of the disease
    - Genetic information
    - Symptoms
    - Treatments and cures
    - Appropriate images and pictures
    - Contact information for support groups, etc.

Your brochure:

- will provide a summary of your wiki page.
- a color copy will be provided to your teacher.
- make enough copies to distribute to your classmates. These copies should be black and white.

In the ever increasing volume of information available on the World Wide Web, it is important to consider the reliability of your sources. For this project, you may want to avoid personal websites (although you may use them to obtain personal accounts of those living with a particular disease).

Here are some links that may be helpful:

http://www.bbc.co.uk/health/genes/disorders/types.shtml
http://rarediseases.info.nih.gov/index.html

Suggested genetic diseases:

Achondroplasia
Achromatopsia
Acid maltase deficiency
Adrenoleukodystrophy
Aicardi Syndrome
Alpha-1 Antitrypsin deficiency
Androgen Insensitivity Syndrome
Apert Syndrome
Arrhythmogenic Right Ventricular Dysplasia
Ataxia Telangiectasia
Barth Syndrome
Blue Rubber Bieb Nevus Syndrome
Canavan Disease
Cri Du Chat Syndrome
Crigler-Najjar Syndrome
Cystic Fibrosis
Dercum's Disease
Ectodermal Dysplasia
Fanconi Anemia
Fibrodysplasia Ossificans Progressiva
Fragile X Syndrome
Galactosemia
Gaucher Disease
Glutaric Aciduria
Hemochromatosis
Hemophilia
Huntington's Disease
Hurler Syndrome
Hypophosphatasia
Klinefelter Syndrome
Krabbes Disease
Langer-Giedion Syndrome
Leokodystrophy
Long QT Syndrome
Marfan's Syndrome
Moebius Syndrome
Mucopolysaccharidosis (MPS)
Nail Patella Syndrome
Nephrogenic Diabetes Insipidus
Neurofibromatosis
Niemann-Pick Disease
Osteogenesis Imperfecta
Porphyria
Prader-Willi Syndrome
Progeria
Proteus Syndrome
Retinoblastoma
Rett Syndrome
Rubinstein-Taybi Syndrome
Sanfilippo Syndrome
Shwachman Syndrome
Sickle Cell Disease
Smith-Magenis Syndrome
Stickler Syndrome
Tay-Sachs Disease
Thrombocytopenia Absent Radius (TAR) Syndrome
Treacher Collins Syndrome
Tuberous Sclerosis
Turner's Syndrome
Urea Cycle Disorder
von Hippel-Lindau Disease
Waardenburg Syndrome
Williams Syndrome
Wilson's Disease

Projects are to be completed by: October 26, 2011

Oral Presentations will be given on: October 27, 2011