UNIT OVERVIEW

	STAGE ONE: Identify Desired Results			
Established		Long-Term Transfer Goal		
Goals/		At the end of this unit, students will use what they have learned to independently research		
Standards		and present findings related to a genetic disora	ler.	
Stanta				
		Meaning		
	Organisms inherit	Enduring Understandings	Essential Questions	
	genetic information	Students will understand that	Students will consider such questions as	
	in a variety of	Different organisms nossess	How have we survived?	
	continuity of	different strategies for	now have we survived.	
	structure and	reproduction		
Key	function between	The continuity of a species		
Idea	parents and	 The continuity of a species denomination of the transfer of 		
2		depends on the transfer of		
	Explain how the	genetic information		
	replication of	Sexual reproduction and		
	genetic material	mutation increase genetic		
Perf	result in offspring	variation which is important for		
Ind	that resemble their	the evolution of a species		
2.1	parents	 Technology currently and 		
	Every organism	potentially has an impact on our		
	requires a set of	lives		
	for specifying its			
	traits. For offspring			
	to resemble their			
	must be a reliable	Acquisition		
	way to transfer	What knowledge will students learn as part	What skills will students learn as part of this	
	information from	of this unit?	unit?	
	one generation to	Species continuity requires	Ethical analysis	
	is the passage of	reproduction	Scientific models	
	these instructions	 Diversity of reproductive strategies 	 Probability and sample size 	
	from one	 Structure and function of human 	 Monohybrid crosses 	
2.1h	generation to	reproductive systems		
2.10		 Hormonal regulation of human 		
	Hereditary	reproduction		
	contained in	Birth control as a form of		
	genes, located in	technology		
	the chromosomes	 Evolution and mating benaviors 		
	of each cell. An	Human reproduction and culture Codes and information transfer		
	individual can be	 Coues and injointation transfer DNA as an information molecula 		
	determined by one	DNA as an injointation molecule DNA structure and function		
	or by many genes,	Chromosomes		
	and a single gene	DNA replication		
	than one trait A	Transcription of RNA		
	human cell	Translation of proteins		
	contains many	• Genetic code		
2.1c	thousands of	Genetic technologies		

	different genes in its nucleus. In sexually reproducing organisms, the new individual receives half of the genetic information from its mother (via the egg) and half from its father (via the sperm). Sexually produced offspring often resemble, but are not identical to, either of their	 Mutations, variation, and evolution Concepts: Inheritance of genetic information Simple Mendelian inheritance Hetero- and homozygosity Dominant and recessive traits Meiosis Variation and evolution Segregation of alleles Discrete and continuous variation X-linkage Acquired and inherited traits Genotype and phenotype Interaction of genes and environment in generating 	
2.1e	parents.	 phenotype Autosomes and sex chromosomes 	
2.1i	cell is carried out by the many different types of molecules it assembles, mostly proteins. Protein molecules are long, usually folded chains made from 20 different kinds of amino acids in a specific sequence. This sequence influences the shape of the protein. The shape of the protein, in turn, determines its function.	 Linkage and recombination Human genetic disorders 	
Perf Ind 4.1	Explain how organisms, including humans, reproduce their own kind.		
4.1a	Reproduction and development are necessary for the continuation of any species.		
4 1b	Some organisms reproduce asexually with all the genetic information coming from one		

	parent. Other organisms reproduce sexually with half the genetic information typically contributed by each parent. Cloning is the production of identical genetic	
4.1c	copies. The processes of meiosis and fertilization are key to sexual reproduction in a wide variety of organisms. The process of meiosis results in the production of eggs and sperm which each contain half of the genetic information. During fertilization, gametes unite to form a zygote, which contains the complete genetic information for the offspring.	
4.1d	The zygote may divide by mitosis and differentiate to form the specialized cells, tissues, and organs of multicellular organisms. Human	
4.1e	reproduction and development are influenced by factors such as gene expression, hormones, and the environment.	

	The reproductive cycle in both males and females is regulated by hormones such as testosterone, estrogen, and progesterone.	
	The structures and functions of the human female reproductive system, as in almost all other mammals, are designed to produce gametes in ovaries, allow for internal fertilization, support the internal development of the embryo and fetus in the uterus, and provide essential materials through the placenta, and putrition through	
4.1f	milk for the newborn.	
	The structures and functions of the human male reproductive system, as in other mammals, are designed to produce gametes in testes and make possible the delivery of these gametes for	
4.1g	fertilization.	
4.1h	embryonic development of essential organs	

East High School, Rochester, NY

2.14	occurs in early stages of pregnancy. The embryo may encounter risks from faults in its genes and from its mother's exposure to environmental factors such as inadequate diet, use of alcohol/drugs/tob acco, other toxins, or infections throughout her pregnancy. In asexually reproducing organisms, all the genes come from a single parent. Asexually produced offspring are normally genetically identical to the parent		
	In sexually reproducing organisms, the new individual receives half of the genetic information from its mother (via the egg) and half from its father (via the sperm). Sexually produced offspring often resemble, but are not identical to, either of their parents.		
2.1e			
3.1b	New inheritable characteristics can result from		

East High School, Rochester, NY

	now
	new
	evisting conce or
	from mutations
	of genes in
	reproductive
	Mutation and the
	sorting and
	recombining of
	genes auring
	meiosis and
	ientilization result
	of possible gone
3.10	combinations
3.10	compinations
	Mutations occur
	as random
	chance events.
	Gene mutations
	can also be
	caused by such
	agents as
	radiation and
	they occur in cox
	colle the
	mutations can be
	nassed on to
	offenring: if they
	occur in other
	cells they can
	be passed on to
	Tother body cells

STAGE TWO: Determine Acceptable Evidence			
	Assessment Evidence		
Criteria to assess	Performance Task focused on Transfer:		
understanding: (This is			
used to build the scoring	Ch. 12: "Human genetic disorders" p. 666- Genetic disorder brochure as end of		
tool.)	"genetic counseling clinic"		
	 Choose a genetic disorder (hemophilia, Tay-Sachs, neurofibromatosis, 		
Concept- Creating a	Duchenne muscular dystrophy, Marfan syndrome		
brochure: Student	Create a brochure:		
creates a brochure that	c O Symptoms		
includes information	 # of people affected 		
about all 9 bullet points.	 Pattern of genetic inheritance 		
	 Description of sample family who might be affected 		
Explanation	 Pedigree from sample family 		

demonstrating an understanding of genetic concepts by explaining them in terms patients can understand: Brochure clearly explains any difficult genetic terminology or ideas. Presentation: The brochure is attractive,	 Punnett square with cross of two members Probability of offspring being affected Description of how the results of meiosis are used to make a Punnett square ID gene that contains a mutation and the result of the mutation Treatments Prepare to share with class
understand. The student clearly conveys information during the	Other Assessment Evidence: Ch. 10 "A reproductive strategy for your critter" p. 557
presentation to classmates.	 Revisit critter and think about now it might reproduce sexual of asexual reprobased on its habitat Discussion about criteria for project Write a description of the reproductive method (can invent new characteristics): Reproductive structures involved
	 Description of role of hormones and other factors in regulating reproduction Explanation of mating behaviors used to ensure production of offspring Analysis of advantages and disadvantages for the number of offspring produced, approximate lifespans, and nurturing they
	 receive How the organism's overall method of reproduction compares and contrasts with human reproduction (drawing or diagram) Explain reproductive strategy to a partnerthink about similarities and differences to your critter
	 Discuss advantages and disadvantages in your critter and your partner's critter. Write a brief summary of the similarities/differences and advantages/disadvantages Add 3-4 more ideas or relationships to concept map "a zillion ways to make more" and make necessary changesor create a new map
	 Ch. 11 "Effects of mutations" p. 614- analyze a mutation that relates to coloration in animals Look at rubric, choose topic from list (coloration in jaguars, insecticide resistance in mosquitos, hemoglobin in geese at high altitude) Read the "need to know" associated with chosen topic Use the following information to create an illustration of the process of

gene expression for your topicshould show the following
 Name of gene & location in the cell
 Mutation that occurs, labeled with the type of mutation
 The mRNA that is transcribed and its location in the cell
 Important components of translation and their locations in the cell
 Amino acid sequence of the product of translation
 A description of how the mutation affects the organism
 Explain illustration to your partner provide feedback; revise

T, M, A (Code for Transfer, Meaning Making and Acquisition)	STAGE THREE: Plan Learning Experie	ences
	Learning Events:	Evidence of learning:
		(formative assessment)