

Grade 8				
Ch. 5 Lesson 1				
The Human Body				
Page #	Question	Answer(s)	Links/Sources	Student Resources
160	What kinds of things can these young people do to stay healthy and enjoy life?	Sample answer: Get exercise, eat a balanced diet, drink plenty of water, get plenty of rest, avoid stress, avoid alcohol, tobaccos, and illegal drugs.		
161	What could this have on your health?	Sample answers: Exposure to toxic substances can have serious short-term and long-term effects on your health including respiratory system and nervous system problems, problems with your endocrine system, and increased risk of certain cancers. These toxins can also have negative effects on your genetics which can be passed to your offspring.		
161	What is best for your health?	Sample answer: Make a commitment to include good health practices are part of your daily life and avoid all known activities that can harm your health short-term or long-term.		
161	How can you base your decisions on the evidence of and your own values?	Sample answer: Learn about human health and know your body. Keep your actions consistent with your values and beliefs.		
163	Which of these factors has the strongest effect on health?	*Answers will vary. You may consider taking a tally and have students compare these results to the ones they obtain in their inquiry.		
163	How is your family tree connected to your health?	*Point out that even if we do not know much about blood relative, a family tree shows how genes are passed down from generation to generation. In this way a family tree can help us understand the effect that some genes may have on our health. Note: When talking about family trees and family genetics, be sensitive to students who are from non-traditional homes.		
163	What controls your health?	Sample answer: My current health practices, my exposure to disease and my family genetics.		
164	What is different about this owl's eyes and your own?	*Our eyes don't function well at night.		
	How would vision like an owl's help you function/	*Night vision would allow us a better ability to walk or drive more safely at night.		
164	What would be the drawbacks?	*Because our neck muscles don't turn our head like an owl, the fixed eye position would hinder our vision.		

164	How well can you see at night?	Not very well.		
164	How are their eyes different from ours?	Sample answer: They have more rod cells in their eyes which make their eyes more sensitive to low light than ours. Also they have a special lining on the inside of the eye that increases the reflection of light inside the eye which increases the stimulation of the nerves.		
164	What would happen if a genetic scientist discovered how to "turn on" genes that improved your vision at night?	Sample answer: You would be able to get around much more easily and safely at night, you would be able to find things more easily and you would be able to read a book better.		
164	Would you consider having this procedure done if you had night blindness? Why or why not?	Sample answer: Yes. I would want to be able to see better at night.		
164	How do your genes affect your ability to do things, such as see in the dark?	Sample answer: My genes have control over most aspects of my body, if one or the other or both parents have a particular characteristic it is likely that I will inherit it.		
164	What would happen if mitosis stopped happening?	New cells would not be produced and old and damaged cells would not be replaced and I would die.		
164	What would happen if there were an error during mitotic division?	The resulting cells might function improperly or not function at all.		
164	What might cause errors in cell division to occur?	Sample answer: Changes to the content of chromosomes, changes to DNA, problems when the chromosome pair pull apart.		
165	How do you think cleft palate affects the development of a child?	*Children have problems with feeding and speaking clearly, and can get ear infections which may lead to hearing problems. They may also have problems with their teeth.		
165	How can doctors treat this condition?	By surgery.		
165	What causes a change in the number of chromosomes or in the DNA so that a genetic disorder develops?	Sample answer: It can be caused by change in one gene, by changes in multiple genes, by a combination of gene changes and damage to chromosomes due to environmental factors.		
165	How might you become exposed to harmful radiation or chemicals?	Sample answer: Exposure to radiation and most chemicals likely would be due to accidental exposure to radiation or chemicals, but smoking, improper use of legal drugs and use of illegal drug could expose you to chemicals that could harm your genetic structure.		

165	What can you do to reduce the risk of exposure to mutagens?	Sample answer: Wash the fresh fruits and vegetable that you eat. Avoid industrial areas where radiation or harmful chemicals could be present, avoid breathing air laden with smog, or other industrial air pollutants, smoke from fires, or dust from agricultural active, use legal medications properly, and avoid use of alcohol, tobacco, and illegal drugs.		
166	What does John wish for his friend Gaius in 3 John 1:2?	*John wishes him both physical and spiritual health.		
166	Why does this shape make it difficult for red blood cells to move through veins and arteries?	*Sample answer: The cells get caught up in each other and form clumps.		
166	Why would a genetic blood disorder cause joint and organ pain?	*Because sickle cells are stiff and sticky, they block blood flow to limbs and organs. This blockage can cause joint and organ pain and organ damage.		
166	How could a blocked blood vessel affect the surrounding tissue?	Tissues and organs need a constant supply of the oxygen and energy in the blood. They also need blood to remove carbon dioxide and other waste material. Without a steady blood flow, the affected tissue may die.		
166	What is necessary for a recessive gene to be expressed by a person?	The person has to have two recessive alleles for the characteristic.		
166	If both parents have a dominant and recessive allele for the disease, what is the probability of the child inheriting the disease?	25% chance.		
166	How does the probability change if one parent has two recessive alleles for the disease?	If one parent has two recessive alleles and the other parent has one recessive allele for the disease, the child has a 50% chance of inheriting the disease.		
166	What other disorders are caused by a single gene?	Tay Sachs and Huntington's disease.	https://www.ncbi.nlm.nih.gov/books/NBK132154/#:~:text=Some%20of%20the%20more%20common,degrees%20of%20severity%20and%20phenotype.	
166	Why would a genetic blood disorder cause joint pain and kidney problems?	Because the disease may block blood flow to limbs and organs. This blockage can cause joint and organ pain and organ damage.		
167	What is the relationship between sickle-cell anemia and malaria?	The recessive sickle-cell allele protects an individual from getting malaria.		
167	How does the mutation affect the survival rate during the game?	The mutation increases the chances of survival.		
167	What are the next generation's chances of survival?	The survival rate improves for the next generation.		
168	Why do you think people do not donate their organs?	*Sample answer: They are scared; they do not understand what it means.		

168	How does your family background affect your risk of getting sickle-cell disease or cystic fibrosis?	<p>*You are much more likely to get sickle-cell disease if you are African-American and cystic fibrosis if you are Caucasian.</p> <p>Note: Be sensitive to students who may not know anything about their birth parents.</p>		
168	Why might parents of a baby with sickle-cell disease or cystic fibrosis be surprised that their child has the disorder?	*The parents do not realize that, although they do not have the disease, both of them carry a recessive allele for it.		
168	What is daily life with cystic fibrosis like?	*Students should discover that as the disease progresses and the person becomes an adult, the person must have oxygen to breathe to complete normal daily activities, such as climbing the stairs.		
168	Why do you think this test was adopted in all 50 states and parts of Canada?	*So that all babies are tested for the disease, so if they have it, it can be treated early.		
168	What is the function of the pancreas?	The pancreas helps with digestion and helps to control blood sugar.		
168	Why might this gene affect it?	Because the tiny tubes inside of the pancreas can become blocked by the mucous created by cystic fibrosis.		
168	How might the symptoms affect a person's daily life?	Sample answer: Their movement is inhibited because oxygen and glucose are not delivered to the cells as it should be and the person is out of breathe as they walk or do anything physical.		
168	Why might a genetic disorder that produces thick, sticky mucous cause fatigue?	It prevents oxygen from being transported to the cells and it prevents the removal of carbon dioxide from the blood.		
168	Why might Caucasians be more susceptible to this gene mutation than other groups?	Because the gene is more common in Caucasians than in other ethnic groups.		
169	What kind of color blindness does this circle of dots test?	*Sample answer: The dots are red and green, so a person who is red-green color blind cannot differentiate between the two color seen in the number.		
169	What percentage of student had difficulty in reading the cards?	Sample answer: Few of the students are colorblind. Statistics show that boys tend to have a higher percentage of color blindness than girls.		
169	How do any of the forms of color blindness affect how a person interacts with society?	*A person with color blindness may have difficulty matching clothes or may need to ask for help distinguishing between colors. For the most part, a person can function normally.		
169	Why is it important for newborns to be tested for sickle-cell anemia?	*They may be a carrier of the disease without necessarily having symptoms and if they have the mild form the diseases they can get early treatment to reduce the symptoms.		

169	Why might a person diagnosed with cystic fibrosis need a lung transplant?	*The disorder weakens healthy lung tissue. Without a transplant a person will die.		
169	Why doesn't our immune system protect us from genetic disorders?	*The immune system fights off pathogens from outside the body, Genes are part of the body, so the immune system cannot destroy them.		
169	What other lifestyle behaviors might benefit someone with this genetic disorder?	Sample answer: Get enough exercise, drink plenty of water, eat a high-calorie diet, avoid behaviors that risk infections, avoid secondhand smoke, avoid breathing air that is poor quality.		
169	What behaviors would have a negative impact?	Sample answer: Eating foods with empty calories, subjecting themselves to situations where they can get an infection, getting inadequate exercise, drinking an inadequate amount of water.		
169	What difficulties might red-green color blindness cause in daily life?	Not being able to pick out clothes colors that go together, not being able to distinguish between colors, not being able to recognize red lights.		
169	How do any of the forms of color blindness affect how a person interacts with society?	A person with color blindness may have difficulty matching clothes or may need to ask for help distinguishing between colors. For the most part, a person can function normally.		
170	Do you think Down's syndrome can be cured? Why or why not?	*No. It can't. Like genetic disorders, the change or damage occurs as the embryo begins to develop. The mutation is repeated in every cell division after that.		
170	Why do you think the odds of having a baby with Down's syndrome increase with the mother's age?	*Older eggs are more likely to divide incorrectly, causing the chromosome mutation.		
170	Why are chromosomes shown in pairs?	*Sample answer: Gametes are formed from the process of meiosis. One maternal chromosome and one paternal chromosome pair up inside the cell during meiosis.		
170	Why do you think the age of the woman increases the risk of having a baby with Down's syndrome?	Older eggs are more likely to divide incorrectly, causing the chromosome mutation.		
170	Do you think the father's age affects the child's chances of having Down's syndrome? Why or why not?	Sample answer: Yes. The older the man the more likely the sperm that are produced may have the chromosome mutation.	https://www.nyp.org/news/male-biological-clock-may-be-ticking-for-down-syndrome-in#:~:text=to%201997%2C%20respectively.-,Dr.,older%20with%20increasing%20paternal%20age.	
171	How is it possible to determine the presence of genetic disorders from such a small sample?	All cells in an organism have the same genes and chromosomes. Any somatic cell will show the defect, if there is one.		
171	Which disorders are more common in certain ethnic groups?	Answers will vary depending on the genetic disorder the students researched.		

171	Why might it be for doctors and parents to know about genetic disorders as soon as possible?	Sample answer: So parents, who might find out that they or their child has a genetic disorder, can make informed decisions about how to best use the information to ensure the health of everyone involved.		
171	How might parents feel if they elect to have one of the procedures performed?	Sample answer: They may be afraid of the outcome, but relieved that they know one way or the other.		
171	How might the doctor remove the fluid for testing?	By inserting a thin needle through the abdomen of the mother into the uterus and through the amniotic sac and then withdrawing a small amount of fluid.		
172	Why might some couples want to know of possible genetic risks for their baby?	*Sample answer: They may choose to abort the baby if there is a serious problem.		
172	How would this affect people who don't believe in abortion?	Sample answer: They may prepare for the extra care for their future child, or they may choose not to get pregnant and take a chance.		
172	Why might some couples not want to know their risk of having a baby with a genetic disorder?	Sample answer: The couple won't interrupt a pregnancy, even if the baby has a disorder.		
172	Do all parents have the opportunity to meet with a genetic counselor? Why or why not?	Sample answer: Most people living in developed countries that have reasonable health care services generally have the opportunity of talking with a genetic counselor. However, people living in undeveloped countries and in areas where there is not adequate health care probably do not have the opportunity of talking with a genetic counselor.		
172	How might the cost of genetic testing skew with parents receive genetic counseling?	People who live in poverty or in disadvantaged circumstances do not have health insurance or the resources to pay for these services.		
172	How could this affect a community?	Sample answer: The community may have to help people who have babies with birth defects by providing extra medical support or resource support.		
172	How might a close connection with God help during these difficult live decisions?	Sample answer: They can rest assured in His love and compassion for them. His willingness to help with difficult decisions and the promise that He will always be with us regardless of the decision that is made and the outcome of the decision.		
172	What testing does your state or province require for newborns?	Answers will vary. Encourage students to research this topic and report their findings to their classmates.		
* Means the answer is found in the TE.				