

For these lessons I use *Encyclopedia of Body: From Complex Body Systems to Health and Genetics* by Miles Kelly. These lessons are written for 3<sup>rd</sup> and 6<sup>th</sup> grade. Adapt language and concepts as needed to the correct age of your child and cover more than included in the lesson if your child shows interest.

**Title of Lesson 1:** The Skeletal System

<b>Standards Taught:</b> 4.HD.1		
<b>Materials:</b>  <i>Encyclopedia of Body: From Complex Body Systems to Health and Genetics</i> by Miles Kelly  Silly putty  Straws	<b>Preparation:</b>	<b>Implementing the Lesson:</b>  Briefly review the body systems lessons from 3 <sup>rd</sup> grade, reminding your child that everything in the body is made up of cells. Those cells clump together to create different types of tissues, which make up organs, muscles, bones, and other body parts. Ask your child what they remember about the circulatory, respiratory, digestive, and nervous systems.  Next, give your child the putty. Ask them to build the tallest tower-like structure they can and let it go. What happens to the silly putty? Point out that it does not stay standing, but falls into a blob on the table. Explain that, without our skeletal system, our bodies would do the same thing. It is this system that gives our bodies structure and helps them to stay upright.  Give your child straws and allow them to build a skeletal system for their building. Then, ask them to add the silly putty around this skeleton, pointing out that their town now stands better than before.  Finally, review the information found on pages 46-73 with your child.

**Title of Lesson 2:** The Muscular System

<b>Standards Taught:</b> 4.HD.2		
<b>Materials:</b>	<b>Preparation:</b>	<b>Implementing the Lesson:</b>
<p><i>Encyclopedia of Body: From Complex Body Systems to Health and Genetics</i> by Miles Kelly</p> <p>Handprint cutout on cardstock</p> <p>String</p> <p>Straws</p> <p>Tape</p> <p>Scissors</p>	<p>Outline your hand and wrist on cardstock and cut it out. Cut three straw segments for each finger, and one longer segment for each finger to go down the wrist.</p> <p>Line the straws up down each finger and tape them to the cardstock without covering the end. Tie string to the back of each finger and thread it through the straws for that finger, leaving the ends hanging from the bottom of the wrist straw.</p>	<p>Remind your child of their previous health lesson on the skeletal system. The skeleton, or bones, helps our bodies to stay upright and support themselves. However, the bones cannot move on their own. They need tendons, ligaments, and muscles, which stretch and contract to move or body parts. Ask your child to show you their muscles (flex their arms) and praise them for how strong they are.</p> <p>Review the information found on pages 74-81 with your child. Add the fact that most organs have a wall of muscle around them, as well, to help with function. The heart is the strongest muscle in your body.</p> <p>Then, explain that one place on our body that has several muscles we use all the time is the hand. Show your child the hand model you have prepared. Explain that the straws act as bones and the strings are like the muscles. Hold the hand model steady as your child pulls on each of the strings hanging from the wrist. Point out that pulling on the string contracts it (pulls it closer to itself), moving the finger it is connected to. Letting go of the string allows it to expand (stretch out) and the finger moves back. This is how our muscles work inside our bodies. They contract and expand in order to move different body parts, pump blood, and ensure other body systems are working correctly. Allow your child to work with the model as long as they like.</p>

**Title of Lesson 3:** Chronic Diseases (2 pages)

<b>Standards Taught:</b> 4.SDP.5		
<b>Materials:</b>	<b>Preparation:</b>	<b>Implementing the Lesson:</b> <p>Briefly review infectious and acute illnesses with your child. Then, introduce chronic, or long-term, diseases. Explain that chronic diseases can last a lifetime and usually are not curable. Management of symptoms and risks are usually the only options.</p> <p>Though there are several types of chronic disease, some of the most common ones are listed below. Review the following information with your child.</p> <p>Allergies are the overreaction of the immune system to a foreign substance. Most people have an allergy of some sort, often combating with sneezing, runny nose, watering eyes, or fatigue. Allergies are common and can often be prevented by avoiding contact with allergens and over-the-counter treatment. However, allergies can range in severity and include symptoms such as hives, vomiting, diarrhea, rashes, and anaphylaxis. Anaphylaxis is an extreme reaction and causes difficulty breathing. It can be fatal and most people prone to anaphylaxis carry an epi-pen, or shot that can be immediately administered to delay symptoms until medical help can be reached. The epi-pen should be administered at the first signs of anaphylaxis by holding the orange tip downward, removing the blue safety time, placing the orange tip against the outer thigh, and jabbing into the thigh until a click is heard. The epi-pen should be held in place for three seconds. Medical care should be immediately sought after any use of an epi-pen.</p> <p>Seizures are caused by an electrical disturbance in the brain. They can cause behavioral changes, tremors, confusion, staring into space with unfocused eyes, or uncontrollable jerking movements of the limbs. Though often caused by an underlying condition, seizures can also occur after sleep deprivation, substance abuse, stress, or flashing lights. During a seizure, clothing should be loosened, the person should be protected from falls or bumping into dangerous items, and a pillow can be placed under the head. Seizures should not be treated by restraining the person, placing items between the teeth, food or water, or location change. A doctor should be contacted after a seizure, especially if it is accompanied by a fever, loss of consciousness, or additional seizures. Seizures due to underlying conditions may be managed by medication and/or avoidance of triggers.</p> <p>Diabetes is characterized by blood sugar levels that are either too high (hyperglycemic) or too low (hypoglycemic), resulting in fatigue, excessive hunger or thirst, weight changes, fatigue, and frequent urination. It occurs when the body is unable to produce the correct amounts of insulin, or when the body becomes resistant to insulin, causing difficulty breaking down sugars from the foods eaten. Treatment for diabetes includes frequent blood sugar checks (often done with a blood test), changes in diet, medication, and/or administration of insulin through injection. Though not all forms of diabetes can be prevented, correct diet and exercise and avoidance of high-sugar foods, can help.</p>

		<p>Arthritis, or chronic swelling of the joints, is extremely painful and can cause stiff joints. This can make daily tasks difficult and walking, standing, or laying down painful. Arthritis can be treated with medications, therapy, surgery, diet and exercise, cold or heat packs, and assistive devices (walkers, etc.). However, it can also persist throughout a lifetime. Prevention consists of protecting the joints from trauma, a healthy diet, and regular exercise, however it cannot always be prevented.</p> <p>Mental illnesses, such as anxiety, depression, OCD, or ADD/ADHD, are long-lasting and, at times, debilitating. Though these conditions can be caused by several things, it is believed that chemical imbalances in the brain, trauma, stress, and sleep deprivation can worsen the symptoms. Many people with mental illnesses benefit from a fixed routine, family support, therapy, and medical treatment.</p> <p>Many people with chronic diseases are in constant or regular pain and find certain tasks difficult. Working to understand the symptoms of specific diseases can help you to better advocate and assist those with chronic conditions. Supporting them through friendship, communication, and encouragement can also help.</p>
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