

**LESSON PLAN****UNIT** Life Sciences**GRADE** 6-8 Grade**THEME** Decoding DNA**EQUIPMENT** Computer w/Internet Access  
Worksheet**LEARNING OUTCOMES:**

Students will be able to:

1. define DNA
2. understand the basic concepts of chromosomes and their structure
3. understand the concepts of mitosis and meiosis and distinguish between the two
4. understand some genetic disorders and learn about their causes and treatments

<b>TIME</b>	<b>LESSON CONTENT – ACTIVITY</b>
20 minutes	<p>DNA is an intimidating subject because of the complexity of the subject. The introduction should therefore be as easy as possible and approached in a fun manner. A good start may be for students to view <a href="http://www.stanford.edu/group/hopes/basics/dna/b0.html">http://www.stanford.edu/group/hopes/basics/dna/b0.html</a></p> <p>Another fun introduction can be found at <a href="http://www.eurekascience.com/ICanDoThat/dna_structure.htm">http://www.eurekascience.com/ICanDoThat/dna_structure.htm</a></p>
30 minutes	<p><b>Main Learning Activities:</b></p> <ol style="list-style-type: none"> <li>1. Students will view presentation at <a href="http://www.k8websites.com">www.k8websites.com</a> 6-8 Grade Level, “Decoding DNA Webquest” .</li> <li>2. Students should complete worksheet while visiting each website included in the webquest.</li> </ol>
	<p><b>National Curriculum Standards:</b></p> <p><b>CONTENT STANDARD C: LIFE SCIENCE</b>  C1. Structure and function in living systems  C2. Reproduction and heredity  C3. Regulation and behavior  C4. Populations and ecosystems  C5. Diversity and adaptations of organisms</p> <p><b>CONTENT STANDARD E: SCIENCE AND TECHNOLOGY</b>  E1. Abilities of technological design:</p> <ul style="list-style-type: none"> <li>• Identify appropriate problems for technological design.</li> <li>• Design a solution or product.</li> </ul>

	<ul style="list-style-type: none"> <li>• Implement a proposed design.</li> <li>• Evaluate completed technological designs or products.</li> <li>• Communicate the process of technological design.</li> </ul> <p>E2. Understanding about science and technology:</p> <ul style="list-style-type: none"> <li>• Scientific inquiry and technological design have similarities and differences.</li> <li>• Many different people in different cultures have made and continue to make contributions to science and technology.</li> <li>• Science and technology are reciprocal.</li> <li>• Perfectly designed solutions do not exist.</li> <li>• Technological designs have constraints.</li> <li>• Technological solutions have intended benefits and unintended consequences.</li> </ul> <p><b>CONTENT STANDARD F: SCIENCE IN PERSONAL AND SOCIAL PERSPECTIVES</b></p> <p>F1. Personal health  F2. Populations, resources, and environments  F3. Natural hazards  F4. Risks and benefits  F5. Science and technology in society</p> <p><b>CONTENT STANDARD G: SCIENCE AS INQUIRY</b></p> <p>G1. Science as a human endeavor:</p>
	<p><b>Closure:</b> Included in the webquest is a section on genetic cloning. Open a discussion to discuss the pros and cons of human cloning.</p>
	<p><b>Extended Activities and Additional Resources:</b>  Additional resources included in the presentation:</p> <p>Interactive Timeline <a href="http://www.dnai.org/timeline/index.html">http://www.dnai.org/timeline/index.html</a></p> <p>What is DNA? <a href="http://learn.genetics.utah.edu/units/basics/tour/dna.swf">http://learn.genetics.utah.edu/units/basics/tour/dna.swf</a></p> <p>Structure of DNA  <a href="http://www.dnai.org/text/mediashowcase/index2.html?id=599">http://www.dnai.org/text/mediashowcase/index2.html?id=599</a></p> <p>Chromosomes  <a href="http://learn.genetics.utah.edu/units/basics/tour/chromosome.swf">http://learn.genetics.utah.edu/units/basics/tour/chromosome.swf</a></p> <p>Examining the X Chromosome <a href="http://www.dnai.org/c/index.html">http://www.dnai.org/c/index.html</a> (Click</p>

	<p>Tour, Chromosome Closeup, Examining the X)</p> <p>Mitosis, Meiosis <a href="http://learn.genetics.utah.edu/units/basics/tour/mitosis.swf">http://learn.genetics.utah.edu/units/basics/tour/mitosis.swf</a></p> <p>Genetic Disorders <a href="http://www.ygyh.org/index.htm">http://www.ygyh.org/index.htm</a></p> <p>Cloning <a href="http://www.nature.ca/genome/03/d/20/03d_21_e.cfm#ps_d22">http://www.nature.ca/genome/03/d/20/03d_21_e.cfm#ps_d22</a></p>
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