Emanuel Project
ART INTERVENTIONS FOR AT-RISK YOUTH

Science
DNA Structure Lesson

YOUTH ART PROJECT FOR:

DNA STRUCTURE

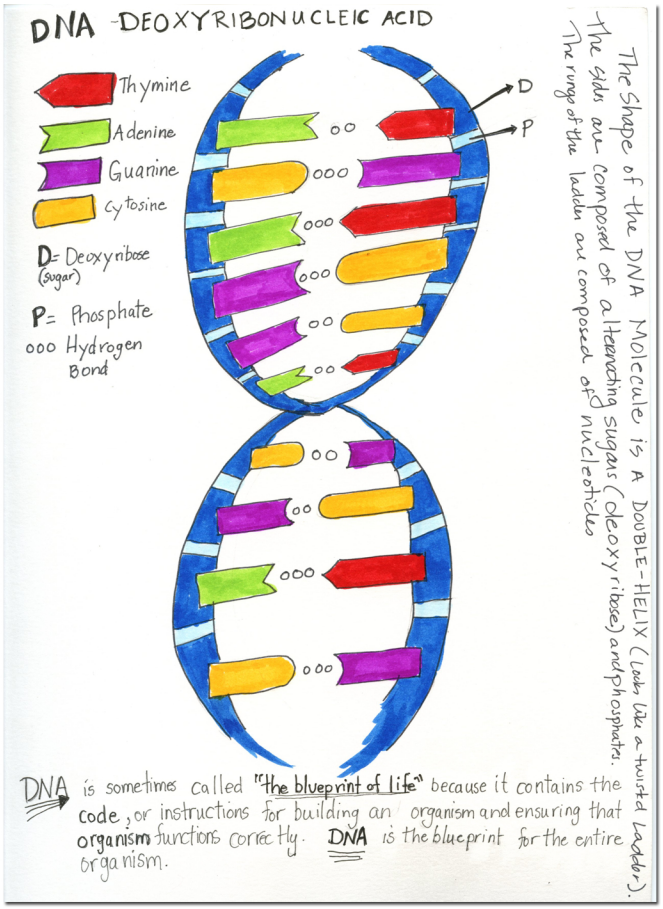
OBJECTIVE

Students will learn the structure and coding of a DNA strand.

Set up/prep time:	Activity Time:
30 minutes	**2-3 hours**

Materials Needed:

White paper, pencil, eraser, colored pencils, & crayons



COMMON CORE STATE STANDARD

ELA-Literacy.RST.6-8.4

Determine the meaning of symbols, key terms,
and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics.

PRE LESSON ASSESSMENT

What do the students already know about the structure of DNA?

VOCABULARY

Guanine, Adenine, Thymine, Cytosine

RELEVANT RESOURCES

Content

http://en.wikipedia.org/wiki/DNA
http://www.youtube.com/watch?v=qy8dk5iS1f0
http://ghr.nlm.nih.gov/handbook/basics/dna

Art

http://www.ehow.com/how_5098539_understand-dna-structure.html
http://www.biologycorner.com/bio1/DNA.html
http://www.how-to-draw-cartoons-online.com/dna-sequencing.html

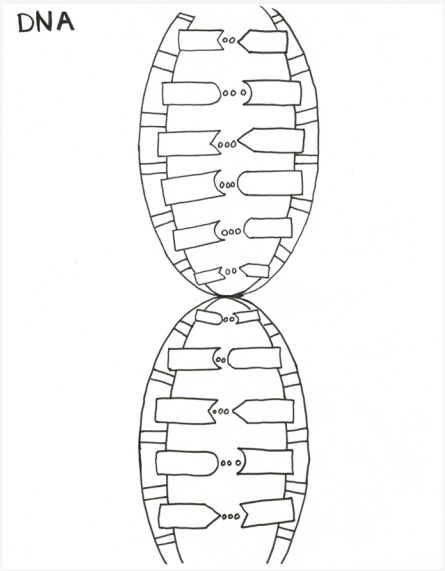
Students will engage in:

- □ Listening
- □ Speaking
- □ Reading
- □ Writing
- □ Partner Work
- □ Cooperative Learning
- □ Whole Group Instruction
- □ Visuals
- □ Hands on
- □ Technology Integration
- □ A Project
- □ Centers
- □ Simulations
- □ Activities

"We try to make earth-friendly decisions whenever we can, as it's part of our brand DNA."
-Stella McCartney

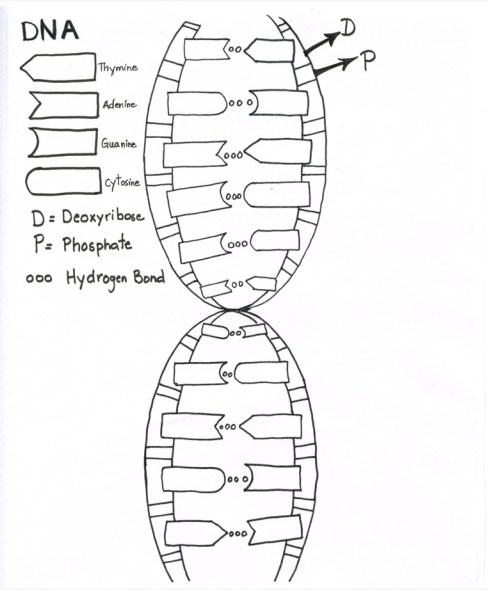
STEP 1

Draw two curved lines mirroring each other crossing in the middle of the page almost like a backwards S (refer to example). Once the outline of the DNA structure is done, then have the students draw smaller lines through their double helix strand. The structure of the DNA double helix is now complete. Then have the students go through the center of their DNA model to draw the Guanine, Adenine, Thymine, and Cytosine. To do this have the students draw rectangles coming from the sides of the double helix and towards each other in the middle. At the end of every rectangle students need to make curved edges (inward and outward) and pointed edges (inward and outward). These rectangles need to line up so the curved edge curving outward is parallel to the curved edge curving inward (like a puzzle piece). Do the same with the pointing ends. In between these rectangles three small circles need to be drawn to represent the hydrogen bond that pull them together. Once the students are done with the final drawing in pencil have them go over their lines with a black fine tip pen



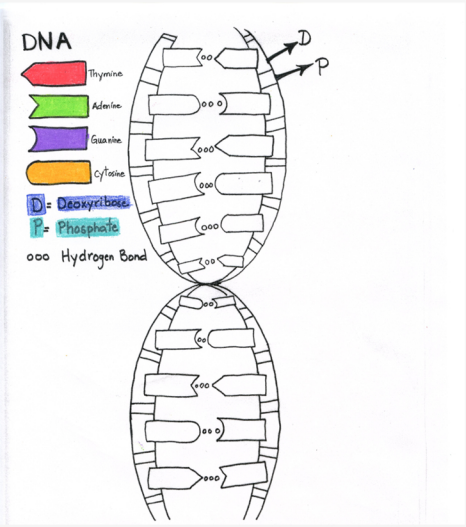
STEP 2

Have the students then create a key diagram for their DNA structure. Students need to label the Guanine, Adenine, Thymine, Cytosine, Phosphate, Deoxyribose (sugar), and Hydrogen Bonds of the DNA model. Keep in mind the Guanine and Cytosine are always paired together likewise are the Adenine and Thymine.



STEP 3

Once the students have completed their keys, have them choose colors they wish to represent each part of their final DNA structure. After their colors are chosen have the students then color their structure according to the colors they have chosen to represent each portion.



POST LESSON ASSESSMENT

Do a post assessment to determine what new knowledge the students have gained about the DNA Structure.