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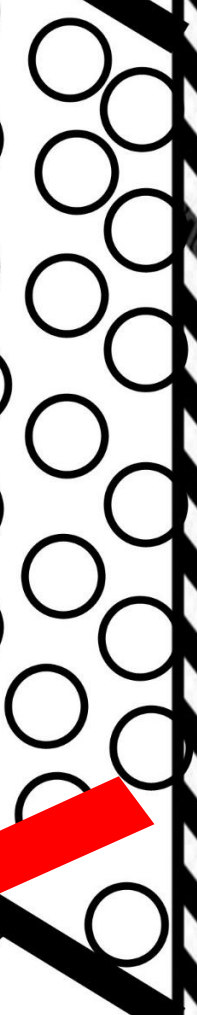
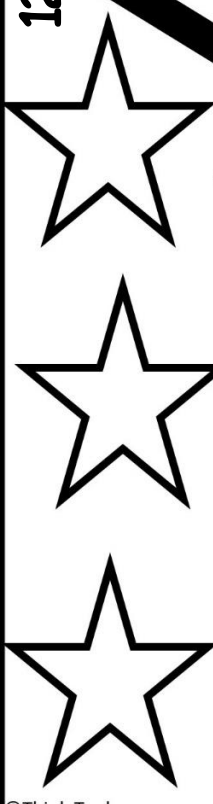
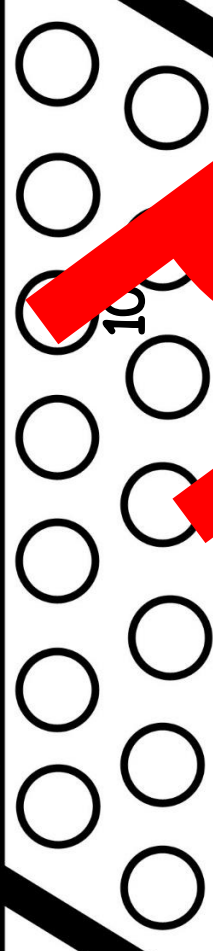
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GENETICS AND DNA ANTICIPATION GUIDE

Read each statement and decide if it is True or False. Complete the left column before the reading by circling the T for True or the F for False. Complete the right column after you finish the reading. Did any of your answers change?

BEFORE READING		STATEMENT	AFTER READING	
T	F	Gregor Mendel is considered the Father of Genetics.	T	F
T	F	DNA has seven bases.	T	F
T	F	A cell with two X chromosomes will be male.	T	F
T	F	Genetics, a form of biology, is the study of heredity.	T	F
T	F	DNA molecules have a double square shape.	T	F
T	F	Each trait is passed on through alleles.	T	F
T	F	A chromosome is a threadlike structure inside a cell that carries DNA.	T	F
T	F	Mendel invented the Law of Independent Assortment.	T	F
T	F	The order of DNA bases is coded in the genome.	T	F

DID YOU KNOW?

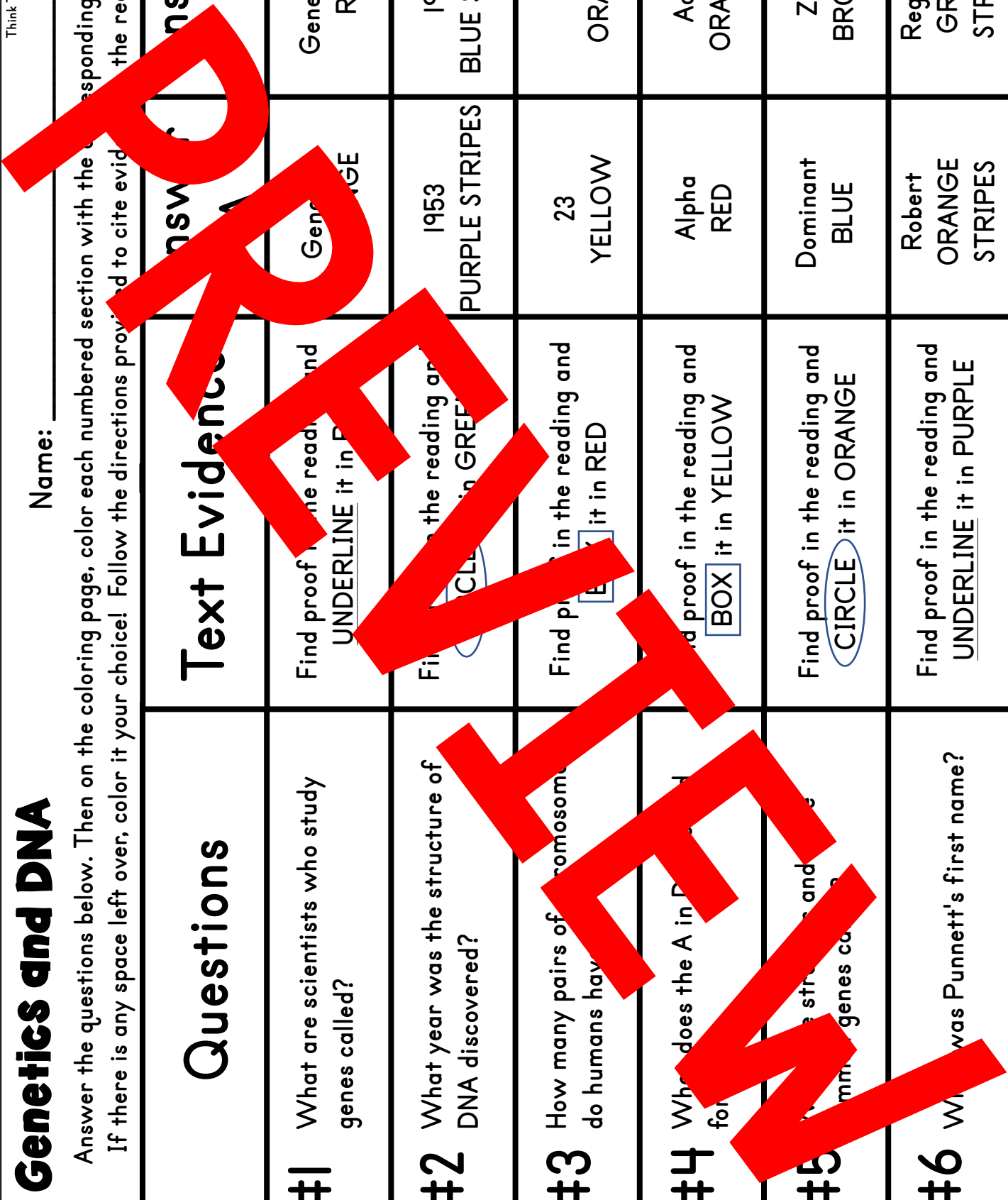
DNA is made up of molecules called nucleotides.

Genetics and DNA

Name: _____

Answer the questions below. Then on the coloring page, color each numbered section with the corresponding color. If there is any space left over, color it your choice! Follow the directions provided to cite evidence from the reading.

Questions	Text Evidence	Answer	Answer
#1 What are scientists who study genes called?	Find proof in the reading and <u>UNDERLINE</u> it in <u>PURPLE</u>	Geneticists	RED
#2 What year was the structure of DNA discovered?	Find proof in the reading and <u>CIRCLE</u> it in <u>GREEN</u>	1953	1947 BLUE STRIPES
#3 How many pairs of chromosomes do humans have?	Find proof in the reading and <u>BOX</u> it in <u>RED</u>	23	2 ORANGE
#4 What does the A in DNA stand for?	Find proof in the reading and <u>BOX</u> it in <u>YELLOW</u>	Alpha	Acid ORANGE
#5 What are the structures and functions of genes called?	Find proof in the reading and <u>CIRCLE</u> it in <u>ORANGE</u>	Dominant	Zeta BROWN
#6 Who was Punnett's first name?	Find proof in the reading and <u>UNDERLINE</u> it in <u>PURPLE</u>	Robert	Reginald GREEN STRIPES



GENETICS AND DNA

Did you ever wonder how siblings can look so different, even if they have the same mother and father? For example, mom and dad have brown hair and brown eyes, so why does the daughter have red hair and blue eyes while the son has brown hair and brown eyes? The reason: genetics!

Genetics, a branch of biology, is the study of heredity. "Gen" means beginning. Genetics shows how genes and traits get passed from one generation to the next. Genes are like the code for the appearance of a living being. Scientists who study genes are called geneticists.

Gregor Mendel, a scientist from the 1800s, is considered the Father of Genetics. He experimented with pea plants in his garden. With careful discovery, he saw patterns in inheritance:

1. Each trait is controlled by two alleles. Alleles are alternative versions of a single gene.
2. Offspring inherits one allele from each parent for each trait.
3. Some alleles may not appear in the current generation, but they can still be passed to future generations. An example of this would be red hair that may not appear immediately, but will show up in future generations, with a carrier parent at some point.

When you get the same allele from each parent, that allele is expressed as a phenotype (appearance).

Eventually, Mendel invented the Law of Segregation and the Law of Independent Assortment.

DNA is the control center where everything begins. DNA (deoxyribonucleic acid) is a molecule that carries genetic instructions or a blueprint for your body. Humans begin life as a single cell, but that one cell divides into two cells, then four cells, then eight cells. Eventually, humans have trillions of cells. Francis Crick and James Watson of England discovered the structure of DNA in 1953. DNA molecules have a double helix shape, kind of like a twisted ladder. DNA determines traits such as gender, height, hair color, and eye color.

DNA is carried in the chromosome. A chromosome is a threadlike structure inside a cell that carries DNA. Chromosomes carry instructions for the cells. DNA has four bases, called G (guanine), C (cytosine), A (adenine), and T (thymine). These chemicals are the genetic code. A always pairs with T,