

GENETICS AND DNA

CUBE CODE

Gregor Mendel study of DNA?

A. Adenine
B. Cytosine
C. Guanine
D. All of the above

DNA is wrapped around proteins called what?

A. Alleles
B. Thymine
C. Helix
D. Histones

How are male chromosomes labeled?

A. XY
B. XX
C. XZ
D. ZY

percent of the population has red hair and blue eyes?

A. 10%
B. 23%
C. 52%

How many letters represent a codon?

A. 1
B. 3
C. 5
D. 7

The SECOND number of the lock is the percent of our DNA that genes make up MINUS 3.

The FIRST number of the lock is the number of pairs of chromosomes each human has MINUS 20.

The THIRD number of the lock is the number of types of bases or nucleotides of DNA MINUS 2.

STATION 2:

First, number ALL the paragraphs on your reading passage. Then, read each statement below and determine which paragraph NUMBER the statement can be found in. Lastly, eliminate ANY answer where the answer was found in an EVEN numbered paragraph, leaving only ODD numbers as your final code (in the order of questions). Paragraph numbers MAY be used more than one time or not at all.

STATION 3:

Read each statement below and determine if it is true or false. If the statement is true, color or shade the coin that corresponds to the question. If the statement is false, cross out that coin value. Once you are finished add the TOTAL of ALL TRUE coin values. The total code has been provided for you. If the total is 625, a 6 in the first box, the 2 in the second box and so on.

GENETICS AND DNA

DNA and genes are found in the human body, and they are what make each human different. When a baby is born, genes are passed down from the parents to the offspring. Genetics explains how babies get some of their parents' features but not others. Humans are roughly 99.9% genetically identical, but that tiny .1% is what makes us who we are as unique individuals.

DNA stands for deoxyribonucleic acid, and it is unique to each human. It is a molecule found in each cell of the human body. DNA is made up of molecules called nucleotides. DNA has four types of bases or nucleotides: adenine (A), thymine (T), cytosine (C), and guanine (G). DNA is composed of nucleotides in a specific order. Every 3 letters are called a codon, and they all connect together like a chain. There are thousands of different...

THINK TANK

ve genes are the strongest.
n the sequence (order) of th
i get their instructions on
their job.
Explains how babies get
'ents' features but not

4 DIGIT CODE

ELIMINAT

COIN VALUES: A 75, B 25, C 50, E 100, F 75, G 50, H 25

STATION 1:

Use your reading passage or deductive reasoning skills to determine the missing words in the paragraph below. Each missing word has a corresponding NUMBER. The 4-digit code will be the NUMBER of each missing word in the same order in which they appear in the paragraph.

STATION 2:

First, number ALL the paragraphs on your reading passage. Then, read each statement below and determine which paragraph NUMBER the statement can be found in. Lastly, eliminate ANY answer where the answer was found in an ODD numbered paragraph, leaving only EVEN numbers as your final code (in the order of questions). Paragraph numbers MAY be used more than one time or not at all.

STATION 3:

Read each statement below and determine if it is true or false. If the statement is true, color or shade the coin that corresponds with that question. If the statement is false, cross out that coin value. When you are finished add the TOTAL of ALL TRUE coin values. One digit of the code has been provided for you. If the total is 625, a 6 would go in the first box, the 2 in the second box and so on.

STATION 4:

Use your reading passage to determine the combination to the 4-digit lock. You're going to have to use your critical thinking skills and do a tiny bit of math. Pay attention because the "clues" below are NOT in order.

STATION 5:

Answer each multiple choice question below. Then, count the number of times you used each letter answer (ABCD) to reveal your 4 digit code. Answer options may be used more than once or not at all. If a letter option is not used, simply put a zero in the box.

STATION 6:

Reread the passage and write the main idea in your own words. Then, add TWO supporting details that back up your main idea or topic sentence.

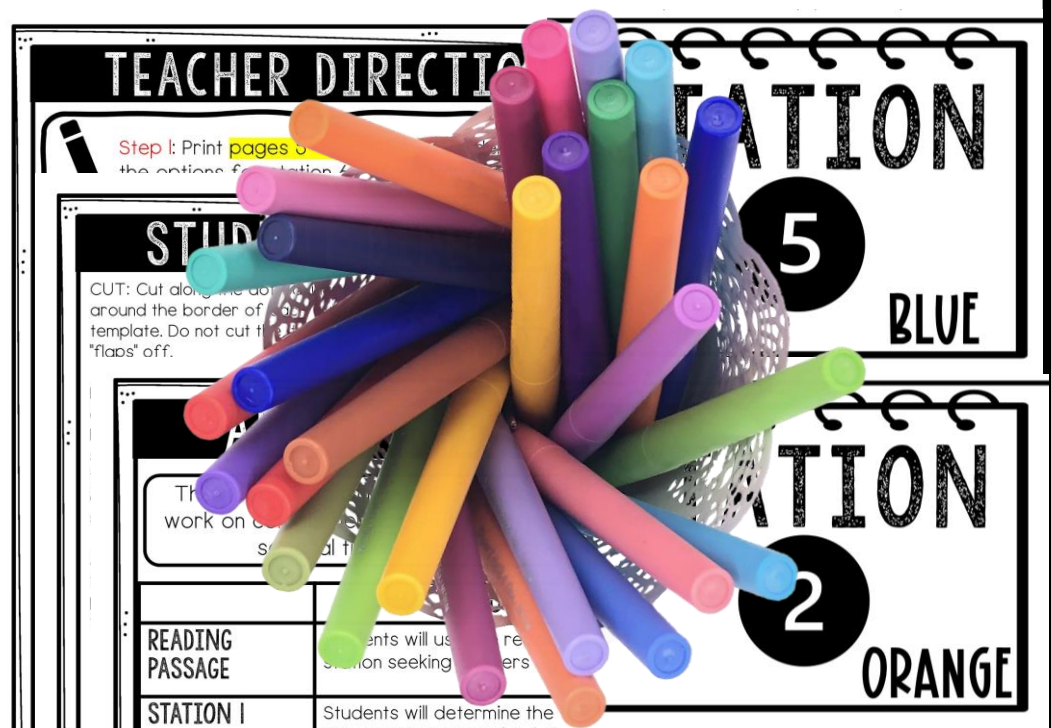
STATION

1

RED

WHAT'S INCLUDED?

- READING PASSAGE
- 6 STATIONS
- TEACHER GUIDE
- STATION CARDS
- ANSWER KEY
- STUDENT DIRECTIONS
- TEXT MARKING OPTION
- ALTERNATE STATION
- ASSEMBLY TIPS



6 STATIONS

STATION 1:

Use your reading passage or deductive reasoning to determine the missing words in the paragraph below. The missing word has a corresponding NUMBER. The 4-digit code will be the NUMBER of each missing word in the same order in which they appear in the paragraph.

STATION

1

RED

STATION 6:

Reread the passage and write the main idea in your own words. Then, add TWO supporting details that back up your main idea or topic sentence.

STATION

6

SUPPORTING DETAIL #1



SUPPORTING DETAIL #2

STATION 4:

Use your reading passage to determine the combination to the 4-digit lock. You're going to have to use your critical thinking skills and do a tiny bit of math. Pay attention because the "clues" below are NOT in order.

STATION

4

GREEN

The LAST number of the lock is the number of different types of cells

STATION 5:

Answer each multiple choice question below. Then, count the number of times you used each letter answer (ABCD) to reveal your 4 digit code. Answer options may be used more than once or not at all. If a letter option is not used, put a zero in the box.

STATION

5

BLUE

What did Gregor Mendel study genetics with?

- A. Pea plants
- B. Suckers
- C. Wheat
- D. Apples

What is a base or nucleotide of DNA?

- A. Adenine

What is the population of blue eyes?

- A. 1%
- B. 10%
- C. 23%
- D. 52%

How many codons?

- A. 1
- B. 3
- C. 5
- D. 7

- A. XY
- B. XX
- C. XZ
- D. ZY

A B C D

STATION 3:

Read each statement below and determine if it is true or false. Write the number of true statements in the box. Then, add the number of false statements to the first digit of the true statements to reveal your 4 digit code.

STATION

3

YELLOW

A 75

B 25

C 50

D 100

C. Overall, there are about 2 million genes in each person.

D. Each variation of a gene is called a genotype.

E. Non-sex chromosomes are called autosomes.

F. Recessive genes are the stronger.

G. Based on the sequence (order) of the DNA, cells get their instructions on how to perform their jobs.

H. Genetics explains how babies get one of their parents' features and not the other.

4 DIGIT CODE



STATION 2:

First, number ALL the paragraphs on your reading passage. Then, read each statement below and determine which paragraph NUMBER the statement can be found in. Lastly, eliminate ANY answer where the answer was not found in the paragraph. Only ODD numbers are allowed. Add the numbers to determine your 4 digit code.

STATION

2

ORANGE

A. Genes are units of heredity.

B. Genes are made of DNA.

C. The first gene combination is red hair and blue eyes.

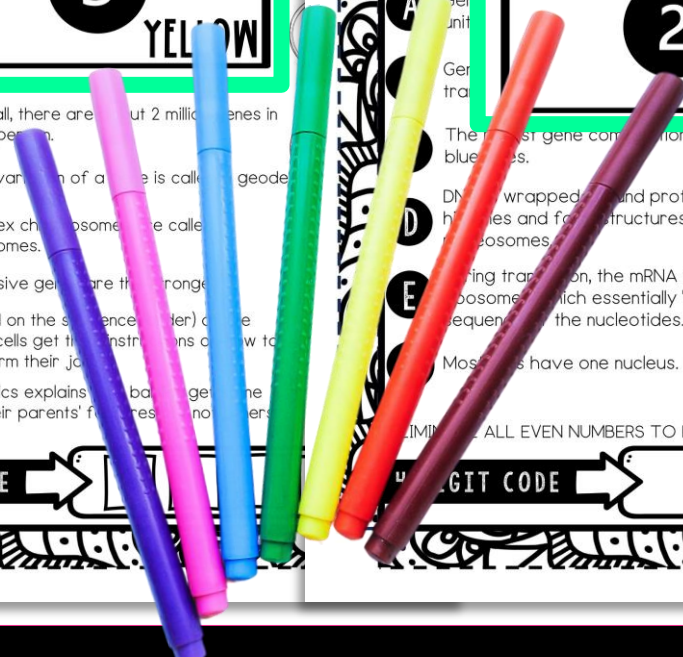
D. DNA is wrapped around proteins called histones and forms structures called chromosomes.

E. During translation, the mRNA interacts with ribosomes which essentially "read" the sequence of the nucleotides.

F. Most cells have one nucleus.

ELIMINATE ALL EVEN NUMBERS TO DETERMINE THE FINAL CODE.

4 DIGIT CODE



SAMPLE CUBE



STATIONS

STATION 1	Students will determine the missing words in the paragraph to reveal a 4 digit code.
STATION 2	Students will number the paragraphs and browse the passage to determine where the answers can be found (paragraph number). After eliminating EVEN numbers, a 4 digit code will be revealed.
STATION 3	Students will read each statement and determine if it is true or false. They will then ADD all TRUE values to find the 4 digit code.
STATION 4	Students will do some basic math here, read the passage to find the answers and then determine the 4 digit code.
STATION 5	Students will answer 6 multiple choice questions which lead them to a 4 digit code based on the number of times they used each "answer".
STATION 6	Option 1: Main idea writing activity Option 2: Color and add topic
TEXT MARKING	OPTIONAL: A color code chart is included in case you want students to mark the text citing evidence of where they found their answers.

**STUDENTS WILL
USE THE SAME
READING
PASSAGE AT
EACH STATION
SEEKING
ANSWERS AND
TEXT EVIDENCE.**

HOW IT WORKS



ENGAGING READING COMPREHENSION PRACTICE!

1

Students work individually (or in pairs) and visit 6 stations, grabbing one side of their cube at each station.

2

Students will answer the questions (found directly in the passage) on their cube sheet before assembly. Students will revisit their reading passage at EACH station!

3

Students will reveal 4-digit codes to move on to the next station. When they finish all stations, they can color and assemble their cube.

STATION

Read each statement below and determine if the statement is true, color or shade the corresponding question. If the statement is false, cross it out. When you are finished add the TOTAL of ALL TRUE statements. A code has been provided for you. If the total is 75, the 1 in the first box, the 2 in the second box and so on.

A 75

A. Isaac Asimov, an Austrian scientist, is known as the father of modern science.

B 25

B. DNA is made up of molecules called nucleotides.

C 50

C. Overall, there are about 2 million variations of a gene in each person.

D 100

D. Each variation of a gene is called a mutation.

E 50

E. Non-sex chromosomes are called autosomes.

F 25

F. Recessive genes are the strongest.

G 50

G. Based on the sequence (order) of DNA, cells get their instructions on how to perform their job.

H 25

H. Genetics explains how babies get their features from their parents but not from their environment.

4 DIGIT CODE →

COMBINATION



Each Cube Code is a winning combination of:




- stations and movement
- close reading
- comprehension skills
- coloring and stress relief
- secret codes
- cut and paste
- citing evidence
- critical thinking

Everything a teacher dreams of wrapped up into one FUN and engaging activity!

BENEFITS



THINK OUTSIDE THE BOX!

-  ANTICIPATORY SETS
-  UNIT REVIEW
-  EARLY FINISHERS
-  STATIONS
-  SUB PLANS
-  PARTNER WORK
-  ENRICHMENT

-  HANDS-ON
-  CROSS-CURRICULAR
-  HIGHLY ENGAGING

