

Science

Grade 9

Genes and DNA

Explore how characteristics are passed from parents to offspring.

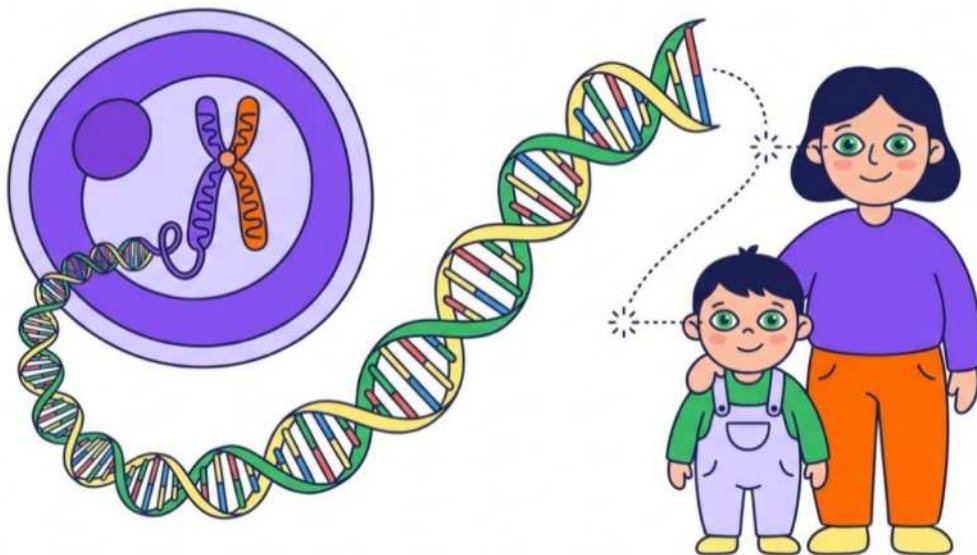


I can explain DNA, genes and simple inheritance with Punnett squares.



1 Match up

Draw a line to match each pair.

☐

DNA

☐

Gene

☐

Chromosome

☐

Allele

☐

Dominant



● A. a different version of a gene

● B. the molecule that carries genetic code

● C. shows up even with one copy

● D. a section of DNA for one characteristic

● E. a long coiled strand of DNA

2 Punnett square

Complete the square for $Bb \times Bb$.

	B	b
B		
b		

3 Pick the answer

Circle the right answer.

1. Parents $Bb \times Bb$. What fraction of offspring are bb ?

A 1/4

B 1/2

C 3/4

2. Humans have how many chromosomes in most cells?

A 23

B 46

C 92

3. Which is an inherited characteristic?

A a scar

B speaking French

C eye colour

4 True or false

Circle true or false.

1. DNA is found in the nucleus of cells.

True

False

2. A gene is longer than a chromosome.

True

False

3. A recessive allele only shows its effect when there are two copies of it.

True

False

4. Identical twins have almost the same DNA.

True

False

5. Characteristics can be affected by both genes and the environment.

True

False

6. All mutations are harmful.

True

False

5

**Another cross**

Complete the Punnett square for Bb × bb.

	B	b
b		
b		

6

**Genetics problems**

Circle the right answer.

1. In Bb × bb, what fraction of the offspring show the recessive trait?

A 1/4

B 1/2

C 3/4

2. An organism with the alleles BB is...

A heterozygous

B homozygous

C a mutant

3. Which pair of sex chromosomes is usually found in a human male?

A XY

B XX

C YY

4. The four bases in DNA are A, T, C and...

A U

B B

C G

7

**DNA words**

Use the word bank to complete each sentence.

WORD BANK

double helix

mutation

sex cells

23

base

1. DNA has the shape of a _____.

2. A change in the DNA code is called a _____.

3. Eggs and sperm are _____.

4. Human sex cells contain _____ chromosomes.

5. In DNA, each _____ pairs with another one: A with T, and C with G.

8 Inherited or not?

Write each characteristic in the right box.

blood group

a sun tan

natural hair colour

pierced ears

red-green colour blindness

dyed hair

Inherited

Caused by the environment

9 Think and write

Explain the difference between genotype and phenotype, with an example.

How did it go?



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Answer key

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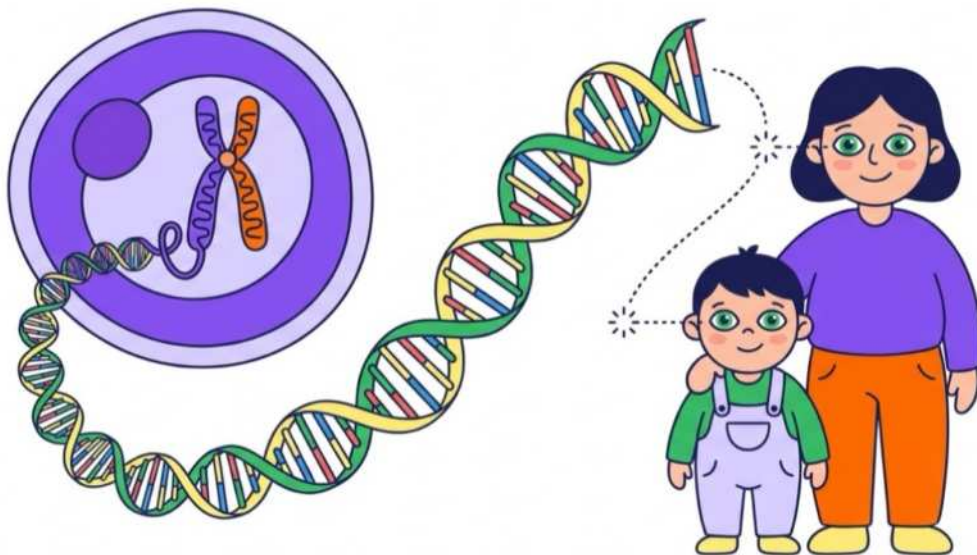


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