Name _____ Date _____

Grade 6

Directions: Read the questions. Choose the truest possible answer.

1. **The passage of genetic information from one generation to another is called _____ .**
   - (A) mitosis
   - (B) meiosis
   - (C) heredity
   - (D) osmosis

2. **Where in a cell are genes found?**
   - (F) the nucleus
   - (G) the vacuole
   - (H) the chloroplast
   - (J) the mitochondrion

3. **Genes occupy specific locations on _____ .**
   - (A) cilia
   - (B) flagella
   - (C) ribosomes
   - (D) chromosomes

4. **Genes contain _____ .**
   - (F) DNA
   - (G) ribosomes
   - (H) chromosomes
   - (J) mitochondrion

5. **How many different genes can a human cell have?**
   - (A) one
   - (B) ten
   - (C) hundreds
   - (D) thousands

6. **Genes control the structure and function of _____ .**
   - (F) the brain only
   - (G) the entire organism
   - (H) the entire circulatory system
   - (J) the skeletal system

7. **How many of its genes does each offspring receive from its father?**
   - (A) all
   - (B) half
   - (C) one quarter
   - (D) three quarters

GO ON

Name _____ Date _____

Grade 8

Directions: Study the diagram below. Use information from the diagram to help you answer questions 1–6.

Purple flowers are dominant. This Punnett square shows the crossing of a purple-flowered pea plant with a white-flowered pea plant.

	P	P
p	Pp	Pp
p	Pp	Pp

P = purple-flower allele p = white-flower allele

1. **How many of the four pea plants have purple flowers?**

_____

2. **Which plants in the Punnett square are homozygous for flower color? Which are heterozygous?**

_____

_____

3. **One of the offspring of this generation (genotype Pp) transferred its pollen to another flower of the same generation (also of genotype Pp). Fill in the Punnett square below to describe this cross.**

	P	p
P		
P		

4. **How many of the four pea plants resulting from this cross have purple flowers?**

_____

_____

5. **How many of these four plants are heterozygous for flower color?**

_____

_____

_____

6. **If you crossed a purple-flowered pea plant of unknown genotype with a white-flowered plant, and half of the plants resulting from the cross had white flowers, what could you deduce to be the genotype of the purple-flowered plant? Explain.**

_____

_____

_____

_____

STOP

Name_____ Date_____

Grade 8

Directions: Read the text below and study the diagram. Use information from both to help you answer questions 1-2.

Cystic fibrosis, a serious lung disease, is inherited in an autosomal recessive manner. A person with one cystic fibrosis gene (Ff) is a carrier but is not affected by the disease. The following Punnett square shows the children of two carriers.

	F	f
F	FF	Ff
f	Ff	ff

1. **What percentage of the couple's children are likely to be carriers of cystic fibrosis but be unaffected by the disease?**

_____

2. **What percentage of the couple's children are likely to have cystic fibrosis?**

_____

Directions: Read the text below and study the diagram. Use information from both to help you answer questions 3-4.

Huntington's disease, a degenerative disease of the nervous system that does not cause symptoms until adulthood, is inherited in an autosomal dominant manner. A person with one gene for Huntington's disease (Hh) will have the disease. The following Punnett square shows the children of one person with Huntington's disease and one person who does not carry the disease.

	H	h
h	Hh	hh
h	Hh	hh

3. **The famous folksinger Woody Guthrie died of Huntington's disease. His son Arlo does not have Huntington's. Since his mother did not have the disease, how likely was Arlo Guthrie to have it?**

_____

4. **Most fatal diseases are not inherited in a dominant manner. Why is Huntington's disease an exception to this rule?**

_____

_____

_____