

Write one important fact from each paragraph in this space.

## Science Shorts -7

### The Power of Chromosomes

Isn't amazing that dogs always give birth to puppies? Dogs don't get mixed up and have kittens, chicks or tadpoles. An animal always gives birth to the same kind of animal. You might also notice that puppies look like their parents. They have similar traits. Some puppies might look like their mother dog. Some might look like the father. Some might look like a combination of both parents.

The same is true for people and plants. People give birth to people. Human babies have similar traits to their parents. And tomato plants produce tomato plants. The young plants have traits similar to their parents. Traits are physical features that make each living thing special. Traits in humans are such things as hair color, eye color and height. Children get their traits from their parents. Traits come from two cells - the egg from the mother and the sperm from the father.

Animals and plants are made up of cells called body cells. The body cells of animals and plants contain chromosomes. Each type of animal or plant has a certain number of chromosomes in each body cell. All dogs have 78 chromosomes. All humans have 46 chromosomes and all tomato plants have 24 chromosomes.

Chromosomes are powerful. They tell the cell what to do. Chromosomes also carry genes. Genes determine traits like what color of fur a puppy will have, or what kind of hair a person will have or how tall a tomato plant will be.

Animals and plants get their chromosomes from their two parents. An animal has a mother and a father. Plants also have two parents, similar to a mother and father. Half of an animal or plant's chromosomes come from its mother. These chromosomes carry the mother's genes. The other half comes from the father. These chromosomes carry his genes.

For a puppy, 39 chromosomes came from its mother and 39 from its father. That's a total of 78 chromosomes in the puppy's body cells. For the rest of the puppy's life, it will have 78 chromosomes in each body cell. These chromosomes make the animal grow into a dog. They also give the puppy traits from its parents.

1. Puppies usually look like their parents because puppies have similar \_\_\_\_\_
  - (A) offspring
  - (B) sizes
  - (C) traits
  - (D) tails
  
2. Each tiny cell contains \_\_\_\_\_ that carry genes.
  - (A) physical features
  - (B) chromosomes
  - (C) two more cells
  - (D) body cells
  
3. Why are chromosomes so powerful?
  - (A) There is the same number of chromosomes in every living thing.
  - (B) They tell the body cells what to do.
  - (C) They are in the body cells of plants.
  - (D) They are in the body cells of animals.
  
4. Where do plants and animals get their chromosomes?
  - (A) from their traits
  - (B) from their two parents
  - (C) from their offspring
  - (D) from their brothers and sisters
  
5. How many chromosomes does a puppy have?
  - (A) 24
  - (B) 39
  - (C) 46
  - (D) 78
  
6. Where do children get traits?
  - (A) from their parents
  - (B) from babies
  - (C) from their brothers and sisters
  - (D) nobody knows
  
7. If people have 46 chromosomes, how many did they get from their mother? \_\_\_\_\_
  
8. How many did they get from their father? \_\_\_\_\_