Born of Blood: Inheritance of Blood Types

Student Data Page 3C

Part I. Making Chromosome Models

After reading the background information and making models of chromosome 9 with the ABO gene, answer the following questions.

1. What do the two pieces of curling ribbon represent?

2. What was being represented by curling the ribbon?

3. Why are there two pieces of curling ribbons joined together?

4. If the two pieces of curling ribbon were real chromosomes inside a cell, what would happen to them when the cell divides? Explain why this happens.

5. What do the permanent marker marks represent?

6. What are the main variations of the gene (on chromosome 9) that determines blood type?

Part II. How Gene Pairs Determine ABO Blood Types

TYPE A

TYPE B

TYPE O

TYPE AB

1. When two ABO genes are present, both genes express themselves. Why does an ***A gene*** and an ***O gene*** create type A blood?

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2. When an ***A gene*** and a ***B gene*** are present, why is ***type AB*** blood created?

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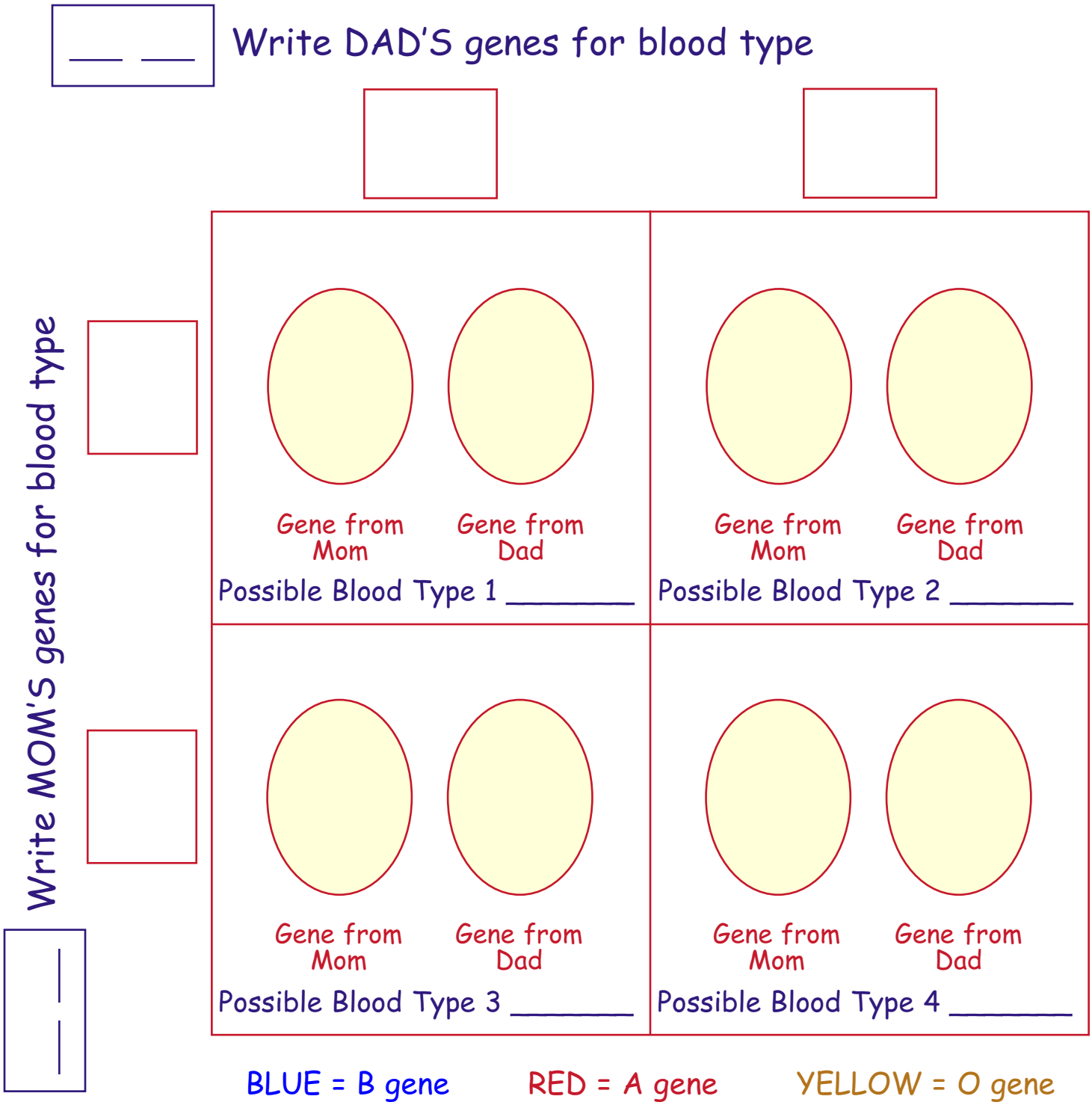
Punnett Square Template



Use the template on the previous page to help you solve each of the following scenarios.

1. What are the possible blood types of children born to a mother with ***type O*** blood and a father with ***type AB*** blood?

2. What are the possible blood types of children born to a mother with ***type A*** blood (AA) and a father with ***type B*** blood (BB)?

3. What are the possible blood types of children born to a mother with ***type A*** blood (AO) and a father with ***type B*** blood (BO)?

4. Is it possible for type O parents to have a ***type B*** child? Work the Punnett Square and then explain why or why not?