

ACTIVITY 3: COMPLETE A PUNNETT SQUARE FOR SICKLE CELL ANEMIA

Directions: Work individually or with a partner to figure out the genotypes of the mother and father. Complete the Punnett square and answer the questions. Then, debrief as a class.

1. The mother has normal red blood cells. What is the mother's genotype?

→ Hint: Look at the phenotype and genotype table on page 3.

☐ AA

☐ SS

☐ AS

2. The father has sickle cell trait. What is the father's genotype?

→ Hint: Look at the phenotype and genotype table on page 3.

☐ AA

☐ SS

☐ AS

3. Complete the Punnett square below using the genotypes of these two parents.

4. Determine (figure out) the probability (chance) of each phenotype.

→ Hint: Look at the phenotype and genotype table on page 3.

a. Normal red blood cells

 %

b. Sickle cell trait

 %

c. Sickle cell anemia

 %

5. Could these parents have a child with a normal phenotype?

☐ Yes

☐ No

6. Could these parents have a child with sickle cell trait?

☐ Yes

☐ No

7. Could these parents have a child with sickle cell anemia?

☐ Yes

☐ No

Reminder

$$\frac{1}{4} = 25\%$$

$$\frac{2}{4} = 50\%$$

$$\frac{3}{4} = 75\%$$

$$\frac{4}{4} = 100\%$$