

### 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?

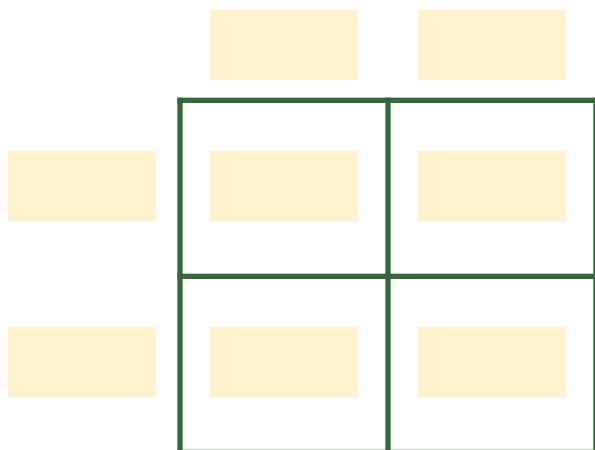
→ Hint: Look at the phenotype and genotype table on page 3.

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**

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

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

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

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