

Name: \_\_\_\_\_

Date: \_\_\_\_\_

### Case History 2: The Hansen Family

George and Amelia Hansen want to know why George and several of his family members have a bad rash. Their daughter, Cheryl, and Amelia’s sister, Margie, also have the rash. They thought it might be caused by an allergy because they live in a dry area filled with sage brush. But their doctor couldn’t find an environmental cause for the rash, so he suggested they visit a genetics clinic.

The genetics clinic collected information about George and Amelia’s families to construct a family pedigree. Doctors hoped that tracing the pattern of family members with the rash would help them determine whether it’s an inherited condition passed from parents to offspring.

George’s Family History	Skin Condition?
George Hansen	Yes
George and Amelia’s daughter: Cheryl	Yes
Brother: Ernie Hansen	Yes
Sister: Stephanie Hansen	No
Mother: Maria Hansen	Yes
Father: Mark Hansen	No

Amelia’s Family History	Skin Condition?
Amelia Hansen (name before marriage, Amelia Murphy)	No
Sister: Margie Murphy	Yes
Mother: Karen Murphy	No
Father: Conrad Murphy	No

Use information about George and Amelia’s families to complete the pedigree (handout 6.4). Shade the circle or square of any family member who has the skin condition. Then answer the following questions.

Is it possible for this skin condition to be an inherited trait? Does the pattern of inheritance match what might be expected if this were a dominant trait? Does the pattern of inheritance match what might be expected if this were a recessive trait?

---

---

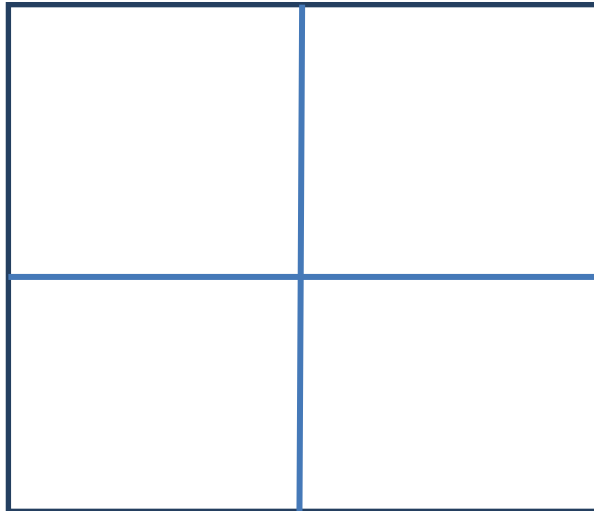
---

---

---

If either a dominant or a recessive allele seems to explain the pattern of family members who exhibit the skin condition, and it appears to be an inherited trait, write the allele combinations under each family member's name on the pedigree handout. If more than one allele combination is possible for an individual, write both combinations under that person's name.

To find out whether the trait is dominant or recessive, create a Punnett square showing the alleles of the parents and the possible allele combinations of their offspring.



Possible allele combinations of offspring:

Discuss the results of your investigation with your colleagues from the genetics clinic (your team partners). What would you tell George and Amelia about the skin condition?

---

---

---

Do you think this rash is caused by genes the offspring inherited from their parents, or do you believe there must be some other cause? Support your answer with evidence from the Hansen family pedigree.

---

---

---

---

---