

Write one important fact from each paragraph in this space.

Science Shorts -7

Crooked Cells

Nellie Thomas cooed as only a mother can, trying desperately to still the cries of her screaming infant. "It's okay. Mama's here," she whispered, as if the tenderness of her voice would be enough to calm him. But baby George, just a few weeks old, wailed on, wracked by a terrible pain. Nellie rocked him through the long night, not knowing why his arms and legs were so stiff or why he couldn't stop crying. Helpless, all she could give him was her love.

In the months that followed, Nellie's baby had many episodes of the same strange symptoms. Each time, he suffered intense pain and stiffness so severe that he couldn't even bend his arms or legs. Nellie often had to rush him to the hospital, but even there, the doctors couldn't come up with a diagnosis.

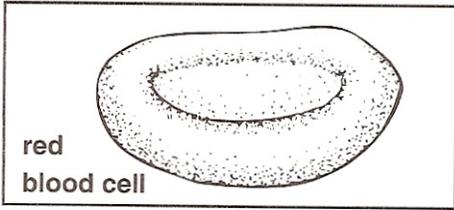
It was five years before George Thomas's illness was finally identified. A doctor who had come to town for a medical conference explained to Nellie that her son was suffering from sickle-cell anemia, a disease that affects the body's red blood cells.

Normal red blood cells look like little puffy disks with their centers punched in. They are soft and flexible so they can squeeze through tiny blood vessels, called capillaries. The job of the red blood cells is to pick up oxygen in the lungs and transport it to the other cells in the body. They can do this because they contain a substance called hemoglobin. But in someone who has sickle-cell anemia, a mistake has occurred in the instructions to make hemoglobin. This causes the shape of the red blood cell to change into a pointed crescent shape.

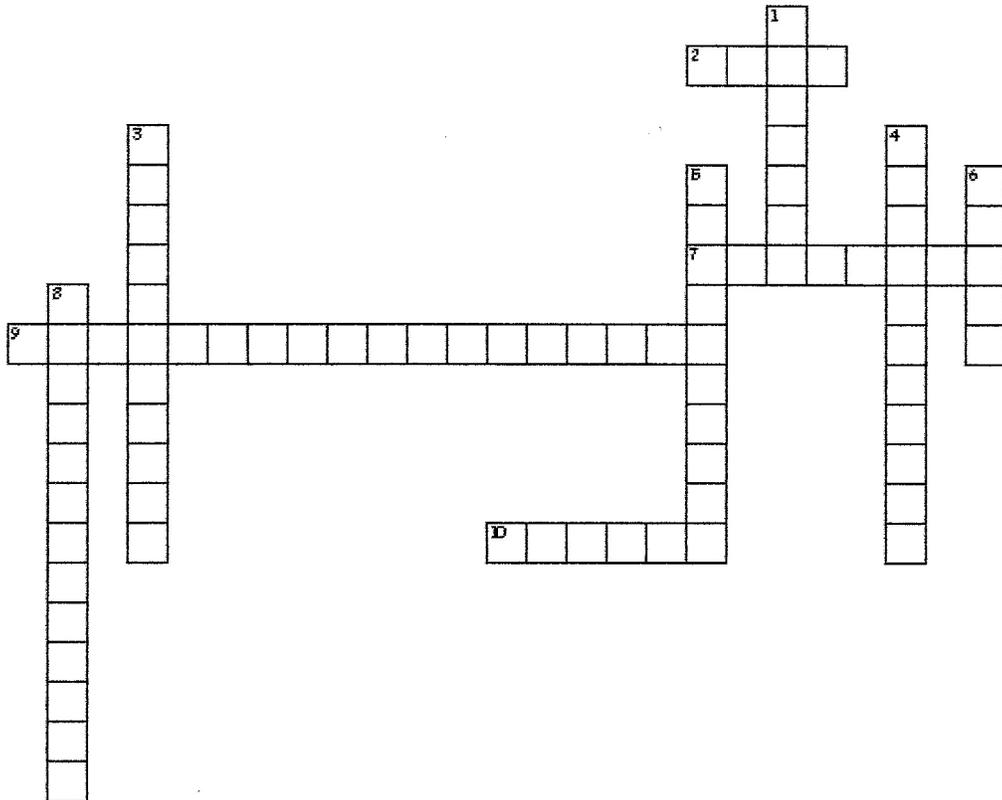
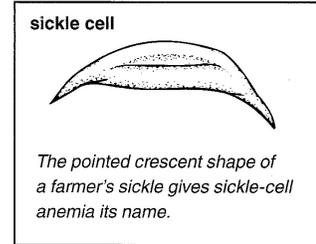
Because of their weird shape, sickle cells often get stuck as they try to move through the capillaries. Their sharp edges catch and stick, and soon there is a cell pileup, like a multiple car crash on the freeway. The pileup blocks the way and prevents the blood from passing. This causes very painful swelling, mostly in the hands and feet.

Sickle-cell anemia is caused by an error in the instruction manual found in each of our body's cells. The error, called a mutation, occurs in the gene that tells the body how to make hemoglobin. A person with sickle-cell anemia inherits the disease from his or her parents. In other words, the disease is passed from parent to child.

Many sufferers of sickle-cell anemia are excited about the advances being made in the field of genetic engineering. One day soon, scientists may actually be able to remove the mutation in the hemoglobin gene of sickle-cell anemia patients.



Crooked Cells



Across

- 2. Where a mutation occurs
- 7. An error in a gene
- 9. How scientists might remove the mutation in the hemoglobin
- 10. What red blood cells carry

Down

- 1. Passed from parent to child
- 3. Blood cell with a pointed crescent shape
- 4. Tiny blood vessels
- 5. The substance that allows red blood cells to carry oxygen
- 6. Where red blood cells pick up oxygen
- 8. Carry oxygen