**YOUR HEALTH FOR GROWN-UPS**

**Healthy Advice:** Columnist Sue Morgan urges lifestyle changes to avoid diabetes.
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## A NOTE TO PARENTS

In 1962, three men won a Nobel prize for something very small in physical size. These three men, due in great part to the technology and research of one woman, were able to create a model of something so small it fits inside the nucleus of a cell. It's deoxyribonucleic acid, known to most of us as DNA. As it's a very complex topic, we've kept the DNA lesson in Your Health for Kids very simple: What DNA is, what it does, where it is located and a few interesting facts. If your child is ready to take it farther, go ahead. For resources, e-mail stacyk@monroenews.com. Just remember, like genes, no two kids are alike.

*Jim, Stacy and Kim*

## Kid's HEALTH FACT

A genome is a complete DNA sequence. How big is the human genome?

**A.** It has 8 to 10 genes and contains about 8 trillion bases.

**B.** It has 20,000 to 30,000 genes and contains about 3 billion bases.

**C.** It has about 80,000 genes and contains about 3,000 bases.

*Answer below*

The Monroe Evening News

# Your Health

A kid's guide to staying healthy, fit and safe

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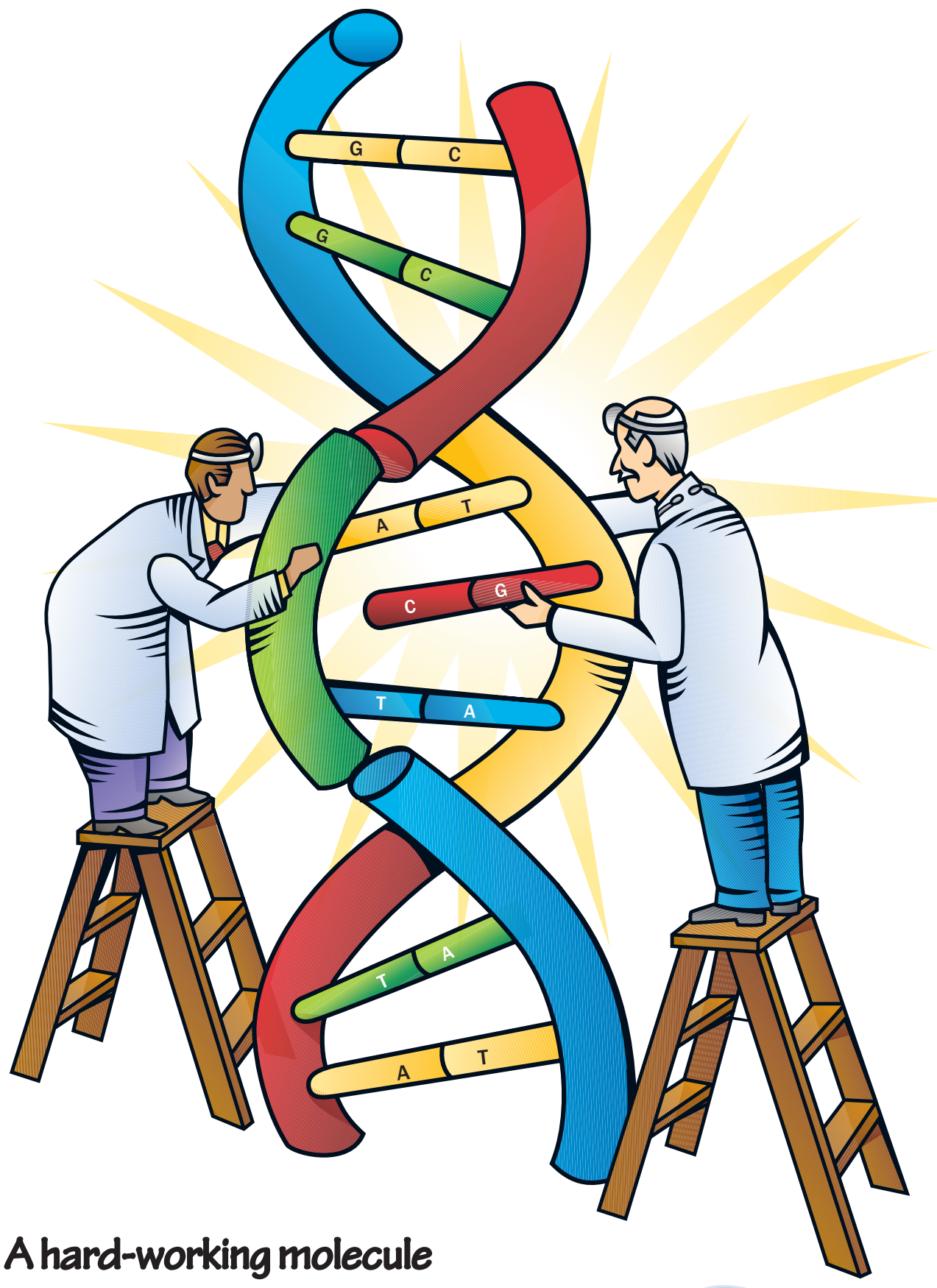
**Stacy Kess,** health editor
**phone:** 240-5762
**e-mail:** stacyk@monroenews.com

## for kids

# The building blocks of YOU




## The mystery of DNA

The old saying goes, little girls are made of sugar and spice and everything nice. Little boys, they say, are made of snakes and snails and puppy-dog tails. The mystery is, what are they really made of?

Four science detectives, Francis, James, Maurice and Rosalind, were on the case in the early 1950s. They knew information was passed on from a mother and father to child in genes — small bits of information that tell the cell of an animal how to act, what to make or how to look. But they didn't know what these genes looked like or how they passed on information.

While Rosalind worked to get a picture of the genes, Francis and James tried to put together the clues they already had from others, creating a possible picture.

When Maurice showed Rosalind's photographs to Francis and James, the pieces of the puzzle fit into place.

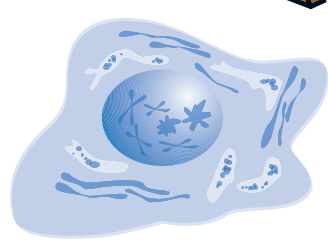
Francis Crick and James Watson created a model of DNA, the genetic information carriers that make both little boys and little girls, thanks to Maurice Wilkin's willingness to share Rosalind Franklin's pictures.

But what on earth is DNA?

DNA is *deoxyribonucleic acid*. It means "a five carbon sugar with a nucleotide base attached." Think of it as four different types of beads: bead A, bead T, bead C and bead G. The A, T, C and G give the bead its shape. (In DNA, we call the letters *nucleotides*.) Beads are put onto a string to make a chain of, say, 100. This chain contains information on who you are, how your body looks, how your body grows and how your body works. It's unique to you. This chain of beads is lined up with a second chain of beads. When lined up, Every A bead is matched with a T bead on the other chain. They click together. Every C bead is matched up with a G bead on the other chain, and they click together. When the beads match, a ladder shape forms. When the ladder is all connected, it twists into a spiral called a *double helix*.

## A hard-working molecule

DNA does two things: *Replication*, making copies of itself so the cell can make a copy of itself, and *protein synthesis*, using the information in the DNA to make proteins for the cell so the cell can do its job. Your hair, eye color and finger nails are all made from the proteins produced thanks to your DNA.



## The genes make the choromosome

And that's what makes you, well, you. A genome is an organism's complete set of DNA, meaning all the basic information, all the genes, everything. It's divided into chromosomes, a set of genes and other DNA. Humans have 24 chromosomes.

Each of your parents gave you a set of chromosomes. Chromosomes X and Y determine if you are a boy or a girl. If each parent gave you an X chromosome, you are a girl. If one parent gave you an X and the other gave you a Y, you are a boy.

## The long and short of it

A single strand of DNA all stretched out would be more than three feet long.

So how can every single cell contain DNA? Here's a clue: Take a piece of string or a shoelace and fold it in half. Hold the folded end in one hand and the two loose ends in the other. Okay, now twist. Keep twisting. Twist some more. If you've twisted enough, your shoelace or string will start to curl on itself, forming a small glump.

DNA, with its helix form, is twisted too. Then, it twists some more. And twists again. And twists and twists and twists, until it's a small glump of chromosomes.

**KIDS HEALTH QUIZ ANSWER: B**

**DNA jokes & riddles ▶**

**QUESTION:** What type of pants do scientists wear? **ANSWER:** Designer genes. ■ **QUESTION:** What do you get when you cross a lion and a parrot? **ANSWER:** Whatever it is, when it speaks, you should listen. ■ **QUESTION:** Where do cool DNA strands hang out? **ANSWER:** The nucleus. ■ **QUESTION:** How do you better understand DNA in cold weather? **ANSWER:** Put your codon. ■ **QUESTION:** Why do geneticists go to dental school? **ANSWER:** They want to learn about dental hi-gene. ■ **QUESTION:** Where do old double helixes retire? **ANSWER:** In an old folk's genome.

**DNA jokes & riddles ▶**

**This page was made by health editor Stacy Kess, photographer Kim Brent and art and design editor Jim Dombrowski, who want to clone themselves to get more work done.**