Tap into Learning

No. 16

Spigot

Spigot Science

for Kids and Classrooms

Motion

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***and much more!**

Spry Family photo

Dr. William J. Spry

Scientists Are People Too

William J. Spry, PhD
By Elsie Spry

Dr. William J. Spry is a **nuclear s**cientist and inventor who grew up in the 1900s. In elementary school, young Bill's teachers made him do extra work because he fidgeted, talked, drew, and made mistakes in class. These mistakes were just the beginning.

As a boy, Bill Spry plowed his grandparent's farm with mules, fished, and hiked in the mountains of Pennsylvania. He and a buddy had fun catching rabbits by running after them. He noticed the world around him and learned new things.

He graduated from high school as a certified mechanic and **valedictorian** of his class.

When he began college, Spry looked forward to classes. He also enjoyed fixing motors on an ocean expedition. But on December 7, 1941, the United States was attacked. He was drafted by the Army and served in World War II. As a soldier in Europe, he worked as a guard and repairman. He mostly enjoyed chatting with the pretty members of the radio/secretarial pool and showing General Eisenhower western movies. (Spry sometimes mixed up movie reels by mistake.)

After WWII, he got a PhD in nuclear physics from Rochester University and sent Congress a thank you note. Congress had paid for his education through the GI Bill.

In the research laboratory, Dr. Spry created carbon fibers by heating and stretching carbonized rayon. According to some scientists, rayon shouldn't have reacted that way. The result was unexpected, a mistake. However, it was turned out to be a new, valuable discovery, and he got a patent for it. Today these fibers are used in fishing rods and Stealth airplanes. In fact, he got several patents for his "mistakes."

Today, Dr. Spry is almost ninety years old, but he has new patents on how ancient Egyptians might have moved large **obelisks** made of stone. He thinks that Egyptians piled sand behind the heavy stones on a slope to push them upward. But because his explanation does not use lots of people and ropes, some scientists think he has made a "mistake" in his thinking. But his patented ideas using sand piles are used to make good retaining walls and help stop beaches from eroding.

Dr. Spry was once a kid like you. He was born when every kid worked and played in the great outdoors. Now, he worries that kids spend too much time inside with computers or hand-held video games. He wants kids to roam in the REAL world and not be afraid of making some all-important "mistakes."

You can learn from scientist and discoverer Dr. William Spry. Go outside, observe, discuss, and write down what is REAL around you. Make mistakes and discover something. Even if it means extra work in school, your mistakes may pay off for you some day as they did for Dr. Spry.

Elsie Spry is a full-time mom, part-time technical writer/author/ presenter, and the Duplo® expert for hands-on "particular" physics. Be sure to visit her particular concepts web site..

See the discussion questions
and activities on the next page.

Scientists Are People Too, continued

Discussion

1. How did Dr. Spry's activities early in his life help him as a scientist later on?
2. Why were mistakes important to Dr. Spry?
3. Have you ever made a mistake that led to something good?
4. Why is it important to notice what is going on around you?
5. Why do you think Dr. Spry is recommending that kids go outside and explore what he calls the "real world?"

Activities


1. Learn more about Dr. Spry's theory of how the pyramids were built and do an activity called *Move Like an Ancient Egyptian* at the Particular Concepts site.
2. Go outside. Record in your journal the sights and sounds. Discover something you didn't notice before. Share with the class.

Motion We Don't Think About

We are always on the move, every day. Even when we think we aren't moving, there are parts of us moving about.

First, we are on a planet that is moving at about 1,000 miles per hour. Because we are anchored to Earth by gravity, we don't realize that we are moving at the same speed as the planet. If we weren't moving at the same speed, we'd be moving forward or backward all the time. That would really be confusing, maybe sickening!

In addition to **revolving**, our planet is also moving in an **orbit** around the sun at a speed of over 67,000 miles per hour (about 100,000 kilometers per hour). The distance around the sun is so great that at this speed, it takes one year to make the trip.

Bodies on the Move

Inside our bodies a lot is happening too. Our organs are always on the move. Our hearts continually beat, our stomach and intestines are continually processing food, and blood is flowing through our arteries and veins at up to four miles per hour. We seldom notice this movement in our body unless our stomach gurgles or we check our pulse or blood pressure.

Our brain, which is far more complicated than any computer, stores information in its cells that regulates everything in our bodies. It sends signals to keep our hearts pumping and our intestines moving to absorb nutrients to nourish us.

There are many forces that cause these movements. Our heart is a muscle, and a signal from the brain directs our heart to expand and contract at a regular pace. This accelerates the blood flowing through our body.

Movement Everywhere

Movement is everywhere in everything. A tree or plant may look perfectly still, but movement is taking place inside it or it wouldn't grow. Even rocks that look totally motionless go though a cycle as forces such as earthquakes, wind, and water change them. Everything changes and everything moves. That's the way our world operates.

Activity

Think of five objects on our planet.

- See if you can figure out how they move and change.
- Discuss your conclusions with others.
- Do some research in books or on the Internet to prove your points.