

*Explore  
and  
Discover*

# Science in Everyday Life

Science is everywhere—in a spider web, a ray of light, even a pile of dirt! Observe and discover the exciting world of science that is around you every day.





### 1. Tools of the Trade

Interview a doctor or dentist and find out about the different ways science and math are used in her work. Ask for a demonstration of science at work. For example, have your blood pressure taken or find out how tooth decay can be prevented.

### 2. Catch the Beat

Your heart flexes as many as 100,000 times a day pumping blood throughout your body. What a machine! Learn to take your pulse when you are sitting and at rest. (Ask someone to show you the arterial pulse points on your wrist or on either side of your neck.) Figure out the beats per minute (count the beats for 15 seconds and multiply that number by 4) to determine your resting heartbeat. Now, find what your heartbeat is after doing two of the following: jumping, standing, dancing, or running in place for 30 minutes each. Be sure to bring your heartbeat back down to resting between each activity.

### 3. Natural Geometry

Spiders are some of nature's best weavers, and the thread they use is remarkably strong. Observe some webs outdoors. Look for differences in the patterns done by different spiders. Sketch a web or capture a spider-web print on black paper. Use a gentle mist of glue or silver spray paint (under adult supervision) to spray the web. Then, "capture" the web against the paper and snip the threads that are holding it in place.



Grand Canyon

### 4. Forces of Nature

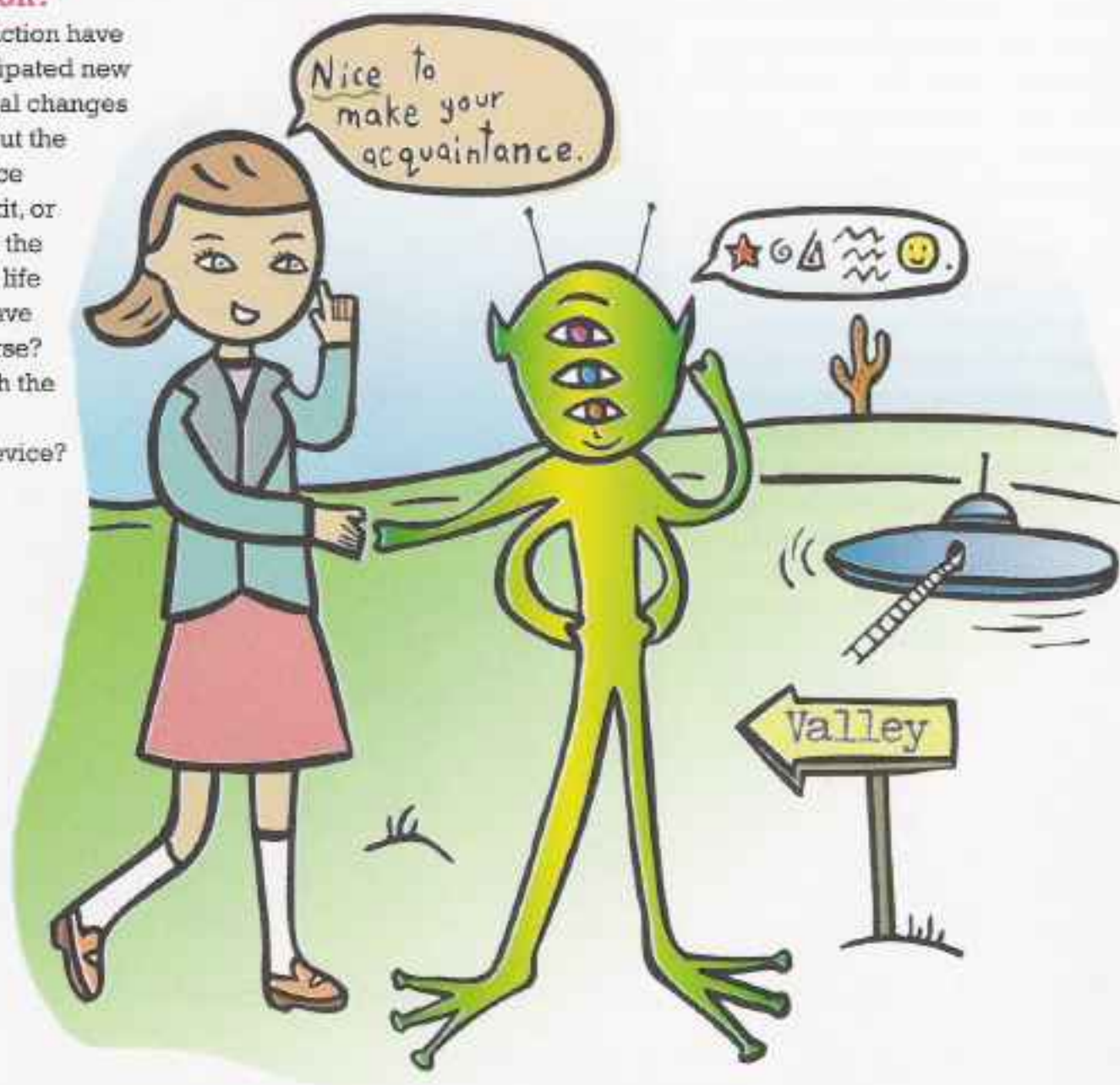
Try to imagine how long it took the Colorado River to carve out the Grand Canyon. Combine time and powerful forces, such as water and gravity, to create erosion by doing one of the following:

- Build a "mountain" with soil outdoors or observe a pile of earth at a construction site over a period of time. What are some of the patterns of erosion that develop?
- Experiment with water flow as a force of erosion at the beach, in a sandbox, or at a "stream table" in a science museum. What are some patterns that develop? Can you change them by diverting the water?
- Soak some bean seeds overnight and place them in a plastic film canister with a moist cotton ball (or a piece of a cotton T-shirt). Put the lid on and leave it for a week. What happens? How does the result exhibit a force of nature?

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## 5. Science Fiction?

Authors of science fiction have often correctly anticipated new technology and social changes in their writings about the future. Write a science fiction short story, skit, or musical about life in the year 2075. What will life be like? What will have become better? Worse? Below, can you match the writer to her or his prediction or plot device?



### Author (Book)

- 1. **George Orwell** (*1984*)
- 2. **Isaac Asimov** (*Foundation*)
- 3. **Jules Verne** (*20,000 Leagues Under the Sea*)
- 4. **Mary Shelley** (*Frankenstein*)
- 5. **Ray Bradbury** (*The Martian Chronicles*)
- 6. **Arthur C. Clark** (*2001 Space Odyssey*)
- 7. **Marion Zimmer Bradley** (the *Darkover* series)
- 8. **Madeleine L'Engle** (*A Ring of Endless Light*)

### Prediction

- a) **Satellites**
- b) **Submarines**
- c) **Interactive television**
- d) **Heart transplants**
- e) **Telepathy**
- f) **Communicating with dolphins**
- g) **Mechanical body parts**
- h) **Robotic ethics**

## 6. Color Mixing

Is mixing different-colored lights different from mixing different-colored paints? Tape some squares of white paper up in a dark hallway. Use flashlights with red, blue, and green cellophane (the primary colors of light) taped over them, and shine different combinations of light on the paper. Record the secondary colors you get with each combination. You can also experiment by shining the lights through different-colored water in clear glasses, or through colored glass or marbles. What happens when you combine a primary color of light, such as blue, and a secondary color like pink? Now do the same thing mixing the primary colors of red, yellow, and blue on paper using paint. What happens when you mix secondary and primary colors?

Continue experimenting with paint colors, and create a picture or design that contains at least 15 or more colors that you have mixed. Which of these predictions have come true?

## 7. Rockin' Along

Go on a geology walk! Find evidence of a changing earth brought about by water, wind, weather, plants, animals, and gravity. Look for:

- Crystals in stone or soil
- Decaying plant life
- Erosion on a hillside
- Evidence of changes brought about by people
- Examples of weathering on buildings or statues
- Loose rocks at the bottom of a hill
- Material deposited by water
- Rocks formed by compression
- Rocks smoothed by water

## Paint

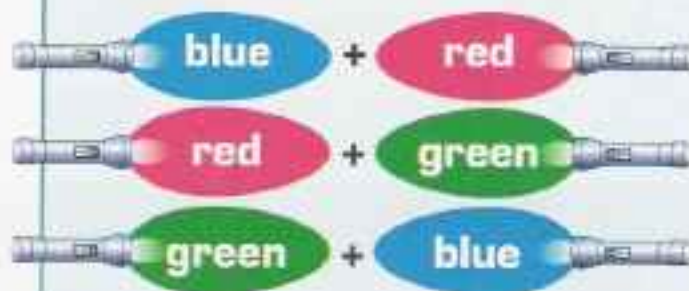
### Primary Colors



### Secondary Colors

## Light

### Primary Colors



### Secondary Colors

## 8. How Much Time?

Time has always been an important unit of measurement. People have invented many different ways to measure time. Find out about early time-keeping tools. Create your own simple instrument that marks the passage of time.

## 9. Here Today, Still Here Tomorrow?

Pick an item that you use often. Find out how it has changed since the time it was first invented. Draw or design a model of what you would like to see it become in another 25 years, or create a replacement for its function. Some items to think about are a radio, a wristwatch, a computer, a book, money, medicine, or a fast food.

## 10. The Key, Please

Choose a group of living things you can observe, such as birds, mammals, reptiles, amphibians, flowers, or trees. Use a simple identification book or field guide to find the names of seven different species in that group. Learn the key characteristics of each species that can help to identify it. These might include what it looks like, where it lives, and how it behaves.