



SCIENCE | TECHNOLOGY | ENGINEERING | MATH

This special Newspaper In Education feature is brought to you by the St. Louis American Foundation, the Missouri Press Foundation and this newspaper.

Growing future scientists, technologists, engineers, and mathematicians with the newspaper!

What Is A Programmer?

Have you ever wondered what a computer programmer does? Computer programmers write the instructions, or programs, that computers must follow to complete a task. Computer programs tell a computer which information to access, how to process it, and what equipment to use. Programmers write programs by breaking each step into a logical series of instructions the computer can follow. They then code these instructions in a special programming language, such as Java or COBOL. Programmers test programs by running them to be sure the results are accurate. If errors occur, they must make changes and retest the program. This process is called debugging. Programmers also update, modify, and expand existing programs.

It takes a variety of skills to be a computer programmer. Programmers must be able to analyze data, process information, think creatively, solve problems, and



The computer game Zap Zap 1.0 shown to the left, was programmed by someone just like you using the free programming language Scratch.

communicate effectively. They also have strict deadlines to meet, so they must learn to organize their time effectively. Computer programmers put their skills to work in the following settings: computer system design companies, finance and insurance agencies, and federal, state, and local government agencies.

Want to learn how to program? The Massachusetts Institute of Technology has a free programming language you can learn called Scratch. To download and start learning, go to: <http://scratch.mit.edu>

Learning Standards: I can read nonfiction information to learn about careers in science, technology, and mathematics. CCS.ELA-LiteracyCCRA.R.2, CCS.ELA-Literacy.CCRA.L.6

Become A Mad Scientist!

There are many different fonts to choose from when typing on a computer. Have you ever considered if viewing words in certain fonts will help you remember them? In this experiment, you will investigate this idea.

Materials Needed: Computer • Printer • Paper • Scissors • Timer • Notebook • Volunteers to Read

Procedure:

- 1 Set the font size to 14 and type several short sentences that are easy to remember, such as, "I took my dog for a walk." Type the sentences in two different fonts: one in a serif type font and the other in a sans serif type font (you will use these same two fonts for the rest of your sentences). You will need to leave space in between the sentences so that you can cut them in strips when they are printed.



- 2 Type several very long sentences in the two fonts, such as "It was the middle of spring and the town was flooded; the school buses had to take detours to avoid water-covered roads."
- 3 Print the sentences and cut them into strips, like flashcards.
- 4 Ask volunteers to study one of the sentences for 5 seconds. Have them repeat the sentence to you without looking at it. Record the results. Did they memorize the question? What font was used? Repeat step 4 with the longer sentences. Record the results.
- 5 As a class, record your data. Did any font seem easier to memorize?

Analyze: Were your predictions for this experiment accurate? Were you surprised by the results? Why?

Learning Standards: I can follow step-by-step instructions to complete an experiment. I can analyze the results. CCSS.ELA-Literacy.CCRA.R.1

Extra! Read All About It!

Do these activities with your family at home using the newspaper. Have your parents read the directions and have fun learning!

1 See if your family can predict the content of a newspaper story by reading only the headline.

2 Look for the "jumps" or continuations of the stories on the newspaper's front page. Match the identifying subtitles and page numbers. Make it a game to see how quickly you can locate these continuations.

3 Choose an object pictured in the newspaper. Without saying what the object is, see if your mom or dad can identify it based on how you describe it. Switch roles and repeat.

Learning Standards: I can follow directions. I can compare and contrast. I can make predictions. CCSS.ELA-Literacy.CCRA.W.4, CCS.ELA-LiteracyCCRA.R.2



Go Figure!

In math, you need to follow the order of operations. The order of operations tells you the specific order to complete a multi-step math problem. The order is PEMDAS, which represents parentheses, exponents, multiplication, division, addition and subtraction. One way to remember PEMDAS is "Please Excuse My Dear Aunt Sally." Practice the order of operations on the following math problems.

- 1 $3 + 18 \div 3 \times 10 =$ _____
 - 2 $9 - 20 \div 2 \times 15 =$ _____
 - 3 $17 + 15 \times 2 - 1 =$ _____
 - 4 $(54 - 4) \div 10 + 6^2 =$ _____
 - 5 $(11 + 4) + 10 \div 2 =$ _____
- Learning Standards:** I can follow the order of operations. I can add, subtract, multiply and divide to solve a problem. CCSS. MathContent.3.OA.A3