The
H.O.T.
Higher Order Thinking
Spot

The H.O.T. Spot

By Jason S. McIntosh, Ph.D.

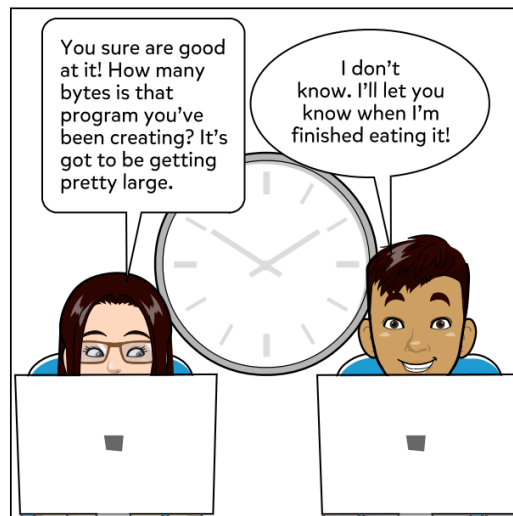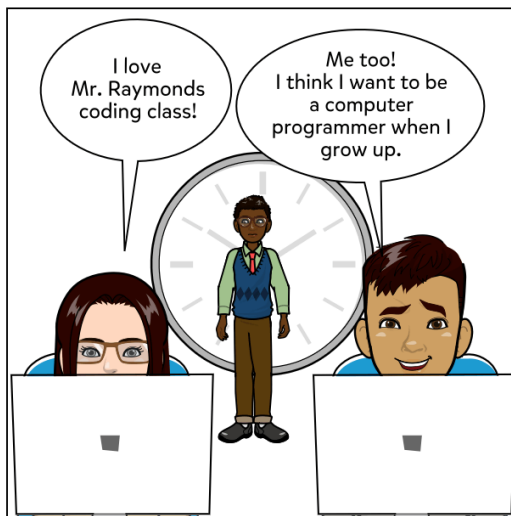## A WEEKLY PUBLICATION FOR CURIOUS KIDS

Issue #6 (May 13, 2020)

CAUTION: Participation may lead to a lack of boredom and a tired brain!

FEATURED TOPIC THIS WEEK:
Coding and Computer Science

Panel 1: Morning students! Please login and continue your coding projects.

Panel 2: I love Mr. Raymonds coding class!

Me too! I think I want to be a computer programmer when I grow up.

Panel 3: You sure are good at it! How many bytes is that program you've been creating? It's got to be getting pretty large.

I don't know. I'll let you know when I'm finished eating it!

Coding and Computer Science

Did You Know?

Computers cannot understand words. The only thing computer circuits understand are commands to turn ON and OFF transistors. This binary code of zeros and ones has morphed into over a dozen computing languages coders use to create websites, apps, and software. A few of the most popular are Linux, Java, C++, iOS, HTML, SQL,, C#, and Visual Basic.

Help Wanted

There are dozens of careers in the word of computer science. Web developers, computer programmers, database administrators, systems analyst, health information technicians, and software engineers are just a few.

Requirements:
- Anyone can work in the field of computer science, but companies prefer programmers with an associates or bachelors degree. Degrees also increase career options and earning potential.

Necessary Skills:
- Know one or more programming languages
- Multi-tasking
- Attention to detail
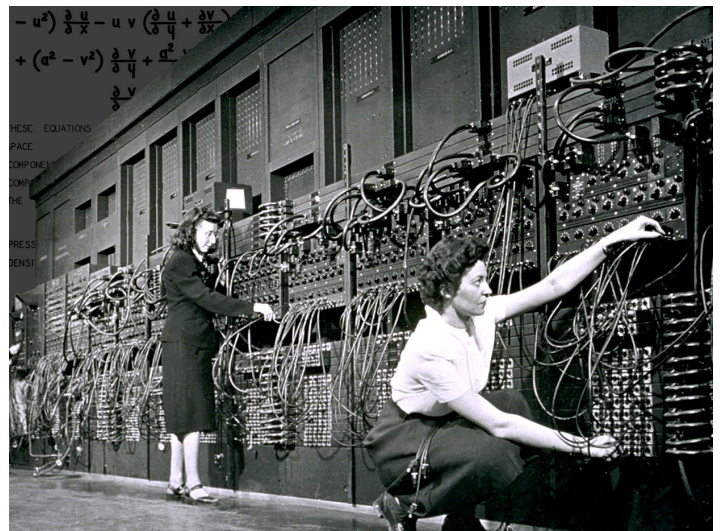- Communication skills

Bio-Profile

One of the most famous people in computer science is Bill Gates. He began his career writing software for the Altair company and then founded his own company at the age of 23 called Microsoft.

Mystery Picture of the Week

Can you guess what you are looking at? After doing your research, turn your paper upside down to check your answer.

ANSWER: This is a picture of America's first electronic computer created in 1946. It was called ENIAC and was programmed by 6 woman.

Virtual Field Trip

Explore the five top coding sites for kids:

codemoji.com

code.org

codeacademy.com

scratch.mit.edu

codecombat.com

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What do you think the featured topic should be next week? Email your teacher with your thoughts.

Project-Based Bonanza

Choose one or more of the projects below to complete this week.

CHOICE A

Apple, founded by Steve Jobs, is one of the most profitable companies in the world. Compare and contrast a Macintosh computer with a PC. Create a Venn Diagram describing what you discover.

CHOICE B

Research the contributions made by one or more of the following people to the field of computer science:

- Barbara Liskov
- Elon Musk
- Larry Page
- Carl Sassenrath
- Mark Zuckerburg
- Hedy Lamar
- Alan Turing

CHOICE C

The If-Then statement is one of the most basic computer commands. If a certain condition exists, then something in particular should happen. Get a group of friends together and play a modified game of Simon Says. You are the programmer and they are the computers. Say,"If I ___, then you___". Have fun!

Cliff Hangers

Here is a writing prompt!
Create your own story

Just like humans, computers can catch viruses too. These viruses are not made of microbes, however. They are made of malicious code designed to make the computer do undesirable things. Imagine you are a computer programmer who just uncovered a devious plan to make computers around the world shut down permanently. The computer virus is called the T-Rex virus. How will you stop it?
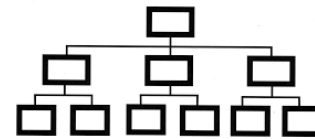
Brain Teaser of the Week

Convert this binary code into text. The website www.ConvertBinary.com will help!

```
01000011  01101111  01100100  01101001
01101110  01100111  00100000  01101001
01110011  00100000  01100001  01110111
01100101  01110011  01101111  01101101
          01100101  00100001
```

Digging Into Depth and Complexity

The next Kaplan Depth and Complexity Model icon we are going to explore is the **rules** icon.

This icon stands for the structure, order, classification, or guidelines that apply to something. Think about the rules icon while reading the scenario below.

Coding is all about writing the rules that computers must follow. Let's take the common language of HTML, which programmers use to create websites. Here is its basic structure:

```html
<html>
 <head>
  <title>website title</title>
 </head>
 <body>
  content of website ...
 </body>
</html>
```

Choose a different programming language and research its basic structure.