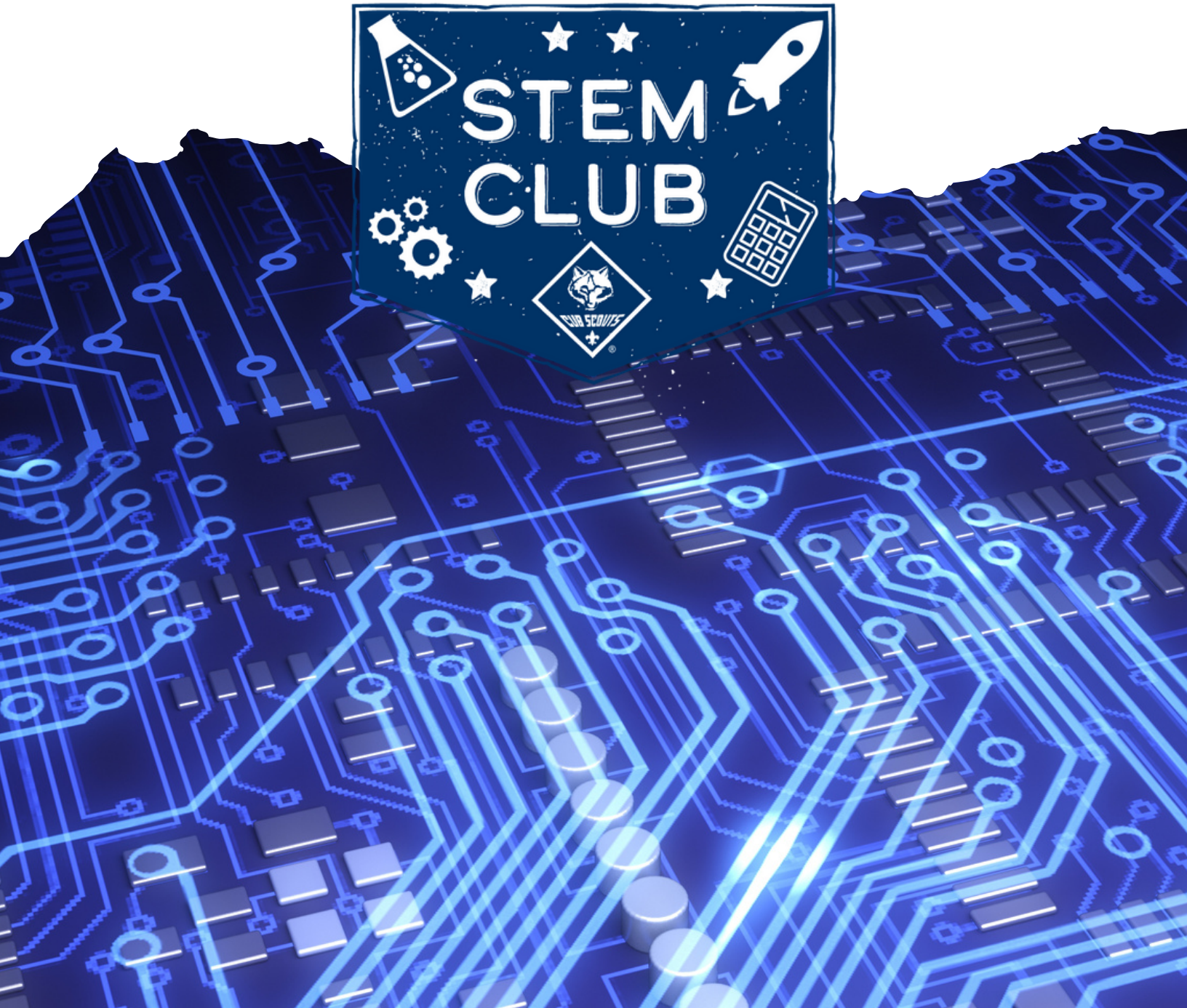# LEADER
CUB SCOUT MEETING GUIDE

STEM CLUB
CUB SCOUTS

WEEK 6
CUB SCOUTS CAN CODE

PRE-MEETING EMAIL

SEND 1 WEEK PRIOR + A REMINDER DAY OF:

Pack (enter #) Families,

Our next meeting is (enter date) at (enter time). Please log-in using this Zoom Code (enter zoom code). I, (enter name), will be the meeting host. Our meeting theme is Cub Scouts Can Code! We'll be doing an experiment learning about computer conditions. Please ensure scouts have the following materials ready to use during the meeting.

- Deck of cards
- Paper
- Pen or Pencil

Cub Scouts can Code is all about computers and how they work. We will be learning about the history of computers, and how computers use conditions when deciding what to do.

See you at our meeting,

(Your Name)

ZOOM MEETING TIPS

WHEN SETTING UP YOUR MEETING:
- Prior to meeting:
  - Set up your meeting and email meeting code, only email to those in your Cub Scout Pack, set up a new meeting in Zoom for each meeting, so there is a new secure code
  - Pre-assign other adults to help as co-hosts, ask them to do specific tasks (monitor chat room, help present w/assigned slides)
  - Take a look at the slide deck and script before the meeting. Read through it once or twice and think about questions your den may ask. You know them best!
- In settings turn off:
  - Annotation (prevents Scouts from writing on screen)
- At beginning of meeting
  - Mute everyone and select "do not let participants unmute themselves"
  - Make additional adults co-hosts
  - Give scouts basic chat courtesy rules: Use it only for questions and on topic conversation. Don't type your response over and over - this makes it hard to see what your friends are saying!
  - You can keep the chat open, but likely you will want to close the chat to "host only", the Scouts tend to spam the chat

MEETING SPECIFIC RESOURCES

www.scouting.org/wp-content/uploads/2020/09/CubsCanCode2020.pdf

SLIDE DECK SCRIPT

SLIDE 1

Welcome to our Cub Scout Meeting! We will start at (enter time). This week, we will be highlighting the Cub Scouts Can Code Cub Scout NOVA Award. NOVA Awards are something fun that Cub Scouts can earn by studying various fields of STEM. STEM stands for Science, Technology, Engineering and Math. Each week we will focus on something new. We will not be completing the NOVA awards with these meetings, they are meant to be a fun introduction!

SLIDE 2

Cub Scouts can Code is all about computers, computer history, and how computers work. In this meeting, we will look at the history of computers, including a computer that was around more than 3,000 years ago!

We will learn about how far the modern computer has come and how much it has changed since it was first made.

Our project this week will focus on computer conditions and how computers use them, and making our own set of conditions to experiment with

SLIDE 3

Now, Let's learn about the history of the computer. The Abacus is often described as the first computer. The abacus was used to count things and do math, and was invented before written numbers were! It was invented 3,300 years ago in China.

Part of the reason the abacus was so cool, was because it had a sort of memory. By sliding the beads from one side of the abacus to the other, you could use the abacus to count things. Because the abacus was invented before written numbers, you couldn't write down the number of things you had counted. The abacus was so cool because even if you walked away and came back later, the abacus would still show the number of things you had counted.

SLIDE DECK SCRIPT

SLIDE 4

Now, Let's look at the history of modern computers. Before we start this, look at the computer, or phone, or tablet that you are using to participate in this meeting. If it's a laptop, phone, or tablet, you could pick it up and test how heavy it is. I bet it isn't very heavy. Well, our first computer wasn't so light.

The ENIAC (Electronic Numerical Integrator and Computer) is often called the first "modern computer." It was built starting in 1943.

The ENIAC Weighed 30 tons! That's 60,000 pounds. The same as 12,000 laptops or 21 of your parent's cars!

ENIAC was also so big that if you owned one today, it would take up your entire house! It might look like the pictures are of people standing next to a computer, but that's wrong. These pictures are of people standing INSIDE of the ENIAC. everything in that picture is actually a part of the computer!

Even though the ENIAC is so big, it was still a lot less advanced than our computers today. for example, the ENIAC had a different way to store information than computers do today, and could only hold 20 words at a time in in it's memory.

SLIDE DECK SCRIPT

Slide 5

The next computer is the first computer to use the kind of memory that our computers use today, and is sometimes known as the first computer with modern memory.

It was called the IBM 305 RAMAC, and it was made in 1956.

We won't go into how they work, because it's pretty complicated, but this computer was the first one to use a Hard Disc Drive, which is what most of our computers use today. The ones we use today are much fancier though. If we took the parts from the 305 RAMAC and tried to make a computer that had the same amount of memory as my computer, it would weigh 250,000 tons! That's as much as 25 Eiffel towers!

The RAMAC could store 5 Megabytes (or MB) of information in it's memory. A Megabyte is a little over 1,000,000 of a little tiny piece of information called a byte. That sounds like a lot, but 5 megabytes is about 12 pages on a word document, or about 1 picture.

The RAMAC was still huge though! It weighed more than 1 ton, which is as much as a car!

Slide 6

The RAMAC Was the first computer to have something similar to expandable storage. It had a big huge hard drive that could be unplugged from the computer and moved somewhere else. It wasn't easy to move it though, because it weighed more than a ton! That's more than 2000 pounds! It had to be moved by forklift and plane. The pictures on screen are of the RAMAC's hard drive being loaded onto a plane. That little memory card is 128 Gigabytes, and is small enough to fit in a phone or a Nintendo Switch. 128 Gigabytes a little more than 128,000 megabytes. So if I wanted to take the RAMAC hard drive and make the same amount of storage with it as this card here, it would weigh a little more than 26,000 tons. That's two and a half times the weight of the Eiffel tower.

SLIDE DECK SCRIPT

SLIDE 7

Now the Next computer on the list is called the Kenbak-1.

It's usually considered the first personal computer. A personal computer is a computer that isn't designed for a big company, but designed just for one person or a family. Like your family computer or laptop.

It was built in 1970

Notice that the Kenbak-1 doesn't have a mouse, keyboard, or screen? That's because it was designed without them.

It used little lights to tell you what it was doing. This was before netflix, youtube, or anything like that had even been invented. Computers weren't good enough yet to be able to play youtube, or games anyway. Remember that last computer that had 5MB of memory? Well this computer had 256 bytes. that means this computer could only hold 256 letters, numbers, or symbols at a time!

SLIDE 8

Now, let's talk about a really fancy computer that's coming out right now. The iPhone 11.

Yes, the iPhone is a phone, but it is also a computer.

The smallest iPhone has 64 GB of memory. That's 2,600 times as much memory as the first computer! And i didn't mention it earlier, but that omputer weighed 2000 pounds! That's more than most cars!

The iphone is also much more powerful than older computers. It's more than 1 million times as powerful as the computer that took Neil Armstrong to the Moon, and it can store more than 100 thousand times ad much information than that computer!

Here's a fun fact for you. If your parents have a graphing calculator at home, ask them to see it after the meeting. The TI-84 calculator is 350 times as powerful, and can hold over 14 thousand times more information than the computer that took Armstrong to the Moon. that little calculator is that much more advanced than a computer that landed on the moon!

SLIDE DECK SCRIPT

SLIDE 9

Here is a look back over the size comparison for the memory inside of a computer. Remember that the first personal computer that you could take home with you had 256 bytes of memory. That's so much smaller than one megabyte that the we couldn't even make a box small enough to represent it! An iPhone has 250,000,000 times the amount of memory as that computer has.

SLIDE 10

Alright, now let's get started on our experiment for today. This is one of the two optional activities in the Cub Scouts Can Code NOVA award, so if you are planning on finishing this NOVA, this will be a nice head start on this requirement. I'll give everyone a minute to go get their deck of cards, piece of paper, and pen. Remember, the paper should be blank on at least one side so we can write on it, but the cards will not get changed in any way.

For this experiment, we are going to learn about conditions. Conditions are how computers know what to do. an example of a condition would be, when i push the power button on my computer, my computer know that it need so turn on. and it knows that if click on the internet browser icon on my home screen, it should open up the internet browser.

Our conditions will be a little bit different than that. we will make a condition for each suit of cards (Diamonds, clubs, hearts, and spades) and then a condition for each card value (Ace through King). Once a condition is set up for each card suit and value, draw a card and see what your two conditions are.

For example: if the condition set for the Clubs suit is to 'Do 5 jumping jacks" and the condition for 5's is to "spin in a circle," if I drew a 5 of Clubs, then I would do 5 jumping jacks while spinning in a circle.

SLIDE DECK SCRIPT

SLIDE 18

Thanks for joining us for this week's meeting! This week, we learned about the history of computers. We started with what many call the first computer 3,300 years ago, then learned about the history of the modern computer. Starting all the way back with the ENIAC, and going all the way to a modern iPhone 11. Then we learned a little bit about conditions and how computers use them.

If you enjoyed learning about computers, you could consider finishing the Cub Scouts Can Code NOVA Award.