mystery science

Grades K-5
Mini-Lesson + Activity: “What were the first computers like?”

VIDEO TRANSCRIPT

MINI-LESSON VIDEO 1

Hi, it's Doug. A friend of mine knows someone who works at a computer company, and they gave me this. Can you guess what it is? It's part of a computer chip or processor. It's kind of like the brain inside of a computer. It's the part that helps the computer do work and remember things, and under a microscope, this looks beautiful. Check it out. Doesn't it look like a picture of a colorful city taken from way up in the sky? Any computer you use at school or at home has at least one or two of these things inside of it. Someone named Josie has a question about computers, let's give Josie a call now.

[Video Call]

- Hi, Doug!

- Hi, Josie!

- I have a question for you. What were the first computers like?

- That's a great question.

And, here's the answer. Now, this probably isn't the type of answer you were thinking of, but believe it or not, the very first computers were actually people. For hundreds of years, people who computed or solved complicated math problems were called computers. That's what the

word used to mean. It was a person's job. These human computers did everything from figuring out how many engines a plane needed to fly to getting rockets into space like Katherine Johnson did. Her math computing skills helped land the first astronaut on the moon, and the story of her life is featured in the movie "Hidden Figures," which is a great movie. Definitely check it out, if you haven't already seen it. Okay, but I know that, wondering about what the first computers were like, you're probably most curious, not about human computers, but about the type of computers that we use to play games, do schoolwork, or watch videos on. What were those first computers like? Before I say anything more, I'm curious. What do you think the world's first computers were like?

MINI-LESSON VIDEO 2

Have you had to do a really hard math problem, like maybe a word problem with a lot of steps? If you did, you probably know that some problems are really complicated and take a long time to solve without help. And the same goes for these human computers. Even though they were really good at math, some problems were just too long or too difficult for them to easily solve on their own. So scientists wondered, could they invent a machine that could help human computers solve math problems? After hundreds of years of trying, inventors finally came up with these, some of the very first electronic computers. They didn't have screens like our computers. They didn't really have keyboards and they were big, I mean really big, like this one. This is the ENIAC, one of the first computers ever invented. It was so huge that it took up an entire room and it weighed a lot too, nearly 30 tons. That's about the same weight as 60 grown polar bears. These first computers weren't only huge, they were expensive, so expensive that only large businesses or universities could afford to buy one. And they weren't all that fun either.

Computers like ENIAC were actually just giant calculators that helped people solve really complicated math problems. So you couldn't video chat with friends on them, you couldn't watch videos on them, you couldn't even take them home to play games on. All these computers could do was math. But then computers like these came along. Computers like the Apple II were called home computers because they were small and they were a lot cheaper. Eventually cheap enough for some families, not just businesses to buy and use in their homes. But even though these new home computers had screens and keyboards, just like the computers we use today, they weren't quite the same. Like, take a look at this game. This is Zork I, one of the first-ever computer games. Notice anything different from the games we play now? See how there are no pictures? That's because some of the first games didn't have any graphics or pictures, they just had words. Playing a game was kind of like reading a story. To tell a character what to do, players would type in words like *pick up treasure* or *throw rock*, and then new words would appear, telling you what happened next. Now, games like Zork I may not look like that much fun to you or to I, but they were new and exciting back then and kids loved them. And adults were excited about these new computers too but for a different reason. See, before home computers, people did a lot of writing. They'd write reports for work and school, they'd write letters to their friends and they had to do it all with a pen and paper or on a machine called a typewriter. That could take a long time and if you messed up, you might have to start all over. But see this button? To people who bought the first home computers, this button seemed like magic. Now you didn't need to use an eraser or have to throw your page away and start all over. If you messed up, you could just hit the button, and poof, your mistakes would disappear. Each year, these home computers became more and more popular and they got better too. Since the time of the Apple II, computers have gotten smarter, and easier to carry, and more useful than they'd ever been before. In fact, one of the biggest advances of our time is that we now have

computers that fit in our pockets. You might think of smartphones as just smartphones but they're actually computers with a touchscreen on them that are small enough to fit in your pocket. So in summary, electronic computers were invented to help solve complicated math problems but since then, they've become so much more. From giant computers as big as a room to home computers that could fit in your house, computers have become an invention that we rely on every day for fun, for school, and for talking with our friends. That's all for this week's question. Thanks, Josie, for asking it. Now, after this video's done playing, my friends and here at Mystery Science have created a special activity where you'll investigate an invention you may not have thought of before—beds! You'll explore different bed inventions and then create a bed invention of your very own. You can do this in a group or all by yourself. I hope you'll try it. Have fun and stay curious!

ACTIVITY INTRODUCTION VIDEO

In today's activity, we're going to explore something around your home. Something you use every day, your bed. This may sound kind of strange, but beds had to be invented. Hundreds of years ago, most beds were made of straw. Today beds aren't stuffed with straw, but, what are they made of exactly? In this activity, you'll look at some common kinds of beds, and some strange kinds of beds. Then you'll invent some new kinds of beds by drawing them. Plus, you'll draw your dream bedroom with what you would like to sleep on. We'll get you started, step by step!

ACTIVITY STEP 1

We're going to do some drawing later in the activity. So go ahead and get your supplies. You'll need a pencil and some paper. Also, get something to color with if you want to. When you're done with the step, tap the arrow on the right.

ACTIVITY STEP 2a

This man is stuffing a bed's mattress full of straw just like people used to do a long time ago. Imagine that this was your bed. What do you think it would feel like to sleep on straw? What could be some problems with straw?

ACTIVITY STEP 2b

Here are some problems we thought of. The straw might get lumpy. You'd have to move it around and fluff it like this man is doing. Some insects also like to eat straw. And if the bed ever got wet, it might get moldy.

ACTIVITY STEP 3a

Your mattress isn't stuffed with straw, but we're curious. What is inside your bed? Think like an inventor. What would be better than straw to have in a mattress? If someone were to cut a bed in half, what do you think it would look like inside?

ACTIVITY STEP 3b

Watch as these people cut their mattresses in half. What kind of materials do you see? This bed looks like it has soft, spongy foam inside of it. There's something different inside this bed

though. Watch. It does have some foam in it, but there's something else inside. What's that gray part? Here's one more video where you can see the gray part better. It's metal. Curly metal springs that hold people up as they sleep.

ACTIVITY STEP 4

Let's find out what your mattress is made of, foam or springs. Now, of course, don't cut up your bed. Instead, you can listen and lie down on your bed to figure out what's inside. Do you hear springs? Does it feel like there might be hard springs inside or just foam? Watch the next video when you think you figured it out.

ACTIVITY STEP 5a

This bed's mattress isn't filled with foam or springs. Watch how the bed moves when people lay on it or touch it. What do you think it has inside of it?

ACTIVITY STEP 5b

There's water inside of it! This invention is called a water bed. Not many people have water beds. We wonder: what would it feel like to sleep on one?

ACTIVITY STEP 6a

What could be a bad thing about having a water bed? These video clips might give you an idea. Do you have any other ideas?

ACTIVITY STEP 6b

For fun, these people brought a water bed outside, and they used a hose to fill it up with way too much water. Then they poked a hole in it. Sometimes this really happens, like if a pet with sharp claws walks on your waterbed, Watch what happens. These people are just having some fun outside, but imagine if all that water spilled out on your bedroom floor.

ACTIVITY STEP 7a

Imagine someone told you, I got you a new bed. Here it is. What? How could this be a bed? Do you have any ideas?

ACTIVITY STEP 7b

Watch what happens. There's a secret hidden bed inside the cabinet. These are called Murphy beds because someone named Murphy invented them. They don't take up much space at all. So when you're not sleeping, you can put it away and have lots of extra space in your room.

ACTIVITY STEP 8a

Some people like the feeling of moving back and forth, like on a rocking chair or a swinging bench. Think like an inventor. Draw a picture of a bed that you could invent that moved back and forth.

ACTIVITY STEP 8b

There are lots of ways to create a moving bed. This bed has a circular frame that can roll back and forth. This bed is hanging from chains on both sides, like a swing. And this bed swings back and forth from ropes attached to the ceiling. You may have come up with a totally different invention in your drawing.

ACTIVITY STEP 9a

Imagine that you wanted to sleep outside in a bed, but that there were lots of flying bugs around. How could you keep the flies out? Think like an inventor. Draw a picture of how you could change your bed to keep out flies.

ACTIVITY STEP 9b

Here are some things people have invented to solve this problem. In some places, people sleep in beds like these every night to keep out mosquitoes and other bugs. You might have invented something totally different.

ACTIVITY STEP 10a

This is a very strange bed that someone has in their home. What does it look like it's made of? What do you think you would feel like to sleep on?

ACTIVITY STEP 10b

It's made of rope. It's a net. You'd probably need a pillow and blanket to be comfy like these kids. Here's a view from above, and here's an adult sleeping on one. It may sound kind of strange to sleep on a net. But have you heard of hammocks? Some people use these outside to relax and lay down on, and they're also sometimes made of rope.

ACTIVITY STEP 11a

Sometimes inventors invent things just for fun. Imagine that you were a chef or a cook. And wanted to decorate your bedroom to show how much you loved food. Draw a picture of what your bed could look like.

ACTIVITY STEP 11b

Here are some ideas. Your bedspread or blanket could have pictures of your favorite food on it. Like this pizza bed, or this hamburger and fries bed, or you can make the bed into the shape of food, like this hamburger bed. I wonder what it would feel like to sleep on this bed. And here's one last one, a cat bed, shaped like a banana. You might have invented a bed that looks totally different, and that's okay.

ACTIVITY STEP 12

Now it's time to draw what your dream bedroom would look like. Think like an inventor. What kind of bed would you want? You can use any of the bed inventions that you saw today, or you can invent an entirely new type of bed. Use your imagination and remember to think like an inventor. Have fun and stay curious!