

Roman Numerals

MA6111

Activity Introduction

Our top story: Roman numerals. And now, here's the four-star general of numerals – Sallyyyyyyyyyyyyyy Newsworth.

Direct Instruction-1

Thank you, Weezy. Hello, I'm Sally Newsworth. In today's top story, we'll be talking about Roman numerals – what they are and how they relate to standard numbers.

Here with more on this story is our first round draft pick – High-tops Thompson!

Model 1

Thank you, Weezy. Hello, I'm Sally Newsworth. In today's top story, we'll be talking about Roman numerals – what they are and how they relate to standard numbers.

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Hi there! I'm High-tops Thompson. You know, a funny thing happened to me recently; I played against a team called the Tiber River Togas.

Wait. That's not the funny part. No, the funny part is that the Togas aren't a team today; they were a team – in the year zero! I had to travel back in time to ancient Rome to play them!

And lemme tell you something – if I learned one thing from the experience, it's that it's sure confusing to read a scoreboard in ancient Rome!

See, the ancient Romans didn't use standard numbers like we do. Nope, they used Roman numerals instead.

Of course, you still see Roman numerals today - when we number sports events or when to show when books were published, or even to analyze music.

You might also see Roman numerals on clock faces, on outlines for school reports, or in titles – and that's only a few examples.

True to its name, this counting system started in ancient Rome. It's based on a system of letters that act as numerals.

What's a numeral? Glad you asked! Numeral is just a fancy word for number. When you put Roman numerals together, or use them repeatedly, you form different number values.

So, in this system, the letter I represents the number one. And when you put two letter I's side by side, you get the number two, and three letter I's side by side represent the number three.

But the Romans didn't think it looked right to have more than three of the same letters in a row. So, instead, they represented the number four with the letters I and V. Why's that, you ask?

Because, in the Roman system, if a smaller numeral precedes a larger numeral, the smaller number is subtracted from the larger number. This means one before five is the same as five minus one, or four.

The system continues on just like that: V represents five and VI represents five plus one, or six.

VII represents five plus one plus one, which equals seven, while VIII represents five plus one plus one plus one, or eight.

Hey, remember how the Romans didn't like the idea of having more than three of the same letters in a row? That means the number nine has to be represented by IX, which means one before ten, or ten minus one. The letter X represents ten.

Now, that covers numbers one through ten, but what about writing bigger numbers? Well, a lot of the time, big Roman numerals are written in order from largest to smallest values, with the largest values kept to the left.

When they're written in this way, you can just add the values to write the numeral in standard form.

On the other hand, Roman numerals are not written in order when a smaller value is in front of a larger value.

When this happens, you have to subtract the smaller value from the larger value to write the numeral in standard form.

Again, since you can't use more than three of the same letter in a row, placing a smaller value in front of a larger value means one thing: subtract.

So, are you ready to venture further into the world of Roman numerals? Or do you want to rewind and hear what High-tops has to say about this again?

Model 2

Okay. Let's go back to High-tops with more on today's top story.

Heads up! Here's the other one: Roman numeral M-C-D.

Okay - M represents one-thousand; the C represents one-hundred; and the D represents five-hundred.

Turns out the Roman numerals are not in order: a smaller value is in front of a larger value

And remember, when a smaller value is in front, you need to subtract that value from the larger one to write the number in standard form.

One-hundred before five-hundred is four-hundred. That means Roman numeral M-C-D is one-thousand-four-hundred in standard form. Sweet!

Now that you have both values written in standard form, you can compare the Roman Numerals.

One-thousand-one-hundred-sixty is less than one-thousand-four-hundred, right?

So, Roman numeral M-C-L-X is less than the Roman Numeral M-C-D.

Hey, if you didn't get all this, no sweat! I can rewind and play it again. But if you think you've got it, we can move along. Which is it?

Direct Instruction-2

Welcome back. Now let's try writing standard numbers as Roman numerals. Here's High-tops again with more on this story.

Model 1

Hey there. You know, changing Roman numerals to standard numbers is no one-way street. Uh-uh. You can change standard numbers to Roman numerals, too! Here's an example for ya.

How do you write the year sixteen-ninety-three in Roman numerals?

Okay, to change this standard number, the first thing you need to do is start with the largest value in the number.

One thousand is represented by the letter M. Then look at the next largest value: six hundred is represented by the letter D, five hundred, next to the letter C, one hundred.

Did you remember that you can't use the same letter more than three times in a row? I thought so. That means ninety can't be written as L, fifty, and four X's, or four tens, next to it.

Instead, it's written as ten before one hundred, or XC. This means one hundred minus ten.

Three is written as three letter I's, representing one plus one plus one.

And there you have it: one-thousand-six hundred-ninety-three written in Roman numerals is M-D-C-X-C-I-I-I! Now, I've gotta take off – I've gotta go mercilessly defeat another team and tipoff's in just X-X-V minutes. See ya!

I, on the other hand, can wait much longer than X-X-V minutes for you to decide whether you want to back up and watch this again or move along.

End of Activity Review

So, let's take another look at what we learned today:

Today we learned all about the system of Roman numerals, which is based on the letters M,D,C,L,X,V, and I.

Remember, each letter represents a specific value. And, the order of the letters makes a difference in the value.

We also covered the basic rules of Roman numerals: first, do not use one letter more than three times; second, keep the largest value to the left; and third, when a smaller value is in front of a larger value you need to subtract.

And that's about it for today. Let me know when you're ready to go on.