

00:00:00.000 --> 00:00:24.879

The reason why math is tough to teach is that, for some reason in our society, it's become

00:00:24.879 --> 00:00:30.040

okay to have been bad at math.

00:00:30.000 --> 00:00:32.440

Not only is there the challenge of actually teaching

00:00:32.440 --> 00:00:34.559

the numbers and the operations,

00:00:34.559 --> 00:00:36.320

but a lot of times as math teachers,

00:00:36.320 --> 00:00:39.119

we're working to undo a stereotype

00:00:39.119 --> 00:00:41.840

which really sort of pre-exists in society.

00:00:41.840 --> 00:00:44.399

The most challenging part is finding a way

00:00:44.399 --> 00:00:47.899

to connect with the students who may come to us

00:00:47.899 --> 00:00:49.760

with very low academic skills,

00:00:49.760 --> 00:00:53.360

but keep the advanced students inspired

00:00:53.360 --> 00:00:55.540

and pushing them to reach new heights.

00:00:55.540 --> 00:00:58.979

At Michigan Middle School, we have three grade levels.

00:01:00.000 --> 00:01:01.679

6th, 7th, and 8th.

00:01:01.679 --> 00:01:06.760

The population is 93% Latino, mostly immigrant communities.

00:01:06.760 --> 00:01:08.920

And we're actually in one of the fastest-growing,

00:01:08.920 --> 00:01:11.699

high-poverty neighborhoods in all of San Diego.

00:01:11.699 --> 00:01:15.880

So our students come to us with issues well beyond whether

00:01:15.880 --> 00:01:17.879

or not they did their homework last night.

00:01:17.879 --> 00:01:19.559

Especially in this kind of community,

00:01:19.559 --> 00:01:21.840
you need to have outlets for these students,

00:01:21.840 --> 00:01:24.520
not just focusing on the books.

00:01:24.520 --> 00:01:26.920
You have to have a way to pull them in and interest them.

00:01:26.920 --> 00:01:29.500
What I noticed is that a rap song would come out

00:01:29.500 --> 00:01:31.340
on the radio.

00:01:30.000 --> 00:01:32.779
on Monday, and by Tuesday they seem to have

00:01:32.779 --> 00:01:34.360
every single word memorized.

00:01:34.360 --> 00:01:36.679
So I wrote a rap song called The Itty Bitty Dot.

00:01:36.679 --> 00:01:39.199
Just line up the dot and give it all you got.

00:01:39.199 --> 00:01:41.380
And I went home and I practiced it all night

00:01:41.380 --> 00:01:42.779
and I came in the next morning

00:01:42.779 --> 00:01:45.159
and I performed it for my students.

00:01:45.159 --> 00:01:46.139
And then at the end of the week,

00:01:46.139 --> 00:01:48.280
my test scores shot through the roof.

00:01:48.280 --> 00:01:51.639
And so I like to say I've been math rappin' ever since.

00:01:51.639 --> 00:01:53.959
Just line up the dot and give it all you got.

00:01:53.959 --> 00:01:56.680
I said line up the dot and give it all you got.

00:01:56.680 --> 00:01:58.879
Not only am I teaching math, but at the same time

00:01:58.879 --> 00:02:00.120
I'm really working to.

00:02:00.000 --> 00:02:05.000
these stereotypes of mathematicians as nerdy and as boring.

00:02:05.320 --> 00:02:07.599
All right, if you can hear me, clap once.

00:02:07.599 --> 00:02:09.439
If you can hear me, clap twice.

00:02:09.439 --> 00:02:11.840
If you can hear me, give me a two-clap, two-snap.

00:02:13.079 --> 00:02:14.119
All right, very nice.

00:02:14.119 --> 00:02:16.760
Today, we are talking about adding integers.

00:02:16.760 --> 00:02:19.399
So today's objective is, by the end of the day,

00:02:19.399 --> 00:02:22.040
you will walk out of here knowing,

00:02:22.040 --> 00:02:24.920
understanding integers, and knowing how to add them.

00:02:24.920 --> 00:02:28.719
For a lot of students, it's a tough concept to grasp

00:02:28.719 --> 00:02:30.159
that there are numbers.

00:02:30.000 --> 00:02:34.639
less than zero, and that you can add them with numbers greater than zero.

00:02:34.639 --> 00:02:38.520
So you have a warm-up today that we're gonna get started with on temperature.

00:02:38.520 --> 00:02:42.359
It's about the temperature getting colder, so it's the only warm-up we'll

00:02:42.359 --> 00:02:43.840
ever do that's actually a

00:02:43.840 --> 00:02:47.959
cool-down.

00:02:47.959 --> 00:02:52.360
Alright, alright. We always start the same way. We start with some sort of a warm-up,

00:02:52.360 --> 00:02:56.200
and I usually try to make sure that it's either something that we need to work on

00:02:56.200 --> 00:02:57.360
a little bit more from

00:02:57.360 --> 00:03:00.360
some of the previous days, or that it's going to reinforce...

00:03:00.000 --> 00:03:02.279
for some skills that they're gonna need

00:03:02.279 --> 00:03:04.760
in order to be successful in today's lesson.

00:03:04.760 --> 00:03:05.960
All right, just take a moment.

00:03:05.960 --> 00:03:07.960
You're gonna discuss with your seat partner

00:03:07.960 --> 00:03:08.979
the answers that you got.

00:03:08.979 --> 00:03:11.239
And I should hear you saying things like,

00:03:11.239 --> 00:03:12.859
hey, what did you get for the first one?

00:03:12.859 --> 00:03:14.899
Or how did you figure this out?

00:03:14.899 --> 00:03:16.040
Don't just talk about the answers.

00:03:16.040 --> 00:03:18.059
Talk about how you actually got some of the answers.

00:03:18.059 --> 00:03:20.079
Go ahead, you have one minute to discuss the answers

00:03:20.079 --> 00:03:21.159
with your seat partner.

00:03:22.079 --> 00:03:24.739
Four degrees to negative seven.

00:03:26.860 --> 00:03:29.760
So it would be two and after that it says to try to five.

00:03:30.000 --> 00:03:31.919
And then we actually go to a negative,

00:03:31.919 --> 00:03:33.599
so it would be zero.

00:03:33.599 --> 00:03:35.159
And then we just drop other fours.

00:03:35.159 --> 00:03:37.519
The students can't just be listening to me the whole time.

00:03:37.519 --> 00:03:38.960
They have to be talking to each other,

00:03:38.960 --> 00:03:40.720
they have to be learning from each other,

00:03:40.720 --> 00:03:42.600
working in small and large groups,

00:03:42.600 --> 00:03:44.439
and not just learning the math,

00:03:44.439 --> 00:03:46.840
but learning how to be good learners.

00:03:46.840 --> 00:03:49.840
What you did was you actually were adding integers.

00:03:49.840 --> 00:03:52.479
You started at eight, but then we fell,

00:03:52.479 --> 00:03:54.540
and normally we think of that as subtraction,

00:03:54.540 --> 00:03:56.579
except that once we got to zero,

00:03:56.579 --> 00:03:59.399
we had to go into negative numbers,

00:03:59.399 --> 00:04:00.239
and that's exactly.

00:04:00.000 --> 00:04:03.119
what we're talking about today, but right now I just want to take some
time and I

00:04:03.119 --> 00:04:07.239
want to talk a little bit about positive and negative numbers and where
they

00:04:07.239 --> 00:04:12.279
actually are in our lives. So get to know the students, get to know
their interests,

00:04:12.279 --> 00:04:17.760
get to know what drives them and what really interests them, and bring
in every

00:04:17.760 --> 00:04:22.959
single theme that applies. Anybody here like football? Anybody here like
the

00:04:22.959 --> 00:04:27.680
Chargers? All right, why are positive and negative numbers extremely
important to

00:04:27.680 --> 00:04:32.319
the Chargers and anybody that they play or anybody?

00:04:30.000 --> 00:04:32.000
who likes football. Manuel?

00:04:32.000 --> 00:04:34.500
They need to know how far away they are from the touchdown.

00:04:34.500 --> 00:04:38.000
Exactly. Exactly. And that's all football is.

00:04:38.000 --> 00:04:40.000
The teams start, usually at the 20-yard line,

00:04:40.000 --> 00:04:42.500
and they just go back and forth along a big number line.

00:04:42.500 --> 00:04:44.000
So without that number line,

00:04:44.000 --> 00:04:46.000
the teams don't really know where they are on the field.

00:04:46.000 --> 00:04:49.500
That's all football really is. It's a game of number lines.

00:04:49.500 --> 00:04:51.500
All right. Raise your hand

00:04:51.500 --> 00:04:55.000
if somebody owes you money right now.

00:04:55.000 --> 00:04:57.500
Andy.

00:04:57.500 --> 00:04:59.000
Andy, do you owe Michael money?

00:04:59.000 --> 00:05:00.000
Yeah. How much?

00:05:00.000 --> 00:05:01.000
Seven bucks.

00:05:01.000 --> 00:05:04.000
Seven bucks for what?

00:05:04.000 --> 00:05:05.000
The dance ticket.

00:05:05.000 --> 00:05:06.000
Ah, the dance ticket.

00:05:06.000 --> 00:05:07.000
You paid for his dance ticket?

00:05:07.000 --> 00:05:08.000
Yeah.

00:05:08.000 --> 00:05:09.000
Okay.

00:05:09.000 --> 00:05:10.000
So who's positive?

00:05:10.000 --> 00:05:13.000

Who's positive and who's negative in this situation?

00:05:13.000 --> 00:05:15.000

Andy's negative.

00:05:15.000 --> 00:05:16.000

Angie, what were you going to say?

00:05:16.000 --> 00:05:17.000

Michael's positive.

00:05:17.000 --> 00:05:18.000

Michael's positive.

00:05:18.000 --> 00:05:19.000

How come?

00:05:19.000 --> 00:05:21.000

Because he needs to get the money.

00:05:21.000 --> 00:05:22.000

Okay.

00:05:22.000 --> 00:05:23.000

And what about Andy?

00:05:23.000 --> 00:05:24.000

Well, he needs to give the money.

00:05:24.000 --> 00:05:25.000

Okay.

00:05:25.000 --> 00:05:26.000

So is Andy positive or negative?

00:05:26.000 --> 00:05:28.000

Well, actually he's positive.

00:05:28.000 --> 00:05:30.000

Well, right now Andy has the money, right?

00:05:30.000 --> 00:05:35.000

But the fact that he owes the money, he's actually negative seven dollars.

00:05:35.000 --> 00:05:40.000

Today, what we're going to do is we're going to focus on adding and subtracting positive and negative numbers.

00:05:40.000 --> 00:05:44.000

And I want to start by showing you a very famous video called the number line dance

00:05:44.000 --> 00:05:47.000

that was made by some of our students about eight years ago

00:05:47.000 --> 00:05:54.000

about this simple process of what happens when you start by borrowing just a little bit of money from a friend.

00:05:54.000 --> 00:05:55.000

Let's watch.

00:05:55.000 --> 00:05:58.000

So I borrowed five dollars from a friend of mine.

00:05:58.000 --> 00:06:00.000

Yo, I'll pay you back. And my friend said.

00:06:00.000 --> 00:06:03.000

So I ate up all my tacos, now I'm negative five.

00:06:03.000 --> 00:06:06.000

Then we got into the car, and home we did drive.

00:06:06.000 --> 00:06:08.000

But on the way home, we stopped for ice cream.

00:06:08.000 --> 00:06:09.000

You should have seen all those flavors.

00:06:09.000 --> 00:06:11.000

Yo, I thought it was a dream.

00:06:11.000 --> 00:06:14.000

And so I try to play the music or show the video first,

00:06:14.000 --> 00:06:16.000

and then I'll explain the movements.

00:06:16.000 --> 00:06:19.000

All right, so you can't watch the number line dance

00:06:19.000 --> 00:06:21.000

without learning the number line dance,

00:06:21.000 --> 00:06:23.000

and we've made it very simple for you.

00:06:23.000 --> 00:06:26.000

All you have to do is, everybody take your left hand,

00:06:26.000 --> 00:06:28.000

and you're going to make a negative sign

00:06:28.000 --> 00:06:30.000

across your heart, right?

00:06:30.000 --> 00:06:34.440

You're going to make a negative sign across your heart, and you're going to say negative

00:06:34.440 --> 00:06:35.440

to the left.

00:06:35.440 --> 00:06:36.440

Try it.

00:06:36.440 --> 00:06:38.119

Negative to the left.

00:06:38.119 --> 00:06:39.119

Again.

00:06:39.119 --> 00:06:40.760

Negative to the left.

00:06:40.760 --> 00:06:45.079

Then you take your right hand, and you put it up in front of your left hand like this

00:06:45.079 --> 00:06:48.840

and make a positive sign and say positive to the right.

00:06:48.840 --> 00:06:52.479

And the students will do the moves themselves, really internalizing it.

00:06:52.479 --> 00:06:57.399

So they're internalizing the math, not only by hearing it and seeing it, but also by acting

00:06:57.399 --> 00:06:58.399

it out.

00:06:58.399 --> 00:06:59.399

So stand up.

00:06:59.399 --> 00:06:59.899

Do this.

00:07:00.000 --> 00:07:06.519

It's negative to the left, positive to the right, it's the number line dance.

00:07:06.519 --> 00:07:08.079

I could dance all night.

00:07:08.079 --> 00:07:13.000

Well forget the macarena, forget the funky chicken, cause I got a new dance and a beat

00:07:13.000 --> 00:07:14.000

that's kicking.

00:07:14.000 --> 00:07:19.719

Yeah the number line dance is my finest creation, in every math class it is sweeping the nation.

00:07:19.719 --> 00:07:24.040

First of all, what I do is I look at the concept that the students are having trouble with,

00:07:24.040 --> 00:07:29.200

and so I try to explain the concept as absolutely simply as possible, I break it up into just

00:07:29.200 --> 00:07:30.000

a few sentences.

00:07:30.000 --> 00:07:34.000
and then I kind of play with the words and see what rhymes.

00:07:34.000 --> 00:07:38.000
Last time, negative to the left, positive to the right.

00:07:38.000 --> 00:07:41.000
It's the number line dance. I could dance all night.

00:07:41.000 --> 00:07:46.000
Yeah, give yourselves a round of applause, ladies and gentlemen.

00:07:46.000 --> 00:07:50.000
Then we move into sort of the more paper-and-pencil math,

00:07:50.000 --> 00:07:54.000
the standards-based math that the students need to know.

00:07:54.000 --> 00:07:59.000
So the music is there again, not in place of great teaching.

00:07:59.000 --> 00:08:00.000
The music and the...

00:08:00.000 --> 00:08:03.200
of movements are there as a supplement to great teaching.

00:08:03.200 --> 00:08:05.000
All right.

00:08:05.000 --> 00:08:07.079
Today, by the time you leave here,

00:08:07.079 --> 00:08:10.600
you will understand and be able to add integers.

00:08:10.600 --> 00:08:13.600
So now we've got to take the number line dance

00:08:13.600 --> 00:08:16.799
and how we do it standing in class to what it actually

00:08:16.799 --> 00:08:20.280
means with regards to adding positive and negative numbers.

00:08:20.280 --> 00:08:23.000
So you pretty much already were doing the number line

00:08:23.000 --> 00:08:25.799
dance when you were working with the thermometer in our warm up,

00:08:25.799 --> 00:08:26.559
right?

00:08:26.559 --> 00:08:28.399
It's just that you were going up and down

00:08:28.399 --> 00:08:31.159
for positive and negative instead.

00:08:30.000 --> 00:08:31.200
of to the left and right.

00:08:31.200 --> 00:08:35.719
So let's do the first one together and then the first few together and then we'll see

00:08:35.719 --> 00:08:38.119
if we can start to do these on our own.

00:08:38.119 --> 00:08:42.960
So start by, let's go ahead and start with number one.

00:08:42.960 --> 00:08:45.680
We've got nine plus negative four.

00:08:45.680 --> 00:08:47.920
Where does the number line dance always start?

00:08:47.920 --> 00:08:48.920
Zero.

00:08:48.920 --> 00:08:49.920
Absolutely.

00:08:49.920 --> 00:08:53.120
The number line dance, it starts at zero and when you do this dance, you're the neighborhood

00:08:53.120 --> 00:08:54.120
hero.

00:08:54.120 --> 00:08:56.860
So at that point, we'll really get into the bulk of the lesson.

00:08:56.860 --> 00:09:00.059
We're taking notes, we're doing answers, and you know.

00:09:00.000 --> 00:09:04.960
I'll pick one or two class members to show the class how to do something and then hopefully they can start to do it on

00:09:04.960 --> 00:09:06.960
Their own I just explained

00:09:07.039 --> 00:09:10.180
How to do one now who can explain to us how to do one?

00:09:12.960 --> 00:09:18.200
George want to give it a try. Yeah, nice and loud take us through number two

00:09:22.600 --> 00:09:25.079
Okay, why two negative or which direction is that

00:09:25.079 --> 00:09:30.040
Okay, let's go ahead now question for you. Do we have

00:09:30.000 --> 00:09:31.500
Do we have to do every single step

00:09:31.500 --> 00:09:33.579
or can we start to skip steps yet?

00:09:33.579 --> 00:09:35.699
Can we just go all the way to negative seven?

00:09:35.699 --> 00:09:36.539
Yeah.

00:09:36.539 --> 00:09:37.380
We don't need to make every step.

00:09:37.380 --> 00:09:38.840
Okay, don't teach alone, you know?

00:09:38.840 --> 00:09:41.119
Don't be the only one standing up there

00:09:41.119 --> 00:09:42.760
delivering instruction.

00:09:42.760 --> 00:09:45.119
Call on the students to help you teach.

00:09:45.119 --> 00:09:46.420
How'd you get that?

00:09:46.420 --> 00:09:50.000
Because I went to negative 12 to the left

00:09:50.000 --> 00:09:54.420
and then I went eight spaces back to the right

00:09:54.420 --> 00:09:57.340
and then I landed on negative four.

00:09:57.340 --> 00:10:00.920
Okay, so you started by going negative 12.

00:10:00.000 --> 00:10:04.639
Okay, so that's a great point. Does it matter which one we do first?

00:10:05.559 --> 00:10:13.079
What property tells us that as long as we're adding two numbers we can add them in any order? Who remembers what property that is?

00:10:13.079 --> 00:10:15.079
Jesus?

00:10:16.639 --> 00:10:20.239
Very nice. Remember the commutative property of addition? Here we are using things

00:10:20.239 --> 00:10:23.639
we learned all the way back to like the first week of school. So

00:10:24.319 --> 00:10:29.200
what we're gonna do now is we're gonna actually take this and we're gonna start writing our own

00:10:29.200 --> 00:10:31.280
rules.

00:10:30.000 --> 00:10:34.219
But I think that what happened was you guys started to figure out how to do this without

00:10:34.219 --> 00:10:38.500
actually having a number line. Of course, you'll never forget the number line dance,

00:10:38.500 --> 00:10:43.300
and I expect to see you all perform that together at the next school dance.

00:10:43.300 --> 00:10:49.340
That's a good idea. No. But what I want you to do is I want you to be able to come up

00:10:49.340 --> 00:10:54.819
with and be able to articulate and be able to write the actual rules for adding positive

00:10:54.819 --> 00:10:59.719
numbers, two positive numbers, two negative numbers, and a positive and a negative number.

00:10:59.719 --> 00:11:00.719
Does that make sense?

00:11:00.719 --> 00:11:00.719

00:11:00.000 --> 00:11:02.319
I know you know how to do it,

00:11:02.319 --> 00:11:06.440
but do you know how to express it clearly?

00:11:06.440 --> 00:11:08.640
If you know how to express it clearly,

00:11:08.640 --> 00:11:11.359
then I know you've truly learned it.

00:11:11.359 --> 00:11:12.680
Okay?

00:11:12.680 --> 00:11:13.520
Here we go.

00:11:14.880 --> 00:11:17.559
Do you remember what I put in the numbers?

00:11:17.559 --> 00:11:20.920
I put when having the same number and keeping the sign.

00:11:20.920 --> 00:11:22.399
Oh, I forgot to add that.

00:11:22.399 --> 00:11:23.879
Add the numbers and keep the sign.

00:11:23.879 --> 00:11:24.920
Isn't it always gonna be positive

00:11:24.920 --> 00:11:26.159
and it's always gonna be negative?

00:11:26.159 --> 00:11:27.799
Yeah, so add the numbers and keep the sign.

00:11:27.799 --> 00:11:28.760
Negative signs.

00:11:28.760 --> 00:11:30.319
Add them and then add.

00:11:30.000 --> 00:11:33.519
Sometimes, it only takes one or two problems.

00:11:33.519 --> 00:11:35.400
Sometimes, with harder concepts,

00:11:35.400 --> 00:11:37.079
it takes four or five problems.

00:11:37.079 --> 00:11:38.880
Sometimes, even a couple of days

00:11:38.880 --> 00:11:41.600
where they can actually start to tell me how to do it.

00:11:41.600 --> 00:11:45.199
Okay, so what's the rule for adding two positive integers?

00:11:45.199 --> 00:11:46.639
Who thinks that they could say the rule

00:11:46.639 --> 00:11:48.079
really, really clearly?

00:11:48.079 --> 00:11:48.920
Janelle?

00:11:48.920 --> 00:11:49.760
You just add it?

00:11:49.760 --> 00:11:51.180
You just add it, okay?

00:11:51.180 --> 00:11:52.639
That makes sense, okay?

00:11:52.639 --> 00:11:54.639
So when you're adding two positive integers,

00:11:54.639 --> 00:11:57.100
we could just say we add the numbers,

00:11:57.100 --> 00:11:58.559
and the answer is?

00:11:58.559 --> 00:11:59.399
Positive.

00:11:59.399 --> 00:12:00.219
Positive, good.

00:12:00.000 --> 00:12:00.839
Why don't we just say that?

00:12:00.839 --> 00:12:03.240
And if you said it a different way, that's fine.

00:12:03.240 --> 00:12:06.380
I want you to use what works for you.

00:12:06.380 --> 00:12:08.020
And then I always try to leave a few minutes

00:12:08.020 --> 00:12:11.479
at the end of class for some wrap up.

00:12:11.479 --> 00:12:14.359
Raise your hand if you can confidently say

00:12:14.359 --> 00:12:16.940
that you know how to add integers now, okay?

00:12:16.940 --> 00:12:19.420
Rate yourself on a scale of one to five.

00:12:19.420 --> 00:12:21.700
One means I don't know it.

00:12:21.700 --> 00:12:25.219
Five means I got this and I'm ready for Monday.

00:12:25.219 --> 00:12:27.739
Two, three, or four, anywhere in between.

00:12:27.739 --> 00:12:29.940
Mr. Caldertoni is really nice.

00:12:30.000 --> 00:12:32.000
He makes math fun.

00:12:32.000 --> 00:12:34.000
He's funny because he wakes us up,

00:12:34.000 --> 00:12:36.000
because, like, half of us are still asleep,

00:12:36.000 --> 00:12:38.000
and when he tells us jokes,

00:12:38.000 --> 00:12:41.000
he, like, makes us pay attention to what he's saying.

00:12:41.000 --> 00:12:44.000
He's a really nice man because he actually explains math

00:12:44.000 --> 00:12:47.000
the way my other teachers that I've had in elementary

00:12:47.000 --> 00:12:48.000
could not explain.

00:12:48.000 --> 00:12:50.000
Teachers come to me all the time, and they say,

00:12:50.000 --> 00:12:54.000
my students want to know how come I don't rap like you do.

00:12:54.000 --> 00:12:57.000
And, you know, I say, it's not about rapping.

00:12:57.000 --> 00:13:00.000
It's about finding out who you are.

00:13:00.000 --> 00:13:03.039
as a teacher, being comfortable with yourself,

00:13:03.039 --> 00:13:06.440
and letting that spill out into your classroom instruction.

00:13:06.440 --> 00:13:10.640
You take what you're all about and you really think about what drives
you and

00:13:10.640 --> 00:13:11.560
what makes you

00:13:11.560 --> 00:13:15.560
passionate as a person and and what kind of activities you love to do

00:13:15.560 --> 00:13:19.319
and teach through that. Let's give ourselves a two-clap, two-snap,

00:13:19.319 --> 00:13:22.399
two-stomp, Happy Friday. On the count of three. One,

00:13:22.399 --> 00:13:26.879
two, three. Happy Friday!

00:13:26.879 --> 00:13:29.879
See you on Monday. I love teaching.

00:13:29.879 --> 00:13:30.379
I love teaching.

00:13:30.000 --> 00:13:32.000
I absolutely love teaching.

00:13:32.000 --> 00:13:35.119
I truly believe that when we teach, we live forever.

00:13:35.119 --> 00:13:37.599

Every time I teach a new concept,

00:13:37.599 --> 00:13:40.800

and the students are able to learn it, and grasp it,

00:13:40.800 --> 00:13:43.119

and go on with their lives, I really

00:13:43.119 --> 00:13:45.279

feel like I'm going to go on living forever.

00:13:45.279 --> 00:13:46.760

It's the center of town.

00:13:46.760 --> 00:13:49.200

The diameter of a circle measures all the way across.

00:13:49.200 --> 00:13:51.559

And half the diameter is the radius.

00:13:51.559 --> 00:13:54.159

The circumference of a circle measures all the way around.

00:13:54.159 --> 00:13:56.600

And the origin is the center of town.

00:14:00.000 --> 00:14:02.000

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