

## **Transcription and Summary: Fourth Grade: Math with Mellie: Lesson One**

### **Overview**

This document is a transcription and summary of a video lesson for fourth-grade math, presented by Ms. Loneman. The lesson focuses on reviewing concepts from third grade and introducing new topics, particularly fractions and multiplication.

### **Lesson Structure**

- **Introduction:** The lesson begins with a welcoming message and an introduction to the class structure, which includes starting and ending with a verse, book work, and a hand clapping exercise.
- **Warm-Up:** Students practice the four basic math operations through dictation, where Ms. Loneman provides problems for students to write down and solve.

### **Key Topics Covered**

1. **Review of Multiplication:**
  - Students practice multiplication problems, including vertical multiplication and regrouping techniques.
  - Example problems include single-digit and double-digit multiplications.

2. **Introduction to Fractions:**

- The lesson emphasizes the fun of learning fractions, suggesting baking as a practical application.
- Students are encouraged to explore fractions through hands-on activities.

3. **Factors and Prime Numbers:**

- The concept of factors is introduced, explaining that every number has pairs of factors.
- Prime numbers are defined as numbers that have only two factors: one and itself.

4. **Games and Activities:**

- A dice game is suggested for practicing multiplication and addition, where students roll dice and multiply the results.
- A hand clapping game is introduced to reinforce rhythm and counting.

### **Homework Assignments**

- Students are assigned to practice their times tables and addition through the dice game.
- They are also tasked with finding factors of larger numbers and identifying prime numbers up to 30.

## Conclusion

The lesson concludes with a reminder of the importance of practicing math skills daily and a final verse to end the class. Students are encouraged to take notes and create a beautiful morning lesson book to reference their learning.

- 1  
00:00:03.970 --> 00:00:10.040  
Hello and welcome to your first lesson with Earth Schooling in 4th grade math.
- 2  
00:00:10.050 --> 00:00:16.530  
My name is Ms. Loneman and I'm happy to start this math journey with you.
- 3  
00:00:16.540 --> 00:00:18.550  
This is your first time with me.
- 4  
00:00:18.560 --> 00:00:22.930  
We will start always with a verse and end
- 5  
00:00:22.940 --> 00:00:23.870  
with a verse.
- 6  
00:00:23.880 --> 00:00:27.630  
The class will contain book work and
- 7  
00:00:27.640 --> 00:00:30.990  
we'll do a little hand clapping exercise.
- 8  
00:00:31.000 --> 00:00:35.450

And the focus of this block is to really

- 9  
00:00:35.460 --> 00:00:40.990  
review and solidify what you've learned in third grade and then to learn some new
- 10  
00:00:41.000 --> 00:00:45.420  
concepts such as fractions, which are really fun fun and you could do a lot of
- 11  
00:00:45.430 --> 00:00:50.900  
baking in this block to understand this idea of the fraction
- 12  
00:00:50.910 --> 00:00:54.860  
but  
for today let's start with our verse and
- 13  
00:00:54.870 --> 00:00:58.890  
we stand up straight and strong, reaching our roots down.
- 14  
00:00:58.900 --> 00:01:01.530  
You can bring the golden light in.
- 15  
00:01:01.540 --> 00:01:06.230  
The sun with loving light makes bright
- 16  
00:01:06.240 --> 00:01:07.730  
for me each day.
- 17  
00:01:07.740 --> 00:01:11.410  
The soul with spirit power, give strength

18  
00:01:11.420 --> 00:01:12.510  
unto my limbs.

19  
00:01:12.520 --> 00:01:16.910  
In sunlight shining clear, I reverence, O

20  
00:01:16.920 --> 00:01:23.940  
Creator, the strength of humankind, which  
thou so graciously has planted in my

21  
00:01:23.950 --> 00:01:29.480  
soul, that I with all my might may love  
to work and learn.

22  
00:01:29.490 --> 00:01:36.280  
From thee come light and strength, to  
thee rise love and thanks.

23  
00:01:36.290 --> 00:01:45.070  
Okay, so we're going to start each class  
with a warm -up of practicing some of the

24  
00:01:45.080 --> 00:01:51.170  
four processes and what I would  
recommend  
is we're going to do a dictation since

25  
00:01:51.180 --> 00:01:54.510  
I'm not with you and can't hand out a  
math worksheet.

26  
00:01:54.520 --> 00:01:57.030  
And this is graph paper.

27  
00:01:57.040 --> 00:01:59.650  
You can also have a blank notebook or one

28  
00:01:59.660 --> 00:02:01.550  
with lines like a composition book.

29  
00:02:01.560 --> 00:02:03.730  
And what you're going to want to do is

30  
00:02:03.730 --> 00:02:07.700  
I'm going to dictate which means I'm  
going to say the math problem and I want

31  
00:02:07.710 --> 00:02:12.800  
you to quickly write it in and then wait  
and go on to the next.

32  
00:02:12.810 --> 00:02:22.210  
So for example if I say 12 times 4,  
you're going to write 12 times 4 equals.

33  
00:02:22.220 --> 00:02:26.310  
And then you're going to wait in here for  
the next problem.

34  
00:02:26.320 --> 00:02:29.770  
So I'm going to give you about 10  
problems, and then you can go and fill

35  
00:02:29.780 --> 00:02:30.290  
them in.

36  
00:02:30.300 --> 00:02:32.530

And it's important throughout fourth

37

00:02:32.540 --> 00:02:37.410

grade that every day you're spending 10 to 20 minutes if not more just practicing

38

00:02:37.420 --> 00:02:43.790

these four processes so that you really can quickly say 6 times 7 is 42 or

39

00:02:43.800 --> 00:02:44.560

whatever it is.

40

00:02:44.570 --> 00:02:46.820

So you'll kind of, what's nice is when

41

00:02:46.830 --> 00:02:52.900

you write these problems down, you can always go back and put a star next to the

42

00:02:52.910 --> 00:02:54.720

ones that you know that you need to work on.

43

00:02:54.730 --> 00:02:56.650

And then if you create your own sheets or

44

00:02:56.660 --> 00:02:59.270

your own problems you can just write that one again.

45

00:02:59.280 --> 00:03:03.270

Okay so go ahead and get a pencil out.

46

00:03:03.280 --> 00:03:04.710

I recommend just using a pencil so you

47

00:03:04.720 --> 00:03:08.770

can erase and it can be a blank piece of paper if you don't have a notebook.

48

00:03:08.780 --> 00:03:12.570

I'm going to start the dictation.

49

00:03:12.580 --> 00:03:21.410

The first one is 8 times 4 equals 7 times

50

00:03:21.420 --> 00:03:43.450

7 equals 55 divided by 5 equals 36 divided by 6 is 13 minus 9, 12 plus 8, 24

51

00:03:43.460 --> 00:04:00.130

minus 4, 15 minus 6, 9 times 4, and 33 minus 27.

52

00:04:00.140 --> 00:04:06.480

So now that you have those problems, let's start by answering them.

53

00:04:06.490 --> 00:04:10.300

If you need to work on them a little longer you can.

54

00:04:10.310 --> 00:04:11.820

Let's start with the first one.

55

00:04:11.830 --> 00:04:13.200

8 times 4

56

00:04:13.210 --> 00:04:16.820

.

57

00:04:16.830 --> 00:04:18.710

You might just know the answer to this,

58

00:04:18.720 --> 00:04:24.210

but if you are still working on  
memorizing, you can use your skip

59

00:04:24.220 --> 00:04:30.330

counting that you, we started in first,  
second, third, fourth to help you get there.

60

00:04:30.340 --> 00:04:34.010

8, 16, 24, 32.

61

00:04:34.020 --> 00:04:36.490

But the goal, starting in third and

62

00:04:36.500 --> 00:04:39.750

fourth, is to look at that problem and to  
just have it memorized.

63

00:04:39.760 --> 00:04:41.450

So that's why we're doing this.

64

00:04:41.430 --> 00:04:51.840

The next one is 7 times 7, 49.

65

00:04:51.850 --> 00:04:57.390

This way you can check your answers and  
you can go ahead if you are quicker me,

66

00:04:57.400 --> 00:05:01.910

while I'm writing and do the next problem.

67

00:05:01.920 --> 00:05:04.990

55 divided by 5.

68

00:05:05.000 --> 00:05:05.990

A lot of 5s.

69

00:05:06.000 --> 00:05:09.290

You can count it by your 5s until you get

70

00:05:09.300 --> 00:05:13.190

to 11.

71

00:05:13.200 --> 00:05:17.070

And a reminder, how can we check division?

72

00:05:17.080 --> 00:05:27.400

Division and multiplication, they're a  
family, so 11 times 5 equals 55.

73

00:05:27.410 --> 00:05:38.500

Next one was 36 divided by 6. 6.

74

00:05:38.520 --> 00:05:40.550

What's six times six?

75

00:05:40.560 --> 00:05:41.290

Thirty -six.

76

00:05:41.300 --> 00:05:43.430

So you can check your work.

77

00:05:43.440 --> 00:06:16.500

Now we have some subtract 8. 20. 24 minus 4.

78

00:06:16.510 --> 00:06:17.180

This is a clue.

79

00:06:17.190 --> 00:06:20.690

We can take the 4 away from the ones place.

80

00:06:20.700 --> 00:06:29.990

We'll use this with a 0. 20, 15 minus 6.

81

00:06:30.000 --> 00:06:37.730

If subtraction is still a challenge for you, subtraction's friend is addition.

82

00:06:37.740 --> 00:06:41.690

So you can count out from 6 to 15.

83

00:06:41.700 --> 00:06:46.680

So 6, 7, 8, 9, 10, 11, 12, 13, 14, 15.

84

00:06:46.690 --> 00:06:47.620

Gets you 9.

85

00:06:47.630 --> 00:06:49.520

Sometimes attraction can be tricky to

86

00:06:49.530 --> 00:06:50.760

just hold in your head.

87

00:06:50.770 --> 00:06:52.420

We have two more.

88

00:06:52.430 --> 00:07:11.330

9 times 4. 3, 6. 36 and the last one was 33 minus 27.

89

00:07:11.340 --> 00:07:15.050

And this is where we're going to use that skill.

90

00:07:15.060 --> 00:07:17.550

You could write a vertical, right, so

91

00:07:17.560 --> 00:07:20.090

that you can regroup.

92

00:07:20.100 --> 00:07:23.050

But now I'm asking you to count up

93

00:07:23.070 --> 00:07:31.440

because how many steps to get to 30 is 3 and then how many steps to get to 33 is 3.

94

00:07:31.450 --> 00:07:33.900

So that would be 6.

95

00:07:33.910 --> 00:07:35.860

So we want to try to use some other skills.

96

00:07:35.880 --> 00:07:48.930

We can go through this process, but this takes a little bit longer.

97

00:07:48.940 --> 00:07:52.370

Okay, so every day I would do more paletns than this.

98

00:07:52.380 --> 00:07:59.510

This is just what we can do in class so that you have time to really look at them

99

00:07:59.520 --> 00:08:01.990

and then we can review.

100

00:08:02.000 --> 00:08:04.010

And next we're going to review a little

101

00:08:04.010 --> 00:08:10.220

bit and I would still I want you to write these in your book the first problem is

102

00:08:10.230 --> 00:08:20.690

two thousand three hundred and twenty eight times three.

103

00:08:20.700 --> 00:08:22.110

So what do we call this?

104

00:08:22.120 --> 00:08:25.850

This is vertical multiplication.

105

00:08:25.860 --> 00:08:30.670

Something that you might have started at the second and then worked on in third.

106

00:08:30.680 --> 00:08:32.790

We're going to start with a single digit.

107

00:08:32.800 --> 00:08:33.530

One number.

108

00:08:33.540 --> 00:08:35.210

A digit is a number.

109

00:08:35.220 --> 00:08:37.510

So what's my first step?

110

00:08:37.520 --> 00:08:40.730

I have to first go to the ones place.

111

00:08:40.740 --> 00:08:59.880

Three times 8 is?

112

00:08:59.890 --> 00:09:00.950

Times 2. 6 plus 2 is?

113

00:09:00.960 --> 00:09:01.160

Excellent.

114

00:09:01.170 --> 00:09:03.530

So what's our answer?

115

00:09:03.540 --> 00:09:09.630

6,984.

|                                                                                                                               |                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| 116<br>00:09:09.640 --> 00:09:10.810<br>That's a short review.                                                                | 126<br>00:09:51.820 --> 00:09:51.950<br>Great.                                    |
| 117<br>00:09:10.820 --> 00:09:14.330<br>What we want to work on throughout this                                               | 127<br>00:09:51.960 --> 00:09:54.510<br>So we've done the ones place.             |
| 118<br>00:09:14.340 --> 00:09:18.110<br>block is we're going to do two digits.                                                | 128<br>00:09:54.520 --> 00:09:55.590<br>Now we're going to move to tens.          |
| 119<br>00:09:18.120 --> 00:09:25.770<br>So we have 42 times 23.                                                               | 129<br>00:09:55.600 --> 00:09:59.350<br>So what do we need to put here?           |
| 120<br>00:09:25.780 --> 00:09:28.400<br>And at first we're going to ignore this<br>second digit, right?                       | 130<br>00:09:59.360 --> 00:10:01.530<br>A placeholder.                            |
| 121<br>00:09:28.410 --> 00:09:37.300<br>We're going to start in the ones going up<br>because 23 is 20 plus 3 and we could say | 131<br>00:10:01.540 --> 00:10:04.710<br>We've already done the ones.              |
| 122<br>00:09:37.310 --> 00:09:41.600<br>42 is 40 plus 2.                                                                      | 132<br>00:10:04.470 --> 00:10:06.880<br>And now we're moving over to the tens.    |
| 123<br>00:09:41.610 --> 00:09:44.680<br>So let's start doing the 3 here.                                                      | 133<br>00:10:06.890 --> 00:10:12.840<br>Two times two is eight and we're going to |
| 124<br>00:09:44.690 --> 00:09:49.100<br>3 times 2 is 6.                                                                       | 134<br>00:10:12.850 --> 00:10:22.420<br>add those two together.                   |
| 125<br>00:09:49.110 --> 00:09:51.810<br>3 times 4 is 12.                                                                      | 135<br>00:10:22.430 --> 00:10:23.120<br>966.                                      |
|                                                                                                                               | 136<br>00:10:23.130 --> 00:10:25.180<br>Okay, let's do another one.               |

137

00:10:25.190 --> 00:10:25.980

You can write it down.

138

00:10:25.990 --> 00:10:42.750

It's 54 times 36.

139

00:10:42.760 --> 00:10:47.700

And where do we start?

140

00:10:47.710 --> 00:10:49.140

The ones.

141

00:10:49.150 --> 00:10:54.040

Six times four is twenty -four.

142

00:10:54.050 --> 00:10:57.000

So what do I do with the four?

143

00:10:57.010 --> 00:10:59.120

the 2?

144

00:10:59.130 --> 00:11:02.780

Great, next step.

145

00:11:02.790 --> 00:11:12.500

6 times 5 is 30 plus 2.

146

00:11:12.510 --> 00:11:12.490

So 54 times 5 is 30 plus 2.

147

00:11:12.500 --> 00:11:16.290

So 54 times 6 is 324.

148

00:11:16.300 --> 00:11:23.710

Well we have to multiply by 30 now so we're going to put our zero for the placeholder.

149

00:11:23.720 --> 00:11:25.480

3 times 4 is...

150

00:11:25.490 --> 00:11:26.600

now we went this way, we

151

00:11:26.610 --> 00:11:32.560

always have to start with the number that's on the right and move to the left.

152

00:11:32.570 --> 00:11:38.480

3 times 4 is 12, so I carry the 1. 3 times 5

153

00:11:38.490 --> 00:12:02.310

is 15 plus 1.

154

00:12:02.320 --> 00:12:04.300

can start to do some bigger numbers.

155

00:12:04.310 --> 00:12:08.080

The hundreds, you could even do three digits, we'll move up to.

156

00:12:08.090 --> 00:12:12.480

But if this is a review, then I would just work on the single digits and double

157

00:12:12.490 --> 00:12:17.940

digits to really have it strongly understood, and then you can move on to

158

00:12:17.950 --> 00:12:19.660

doing some more numbers.

159

00:12:19.670 --> 00:12:20.980

I'm not sure where everyone is at so I'm

160

00:12:20.990 --> 00:12:27.180

going to try to give some that are maybe more challenging and some for those of

161

00:12:27.190 --> 00:12:30.440

you that are still working on those skills.

162

00:12:30.450 --> 00:12:32.330

So now I'm going to show you another

163

00:12:32.340 --> 00:12:41.130

thing that you can do at home to continue to solidify your times tables because you

164

00:12:41.140 --> 00:12:44.120

want to just have them memorized.

165

00:12:44.130 --> 00:12:46.660

And I have two dice and what you're going

166

00:12:46.670 --> 00:12:57.580

to do is you can write at the top of your

paper again in your notebook 500.

167

00:12:57.590 --> 00:13:03.320

And this is something that you are going to play with somebody.

168

00:13:03.330 --> 00:13:07.380

You could play against yourself for some reason, no one's available.

169

00:13:07.390 --> 00:13:14.090

Or you and your friend or a classmate or a parent, a guardian can play with you.

170

00:13:14.100 --> 00:13:18.790

What you're going to do is you're going to roll the dice and you're going to

171

00:13:18.800 --> 00:13:25.720

multiply the two numbers.

172

00:13:25.730 --> 00:13:32.100

So I have a five and a two.

173

00:13:32.110 --> 00:13:39.720

Five times two is a different color 10.

174

00:13:39.730 --> 00:13:42.020

and then your friend or someone is going

175

00:13:42.030 --> 00:13:50.150

to roll the next if you're by yourself like me and i have you can see that five

176  
00:13:50.160 --> 00:13:55.370  
times 5 which is 25.

177  
00:13:55.380 --> 00:14:00.550  
Now I'm going to roll again, yellow on

178  
00:14:00.560 --> 00:14:01.970  
the yellow team.

179  
00:14:01.980 --> 00:14:03.440  
We're getting a lot of 5ives today.

180  
00:14:03.450 --> 00:14:07.620  
Five times three, which is nice because  
the fives are, would you say, maybe one

181  
00:14:07.630 --> 00:14:08.780  
of the easiest  
.

182  
00:14:08.790 --> 00:14:12.740  
And then I add my two scores together.

183  
00:14:12.750 --> 00:14:14.200  
So now I'm at 25.

184  
00:14:14.210 --> 00:14:16.700  
My friend is already at 25.

185  
00:14:16.710 --> 00:14:20.600  
And they're going to roll.

186

00:14:20.610 --> 00:14:21.980  
I got another 5.

187  
00:14:21.990 --> 00:14:32.620  
5 times 4 is 20.

188  
00:14:32.630 --> 00:14:35.230  
So, so far who has the higher score?

189  
00:14:35.240 --> 00:14:36.310  
The red team.

190  
00:14:36.320 --> 00:14:39.710  
How many more?

191  
00:14:39.720 --> 00:14:40.110  
20.

192  
00:14:40.120 --> 00:14:45.520  
So I'm going to go one more round and  
you're going to play this.

193  
00:14:45.530 --> 00:14:46.440  
I did not get a five.

194  
00:14:46.450 --> 00:14:47.740  
That was my goal.

195  
00:14:47.750 --> 00:14:57.920  
Six times two is twelve.

196  
00:14:57.930 --> 00:15:02.320  
Okay, and then they're going to roll.

197

00:15:02.330 --> 00:15:04.180

Six times two.

198

00:15:04.190 --> 00:15:07.700

And this is a game that you can play over

199

00:15:07.710 --> 00:15:13.930

a week because to get to 500 is going to take a while.

200

00:15:13.940 --> 00:15:17.270

Talking and doing math.

201

00:15:17.280 --> 00:15:19.770

Interesting.

202

00:15:19.780 --> 00:15:24.440

Still 20 higher than I, because we both got 12 and it was 22 before.

203

00:15:24.450 --> 00:15:29.100

So this is just another way to practice your times tables and adding with caring

204

00:15:29.110 --> 00:15:31.960

in a fun way.

205

00:15:31.970 --> 00:15:36.700

And if just having the two dice because

206

00:15:36.710 --> 00:15:43.180

what are the highest what's the highest

number that we can get this dice goes up

207

00:15:43.190 --> 00:15:50.120

to six the dice goes up to six so six times six thirty six is the highest

208

00:15:50.130 --> 00:15:51.930

number we can get on these dice.

209

00:15:51.940 --> 00:15:55.310

So if you wanted to add a challenge

210

00:15:55.320 --> 00:16:01.050

because you have your six times table below, you have that memorized, then you

211

00:16:01.060 --> 00:16:08.280

can get two more dice and you would roll two dice.

212

00:16:08.290 --> 00:16:10.020

I got four.

213

00:16:10.030 --> 00:16:11.120

Roll the next dice.

214

00:16:11.130 --> 00:16:15.920

I multiplied them.

215

00:16:15.930 --> 00:16:18.200

Twenty -five and then add those two together.

216

00:16:18.210 --> 00:16:25.080

So it's just a way to maybe be able to get some higher numbers and to get into

217

00:16:25.090 --> 00:16:35.030

the 7s, 8s, and 9s, 10s, possibly 12s if you can roll two 6s and two 6s.

218

00:16:35.040 --> 00:16:40.510

So, anyways, that's one way to practice your math, your times tables.

219

00:16:40.520 --> 00:16:48.820

It's kind of fun when you get to add and you can see how quick you can get to 500.

220

00:16:48.830 --> 00:16:53.800

Alrighty, so now we can take a break and do a little hand clapping game and this

221

00:16:53.810 --> 00:16:58.060

hand clapping game is in the sevens so that's's one, two, three, four, five,

222

00:16:58.070 --> 00:16:59.160

six, seven.

223

00:16:59.170 --> 00:17:01.320

One, two, three, four, five, six, seven.

224

00:17:01.330 --> 00:17:04.560

One, two, three, four, five, six, seven.

225

00:17:04.570 --> 00:17:06.160

I don't have my desk high enough, but if

226

00:17:06.170 --> 00:17:07.820

you're at a table, you're going to be on the table.

227

00:17:07.830 --> 00:17:12.350

I'm going to be on my, I'll be on my stomach so you can see it.

228

00:17:12.360 --> 00:17:15.550

And you can warm up your hands.

229

00:17:15.560 --> 00:17:16.750

You're going to be banging on your table,

230

00:17:16.760 --> 00:17:21.130

so if there's anything that might be breakable or could water fall off, just

231

00:17:21.140 --> 00:17:26.680

make sure that it's safe or you can do it gently here we go it's called sevens one

232

00:17:26.690 --> 00:17:31.580

two three four five six seven one two three four five six seven one two three

233

00:17:31.590 --> 00:17:36.600

four five six seven one two three four five six seven one two three four five

234

00:17:36.610 --> 00:17:48.060

six seven one two three four five six

seven one two three four

235

00:17:48.070 --> 00:17:51.830

So that's just a little hand warm up and we can do that in a round if there's more

236

00:17:51.840 --> 00:17:53.790

people around and we'll play with the speed.

237

00:17:53.800 --> 00:17:57.170

But let's do it one more time just slow.

238

00:17:57.180 --> 00:17:57.450

Sevens.

239

00:17:57.460 --> 00:18:00.090

One, two, three, four, five, six, seven.

240

00:18:00.100 --> 00:18:03.010

One, two, three, four, five, six, seven

.

241

00:18:03.020 --> 00:18:05.530

One, two, three, four, five, six, seven.

242

00:18:05.540 --> 00:18:12.240

One, two, three, four, five, six, seven.

243

00:18:12.250 --> 00:18:14.580

So the beat changes a little.

244

00:18:14.590 --> 00:18:17.160

You can practice that outside of class or

245

00:18:17.170 --> 00:18:17.600

the next class.

246

00:18:17.610 --> 00:18:21.960

We can go even faster.

247

00:18:21.970 --> 00:18:34.290

So today, something new I want to bring to you is called a factor.

248

00:18:34.300 --> 00:18:42.530

And a factor, every number has two factors.

249

00:18:42.540 --> 00:18:59.880

And what is the factor of a number?

250

00:18:59.890 --> 00:18:59.880

We'll put a question mark.

251

00:18:59.890 --> 00:18:59.880

And I'm going to write the definition

252

00:18:59.890 --> 00:19:26.260

that we're going to put in our book today.

253

00:19:26.270 --> 00:19:30.640

So A factor of a number divides that

254

00:19:30.650 --> 00:19:31.480

number exactly.

255

00:19:31.490 --> 00:19:41.860  
So let's look at the number four.

256

00:19:41.870 --> 00:19:51.620  
And we'll start with what, so dividing exactly means, can we divide 4 by 3?

257

00:19:51.620 --> 00:19:53.530  
We could, but we would have a remainder, right?

258

00:19:53.540 --> 00:19:56.250  
There would be something remaining.

259

00:19:56.260 --> 00:20:00.150  
But what we're looking for is all factors have a pair.

260

00:20:00.160 --> 00:20:02.620  
I'm going to write that out there too.

261

00:20:02.630 --> 00:20:06.360  
All factors have a pair.

262

00:20:06.370 --> 00:20:11.880  
I'll just write, all have a pair to fit.

263

00:20:11.890 --> 00:20:15.320  
So if you went dancing, you always have a partner.

264

00:20:15.330 --> 00:20:17.940  
The factor always has a partner.

265

00:20:17.950 --> 00:20:21.500  
So for 4's start with what can we divide

266

00:20:21.510 --> 00:20:22.260  
four by?

267

00:20:22.270 --> 00:20:25.780  
One is always going to be a factor so we

268

00:20:25.790 --> 00:20:29.020  
have one and its friend four.

269

00:20:29.020 --> 00:20:35.870  
What else is 4 divided by?

270

00:20:35.880 --> 00:20:37.470  
One way to go is just to go up in numbers.

271

00:20:37.480 --> 00:20:41.150  
So you go 1, 2.

272

00:20:41.160 --> 00:20:45.720  
2 times what equals 4?

273

00:20:45.730 --> 00:20:48.340  
2 times 2

274

00:20:48.350 --> 00:20:48.460  
.

275

00:20:48.470 --> 00:20:52.020

Then we could go to 3, can't do 3.

00:21:18.040 --> 00:21:27.660

So we know that 1 and 5 are a factor.

276

00:20:52.030 --> 00:20:55.300

3 times 1 is 3, 3 times 2 is 6.

287

00:21:27.670 --> 00:21:28.780

What about 2?

277

00:20:55.310 --> 00:20:59.140

So then 4, that goes back to 1.

288

00:21:28.790 --> 00:21:31.500

2 times 2 is 4.

278

00:20:59.150 --> 00:21:02.380

So there are 4 factors in 4.

289

00:21:31.510 --> 00:21:35.260

The next one, 2 times 3 is 6.

279

00:21:02.390 --> 00:21:04.560

All right, let's look at another number.

290

00:21:35.270 --> 00:21:41.220

So 2 is not a factor of 4.

280

00:21:04.570 --> 00:21:05.460

I'm going to erase this.

291

00:21:41.230 --> 00:21:41.540

3.

281

00:21:05.470 --> 00:21:08.300

We'll write this in our book.

292

00:21:41.550 --> 00:21:42.980

3 times 1 is 3.

282

00:21:08.310 --> 00:21:08.820

We have space.

293

00:21:42.990 --> 00:21:45.620

3 times 2 is 6.

283

00:21:08.820 --> 00:21:10.750

We can just go up.

294

00:21:45.630 --> 00:21:48.880

So not 3.

284

00:21:10.760 --> 00:21:15.570

The number after 4 is 5.

295

00:21:48.890 --> 00:21:49.880

What about 4?

285

00:21:15.580 --> 00:21:18.030

And there's different ways we can write this.

296

00:21:49.890 --> 00:21:52.770

4 times 1 is 4.

286

|                                                                                                                              |                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| 297<br>00:21:52.780 --> 00:21:55.210<br>4 times 2 is 8.                                                                      | 00:22:28.130 --> 00:22:32.590<br>2 times 3 is 6 and if we move up 4, it's          |
| 298<br>00:21:55.220 --> 00:22:01.650<br>So 5 only has 1 and 5 as its factors, and<br>we're going to talk about this a little | 308<br>00:22:32.600 --> 00:22:33.670<br>going to be too big.                       |
| 299<br>00:22:01.660 --> 00:22:02.110<br>later in class.                                                                      | 309<br>00:22:33.680 --> 00:22:35.190<br>4 times 2 is 8.                            |
| 300<br>00:22:02.120 --> 00:22:06.820<br>Let's move to the next number, which is 6.                                           | 310<br>00:22:35.200 --> 00:22:37.670<br>So 6 has 4 factors.                        |
| 301<br>00:22:06.830 --> 00:22:12.020<br>And this time I'll show you, we can do it<br>the, I like to call it the rainbow way, | 311<br>00:22:37.680 --> 00:22:40.490<br>1, 2, 3, and 6.                            |
| 302<br>00:22:12.030 --> 00:22:13.740<br>because then we can map it out.                                                      | 312<br>00:22:40.500 --> 00:22:45.400<br>Let's do another number.                   |
| 303<br>00:22:13.750 --> 00:22:17.840<br>So we'll start with 1.                                                               | 313<br>00:22:45.410 --> 00:22:45.820<br>Let's do 7.                                |
| 304<br>00:22:17.850 --> 00:22:20.420<br>1 and 6 are factors of 6.                                                            | 314<br>00:22:45.830 --> 00:22:51.460<br>We'll do it the chart way.                 |
| 305<br>00:22:20.430 --> 00:22:22.620<br>What's the next number?                                                              | 315<br>00:22:51.470 --> 00:22:54.940<br>1 and 7 are, 1 which is unity and the      |
| 306<br>00:22:22.630 --> 00:22:28.120<br>Let's see, 2 times 2 goes into 6 equally.                                            | 316<br>00:22:54.950 --> 00:22:58.020<br>number are always going to be the factors. |
| 307                                                                                                                          | 317<br>00:22:58.030 --> 00:22:58.680<br>What about 2?                              |

318

00:22:58.690 --> 00:23:02.680

Can we divide 7 by 2 exactly?

319

00:23:02.690 --> 00:23:03.580

2 or equally?

320

00:23:03.590 --> 00:23:08.060

2, 4, 6, 8.

321

00:23:08.070 --> 00:23:08.320

No?

322

00:23:08.330 --> 00:23:13.470

Are there any more factors in seven?

323

00:23:13.480 --> 00:23:13.610

No.

324

00:23:13.620 --> 00:23:16.190

Do you see a pattern here?

325

00:23:16.200 --> 00:23:17.030

Five, seven.

326

00:23:17.040 --> 00:23:19.730

Let's look at eight.

327

00:23:19.740 --> 00:23:24.280

I'll do the rainbow method.

328

00:23:24.290 --> 00:23:28.040

One and eight.

329

00:23:28.050 --> 00:23:29.340

What about 2?

330

00:23:29.350 --> 00:23:36.100

And 2 times what equals 8?

331

00:23:36.110 --> 00:23:36.920

4.

332

00:23:36.930 --> 00:23:37.300

Any others?

333

00:23:37.310 --> 00:23:37.440

3?

334

00:23:37.450 --> 00:23:37.600

No.

335

00:23:37.610 --> 00:23:41.020

And we're back to 4.

336

00:23:41.030 --> 00:23:41.200

Okay.

337

00:23:41.210 --> 00:23:43.640

I'm going to erase this.

338

00:23:43.650 --> 00:23:44.280

Let's keep going.

339

00:23:44.290 --> 00:23:45.320

Shall we do 9?

340

00:23:45.330 --> 00:23:58.050

Let's find out because there was those two odd numbers and they only had unity

341

00:23:58.060 --> 00:23:59.150

and the number themselves.

342

00:23:59.160 --> 00:24:01.290

So we have one and nine.

343

00:24:01.300 --> 00:24:09.860

Are there any other factors, anything that we can divide where we'll have two pairs?

344

00:24:09.870 --> 00:24:16.400

Two times something, two won't work.

345

00:24:16.410 --> 00:24:17.340

What about three?

346

00:24:17.350 --> 00:24:19.520

Three times three is nine.

347

00:24:19.530 --> 00:24:22.340

So we were starting to see a pattern, but

348

00:24:22.350 --> 00:24:23.760

then 9 changed it, right?

349

00:24:23.770 --> 00:24:32.340

9 has more than 2 factors.

350

00:24:32.320 --> 00:24:32.590

Let's do 10.

351

00:24:32.600 --> 00:24:38.550

I'm going to let you, you can do it this

352

00:24:38.560 --> 00:24:39.230

way, try.

353

00:24:39.240 --> 00:24:41.210

Somehow I like this way because you can

354

00:24:41.220 --> 00:24:45.180

build up from the smallest to the largest number and see that progression but we

355

00:24:45.190 --> 00:24:47.340

can do it this way.

356

00:24:47.350 --> 00:24:53.580

1 and 10, is there another one?

357

00:24:53.590 --> 00:25:10.860

2 and 5, any more?

358

00:25:10.870 --> 00:25:10.860

Okay, let's do 11 down here we'll do

359

00:25:10.870 --> 00:25:15.210

three boy one and eleven are there any more factors?

|                                                 |                                         |
|-------------------------------------------------|-----------------------------------------|
| 360                                             | 00:25:43.990 --> 00:25:51.620           |
| 00:25:15.220 --> 00:25:15.510                   | 2 and what equals 12?                   |
| No.                                             | 371                                     |
| 361                                             | 00:25:51.630 --> 00:25:51.800           |
| 00:25:15.520 --> 00:25:19.670                   | 6.                                      |
| So we're back to the type of number is 11.      | 372                                     |
| 362                                             | 00:25:51.810 --> 00:25:53.390           |
| 00:25:19.680 --> 00:25:24.890                   | Does 3 have a pair in 12?               |
| Another odd number that just has one in itself. | 373                                     |
| 363                                             | 00:25:53.400 --> 00:25:58.950           |
| 00:25:24.890 --> 00:25:26.560                   | Can it be divided equally?              |
| Let's do 12 and then we'll just, let's          | 374                                     |
| 364                                             | 00:25:58.960 --> 00:26:01.070           |
| 00:25:26.570 --> 00:25:31.940                   | 3 times 4 is 12.                        |
| pick a random number after 12.                  | 375                                     |
| 365                                             | 00:26:01.080 --> 00:26:04.520           |
| 00:25:31.950 --> 00:25:35.900                   | And then we get to 5 and we know that 5 |
| So 12, we can do our, we can do our             | 376                                     |
| 366                                             | 00:26:04.530 --> 00:26:06.140           |
| 00:25:35.910 --> 00:25:37.240                   | does not have a pair in 12.             |
| rainbow method here.                            | 377                                     |
| 367                                             | 00:26:06.150 --> 00:26:13.640           |
| 00:25:37.250 --> 00:25:39.000                   | So this has 1, 2, 3, 4, 5, 6.           |
| One and 12, and we'll made a lot of space       | 378                                     |
| 368                                             | 00:26:13.650 --> 00:26:18.920           |
| 00:25:39.010 --> 00:25:41.300                   | Now let's do...how                      |
| just in case it's a bigger number.              | about we do 20?                         |
| 369                                             | 379                                     |
| 00:25:41.310 --> 00:25:43.980                   | 00:26:16.350 --> 00:26:19.360           |
| It doesn't always mean.                         | Let's do 20.                            |
| 370                                             | 380                                     |
|                                                 | 00:26:19.370 --> 00:26:22.460           |
|                                                 | Or or even better let's do 24.          |

381  
00:26:22.470 --> 00:26:24.960  
I'll put it here the number we're going to do.

382  
00:26:24.970 --> 00:26:32.190  
So we have 1, I'll leave some space because I'm not sure, and 24.

383  
00:26:32.200 --> 00:26:32.310  
2.

384  
00:26:32.320 --> 00:26:36.230  
How many times does 2 go into 24?

385  
00:26:36.240 --> 00:26:37.590  
We count it by twos.

386  
00:26:37.600 --> 00:26:43.630  
Oh, you know, 2 times 12 is 24.

387  
00:26:43.640 --> 00:26:58.660  
What about 3?

388  
00:26:58.670 --> 00:26:59.160  
Count it count it by 3 and see.

389  
00:26:59.170 --> 00:27:03.320  
3 times 8 is 24.

390  
00:27:03.330 --> 00:27:06.620  
Do we have any more?

391  
00:27:06.630 --> 00:27:07.120  
What about 4?

392  
00:27:07.130 --> 00:27:12.690  
We're going down the line.

393  
00:27:12.700 --> 00:27:18.250  
, two, three, four times six is 24.

394  
00:27:18.260 --> 00:27:24.590  
And then we would have five, but five's

395  
00:27:24.600 --> 00:27:27.390  
always end in a zero or a 5, right?

396  
00:27:27.400 --> 00:27:27.970  
The multiples of 5.

397  
00:27:27.980 --> 00:27:35.000  
So we have 1, 2, 3, 4, 5, 6, 7, 8 factors in 24.

398  
00:27:35.010 --> 00:27:40.280  
That's the biggest one yet.

399  
00:27:40.290 --> 00:27:46.920  
So we noticed in our factoring that some

400  
00:27:46.930 --> 00:27:53.810  
numbers like five or three, what was another one?

401

00:27:53.820 --> 00:27:54.570

7.

402

00:27:54.580 --> 00:28:01.610

They only had two factors, and those

403

00:28:01.620 --> 00:28:05.430

numbers are called prime.

404

00:28:05.440 --> 00:28:10.130

Prime numbers have two factors, which are

405

00:28:10.140 --> 00:28:13.050

1, number 1, and itself.

406

00:28:13.060 --> 00:28:18.220

1, right, 3 is 1 and 3.

407

00:28:18.230 --> 00:28:19.320

5 is 1 and 5.

408

00:28:19.330 --> 00:28:21.380

We're going to be talking next class

409

00:28:21.390 --> 00:28:27.940

about some different types of numbers,  
and prime is the first kind of

410

00:28:27.950 --> 00:28:28.880

introduction into those numbers.

411

00:28:28.890 --> 00:28:32.510

So what I'd like you to do now is take

412

00:28:32.520 --> 00:28:41.390

out a morning lesson book, if you have  
one, or if you have large paper, or it

413

00:28:41.400 --> 00:28:43.910

does not need to be this big.

414

00:28:43.920 --> 00:28:46.490

This is size that I have and you're going

415

00:28:46.500 --> 00:28:54.830

to skip if you are in a book that first  
page and go to this next page so your

416

00:28:54.840 --> 00:29:26.050

bindings on the right and we're going to  
write what we just learned into our books.

417

00:29:26.080 --> 00:29:26.430

Move you closer.

418

00:29:26.440 --> 00:29:29.990

Sorry, that was a little wild journey there.

419

00:29:30.000 --> 00:29:51.960

Alright, so what did we call those  
numbers that divide a number exactly?

420

00:29:51.970 --> 00:29:51.960

Factors.

421

00:29:51.970 --> 00:30:06.530

So you could say it's a fact.

422

00:30:06.540 --> 00:30:06.530

It's a factor.

423

00:30:06.540 --> 00:30:46.530

We're going to write a factor of a number

424

00:30:46.540 --> 00:30:48.950

divides that number exactly.

425

00:30:48.960 --> 00:30:51.030

Factors, always working pairs.

426

00:30:51.040 --> 00:30:57.920

and let's show some examples so we can start with four and i'm going to put the

427

00:30:57.930 --> 00:31:00.840

four here and then below do the rainbow method.

428

00:31:00.850 --> 00:31:08.120

So we said 4 has, it always has 1 and itself.

429

00:31:08.100 --> 00:31:16.830

And then we also have 2 times 2 is 4.

430

00:31:16.840 --> 00:31:30.090

Let's go ahead and do 5.

431

00:31:30.100 --> 00:32:06.070

5 was 1 in itself, which makes it a prime number.

432

00:32:06.080 --> 00:32:15.280

And we have Let's do 12.

433

00:32:15.290 --> 00:32:27.480

So 12 is one in itself.

434

00:32:27.490 --> 00:32:32.770

Two and six, three and four.

435

00:32:32.780 --> 00:32:37.770

Let's do a new one that we haven't done.

436

00:32:37.780 --> 00:32:38.310

Let's do 20.

437

00:32:38.320 --> 00:32:39.190

I'll leave a space.

438

00:32:39.200 --> 00:32:43.190

You can do one on your own.

439

00:32:43.200 --> 00:32:49.330

Here you can pick any number and for homework I want you to find some numbers,

440

00:32:49.340 --> 00:32:53.390

pick some bigger numbers and find their factors.

441

00:32:53.400 --> 00:33:01.800

So 20 we have 1 and itself 20.

442

00:33:01.810 --> 00:33:07.760

2 and how many times can 2 go into 20?

443

00:33:07.770 --> 00:33:08.290

10.

444

00:33:08.300 --> 00:33:16.190

Alright can we do 3, 4, yes, 4 times 5.

445

00:33:16.200 --> 00:33:19.810

And do you see this pattern here?

446

00:33:19.820 --> 00:33:26.170

Because it ends in a 0, all these end in 0, 5 below.

447

00:33:26.180 --> 00:33:26.450

Great.

448

00:33:26.460 --> 00:33:30.170

Now we're going to write a little bit

449

00:33:30.180 --> 00:33:31.250

more about factors.

450

00:33:31.260 --> 00:33:42.520

Why are we doing this, you may wonder?

451

00:33:42.530 --> 00:33:49.710

Factors help us get to know numbers.

452

00:33:49.720 --> 00:33:55.350

We are laying the foundation for

453

00:33:55.360 --> 00:34:19.830

fractions by learning about the factors in these numbers.

454

00:34:19.840 --> 00:34:30.920

A prime number I'm going to underline that.

455

00:34:34.000 --> 00:34:40.910

A prime number has two itself.

456

00:34:40.920 --> 00:34:46.750

You could list some examples if you wanted that we had done on the board.

457

00:34:46.760 --> 00:34:56.830

And then if you want, you can put a little color around by taking your sharpies.

458

00:34:56.840 --> 00:35:05.020

It's going to be a little bit hard for me because I'm vertical but on the table you

459

00:35:05.030 --> 00:35:14.370

take the shavings you can just with your finger you can do it over the whole page

460

00:35:14.380 --> 00:35:15.130

or you might decide artistically.

461

00:35:15.140 --> 00:35:33.110

You just want to do it on the corners,

462

00:35:33.120 --> 00:35:35.910

kind of in this bottom area.

463

00:35:35.930 --> 00:35:40.100

We want our morning lesson book to have

464

00:35:40.110 --> 00:35:40.880

some beauty.

465

00:35:40.890 --> 00:35:44.160

Numbers are beautiful with law and order.

466

00:35:44.170 --> 00:35:54.790

And we're going to learn next class about somebody who became famous for working

467

00:35:54.800 --> 00:35:56.790

with prime numbers.

468

00:35:56.800 --> 00:36:04.330

So for your homework I want you to work

469

00:36:04.340 --> 00:36:10.590

on that dice game and I want you to practice factoring with some bigger

470

00:36:10.600 --> 00:36:16.390

numbers so we could do you could go up to really any number you could go high you

471

00:36:16.400 --> 00:36:21.140

go 110 120 you might want to start with 24 like we the last one we ended up the

472

00:36:21.150 --> 00:36:26.960

last one we did on the board and kind of work your way up to 30 you could keep

473

00:36:26.970 --> 00:36:30.310

going because it's kind of fun right it's like a little bit of a hunt.

474

00:36:30.320 --> 00:36:31.850

Oh, what factors does this number have?

475

00:36:31.860 --> 00:36:35.210

I want to get to know this number.

476

00:36:35.220 --> 00:36:39.950

I'm curious about this number and I want to see who's in, you could say, its

477

00:36:39.960 --> 00:36:40.870

factor family.

478

00:36:40.880 --> 00:36:41.490

So that's one homework.

479

00:36:41.500 --> 00:36:45.790

The other is I want you to see how many prime numbers you can find.

480

00:36:45.800 --> 00:36:47.970

So that you can do from 1 to 30.

481

00:36:47.980 --> 00:36:52.390

You can stop at 30 if you wanted and just

482

00:36:52.400 --> 00:36:57.460

continue and a prime number is a number that has 1 and itself.

483

00:36:57.470 --> 00:37:02.540

So we already did a few and you'll just keep going on and see if you might find a pattern

484

00:37:02.550 --> 00:37:10.670

because we're going to talk about a pattern that a famous, actually a famous

485

00:37:10.680 --> 00:37:15.310

scientist, an astronomer, learned kind of an algorithm to figure out the prime

486

00:37:15.320 --> 00:37:19.550

numbers without having to go through each number and look for the factors.

487

00:37:19.560 --> 00:37:23.970

So maybe you will come up and find your own pattern.

488

00:37:23.980 --> 00:37:27.110

Great, so you're going to finish your morning lesson book.

489

00:37:27.120 --> 00:37:33.030

You're going to work on your dice game so you have times tables and addition that

490

00:37:33.040 --> 00:37:33.410

you're working with.

491

00:37:33.420 --> 00:37:38.060

And then you're going to find, do some

492

00:37:38.070 --> 00:37:39.920

factoring and find some more prime numbers.

493

00:37:39.930 --> 00:37:43.920

And you can put all that information in

494

00:37:43.930 --> 00:37:46.000

your composition or your graph paper notebook.

495

00:37:46.010 --> 00:37:48.100

So we have like some place that you can

496

00:37:48.110 --> 00:37:52.870

take notes and practice and then we'll put in some beautiful work into our

497

00:37:52.880 --> 00:37:56.730

morning lesson book that you can always go back and reference.

498

00:37:56.740 --> 00:37:57.170

Okay?

499  
00:37:57.180 --> 00:37:58.070  
Oh, and practice your sevens.

500  
00:37:58.080 --> 00:37:59.630  
One, two, three, four, five, six, seven.

501  
00:37:59.640 --> 00:38:01.530  
One, two, three, four, five, six, seven.

502  
00:38:01.540 --> 00:38:05.630  
One, two, three, four, five, six, seven.

503  
00:38:05.640 --> 00:38:08.750  
and we did six of those so think how many

504  
00:38:08.760 --> 00:38:15.790  
times that we make a beat all right thank  
you so much for joining me today and

505  
00:38:15.800 --> 00:38:20.260  
we'll end with a verse I'll say it let's  
say it two times through because it's

506  
00:38:20.270 --> 00:38:24.220  
something new for all of us.

507  
00:38:24.230 --> 00:38:29.100  
And it's a time to stand up and end our

508  
00:38:29.110 --> 00:38:29.580  
time together.

509

00:38:29.590 --> 00:38:32.490  
Our work is done, our day is past.

510  
00:38:32.500 --> 00:38:34.290  
We'll go our separate ways.

511  
00:38:34.300 --> 00:38:38.470  
And I will hold so tight and fast what I

512  
00:38:38.480 --> 00:38:39.270  
have learned today.

513  
00:38:39.280 --> 00:38:42.550  
I've given with my heart and mind the

514  
00:38:42.560 --> 00:38:43.630  
effort my work needs.

515  
00:38:43.640 --> 00:38:47.870  
And I will strive in me to find good

516  
00:38:47.880 --> 00:38:50.410  
thoughts, good works, and good deeds.

517  
00:38:50.420 --> 00:38:53.010  
We'll just say it once so you can

518  
00:38:53.020 --> 00:38:54.050  
practice it each time.

519  
00:38:54.060 --> 00:38:54.680  
Thank you so much.

**Copyright Earthschooling:** *This document is not a curriculum. It is a transcription & summary of a Living Lessons Video. This document cannot be shared & is only available with the purchase of the accompanying Living Lessons Video. This document was created with AI assistance. Please excuse any errors.*

520

00:38:54.690 --> 00:38:57.000

I will see you next class goodbye and  
thank you