



Grade 5 Calendar Quests – Count By 11 Mayan Numerals

Monthly Math Calendar Patterns

Aligned with the BC Math Curriculum

Mayan Numerals Count By Eleven

Pattern Overview

This month's pattern represents triples of the date using Mayan numerals. The pattern has two elements, the numbers represented with Ancient Mayan Numerals and a two colour pattern alternating between blue and green.

Preparation

The Cards

1. Print the Calendar Quest cards on white cardstock for best results. The cards are designed at a 10cmx10cm size, it maybe necessary to scale them to fit your calendar pocket chart.
2. Cut the cards out on the black lines
3. Place the cards printed side facing towards the pocket chart in your calendar pocket chart.

The Decoder Key

1. Print all of the decoder key sections single sided on printer paper
2. Cut all of the pieces out
3. Glue pieces together
4. Post the decoder key with the legend covered

The Observations Chart

1. On a sheet of chart paper draw vertical lines to create four columns
 - a. Date
 - b. Colour
 - c. Ancient Mayan Numeral
 - d. Modern Number
2. Fill in the date column for this month
3. Leave two lines per day on the observation chart
4. Hang up your observations chart

Daily Activities

Day 1 - Introducing the Calendar Quest to Students

1. Have any of the days that have already passed this month flipped right side out.
2. Ask students what they see when they look at the cards.

Day 4

1. Ask students what they see when they look at the cards
2. Have students predict what today's card will be
3. Introduce the calendar quest observations chart
4. What do students notice about the chart?
5. Fill in the chart for the days so far – do not fill in the modern numeral

Days 5-9 update

1. Review the cards already on the chart
2. Predict today's card
3. Record today's card on the observations chart

Day 10

1. Update as before
2. Reveal the two left columns of the Decoder Key
3. Ask students to use the Decoder Key to see if they can solve any of the patterns
4. Have students look at how the characters are arranged on each card
5. What do they notice about the arrangement of the characters

Day 11

1. Update as before

Day 12

1. Update as before
2. Reveal the last column of the Decoder Key

3. Have students share what they notice about the patterns for numbers greater than 20
4. Have students share what they notice about the Mayan numbers compared to our numbers

Day 13-15

1. Update as before

Day 16+

1. Update as before
2. Model the number with base ten blocks as a class

Last day of the month

1. Review everything on the chart
2. Hand out the calendar extender sheets
3. Students complete extender sheet on own
4. Read the passage below about Mayan Numerals
 - a. The ancient Maya had a special way of writing numbers using only three symbols: a dot for 1, a bar for 5, and a shell shape for 0. They used a system based on 20, instead of the 10 we use today. To write bigger numbers, they stacked the symbols in layers, with the bottom representing ones, the next level twenties, and so on. This system helped them do math for building cities, tracking time, and creating their famous calendars. Even though it looks different from our numbers, it was a smart and powerful way to count!

Sample Calendar Quest Observation Chart

Date	Colour	Ancient Mayan Numeral	Modern numeral
1.	Blue		11
2.	Green		22
3.	Blue		33
4.	Green		44
5.	Blue		55
6.	Green		66
7.	Blue		77
8.	Green		88

Date	Colour	Ancient Mayan Numeral	Modern numeral
9.	Blue	 	99
10.	Green	— 	110
11.	Blue	—. 	121
12.	Green	—. 	132
13.	Blue	 	143
14.	Green	 	154

Date	Colour	Ancient Mayan Numeral	Modern numeral
15.	Blue		165
16.	Green		176
17.	Blue		187
18.	Green		198
19.	Blue		209
20.	Green		220

Date	Colour	Ancient Mayan Numeral	Modern numeral
21.	Blue	 	231
22.	Green	 	242
23.	Blue	 	253
24.	Green	 	264
25.	Blue	 	275
26.	Green	 	286

Date	Colour	Ancient Mayan Numeral	Modern numeral
27.	Blue		295
28.	Green		308
29.	Blue		319
30.	Green		330
31.	Blue		341

Calendar Quest Cards

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3



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16



17



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19



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24



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29



30



31



Decoder Key

Mayan Numeral	Modern Numeral	Mayan Numeral	Modern Numeral	Mayan Numeral	Modern Numeral
	0		10	20	 
	1		11	30	 
	2		12	40	 
	3		13	50	

					=
....	4	☰	14	— ☉	100
—	5	☷	15	☷ =	150
☶	6	☶	16	= ☉	200
☵	7	☵	17	☵ =	250

☰	8	☷	18	☰ ☵	300
☷	9	☷	19	☷ ☰	350