Calendar Math for **DECEMBER!!!**

**Components:** Calendar and Pieces, Counting Tape, Percent Circle, Arrays, Daily Depositor, Daily Variable, Daily Pattern, Daily Circle, **NEW: DAILY DATA!!!!!**

1. **Calendar and Pieces:** Recognize and analyze quadrilaterals and their properties (Same as November, but the pattern should change, *ALSO, you will notice that as the pattern repeats the shapes ROTATE 90 degrees, so even though we will not be here for all of the days, you still might want to go through all of the days to see the rotations☺).*

 **This month’s NEW Discussion Points:** Pay Attention to diagonals and perpendicular diagonals and pairs of congruent sides.

**Also, reference the chart on page 68 of teacher book:** There is a great Diagram you might want to have students fill out before we leave for winter break.

1. **Counting Tape and Percent Circle:** Continue☺
2. **ARRAYS**: **Prime Factorizations!!!**

Materials: Marker, Construction Paper, and 10x10 squared paper (TR1)

Routine: Divide the rectangle into smaller rectangles to get the prime factorization (SEE pg. 53 or 71 of your manual for example)

**On the Construction Paper for the day:**
Have the Rectangle that was divided into smaller rectangles AND the Factor Tree. This shows 2 different methods for finding the Prime Factorization.

THIS MONTH YOU WILL PICK UP WITH THE NUMBER 31 (picking up where we left off in November with 30).

**If you did not do Arrays in November, then you can start at “1” for December☺**

Chart: have a chart with the prime factorizations (see below)

|  |  |
| --- | --- |
| Number | Prime Factorization |
| 31 | Prime |
| 32 | 2x2x2x2x2 or $2^{5}$ |
| 33 | 3 x 11 |
| 34 | 1. x 17
 |

**4. Daily Pattern**: Recognize Triangular Numbers, Relationships with Area and Perimeter, use variable expressions to describe patterns.

 PATTERN WILL BE THE SAME AS NOVEMBER, but we’re dealing with “oranges”

Materials: 20 copies of Triangular Oranges (TR10 and TR11) , scissors, tape, chart poster
Poster will need to use 3 columns

|  |  |  |
| --- | --- | --- |
| Figure Number | Area ($cm^{2})$ | Perimeter (cm) |
| 1 | 1 | 4 |
| 2 | 2 | 6 |

Routine: Each Day you will add the next consecutive day to your figure.

. Day 1

Day 2: 2 strips of oranges.

Day 3: 3 strips of oranges.

Day 4: 4 strips of oranges

 Discussion:
Beginning of the Month: How much does the area increase each day….is it the same each day? How much does the Perimeter Increase…..is it the same each day? Do you notice any patterns with the length of the base or the height of the figure?
How many oranges will you add on Day 10, 20, 25 etc.

Students will hopefully notice quickly that the pattern is the same as last month. This month we REALLY want to focus on students getting to and using the n(n+1) formula.
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Also, Reference the diagrams on page 76 and 77: The diagrams help
students “see” the n(n+1) formula.

1. **Daily Variable**: Use variables and mathematical symbols to describe relationships. Evaluate mathematical expressions.

Material: Chart Poster

|  |  |
| --- | --- |
| Date | 100x date + 12 = value  |
| 1 | 100 | 12 | 112 |
| 2 | 200 | 12 | 212 |
| 3 | 300 | 12 | 312 |

1st week: use 100 x date + 12 = value

3rd week: use 100d + 12=value

Last week: use 100n + 12 = value
**Be sure to Graph your Daily Variable**

Possible Discussion Questions:

~How much does our value increase for a 7 day week?

~How much does our value increase from Monday to Friday?

~How much does our value increase on the weekends?

~What should our scale/interval be for our y-axis?

~How does the rate of change/slope compare to our graph in November?

1. **Daily Depositor**: Develop an understanding of common percent and calculate percent using mental math.
Materials: Index Cards, Index Card Pocket, Calendar Money

Routine: Each day Deposit 1% of the date times 100.

Possible Discussions:

How much money will be have ½ through the month?

How much money will we deposit on the last day of the year?

How much total money do you think there will be at the end of the month?

How many times the December is the November amount?

How does finding 1% of a number help you find 3%, 6%, 13% of a number?

Why are the December totals so “little”?

**Daily Circle:**

**Objective:**

**Recognize Angels as measures of turn**

**Circles have 360◦**

**90 ◦ is a ¼ turn and 180◦ is a ½ turn**

Routine is same as what you did in November, however, in November you were only able to complete 300◦ so in December, you will do the first 6 days to complete the 360◦ rotation.

You can also continue after DAY 6 and discuss degrees greater than 360.

Another suggestion, Maybe on Day 7 Ask how many degrees would be in 2 full rotations? Day 8, how many degrees would be in 2.5 full rotations, Day 9: how many degrees in 3 full rotations, etc.

Also, have students STAND and rotate their bodies different degrees, discuss how each wall would be a multiple of 90◦ and as they turn and their nose “points” to the corner of 2 walls, those would be multiples of 45◦

**NEW DAILY DATA NEW DAILY DATA NEW DAILY DATA**

**DAILY DATA:** FOUND ON **PAGE 81-83** of Teacher Guide
Use a line plot to collect and display data
Analyze data and interpret graphs
Use statistical terms to describe collected data

Materials: Number Line and Way of getting Temperature Data (weather websites, lex18.com, weather channel, etc)

Make a number line (*you might want a Number Line for each class since the Temperature will most likely fluctuate from morning, to early afternoon, and afternoon)* showing the temperature range that is typical for Lexington KY in December. Use ◦F.

At the same time each day record the temperature by marking an “x” on the number line. (Basically, you are making a Dot Plot, Line Plot, etc)

You will SAVE your December Data to use for JANUARY Daily Data

Discussion Questions:
~Have students conversate on what they think December temp is typically like.
~Have students predict what they think the high, low, most frequent temps are going to be (maybe mark these predictions with a different color “x” at the start of the month??????)
~If you are doing different number lines for each class, have students compare the different data displays and discuss why there might be differences.
~Use the data to find the MEAN, MEDIAN, MODE, RANGE when you have enough data.
~ Are there any outliers? What does the outlier do to the mean? Does it affect the mode? Does it affect the Range?
~what is the mean, median, mode, and range if you omit the outliers?