Activity: Selected Assignments from the April Optional Work Packet

Key Content/Modeling:
- Make Sense of Problems and Persevere in Solving Them
- Construct Viable Arguments
- Model with Mathematics

You Try:
- Crack the Code
- Marbles in a Box
- Penny Collection
- Ice Cream Task

Show me what you know (Proof of learning):
Complete your work and e-mail pictures (or solutions) to your teachers.

Self-Assessment:
Did I complete all of the tasks?
Did I try my best?

Priority Standard(s):
Math Practice Standards
MP1: Make Sense of Problems and Persevere in Solving Them.
MP3: Construct Viable Arguments and Critique the Reasoning of Others
MP4: Model With Mathematics

What am I learning?
Make sense of problems and persevere in solving them using mathematical models.

How do I know I learned?
Learning Evidence in 1-3 Descriptors
I fully completed all four tasks and checked my answers to make sure they made sense to answer the questions.

Extra Learning Opportunities: Find some math in your community! Did you use ratio reasoning for cooking? Did you have to add or subtract decimals when you were shopping? Did you find any ratios in your video games? Tell us about what you've found on e-mail; we'd love to hear all about it!
Good Morning Students
Monday, April 20, 2020

Today Focus:

- In the April Family Resource Packet

Learning Target:

- Make Sense of Problems and Persevere in Solving Them
- Construct Viable Arguments
- Model with Mathematics

Special Note:

- Read each example and do your best in completing all work. If you have any questions, are stuck on a problem, or want me to check your work, please email me and I will be sure to get back with you.
- Take a picture of your work and send it via email for all feedback.
- If you are having trouble accessing the resource packet, please let me know so I can work on ways of getting it to you.
- Paper copies of the resource packet are available to pick up at First Creek on Tuesdays and Thursdays at lunch time.

Tips & Hints:

- Read the entire problem before beginning to work to an answer.
- What do you know about each problem?
- What’s unknown about each problem (what are you trying to discover)?
- Can you draw a diagram (or picture) to help understand the problem?
What’s the Secret Code Number?

Use the clues to find the code number:

1. It is between 8,500 and 8,800.
2. When multiplied by 8, the result is a whole number.
3. The digit in the hundreds place is \( \frac{3}{4} \) the digit in the thousands place.
4. The sum of all digits in the number is 26.
5. The digit in the hundredths place is double the digit in the tenths place.
6. There are no zeros in the decimal places.

What code numbers fit these clues?

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Explain how you used all of these clues to find these possibilities.

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Write one more clue so that there is only one possible code number.

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If you e-mail me your clue I will respond with what I think your secret number is!
**Marbles in a Box**

Imagine a three-dimensional version of Tic-Tac-Toe where two players take turns placing colored marbles into a box.

The box is made of 27 individual cubes arranged like a Rubik's Cube.

The object of the game is to connect three boxes in a straight line by filling them with your marbles.

How many different ways can you make a winning line?

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**Penny Collection**

Consider a collection of pennies with the following constraints:

When the pennies are put in groups of 2 there is one penny left over. When they are put in groups of three, five and six there is also one penny left over. But when they are put in groups of seven there are no pennies left over.

How many pennies could there be?
Ice Cream Social

When a customer orders a two-scoop ice-cream cone in shops with lots of ice cream flavors there are many different flavor combinations. If the store only offered chocolate ice cream, there would only be 1 kind of 2-scoop ice cream – chocolate/chocolate. If the store were to start selling vanilla ice cream as well there would be 3 possible combinations – vanilla/vanilla, chocolate/chocolate, and vanilla/chocolate).

How many combinations of 2-scoop cones are there with 5 flavors?

How many combinations of 2-scoop cones are there with 10 flavors?

Write an expression to show how many combinations of 2-scoop cones there are with n flavors.

(n is a variable, it could be any number)

Create a one-page mini-poster to illustrate your thinking!