

Grade 8 PRIME Math & Science Learning Opportunities

Week of May 19th

MATH ENGLISH - WEEK OF MAY 19TH

MANGAHIGH CHALLENGES

We will be changing our challenges this week to focus on **probability**.

Please let me know if you need your mangahigh password and I will send to you. Don't forget you can always message me through mangahigh if you have any questions. Always try each challenge at least three times. Good luck!

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MATH RIDDLES

Please pause the video after each riddle to take time to try to solve.

<https://www.youtube.com/watch?v=dEn1hGGKI6s&t=148s>



$$21 = \text{burger} + \text{burger} + \text{fries}$$

$$\text{juice} + \text{veggie burger} + \text{juice} = 13$$

$$9 = \text{veggie burger} \times \text{veggie burger}$$

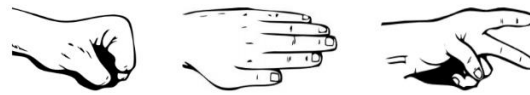
$$\text{juice} + \text{burger} = 9$$

$$14 = \text{burger} + \text{burger}$$

$$\text{fries} + \text{burger} + \text{veggie burger} + \text{burger} = ?$$

May is National Hamburger and Veggie Burger Month!
You can download more free math puzzles at www.mashupmath.com

Probability Rock, Paper, Scissors



Probability: The chance that something will happen.

If you and a friend are playing rock, paper, scissors...

1. What is the probability that your friend will throw a rock?
2. What is the probability that your friend will not throw paper?

Get together with a partner and play rock, paper, scissors. Play a total of 20 times and record your data.

1. How many times was rock thrown by your partner? _____
A. What was the probability? _____ / _____
2. How many times was paper thrown by your partner? _____
A. What was the probability? _____ / _____
3. How many times was scissors thrown by your partner? _____
A. What was the probability? _____ / _____
4. What do these results tell you? _____

Probability + Cells = GENETICS!

Have you ever stopped to wonder if everyone can roll their tongue? Clasp your hands together – which thumb is on top, left or right? Do you have dimples? These are examples of traits which are passed on genetically from one generation to the next. If you'd like to learn more, check out the link below.

<https://learn.genetics.utah.edu/content/basics/observable/>

What does this have to do with Math and Science? The study of how cells pass down certain traits to the next generation is called Genetics. In this week's Math-Science link, we will tie in what you've learned about cells in Science with the mathematical concept of Probability.

To learn a bit about how genes are passed down, watch these short videos:

Introduction to genetics

1) What's an allele? A Punnett Square? (3:06)

<https://www.youtube.com/watch?v=Mehz7tCxjSE>

2) Amoeba Sisters (Genetics Video Series #1): Punnett Squares – Guinea Pigs (6:27)

<https://www.youtube.com/watch?v=i-0rSv6oxSY>

Curious about how eye colour is determined? Watch these two videos:

3) Punnett Squares (Genetics) 4:20

<https://www.youtube.com/watch?v=prkHKjfUmMs>

4) Punnett Squares (2:52) Eye Colour

https://www.youtube.com/watch?v=PyP_5EgQBmE

Interested in this topic and you'd like to explore further:

5) Amoeba Sisters (Genetics Video Series #2): Punnett Squares and Sex-Linked Traits (6:11)

<https://www.youtube.com/watch?v=h2xufrHWG3E>

6) Amoeba Sisters (Genetics Video Series #3): Multiple Alleles (ABO Blood Types and Punnett Squares) - Blood Types (7:04)

<https://www.youtube.com/watch?v=9O5JQqIngFY>

7) Amoeba Sisters (Genetics Video Series #3): Dihybrid and Two-Trait Crosses (cat example) 8:31

<https://www.youtube.com/watch?v=qIGXTJLrLf8&pbjreload=10>

8) Amoeba Sisters Video Series: Pedigree (9:41)

<https://www.youtube.com/watch?v=Gd09V2AkZv4>

*****There are many more interesting topics on the Amoeba Sisters' YouTube relating to the topics of Genetics and Probability – check them out!**

SCIENCE

Challenge: Can you design a...

FLINKER?

It's not a FLOATER! It's not a SINKER!

Materials:

- Container of water (as deep as you can get it and have room for your hands to reach in)
- Corks or cork pieces
- Styrofoam
- Tinfoil
- 10-15 buttons
- 10-15 metal washers
- 10-15 paper clips
- Masking tape
- Any other items of your choice that may float or sink

Steps to Follow:

1. Fill your container with water (almost to the top).

2. Examine your materials. On the chart below, make a prediction as to which items will float and which ones will sink. Then try each item in the container and record what it does.

Item:	Prediction (float or sink):	Actual (float or sink):
Cork		
Styrofoam		
Tinfoil		
Buttons		
Metal washers		
Paper clips		

3. Now you are ready to begin your challenge. **Construct a contraption that will not float or sink.** In fact it should stay in the middle of the container. Not skimming the surface or dragging on the bottom. Combine your items in any way you like and build your Flinker. Try different combinations. See how close you get.

Questions:

1. What do you notice that is special about the tinfoil? What about the paper clips?

2. How does your “flinker” work?

3. Why do you think it “flinks”?

4. Draw your “flinker” “flinking”.

