Fermi Overview

Fermi Math Facilitator = Liz Dayton, eadayton@district287.org

The Big Picture

Welcome to Fermi Math League! I am very excited to work with all of the teams and coaches involved this year. For those of you who have previously participated in the program, I will be using the same processes that have been used in the past with the following changes:

1) Challenges will be posted Tuesday for a challenge start and end day of Wednesday at 10pm.
2) Overall score sheets will be posted on the Monday following solution submission.
3) Teams will not receive the full 10 points for simply listing 10 questions on the question slide. The quality of questions and key answers will be considered when scoring the question slide.
4) The maximum number of bonus points a team will get for a given week is 5 points. You may earn these points by EITHER doing the challenge for a higher grade level or by doing the challenge bonus question (if available) but NOT BOTH. If you have a team that wants to do the higher grade level challenges every week, please let me know, and I will move their team to the higher grade level.

Before you begin please take time to read through documents found in the **Fermi Process, Rules, Checklist** folder.

Remember: Fermi Math is about **estimation** and **playing with big numbers**: Round, round, and round! Fermi is very much about "about." If you state your assumptions, you will probably be right in the game!

We will be using Google Slides; there will be a folder for the deposit of entries by your division groups: Grades 1-2, Grades 3-4, Grades 5-6, Grades 7-8.

Overview - Weekly Challenges

Each of the weekly challenges begin with some pictures and a short paragraph setting up the challenge. There are NEVER tricks involved with Fermi Math. It is up to you to decide the best way to investigate the big problem, but you need to be correct in making solid assumptions and using appropriate math. For example, you cannot expect a *roadrunner* to be as big as the space shuttle. But, if the problem **didn't state** that a roadrunner is a *bird*, it could be a Dodge car. You need to tell me your assumptions so that I re-work your problem's solution with your information.

Here is an example used in a previous February session:

> **Lunar New Year Problem for Grades 1-2:**
> "The Lunar New Year begins February 3: the Year of the Rabbit. On the days before the New Year celebration Chinese families give their home a thorough cleaning. There is a Cantonese saying "Wash away the dirt on nin'ya'baat", but the practice is not usually restricted on nin'ya'baat (年廿八, the 28th day of month 12). To clean the house is to sweep away cobwebs and bad spirits. Food is put out for the evil spirits so they will not eat the livestock or children! The New Year celebration lasts 15 days, ending in the beautiful Lantern Festival that welcomes spring.

Your Grade 1-2 challenge:
Imagine that your home/apartment is surrounded by lucky golden rabbits, nose to fluffy tail. How many rabbits would surround your home?"

Overview - A sample team solution slide deck

1) **Cover Slide**
    a) Team name, Grade level, Challenge #, Initial Estimate (guess), Final Answer
    b) Make sure all estimates and answers have units/labels
2) **Assumptions (optional)**
    a) List key assumptions the team made that I should account for in checking answer
3) **Questions**
    a) List a minimum of 10 questions the team feels will be needed to solve the challenge.
    b) Answer the questions that were actually used to solve the challenge
    c) Examples: What do I need to know about rabbits to answer this question? How big is a rabbit? How big is my house or apartment building? What equations are needed? Do any units need to be converted?
4) **Metacognition**
    a) Describe in paragraph form how the team reached their solution.
    b) For full points, it is critical that numbers are rounded and units are listed on all numbers.
    c) The last sentence of the paragraph should state the final answer.
5) **Model**
    a) This should be an overview slide that SHOWS all of the main parts of the challenge.
    b) Indluce team name, school, final answer with label, sample size with label, illustrations/pictures/drawings/3D model showing the main parts of the challenge.
6) **Sources**
    a) List any sources you used to solve the challenge (websites, people interviewed, etc.)

Overview - How coaches submit solution slide decks

Google submission folders are created for each school and shared with coaches. Sharing for these folders is restricted to coaches for that particular school and the Fermi coordinator. **Drop each team's completed entry in the submission folder for your school by 10pm on the problem due date.** Make sure the files are labeled **Grade#.TeamName.Wk# (on the first Google Slide).**

Summing up: Simple is Best

Above all, remember that this is supposed to be fun. Parents may make problems harder, because they know so much math. Teach your children to use calculators, spreadsheets and other tools as soon as they are ready. This is **NOT** a place for a discrete math lesson unless your child really wants to know that process. Calculus is not a great solution process for most kids.

A word about Wikipedia and multiple sources

Wikipedia is a great tool for getting started on your research, but please do not use it as your **only source** of information. It is often written by people like you and me...not necessarily experts. Start with Wikipedia, if you must, but confirm your data at the sites of the **experts in the field**.

Problems or Unexpected Delays?

If a team problem arises, or you have technology issues just give me a heads up via email. If necessary, intermediate problem due dates can be modified for good reason. IF YOU ARE DRAWING A BLANK, OR ARE OVERWHELMED, JUST EMAIL ME. I give **hints**.