



Moto Math Introduction

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Section 1 – Introduction

1.1 – Overview

This section provides background for the CREATE Junior game called *Moto Math*. This competition is for students primarily in the 4th and 5th grades. Students as old as 6th grade are allowed to participate as well as younger students who are ready for this level of engineering challenge.

1.2 – Introduction

Join the CREATE Foundation this year in a race to mathematics understanding as you design, build and drive your robot in Moto Math.

The key to understanding many of the mysteries of nature lie in mathematics. Driving toward deeper understanding can take many twists and turns. In Moto Math scoring will be based upon mathematical concepts like:

- **Fibonacci Sequence** - A series of numbers: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, ... The next number is found by adding up the two numbers before it.
- **Fractions** - Part of a whole.
 - the bottom number (the **denominator**) says how many parts the whole is divided into.
 - the top number (the **numerator**) says how many parts we have.
- **Exponents** - A quantity representing the power to which a given number or expression is to be raised, usually expressed as a raised symbol beside the number or expression (e.g., 3 in $2^3 = 2 \times 2 \times 2$).
- **Percentages** - Any proportion or share in relation to a whole.
- **Probability** - The extent to which an event is likely to occur, measured by the ratio of the favorable cases to the whole number of cases possible.

Your challenge is to **add** up as many points as possible on our multi-colored race track. Speed will be important. So gear **ratios** is something you definitely should consider in your design. But speed is not the only consideration as Felicity **Fibonacci** has placed a **number** of obstacles in your way. Knock them all down for maximum points. Franky **Fractions** has moved all the spheres off their green home tiles. Move them from the red tiles back home to the green tiles for a maximum score. For each **sphere** placed on a green tile a **fraction** of the maximum points allowed will be awarded. But don't forget, this is a race and Elly **Exponent** will be **counting** up your laps and will raise your lap score **exponentially!** As you race around make sure the second driver takes a crack at Pat **Probability's** cube of odds. Then at the end of the race Penelope **Percentage** will award you up to 100% of the 20 point parking bonus. Just get to the right tile before the time expires.

On the following pages are the rules of this fast paced challenge. Your team will have the opportunity of designing, building and testing your own robot to push, lift and race beyond the competition. Good Luck. We begin in 3, 2, 1...