**Unit 1 – Thematic/Cross-Content for Crash**

Content Area: **Mathematics**
Course(s): 7th/8th grade
Time Period: **September**
Length: **1 week**
Status: **Published**

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| **Unit Overview** |
| This unit focuses on the Ratios and Proportional Relationships (RP) domain and how it is connected to the real world of football. |
| **Essential Questions** |
| * “How can you use mathematics to describe change and model real-world situations?”
* "How can you show that two objects are proportional?"
* "How can percent help you understand situations involving money?"
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| **Content** |
| * Rates
* Complex Fractions and Unit Rates
* Convert Unit Rates
* Proportional and Non-proportional Relationships
* Percent of a Number
* Percent and Estimation
* The Percent Proportion
* The Percent Equation
* Percent of Change
* Sales Tax, Tips, and Markups
* Discount
* Financial Literacy: Simple Interest
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| **Skills** |
| * Determine unit rates
* Simplify complex fractions and find unit rates
* Convert units of measure between derived units to solve problems
* Identify proportional and non-proportional relationships
* Use proportions to solve problems
* Find percent of a number
* Estimate percents using fractions and decimals
* Use the percent proportion
* Use the percent equation
* Find percent of change and percent error
* Solve problems involving sales tax, tips, and markup
* Solve problems involving discount
* Solve problems involving simple interest
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| **Assessments** |
| * Football Percentage Accuracy Project
* Teacher Observation
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| **Lessons/Learning Scenarios** |
| 1. Determining batting averages, then explain what 1.000 and 0.000 means.
2. Create paper footballs, then work with a partner to calculate field goal accuracy in fraction, decimal, and percentage forms.
3. Real-world financial literacy problems (discount).
4. Real-world football problems relating to top scorers.
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| **Standards** |
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| **MA.7.CCSS.Math.Content.7.RP.A.1** | **Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.**  |
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| **MA.7.CCSS.Math.Content.7.RP.A.2c** | **Represent proportional relationships by equations.**  |
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| **MA.7.CCSS.Math.Content.7.RP.A.3** | **Use proportional relationships to solve multistep ratio and percent problems.**  |
| **MA.7.CCSS.Math.Content.7.NS.A.3** | **Solve real-world and mathematical problems involving the four operations with rational numbers.**  |
| **MA.7.CCSS.Math.Content.7.EE.A.2** | **Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.**  |
| **MA.7.CCSS.Math.Content.7.EE.B.3** | **Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.**  |

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| **Resources** |
| * Paper Football Math Activities
* Touchdown Math
* Football-Math Connection

\*\* The above-mentioned activities were borrowed from the website: [www.teacherspayteachers.com](http://www.teacherspayteachers.com) |