National Standards Alignment for 79615 The Great Toy Design Challenge

Next Generation Science Standards

5-PS1 Matter and Its Interactions

5-PS1-2 Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.

5-PS1-3 Make observations and measurements to identify materials based on their properties.

3-5-ETS1 Engineering Design

3-5-ETS1-1 Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

3-5-ETS1-2 Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

3-5-ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

Science and Engineering Practices

Practice 2: Developing and Using Models

Practice 3: Planning and Carrying Out Investigations

Practice 4: Analyzing and Interpreting Data

Practice 6: Constructing Explanations and Designing Solutions

CCSS Mathematics

5.NF.B.5a Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.

5.NF.B.5b Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.

5.NF.B.6 Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

Standards for Mathematical Practice

MP1 Make sense of problems and persevere in solving them.

MP4 Model with mathematics.

MP6 Attend to precision.

CCSS English Language Arts

W.5.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information.

W.5.2d Use precise language and domain-specific vocabulary to inform about or explain the topic.

SL.5.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.

SL.5.3 Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.