**Rocket Activity**

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| **Subject Areas** | Comprehensive Science 1, 2, 3, Physical Science, and Physics, Engineering |
| **Grade Level(s)** | 6th to 12th grade |
| **Learning Objective(s)** | 1. Apply the scientific method to generate knowledge 2. Identify the variables, control group, and constants in an experiment 3. Explain what aerodynamics is 4. Analyze how design affects aerodynamics |

1. **Vocabulary Activity. Go to dictionary.com and look for the definition of the following words. Then, write a sentence with the word.**

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| **Vocabulary word** | **Definition** |
| **Aerodynamics** |  |
| **Lift** |  |
| **Weight** |  |
| **Drag** |  |
| **Thrust** |  |
| **Independent variable** |  |
| **Dependent variable** |  |
| **Control group** |  |
| **Scientific method** |  |
| **Constant** |  |
| **Hypothesis** |  |
| **Controlled experiment** |  |

1. **Based on what you know about aerodynamics and after observing the design of the different rockets, answer the following questions.**
2. Which of the rockets do you think will travel the largest distance? Why?

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1. How does the weight of the rocket affect the flying capacity of the rocket?

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1. If you are conducting an experiment to analyze how the design is affecting the performance of the rocket, what would be the independent variable? Why?

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**3. Applying the scientific method.**

**Material needed**

* **Rockets (different rocket kits)**
* **Stopwatch**

1. Problem question

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| Which rocket will travel the largest distance? |

1. Variables

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| **Independent Variable** |  |
| **Dependent Variable** |  |
| **Control Group** |  |
| **Constants (at least three)** |  |

1. Hypothesis

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1. Collecting data

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| **Rockets** | **Flying time** |
| Water rocket |  |
| Fly high rocket |  |
| Rascal and HiJinks rocket |  |
| The meteor rocket |  |

**4. Conclusion Questions**

1. What was the pattern you observed?

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1. Was your data reliable? Why?

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1. What did you learn today?

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