**Catapulting into the Air**

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| **5-Part Plan Title:** | **Catapulting into the Air** |
| **Engineering Grand Challenge Covered:** | **Restore and Improve Urban Infrastructure** |
| **Fellow Contributor(s) / Group Number:** | **Ifeoma Anyansi** |
| **Grade Level(s):** | **Grade 7 (6-8)** |

**5-Part Make it Happen Plan**

1. **Learn It:** How can I perform work more easily? So glad you asked! Work can be performed more easily using one or more of the simple machines.Can youlist the simple machines? There are six simple machines: Inclined plane, Screw, Wedge, Lever & Fulcrum, Wheel & Axle, and Pulley.

1. **Do It:** To demonstrate the concepts of motion and force, we will use a simple machine called a lever and fulcrum to build a catapult and launch a projectile. What will affect the distance that our projectile travels? (Answers: amount of force used to launch the projectile and angle the projectile is launched, for max distance, launch at 45 degrees).

Do you know what a catapult is and what is it used for? We are going to build a catapult using a simple machine called lever and fulcrum. Can you describe the parts of a catapult? Is there any part of a catapult that uses one or more of the six simple machines?

1. **Share It:** List some of the historical and modern day uses of catapults. Share your list with others in your classroom.
2. **Create It:** Create a catapult using the method for Catapult Activity on the following sheet. For three separate attempts, calculate and record the distance your projectile traveled.
3. **Teach It:** Demonstrate your catapult to other students. Be able to list the six simple machines and explain how force and the projectile’s launch angle affect the distance traveled by the projectile.