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| **Workshop : Rocket Car Racers: Forces in Motion**  **National Curriculum Links** KS2 Science: yr3 + yr5 Forces and Magnets- Compare how things move on different surfaces  Identify the effects of air resistance and friction that act between moving surfaces  KS2 DT:  - Design- generate, develop and communicate their ideas  - Select from and use a range of materials according to their functional properties  - Select from and use a range of tools and equipment to perform practical tasks.  -technical knowledge- understand and use mechanical systems (wheel and axel) | | |
| **Learning objectives** | **Session structure** | **Assessment for learning** |
| **To explore the forces involved in movement.**  **To identify the effects of air resistance, friction and gravity on movement.**  **To design and build air powered vehicles.**  **To adapt designs to improve the speed and distance they can travel.**  **To calculate the speed the cars travel.** | **Introduction**  We will explore the forces involved in motion using actions and questioning before testing understanding with a class quiz.  **Session activities**  Students will work in small groups to build basic air powered cars with wheels, axels, chassis and air pressure tubes. We will fire the cars to get a baseline measurement of speed and distance travelled.  Students must then select materials and create a design to improve the speed and distance using their knowledge of forces  **Plenary**  We will fire the cars once again to see if any team has managed to improve their scores. We will discuss as a class which designs worked well and what changes we would make to designs if we had more time. | Children will explore themes through class and group experiments, we will ask questions throughout to check understanding.  Children will have opportunities to respond and give feedback throughout the session.  There will be opportunities for Q&A at the end of the session. |
| **Before your visit** | **After your visit** | **Key vocabulary** |
| Make a free teacher pre visit to familiarise yourself with the site- contact [learning@discoverymuseum.org.uk](mailto:learning@discoverymuseum.org.uk)  Explore the museum virtually using goggle institute:  <https://artsandculture.google.com/partner/discovery-museum> | * Visit the Science Maze to explore the forces zone * Explore the forms of transport on display in the museum and evaluate the pros and cons of their designs. * Try out our gravity-themed experiments <https://discoverymuseum.org.uk/week-11-gravity> | Motion, Wheel, Axel, Chassis, Mass, Gravity, Centre of balance friction, air resistance, aerodynamic, Baseline, Force, Thrust, Pressure |