

Race Cars Workshop

About the Workshop:

The Race Car workshop is a fun, hands-on way to get participants excited about design and introduce them to elementary physics.

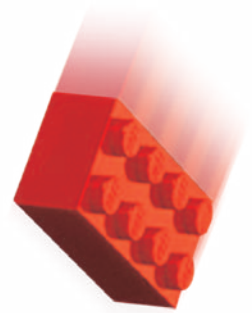
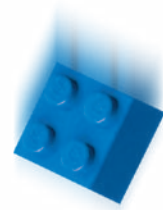
Participants build LEGO® race cars, race them on a track, collect data, and use arithmetic to calculate their car's performance.

Participants also learn about the forces that affect their cars and use this information to create lean racing machines.

Education Objectives:

The objective of this workshop is to give your group the opportunity to:

- Use mathematics and hypothesis testing to explore and understand elementary physics
- Relate concrete events to mathematics and physics
- Record data and analyse it to comprehend results and improve design



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National Curriculum Standards:

The Race Car workshop corresponds to the Following areas of the National Curriculum:

Key Stage 1:

Design and Technology

1a, b, c, d, e: Students will create a LEGO® race car based on their own experience, and then will discuss their models with other students to develop ideas as to how to make their cars go Faster.

2d: Students will create a car From LEGO bricks

4a,b: Students will be taught about the properties of materials, and will use wheels and axels to create their LEGO cars

5a: Students will test their cars, evaluate them and then rebuild them to try and make them Faster. They will discuss variables that make the car slow down or speed up.

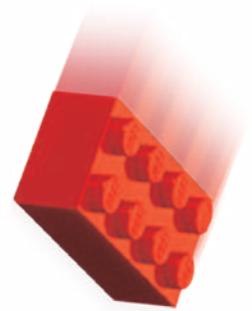
Science:

Sc1-2d: Students will plan how to build their car, thinking about Factors that will make their car as Fast as possible

Sc1-2h: Students will assess and evaluate what influenced the speed of their car, and make comparisons to cars built by other students.

Sc4-2b: Students will be taught that push and pull are examples of Forces

Sc4-2c: Students will discuss why their cars slow down or speed up, and identify the cause of this



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Key Stage 2:

Design and Technology:

1c,d: Students will plan how to build their car, taking into account intended use and purpose

2b: Students will investigate alternative ways to build their car to make it go faster

3a,b: Students will identify ways to improve their car, and carry out appropriate tests

Science:

Sc1-1b: Students will be taught the importance of testing through observation and measurement

Sc1-2d: Students will measure the effect of changing various factors on their car.

Sc1-2g: Students will retest their cars to ensure accuracy if necessary

Sc1-2j: Students will draw conclusions based on observation and measurement.

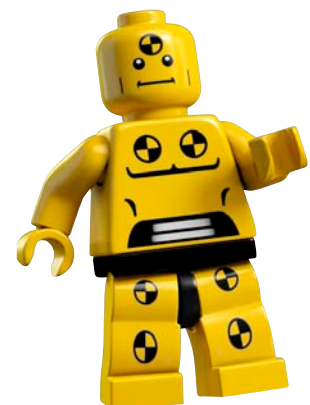
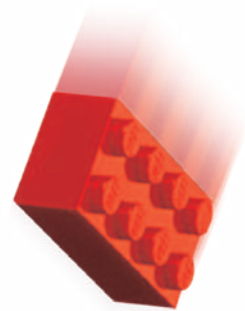
Sc1-2l: Students will use their scientific knowledge to explain their observations and measurements

Sc4-2c: Students will be taught about friction as a force that slows moving objects

Before your Visit:

Some suggestions for fun and engaging classroom activities to help your class get the most out of Race Car Workshop:

- Have students use rulers or tape measures and measure common objects around the school such as the clock on the wall, the height of the door, the length of the gym, etc.
- Use conversion formulas to find lengths of common objects in uncommon units of measurement. For example, how many pennies long is their notebook



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After the Workshop:

Before and after your Race Car workshop, your class is free to explore the LEGOLAND® Discovery Centre.

Build and Test

Grab some wheels and test out your new LEGO® building skills in the Build and Test area. Race Ramps and Test Ramps are available to push your creation to its limits.

Classroom activities after the visit:

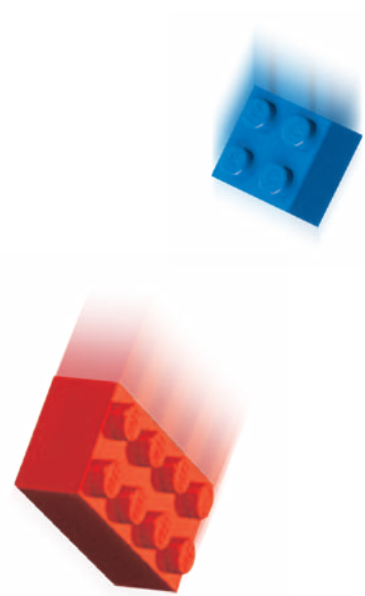
Classroom “Olympics”

To create a race track and have students measure out the distance.

- Have students race down the track and record their times
- Students can use this data to calculate their average speeds
- You can also create other events to expand your Olympics such as: Standing Long Jump, Softball or Shotput, Relay Races, etc.

Traffic Safety

- Have students form groups and discuss reasons for traffic laws and how they affect the way cars are engineered
- Have them answer questions such as:
 - What makes for a safe car?
 - What purpose do traffic signals have and what affect do they have on a car?
 - Why are there speed limits on roads?
 - What are the necessary accessories a car should have to keep people safe in an accident? Etc.
- Afterwards have them design a car that would help keep its passengers safe on the road



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