BLOODHOUND SSC

The Project

BLOODHOUND SSC is a supersonic car which a dedicated team of highly expert and experienced engineers, designers, mathematicians and scientists have created, using a range of cutting-edge technology, in the attempt to build the fastest car in the world.

It is a mixture of aircraft and car engineering. The team aims to beat the current British World Land Speed Record of 763.035 mph, achieved by Andy Green in Thrust SSC, 1997.

Supersonic means the car will travel faster than the speed of sound.

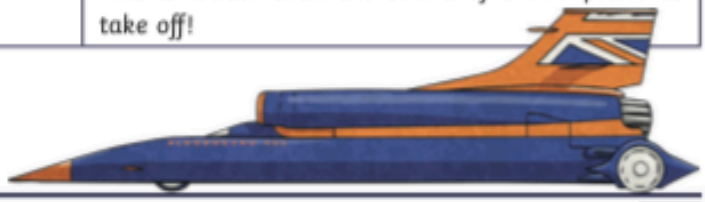
Mission Statement of the BLOODHOUND SSC Project

The project aims to create a unique, high-technological project, focused around a 1000mph World Land Speed Record. BLOODHOUND SCC aims to share this engineering adventure with a global audience and inspire the next generation by bringing science, technology, engineering and mathematics (STEM) to life in the most exciting way possible.

BLOODHOUND SSC will cover one mile in a speedy 3.6 seconds!

BLOODHOUND SCC statistics

	Measurement/ Material	Interesting Fact
Weight	7.5 tonnes	This is equal to the weight of a small truck.
Length	13.4m	13.4m is equal to the length of a badminton court.
Speed	1000mph	1000mph is faster than the speed of a bullet leaving a gun.
Wheels	95kg per wheel	They are made from an aluminium and zinc combination.
Monocoque	Carbon fibre	This material is the same as that used in racing cars.
Engine Sound	140 decibels	This is louder than the sound of a 747 plane at take off!



The Engines

The Car has three engines:

Jet Engine	Rockets	Jaguar Supercharged V8 Engine
Engines need thrust to generate enough power to get the car up to speed as quickly as possible. The jet engine will provide half of the thrust. It is an engine normally used in a Eurofighter Typhoon plane.	A cluster of hybrid rockets will be used when the car is going at 1000mph. They are hybrid rockets which means they are lower in cost and better for the environment. They will provide most of the thrust needed when the car is travelling.	This is needed to drive the rocket oxidiser pump. This pump provides the rocket with high test peroxide which keeps the rocket fuelled at 40 litres every second!

Finding a Suitable Location for a Land Speed Record

Finding the right location for an event like this is a challenge. A car travelling at 1000mph needs an environment free from plants and living creatures. The ground that the car will travel on needs to be even, hard and as smooth as possible. The area also needs to be 12 miles long and 1500m wide. The team did not want to build a track especially for the event as this would raise more environmental issues.

The car is going to run on a dried lake bed in South Africa, called Hakskeen Pan. It is a bit like an apple crumble – it has a hard crust on top and softer layer underneath. In South Africa, there are only two seasons, wet and dry, so BLOODHOUND have to time their visit carefully. It is the flattest place on Earth. Over the 12-mile track, the land drops by just 40cm, making it flatter than a snooker table. Over 300 people have had to clear the track by hand. Anything larger than a pea has been removed.

Record requirements

To qualify for the land speed world record, there are certain rules which must be followed.

- The vehicle must be in constant contact with the ground.
- The power and steering system must be controlled by the driver onboard the vehicle.
- The vehicle must pass through the measured mile (or km) twice, in opposite directions, and an average speed will be recorded.
- The attempt must not go over 1 hour.

Questions

1. In 'The Project' section, what do you learn about the team who have built BLOODHOUND SSC?

2. Define 'cutting-edge technology'.

3. Tick true or false for the following statements.

	True	False
The car's wheels are made from carbon fibre.		
BLOODHOUND SSC is roughly the same length as a badminton court.		
A 747 plane will not be as loud as the BLOODHOUND's engine.		
The car will travel one mile in 4 seconds.		
Carbon fibre is also used to make racing cars.		

Rewrite any false statements so that they are true.

4. Summarise the three main points of the mission statement.

   1)

   2)

   3)

5. Write three alternative words for 'inspire'. You may use a thesaurus.

6. Choose two factors that needed to be considered when searching for a suitable location for the land speed record and explain why you think they had to be considered.

7. What are the benefits of using a hybrid rocket?

8. There are rules that must be followed when attempting to beat the land speed record. Each rule is there for a reason. Pick two and suggest why the rule is needed.

9. Do you predict the BLOODHOUND SSC will be successful? Explain your answer using evidence from the text.