

9K Speeding up...Air resistance and friction

level 5

level 6

level 7

starter one

Science Interactive LTD. PO BOX 50764 LONDON NW6 9AT email: sales@science-interactive.co.uk

web: www.science-interactive.co.uk

Look at the three cars pictured below. From their profile (shape) which one cuts through the air with the least, middle and most resistance. Is there a link between the profile of a car and its top speed:



Click mouse to reveal answer

Beetle (Top speed 200kmhr⁻¹)

Porsche (Top speed 240kmhr⁻¹)

4 x 4 (Top speed 170kmhr⁻¹)

Diagram



Least resistance

Least resistance

Least resistance

Middle resistance

Middle resistance

Middle resistance

Most resistance

Most resistance

Most resistance

9K Speeding up...Air resistance and friction

level 5

level 6




level 7

starter one

Science Interactive LTD. PO BOX 50764 LONDON NW6 9AT email: sales@science-interactive.co.uk

web: www.science-interactive.co.uk

Answer:

	Beetle (Top speed 200kmhr ⁻¹)	Porsche (Top speed 240kmhr ⁻¹)	4 x 4 (Top speed 170kmhr ⁻¹)
Diagram			
		<i>Least resistance</i>	
	<i>Middle resistance</i>		
			<i>Most resistance</i>

9K Speeding up...Air resistance and friction

level 5

level 6

level 7

starter two

Science Interactive LTD. PO BOX 50764 LONDON NW6 9AT email: sales@science-interactive.co.uk

web: www.science-interactive.co.uk

Decide whether the following statements are true or false:



Click mouse to reveal answer

Statements:	True	False
Friction is caused by two rough surfaces rubbing together ?	True	False
A rocket has a pointed nose cone to reduce the air resistance when it launches ?	True	False
Friction between two surfaces rubbing together causes them to cool down ?	True	False
Car brakes use friction to slow a moving car, converting kinetic energy into heat energy ?	True	False
Friction between two surfaces rubbing together is increased when you use a lubricant ?	True	False
Without air resistance, parachutes would not work ?	True	False
As the speed of a car increases, air resistance decreases ?	True	False
Lorries and buses are not particularly well designed to move through air at high speeds ?	True	False
A cyclist competing at altitude can attain higher speeds because air resistance is lower ?	True	False
Reducing the air resistance experienced by a sports car will increase its top speed ?	True	False

9K Speeding up...Air resistance and friction

level 5

level 6

level 7

starter two

Science Interactive LTD. PO BOX 50764 LONDON NW6 9AT email: sales@science-interactive.co.uk

web: www.science-interactive.co.uk

Answer:

Statements:	True	False
Friction is caused by two rough surfaces rubbing together ?	True	
A rocket has a pointed nose cone to reduce the air resistance when it launches ?	True	
Friction between two surfaces rubbing together causes them to cool down ?		False
Car brakes use friction to slow a moving car, converting kinetic energy into heat energy ?	True	
Friction between two surfaces rubbing together is increased when you use a lubricant ?		False
Without air resistance, parachutes would not work ?	True	
As the speed of a car increases, air resistance decreases ?		False
Lorries and buses are not particularly well designed to move through air at high speeds ?	True	
A cyclist competing at altitude can attain higher speeds because air resistance is lower ?	True	
Reducing the air resistance experienced by a sports car will increase its top speed ?	True	

9K Speeding up...Air resistance and friction

level 5
level 6
level 7




starter three

Science Interactive LTD, PO BOX 50764 LONDON NW6 9AT email: sales@science-interactive.co.uk

web: www.science-interactive.co.uk

Look at the three pictures below. In each picture, friction is used usefully. Write a sentence describing how friction is useful:

 Click mouse to reveal answer

	Example one	Example two	Example three
Diagram			
	Answer:	Answer:	Answer:

9K Speeding up...Air resistance and friction

level 5
level 6
level 7

starter three

Science Interactive LTD. PO BOX 50764 LONDON NW6 9AT email: sales@science-interactive.co.uk

web: www.science-interactive.co.uk

Answer:

Example one



Answer:

Friction between the brake plate and the disc slows the car down converting kinetic energy into heat energy.

Example two



Answer:

Friction between the climbing axe and the ice keeps the ice climber from falling to the ground.

Example three



Answer:

Friction between two pieces of wood causes heat to produce a burning ember which is then used to start a wood fire.