

# 9K Speeding up...Air resistance and friction

level 5  
level 6  
level 7




## plenary one

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

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Look at the three pictures below. In each picture, friction or air resistance between the athlete and snow, air or water causes the athlete to slow down. How, for each sport is friction or air resistance reduced:

 Click mouse to reveal answer

	Downhill skiing	Team time trial	Swimming
Diagram			
	Answer:	Answer:	Answer:

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Answer:

### Downhill skiing



Answer:

Air resistance is reduced by the skier crouching and wearing aerodynamic clothing made from a smooth material like lycra.

### Team time trial



Answer:

Air resistance is reduced by team members 'slip streaming' the lead cyclist. Also an aerodynamic position is adopted by each cyclist.

### Swimming



Answer:

The swimmer uses a streamlined style and also shaves his head so that his smooth skin cuts through the water.

Match the following statements:



Click mouse to reveal answer

Friction between two moving surfaces can be reduced by...



In space, there is no atmosphere.

The reason why car braking surfaces become hot is because...



Place a small amount of oil on the screw's tip, reducing friction.

Lorries use large amounts of energy to overcome the resistance between...



Using a lubricant like oil.

In deep space there is no air resistance on a moving object because...



It prevents you losing your grip and slipping.

Friction between your shoes and the ground is useful because...



The air and the front of the lorry's body.

To make it easier to turn a fixing screw through wood, you can...



The car's kinetic energy is converted into heat energy when slowed down.

Answer:

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## plenary three

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Look at the four pictures below. Decide whether friction is useful, unwanted or wasteful:



Click mouse to reveal answer

	Example one	Example two	Example three	Example four
Diagram				
	<i>Friction between the ice and the ice axe.</i>	<i>Friction between the ground and the boy's shoes.</i>	<i>Friction between the skier and the ice.</i>	<i>Friction between the ground and the suitcases wheels.</i>
	Useful	Useful	Useful	Useful
	Unwanted	Unwanted	Unwanted	Unwanted

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Answer:

	Example one	Example two	Example three	Example four
Diagram				
	<i>Friction between the ice and the ice axe.</i>	<i>Friction between the ground and the boy's shoes.</i>	<i>Friction between the skier and the ice.</i>	<i>Friction between the ground and the suitcases wheels.</i>
	Useful	Useful		
			Unwanted	Unwanted