Safety features can be designed into vehicles but road design can also contribute to safety.

Choose one of the research tasks below and

- use the internet to find information and images
- summarise the information
- produce a poster or computer presentation to present your findings.

Escape lanes

A Some roads that go downhill for a long way have an escape lane near the bottom. If the brakes on a vehicle fail, they can turn into the escape lane instead of carrying on along the road and crashing.

- find some images of escape lanes
- describe what the escape lane is made of
- suggest why escape lanes are made from this material
- explain why an escape lane is a better safety feature than a rigid barrier would be.

Roadside and median barriers

Some roads have barriers along the sides to stop cars driving off the edge of the road. Dual carriageways and motorways usually have median (middle) barriers between the two carriageways to stop cars from travelling into traffic moving in the opposite direction.

B Most barriers in the UK are made from strips of steel supported on posts. However on motorways these are gradually being replaced by concrete step barriers.

- Explain why it is important that vehicles are prevented from driving off the roads or into the opposite carriageway. (*Hint*: think of the difference between running into a car in front that is travelling in the same direction and running into a stationary object or something coming the other way.)
- Find images of steel barriers and concrete step barriers. Describe the differences between them.
- Explain some advantages of the concrete barriers compared to steel ones.

Crash cushions

C Some roadside barriers cannot be continuous – there are gaps for slip roads onto motorways, for example. Some barriers are short – they are only needed while the road goes over a bridge, for example. The ends of these barriers are protected by crash cushions.

- Explain why short lengths of barrier are placed around bridge supports on motorways, even if the rest of the edge of the motorway does not need a barrier.
- Explain why there will be much smaller forces on a vehicle hitting the main part of the barrier at an angle (for instance, if a car swerves while travelling along a motorway) than if a vehicle hits the end of a barrier.
- Find some images of the ends of barriers and other crash cushions.
- Find out about two different types of crash cushion and explain how they work.