Lessons 5–6 **Solar cars**

Task One

Answer the **questionnaire: (There is no wrong or right answer – just say what you think!)**

1. Are there lots of cars where you live?
a. Yes – Our families need them
b. No – There are not many cars where I live
c. Yes – there are too many cars. Some people have one car each.

2. What effect do cars have on the environment? Choose ONE answer only.
a. The chemicals released from petrol fumes are bad for human health.
b. Cars effect the atmosphere e.g the ozone

3. Having a car costs a lot of money. Do you agree?
a. Yes – you need money for petrol(fuel); car insurance, to fix car when it breaks down
b. Yes – but it's the only way to travel in the U.A.E
c. No – it's doesn't cost a lot of money

Task Two: Read the text and answer the questions

Solar power — the future

1 Scientists around the world are doing their best to ensure that they will work differently too. Cars which use more sustainable energy are gradually replacing traditional petrol or diesel-powered cars. These are electric cars, which use electric energy stored in rechargeable batteries, or hybrids, which use a combination of petrol or diesel with an electric motor.

2 However, there's an alternative which is even more appealing from an environmental point of view. Solar energy — using the heat of the sun — is already used to heat buildings and provide electricity. Researchers are now trying to apply this technology to vehicles.

3 A solar vehicle is an electric vehicle which takes all, or most, of its power from solar energy. The car has photovoltaic (PV) cells in solar panels, which are made of silicon. These convert the sun's energy into electrical energy. For instance, Ford are designing a car with a solar panel system on the roof, which will soon be able to draw the same amount of power as a four-hour charge from a battery.

4 Other options include replacing a car's sunroof with a panel which has organic solar cells within it. This is a clever idea and may mean that existing cars can convert to solar energy.

5 Organic solar cells don't work quite as well as silicon cells, but they have the advantage of being more flexible. They are also transparent, so you can see through them.

6 Some scientists are also doing research into solar paint. It's possible that cars could be painted with material which converts solar energy into electrical energy.

7 The Abu Dhabi Solar Challenge, part of Abu Dhabi Sustainability Week, aims to promote research in this area of technology. This is a race of 1200 kilometres over four days. Teams from universities around the world take part, and they have to design, build and drive solar-powered cars. The first challenge was held in 2015 and the team from the UAE, whose name was Yas, came second.

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10G BRIDGE TO SUCCESS COURSEBOOK: UNIT 3 – SCIENCE: Now and the Future: SOLAR CARS CB PG40 WB P34

1. Solar power means energy made from:
a. the wind
b. the sun
c. fossil fuels

2. Scientists are trying to find more sustainable ways to run a car True/False

3. What kind of energy are researchers looking at to run cars in the future?
a. solar energy
b. wind energy
c. fossil fuels

4. The solar car works by:
a. The sun heats and powers up the car
b. The energy from the sun is converted to electricity which powers up the car
c. Using petrol to power the car

5. The solar car is powered by PV cells. The PV cells which are made of silicon work better than organic cells. True/False

6. What is the aim of the Abu Dhabi Solar Challenge?
a. To race solar cars
b. To promote research in solar power technology
c. To invite people from different countries to take part in a competition

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Lessons 5–6 **Solar cars**

1 Complete the sentences.

rechargeable solar hybrid organic paint traditional sunroof electric silicon

1 _____ cars are powered by petrol or diesel.

2 A _____ car uses both petrol or diesel and electrical energy.

3 _____ cars get all their energy from batteries.

4 The batteries in electric or hybrid cars are _____.

5 The latest research is trying to use _____ energy to power vehicles.

6 The most effective photovoltaic cells are made of _____.

7 _____ cells are flexible and transparent.

8 It may be possible to use solar _____ to convert solar to electrical energy.

2 Answer the questions with short answers.

1 Why is it a good idea to use something different to petrol and diesel to power cars?

_____

2 Why is it important that the batteries in electric cars are rechargeable?

_____

3 Why do you think solar energy is a more appealing idea?

_____

4 Is the car designed by Ford ready at the moment?

_____

5 Why is replacing a car's sunroof with an organic solar cell a good idea?

_____

6 What are the advantages of organic solar cells?

_____

7 What other methods of converting to solar energy are people researching?

_____

8 Why is the Abu Dhabi Solar Challenge important?

_____

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