

# Physics

## Delprov A2

engelsk version

ÅRSKURS

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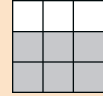
Elevens namn och klass/grupp



13. In an attempt to reduce the use of plastics, many countries have raised the price of plastic bags or banned plastic bags.

Start from your knowledge about the use of natural resources and spreading processes in the nature. Reason about why it can be good to reduce the use of plastic bags.

Reason from two perspectives in two steps.




## 14. Soundless electric cars

The article is about soundless electric cars.

Source: svt.se (The Swedish television news website). Published: 2016-11-17.

### **The future traffic sound is explored – “The spacecraft is the best”**

Electric vehicles are getting more common. But they might be dangerous in traffic since you cannot hear them. The public is invited to Scania’s sound studio in Södertälje to express their ideas about the sound of future electric cars.

The well-known sound of a traditional, so called, combustion engine might soon be old news. Politicians talk about fossil-free cars and there are more and more electric cars. More electric cars mean less noise and, therefore, a better sound environment.

The electric vehicles of today have almost no sound at all at low speed, and the European Parliament, for example, has determined that the increased risk of being hit by a car must be taken seriously.

### **New electric cars have to add sound**

The Parliament has therefore decided that from the year of 2019, all new electric cars in the EU, have to have an added, artificial sound that can be heard.

The public has the possibility of giving their thoughts about different potential sounds for electric cars developed by researchers.

In a specially designed studio at the technical center of Scania, five different sounds are tested while groups with test persons are taking detailed notes and ticking boxes with happy or angry faces.

### **”Sometimes you don’t hear the electric car coming”**

The test person Anna Färm thought it was difficult, but exciting, to evaluate the sounds.

”One of the sounds was like some kind of flying vehicle from the movie Star Trek. Another sounded metallic and there was also one that was vibrant and annoying”, says Anna Färm.

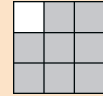
*Which one was your favourite sound?*

”The one that almost sounded like a spaceship. That was the best”.

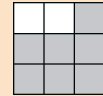
*Have you thought about this previously when you have been out in the traffic?*

”Yes, sometimes when an electric car is coming, it might be that you put a foot off the pavement because you don’t hear the car coming”, says Anna Färm.

**a)** In the article, scientific advantages with soundless electric cars are given. State one of them.



**b)** Examine the article from a perspective of source criticism. Reason about the article's trustworthiness from two different source-critical perspectives.



**a)**

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**b)**

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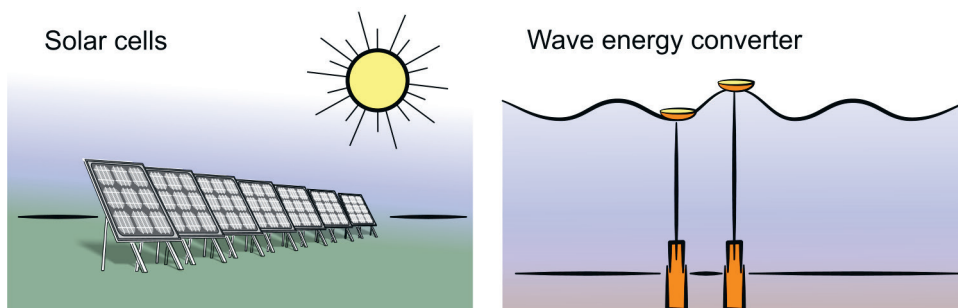
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## 15. Sun or waves as source of energy?

Many countries try to decrease their need of fossil fuels and instead invest in renewable energy. Electric energy is, for example, possible to gain from the sun and ocean waves.



### Facts about solar cells

- Sunlight is converted into electric energy in solar cells.
- Effect per year: 50 W/m<sup>2</sup>.
- In the production of solar cells, rare metals and minerals are used.
- Can be placed both on land and water.
- Work when the solar cells are lit by the sun.
- Produces about seven times more energy during summer than during winter.

### Facts about wave energy converters

- Kinetic energy is converted into electric energy through the movement of waves.
- Effect per year: 30 W/m<sup>2</sup>.
- The energy might need long transportation at sea.
- Can be placed both close to the shore and far out in the oceans.
- Work when water has no ice.
- Can act as locations for aquatic animals, like blue mussels and Norway lobsters.

**Your task is to use the information from the fact box and write a text where you shall:**

- Take a stance for either solar cells or wave energy converters.
- Formulate two arguments in two steps arguing for the energy source you have chosen and formulate one argument in two steps arguing against one of the two energy sources.
- Use scientific concepts for context in the arguments.



**My stance is:**

**Write your text:**



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