WORLD-WIDE PROBLEMS

1.What are the most serious problems in the word today? Brainstorm different natural, economic, political, or health disasters.

2. Have you ever helped in a disaster / do you know anyone who has? What did you / they do?

3. What are the main causes of premature death in the world?

The world's greatest problems

https://www.ted.com/talks/bjorn_lomborg_sets_global_priorities#t-918810

Danish political scientist Bjorn Lomborg heads the Copenhagen Consensus, which has prioritized the world's greatest problems — global warming, world poverty, disease — based on how effective our solutions might be. It's a thought-provoking, even provocative list.
https://www.ted.com/speakers/bjorn_lomborg

1. Listen to the introduction 0.00 – 2.52
   The speaker mentions 10 biggest challenges in the world. How much correspondence is there with the problems you have mentioned? Are there any matches?

2. 8.30 – 11.10
   What are the four top fair projects (solutions that would have the most effective impact)?

3. 14.40 – 15.30
   How was the correctness of the selection checked?

Discuss: How do you evaluate the choice of priorities? Do you agree or have you got any objections?

MALARIA

http://www.who.int/mediacentre/factsheets/fs094/en/

1. **The World Health Organization provides the following information on malaria. Before reading, discuss what you know about preventing the disease:**

2. **Work in groups of 3. Choose one of the reading parts and prepare a written summary which you will use to inform your partners.**

- Identify the points to be included in the summary
- Paraphrase the information, make it shorter, use noun phrases, synonyms, contracting structures
- Connect the ideas (however, in addition, although,…)
- Check that the summary has a good opening and closing sentence

Vocabulary

burden - zátěž dusk and dawn – soumrak a svítání vulnerable – zranitelný measure – opatření transmission – přenos breed – množit se lifespan – délka života refugee – uprchlík vector - přenašeč

PART 1 - Key facts

- Malaria is a life-threatening disease caused by parasites that are transmitted to people through the bites of infected mosquitoes.
- Approximately half of the world's population is at risk of malaria. Most malaria cases and deaths occur in sub-Saharan Africa. However, Asia, Latin America, and to a lesser extent the Middle East and parts of Europe are also affected. In 2013, 97 countries and territories had ongoing malaria transmission.
- In 2012, malaria caused an estimated 627 000 deaths (with an uncertainty range of 473 000 to 789 000), mostly among African children.
- Malaria is preventable and curable.
- Increased malaria prevention and control measures are dramatically reducing the malaria burden in many places.
- Malaria mortality rates among children in Africa have been reduced by an estimated 54% since 2000.
- Malaria is caused by Plasmodium parasites. The parasites are spread to people through the bites of infected Anopheles mosquitoes, called "malaria vectors", which bite mainly between dusk and dawn.
- There are currently no licensed vaccines against malaria or any other human parasite. One research vaccine known as RTS,S/AS01, is most advanced. This vaccine is currently being evaluated in a large clinical trial in 7 countries in Africa. A recommendation as to whether or not this vaccine should be added to existing malaria control tools is expected in late 2015.
- Non-immune travellers from malaria-free areas are very vulnerable to the disease when they get infected. Travellers should consult their national disease control centres for information regarding the preventive measures that should be taken.

PART 2 – Transmission

- Malaria is transmitted exclusively through the bites of Anopheles mosquitoes. The intensity of transmission depends on factors related to the parasite, the vector, the human host, and the environment.
- About 20 different Anopheles species are locally important around the world. All of the important vector species bite at night. Anopheles mosquitoes breed in water and each species has its own breeding preference; for example some prefer shallow collections of fresh water, such as puddles, rice fields, and hoof prints. Transmission is more intense in places where the mosquito lifespan is longer (so that the parasite has time to complete its development inside the mosquito) and where it prefers to bite humans rather than other animals. For example, the long lifespan and strong human-biting habit of the African vector species is the main reason why about 90% of the world's malaria deaths are in Africa.
- Transmission also depends on climatic conditions that may affect the number and survival of mosquitoes, such as rainfall patterns, temperature and humidity. In many places, transmission is seasonal, with the peak during and just after the rainy season. Malaria epidemics can occur when climate and other conditions suddenly favour transmission in areas where people have little or no immunity to malaria. They can also occur when people with low immunity move into areas with intense malaria transmission, for instance to find work, or as refugees.

PART 3 – Prevention

Vector control is the main way to reduce malaria transmission at the community level. It is the only intervention that can reduce malaria transmission from very high levels to close to zero. For individuals, personal protection against mosquito bites represents the first line of defence for malaria prevention. Two forms of vector control are effective in a wide range of circumstances.

Insecticide-treated mosquito nets (ITNs)

Long-lasting insecticidal nets (LLINs) are the preferred form of ITNs for public health distribution programmes. WHO recommends coverage for all at-risk persons; and in most settings. The most cost effective way to achieve this is through provision of free LLINs, so that everyone sleeps under a LLIN every night.

Indoor spraying with residual insecticides

Indoor residual spraying (IRS) with insecticides is a powerful way to rapidly reduce malaria transmission. Its full potential is realized when at least 80% of houses in targeted areas are sprayed. Indoor spraying is effective for 3–6 months, depending on the insecticide used and the type of surface on which it is sprayed. DDT can be effective for 9–12 months in some cases. Longer-lasting forms of existing IRS insecticides, as well as new classes of insecticides for use in IRS programmes, are under development.

Antimalarial medicines can also be used to prevent malaria. For travellers, malaria can be prevented through chemoprophylaxis, which suppresses the blood stage of malaria infections, thereby preventing malaria disease. In addition, WHO recommends intermittent preventive treatment with sulfadoxine-pyrimethamine for pregnant women and infants living in high transmission areas.

Can genetically modified mosquitoes wipe out malaria?

Abbreviated, http://science.howstuffworks.com/life/genetic/gm-mosquito.htm

1. **How are GM mosquitoes different from ordinary ones?**
2. **What is the significant conclusion from the findings?**

The idea of using **genetically modified (GM) mosquitoes** to help wipe out malaria has been around for a while. Theoretically, if you could create a "better," stronger mosquito that happens to be unable to spread malaria parasites, and you were to release tens of thousands of those better mosquitoes into the wild, they would eventually win the survival game and replace the mosquitoes that are able to spread malaria. In this theoretical solution, once malaria were eradicated from a particular area, it wouldn't come back because the mosquitoes couldn't carry it back. But there has always been a glitch.

It's not difficult to activate a gene that makes a mosquito immune to any particular malaria parasite (there are a lot of them) and lose the ability to pass it on. It's a relatively cheap laboratory procedure. In this case, the scientists turned on a gene in the mosquito's gut that controls **SM1 peptide**. SM1 peptide, a type of protein, appears to stop the development of the malaria parasite while it's living in the mosquito, rendering it harmless. So making mosquitoes immune to malaria isn't the problem. It's the "better mosquito" qualification that has been eluding science. Genetically modifying a mosquito has always appeared to make it weaker. And a weaker, malaria-resistant mosquito won't win the survival game, so there's no point in releasing it into the wild. It'll just die off. The big deal about the findings published in March 2007 by a group of Johns Hopkins researchers in the journal Proceedings of the National Academy of Sciences is that they seem to disprove previous studies regarding the **fitness** of GM mosquitoes.

When the scientists put 1,200 GM mosquitoes and 1,200 "wild" mosquitoes in a cage with malaria-infected mice, they began to feed. So at the start of the experiment, the mix of GM and wild was 50/50. (The scientists also triggered a gene to make the eyes of the GM mosquitoes glow in the dark so they could easily identify which was which.) After nine egg-laying cycles, the mix of GM and wild had changed to 70/30. The GM mosquitoes were slowly out-surviving the wild mosquitoes. The researchers believe that the genetic modification probably still weakened the malaria-resistant mosquitoes in general, but that they gained a survival advantage because the parasite couldn't develop in their gut. This seems to have caused them to live longer, allowing them to lay more eggs than their malaria-infected counterparts.

Under the best of circumstances -- with many more studies showing similar results, with the successful introduction of human-malaria parasites into the equation, and with the discovery of a way to make GM mosquitoes generally more fit than wild mosquitoes -- it'll be at least another 10 years before malaria-resistant mosquitoes would ever be released into the wild. There are significant concerns about releasing tens of thousands of genetically modified animals into a natural setting.

3. **Why do you think there are concerns about releasing GM mosquitoes into the wild?**

Awareness campaign

Work in small groups. Select one of the causes of death in today´s world (e.g. AIDS, car accidents, smoking, …). Imagine you have been approached by the health service and asked to design an awareness campaign based on one of the health issues.
You should work together to brainstorm your ideas. You ought to come up with a slogan and with several ideas what the government, the people etc. could do to solve this problem.

You should prepare:
A slogan (motto of the campaign)
Short description of the problem.
Ideas how to solve the problem.

You can use modal verbs – e.g.
The government/the people etc. can / could / should × shouldn´t / must / need to (potřebují) / ought to (měli by) / may (mohou) / might (mohli by) / have to (musí) / had better (měli by raději)