

Will mobile phones be the death of us?

1 Lead in

Answer the questions below about mobile phones. Discuss the answers with a partner.

- 1 Do you have a mobile phone?
- 2 What do you use it for?
- 3 How often do you use your phone?
- 4 Do you think there are any health hazards associated with using mobile phones? What are they?
- 5 Do you worry about using your mobile phone too much? Do you limit your personal usage?

2 Reading 1

You are going to read a newspaper article about research into the effects of electromagnetic radiation.

How do you think the words below are connected in the article?

a castle a lab (laboratory) toxicology
rats cancer

Read the article. Check your answers.

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Rob Stepney investigates

Set in the pancake-flat landscape around Bologna, Italy, the castle of Bentivoglio hides a secret. Deep underground in the cramped basement are the sounds and smells of rats - thousands of them. Living rats in cages that surround odd-looking antennae, being fed and watered by technicians. Dead ones are painstakingly examined under microscopes. The work that Bentivoglio does is toxicology. Its background is in the testing of chemicals in the environment that may cause cancer. However, its immediate future is an \$11m project investigating the health effects of another ubiquitous accompaniment of civilisation: electromagnetic radiation.

In the biggest research project of its kind, toxicologist Morando Soffritti and his team hope to nail down the answer to a controversial question: what happens when humans are exposed to that radiation? Close to this spot Guglielmo Marconi became the first person to transmit a simple wireless signal over the distance of a mile. One hundred and ten years later, mobile phones have become the standard accessory for everyone from small children upwards. Italians are not alone in loving their telefonini. The question is, will a lifetime's exposure to their emissions increase our risk of cancer? For Soffritti, head of the Ramazzini Foundation's Centre for Cancer Research, we are all now involved in an experiment, and it is probably the biggest since Sir Walter Raleigh went to Virginia and brought back tobacco. In each of four small rooms a stubby antenna, the equivalent of a mobile phone base station, rises 1m from the floor, surrounded by plastic cages on wooden shelves. The walls are covered in black cones of foam rubber impregnated with graphite, soaking up radiation that would

otherwise escape. To check if any health effects vary with dosage, three different intensities of radiation are being tested. Animals in the fourth room act as controls. In three decades of work on 160,000 mice and rats, the Bentivoglio labs have identified a score of substances capable of causing cancer. Among them are xylenes and toluene (both present in petrol), the fungicide mancozeb, and vinyl chloride and vinyl acetate - both used in the manufacture of plastics.

The lab's findings have led to the enforcement of lower exposure standards in the workplace, and a rethink of the way we produce plastic food and drink containers, including those for storing whisky. The labs are funded largely by Italian charities and benefactors, but the Ramazzini Foundation has just signed a 10-year, \$3m agreement with the US National Institute of Environmental Health Sciences. This will give American scientists access to the raw data from studies published by the Italian group. So, to provide a definitive answer to the mobile phone question, the Italian lab is exposing thousands of rats to precisely controlled radiation from their 12th day in the womb until they die of old age or disease. Because the rats have a normal or near-normal lifespan, good housing conditions, and are exposed only to the levels of electromagnetic radiation that we voluntarily experience ourselves, Italian animal welfare activists have given the work a clean bill of health. If Soffritti is aware of the global scale of the potential problem, he is also aware of the global interests he might be challenging. "When innovative research reveals that agents important for technological development, and so of great economic and political interest, may be hazardous for health, obstacles will be put in its way," he said. And does he use a mobile? "Only when I have to."

The Guardian Weekly 15-04-2005, page 19

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3 Reading 2

Read the passage again and answer the questions. Discuss them with a partner.

- 1 Where do Morando Soffriti and his team carry out their experiments?
- 2 What do they want to find out?
- 3 Why are there four different rooms used?
- 4 What changes in the way we live have resulted from the research?
- 5 Who pays for the research?
- 6 What do you think Soffriti thinks about the dangers of using mobile phones?

4 Vocabulary in context

Match the words below to the correct definition.

- 1 cramped
a. small and crowded b. wide and spacious
- 2 painstakingly
a. quickly b. carefully
- 3 ubiquitous
a. everywhere b. nowhere
- 4 stubby
a. long and thin b. short and fat
- 5 a score
a. a hundred b. twenty

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5 Vocabulary in context

The words below are all connected with science. Which words are nouns, which verbs, and which adjectives?

examine innovative test publish experiments
investigate identify research impregnate expose

Rewrite the sentences. Replace the words in italics with the words above.

- 1 Scientists have *creative and new* ideas.
- 2 Scientists are carrying out *detailed studies* into cancer. They are performing *scientific tests* on rats and mice.
- 3 Dr Smith is going to *deliberately show* mice to radiation and *thoroughly cover* them with toxic chemicals.
- 4 Scientists want to *recognise* the main causes of cancer.
- 5 Once they have the results of their research, they will *put them in book form*.

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Teacher's notes - Will mobile phones be the death of us?

Lead-in - Put students in pairs to discuss the questions. Have a brief class feedback. Alternatively, you could do this as an open class discussion.

Answers Students' own answers.

Reading 1 Ask students to discuss the words in pairs, and guess what the connection might be. Ask students to read the article, and check their answers.

Reading 2 - Ask students to read the passage again and answer the questions.

Answers

- 1 In labs in the basement of the castle of Bentivoglio in Bologna, Italy.
- 2 What happens when we are exposed to electromagnetic radiation.
- 3 Because in three rooms the animals are being exposed to 3 different levels of radiation, and in the fourth there is a control experiment.
- 4 The lab's findings have led to the enforcement of lower exposure standards in the workplace, and a rethink of the way we produce plastic food and drink containers, including those for storing whisky.
- 5 The labs are funded largely by Italian charities and benefactors, but the Ramazzini Foundation has just signed a 10-year, \$3m agreement with the US National Institute of Environmental Health Sciences.
- 6 He only uses mobile phones when he has to so he probably thinks they are dangerous if used too much.

Vocabulary in context 1 Ask students to match the words to the correct definition.

Answers

1a, 2b, 3a, 4b, 5b

Vocabulary in context 2 Ask students to say which words are nouns, which verbs, and which adjectives.

Answers

Verbs: examine, publish, investigate, identify, impregnate, expose

Adjectives: innovative

Nouns and verbs: test, experiment, research

Ask students to rewrite the sentences.

Answers

- 1 Scientists have *innovative* ideas.
- 2 Scientists are carrying out *research* into cancer. They are performing an *experiment* on rats and mice.

Dr Smith is going to expose mice to radiation and impregnate them with toxic chemicals.

Scientists want to identify the main causes of cancer.

- 5 Once they have the results of their research, they will *publish* them.

Follow-up

Ask students to decide whether they agree or disagree with the statements. Then put them in groups to discuss them.