

## CLASS NOTES TO UNIT: DEVICES: 5G (Video lesson + Class + Portfolio assignments)

In this unit we are going to:

- Review the history of mobile communications and the word formation of acronyms and compounds (1).
- Check the vocabulary of 5G devices in use (2).
- Deal with question/answer models to elicit information about 5G technology (3).
- Search for real information about the same topic and arrange it as required (4).

Parts 1-3 will be dealt with in the video lesson and in class, including exercises a, b and c. Part 4 must be done after the class and included in the students' portfolio

**1. Introduction:** Let's comment, in class, on this timeline for cellular technology evolution. We will use introductory expressions like: *This graph/slide/chart shows...; as we can see,...* Make sure that you use the simple past for your account:



**Exercise a:** Match the information from each box with the corresponding part in the timeline, and add the date. Make sure that the acronyms and measuring units are correctly read and understood, and look up in the dictionary for those that are not given (e.g. **GSM stands for** *Global System for Mobile Communications*):

In 2002 the first 3G UMTS networks were launched. This was the first time a voice and data session could be run simultaneously. 3G networks provided data throughput of 384 Kbps. This throughput was substantially increased in 2006, with the introduction of 3.5G HSPA network, reaching values of 42 Mbps.

The 5G networks are expected around 2020 and will focus on providing data throughputs of 1 Gbps.

The first 4G LTE operations were deployed between 2008 and 2010. 4G LTE is a data-only network, offering throughput of 100 Mbps. Voice calls were supported on the 2G or 3G networks. Voice-over LTE or VoLTE has been available since 2014, providing voice services over the LTE data network, similar to Skype but with assured quality of service.

The first generation of cellular technology was rolled out in 1983 and was called AMPS. This was an analog technology that enabled voice calls only. Mobile phones were big, bulky and expensive. In the early nineties, the first digital technologies emerged. Mobile phones got smaller in size and the number of subscribers grew rapidly.

In 1995, GSM and CDMA made their first appearance, bringing with them new mobile devices and support for SMS, fax and data. GSM started out in Europe but very quickly was adopted in many countries globally. In 2000, the first commercial GPRS services were launched and the first GPRS-compatible handsets became available for sale. GPRS provided data throughputs of up to 60 Kbps, using a new IP-based network architecture. In 2003 EDGE was introduced, as an enhancement to GPRS, providing data throughput of up to 400 Kbps.

Cellular Technology Evolution, GSM, CDMA... **how are compounds and acronyms assembled in English?**  
Let's comment upon this briefly.

## 2. Introducing 5G

Let's make sure that we can understand and pronounce all these terms related to Mobile Technology:

edge	operator	challenge	network	electricity	antenna	data
Internet Service Providers	applications	masts	efficient	connected		
game-changer	ensure	cabling	software	versatile	switch on	
access	devise	services (2)	masts	coverage (2)	radio	innovate
developing	costs	online (2)	license	processing	enable (2)	
applications	pioneered	advantage (2)	speed	hub	patchy	

Read this introduction to the video we are going to watch:

### **The challenges of developing 5G networks in Africa**

In South Africa, tech firm Rain is offering 5G technology, with the aim of disrupting internet service providers on the continent. However, network coverage is still patchy and getting everybody online is a challenge. Shortages of electricity, mobile phone masts and fibre optic cables - as well as data costs - all need to be overcome first.

**Exercise b:** Let's watch the 4-minute video:

<https://www.bbc.com/news/av/business-51136295/the-challenges-of-developing-5g-networks-in-africa>

and complete the information below with a suitable term from the box. Before watching it, we will go through the sentences to check that we understand them, and try to guess which word category (e.g. a noun, a verb) is required:

1. Rain is the newest and the only \_\_\_\_\_ to offer 5G technology.
2. Their focus is exclusively on \_\_\_\_\_ and they insist that they're offering the fastest \_\_\_\_\_ on the market.
3. Rain is definitely disrupting \_\_\_\_\_ on the continent.
4. For a tech company like Rain, prosperity means providing \_\_\_\_\_ to Internet to everyone.
5. However, getting everybody \_\_\_\_\_ is proving to be a \_\_\_\_\_.
6. Currently they don't have 4/5 \_\_\_\_\_ over South Africa. They've just focused on the economic \_\_\_\_\_ of the country, Johannesburg.
7. The system is still \_\_\_\_\_, that is, it's not really working well.
8. They trying to bring out more \_\_\_\_\_, every week they \_\_\_\_\_ another site.

9. They see that their \_\_\_\_\_ gets more and more dense.
10. Some reasons for the slow uptake of the Internet on the continent are shortages of \_\_\_\_\_, cell phone \_\_\_\_\_, fiber optic \_\_\_\_\_ and data \_\_\_\_\_.
11. The solution is to find other ways to get ordinary people \_\_\_\_\_.
12. Without electricity, they couldn't \_\_\_\_\_.
13. They must start feeling more confident as a continent and stop thinking that they must inherit \_\_\_\_\_ and \_\_\_\_\_ from other markets.
14. 5G spectrum is expected to be the \_\_\_\_\_.
15. Rain is one of the few African companies with the \_\_\_\_\_ for it.
16. They intend to take full \_\_\_\_\_ of their competitive \_\_\_\_\_.
17. In the base station shown there is an \_\_\_\_\_ and a \_\_\_\_\_ inside.
18. Another device at the bottom does the \_\_\_\_\_ of the information.
19. The technology is said to be \_\_\_\_\_ and works well with various \_\_\_\_\_.
20. Software should \_\_\_\_\_ their clients to \_\_\_\_\_ inventions in various fields and \_\_\_\_\_.
21. In the past, people didn't order as much \_\_\_\_\_.
22. 5G could \_\_\_\_\_ them to make far more \_\_\_\_\_ to deliver goods.
23. About 5G digital economy: Africa can hopefully take full \_\_\_\_\_ of it, by \_\_\_\_\_ new and interesting things.
24. After all, Africa is the continent that \_\_\_\_\_ mobile money.
25. What's important is to \_\_\_\_\_ that nobody is left behind, especially the youth living in poor areas.

**3. Dealing with questions and answers about 5G:** Let's check the different ways in which we can elicit information about this topic:

- 1: Where is 5G being used? 2: What are the differences between the previous generations of mobile networks and 5G?  
 3: How fast is 5G? 4: Is 5G available now? 5: How and when will 5G affect the global economy?

**Exercise c:** Match the questions with the corresponding answers below. Then, with the information given, let's complete the table, using notes:

- A:** Through a 5G Economy study, we found that 5G's full economic effect will likely be realized across the globe by 2035—supporting a wide range of industries and potentially enabling up to \$13.2 trillion worth of goods and services.
- B:** Yes, 5G is already here today, and global operators started launching new 5G networks in early 2019. 5G mobile networks are expected to be available nationwide in many countries by 2020.
- C:** 1G, 2G, 3G, and 4G all led to 5G, which is designed to provide more connectivity than was ever available before.
- D:** 5G is designed to deliver peak data rates up to 20 Gbps based on IMT-2020 requirements.
- E:** Broadly speaking, 5G is used across three main types of connected services, including enhanced mobile broadband, mission-critical communications, and the massive IoT. A defining capability of 5G is that it is designed for forward compatibility—the ability to flexibly support future services that are unknown today.

## 5G CHARACTERISTICS

Speed	
Availability	
Economic effects	
Spread	
Uses	

**4. Search assignment for your portfolio:** Browse through the pages of the main mobile carriers in your country and elicit information in a similar way to the one in exercise 3:

- Using the question/answer format (formulating and briefly answering 5 questions).
- Arranging it in a table format too (introducing short notes).
- Add a short glossary with the main technical terms and acronyms that appear in your exercise.

Write between 150-200 words.