

## Computer Hardware

### IT Matters: Unit 3

### Foundation:

### Hardware components<sup>1</sup>

**Situation:** You are getting work experience as an IT salesperson at a large electronics store in the UK.

→ You help customers choose the right computer and understand the choices they are making.

#### Buying a gaming computer

- a) **Explaining the functions of hardware components** – In your training a customer is interested in buying a gaming computer for his children but is worried about the price of some of the components.

**Write the letter for the correct answers (a-f) to the customer's questions 1-6.**

1	Why do I need such a powerful graphics card?	a	Although it houses all of the components, such as the graphics card and the CPU, you don't have to spend a lot to get a good one.
2	Can I spend less on the CPU?	b	It is important as it stores information that the CPU needs to use really quickly, for example things displayed on the screen. However, you can start with a mid-range amount and upgrade it easily later on.
3	And the motherboard?	c	It's a key part of a good gaming system. It turns the information from the CPU into the pictures that you see on the monitor. It needs to be very fast for gaming so the game runs smoothly..
4	Do I need much RAM?	d	Not necessarily. This is where your data gets saved, but online games don't take up much space because they aren't saved on your computer.
5	OK, what type of monitor do you recommend?	e	Well, this is the part that lets you see what's happening in the game. It doesn't need to be bigger than 24" but it is important to have a fast refresh rate, otherwise the game will look unclear.
6	I suppose I'll need a big hard disk, too, right?	f	You could, but because it processes every single instruction, I wouldn't recommend it. It's like the brain of the computer!
7	Can I at least get a cheap keyboard and mouse?	g	You could, yes. These are your input devices and are how you interact with the game. Gaming versions may have extra features and buttons, but they don't make a big difference.

1 c

2 f

3 a

4 b

5 e

6 d

7 g

- b) **Giving advice as a salesperson – Write sample sentences with a translation of the following phrases:**



- Wenn ich Sie wäre, würde ich ... - Ich würde Ihnen empfehlen.... – Ich würde Ihnen raten...

If I were you, I would ...

I recommend you ...

I would advise you to ...



- c) **Discussing peripherals and connectivity**



<sup>1</sup> Based on IT Matters, Cornelsen, Unit 03 Computer hardware, p. 26-27

-Listen to the conversation between a customer and one of your colleagues. The customer wants to set up a home office for her job as a freelancer in graphic design. She asks for advice on peripherals. Put in connection methods for the following peripherals (some of them have two possibilities.)

1	headset	Bluetooth
2	speakers	3.5 mm jack
3	monitor	HDMI, USB-C
4	external hard drive	USB-C
5	printer	USB-C, Wi-Fi
6	modem	Ethernet cable, Wi-Fi



**d) Listen again and complete the statements.**



- 1) Get a Bluetooth version and pair it with your computer – it's very easy and convenient.
- 2) You should use the normal 3.5 mm jack because the audio quality is better.
- 3) I want something that I can easily plug in to and work with two screens.
- 4) You only need one USB-C cable to connect / link the monitor to the computer.
- 5) It also comes with an adapter in case someone else needs to plug in to your monitor.
- 6) You can even stick the cable into his monitor so you don't have to plug and unplug it.
- 7) You can hook it into your Wi-Fi network and print.

**e) Analysing your own computer hardware**

To make sure that you know all the English names, you decide to make a list of peripherals you sell and the ways they can be connected to a computer or a smartphone.



- ➔ Work with a partner and make a list of the ways you connect hardware to your computer, smartphone and /or tablet. How do you connect and why?
- ➔ Present your list and discuss any differences in how you choose to connect peripherals



## Unit 3: Computer phrases & parts (Foundation)



### A What are these things called? Write the names.

- 1 It stores information that the CPU needs to use quickly.
- 2 It turns the information into the pictures.
- 3 You move it around on a pad.
- 4 It's like the brain of the computer.
- 5 It holds all the vital electronic components of the PC.
- 6 This is where your data gets saved.

RAM (Random access memory)

GPU (Graphics processing unit)

Mouse

CPU (Central processing unit)

Motherboard / Case?

Storage device (HDD, SSD, S-HDD)

### B Verbs in context. Complete the phrases with verbs from the list and translate them.

display • process • save • stick • store • take



#### English

- 1 process information to the computer
- 2 take up much space
- 3 display on the screen
- 4 store data
- 5 save information
- 6 stick the cable into the computer

#### German

- information to the computer
- up much space
- on the screen
- data
- information
- the cable into the computer

### C Complete the technical terms with words from the list. Write the abbreviation in the last column.

~~access~~ • fidelity • bus • definition • ~~memory~~ • multimedia • interface • ~~processing~~ • serial • ~~unit~~

#### Abbreviation

- 1 central processing unit
- 2 high-definition multimedia interface
- 3 universal serial bus
- 4 wireless fidelity
- 5 random access memory

CPU

HDMI

USB

Wi-Fi

RAM



**Situation:** You work as a computer technician at Dream AR, a software development company that is expanding into augmented and virtual reality.

→ You explain to a colleague how to install a hardware component.

### 1) Reading an instruction manual

The laptops of some developers need to be upgraded for augmented reality (AR). You look up the instructions for replacing some of the key hardware.

Read the instruction manual on page 28 and then answer the following questions with suitable verbs from the list.



align • disconnect • find • hear • hold • push • remove • slide out • tilt • turn over • unscrew

1. What do you do to prevent damage to connections?

Disconnect the power adapter and any other cables connected to the laptop.



2. How do you remove the bottom case?

Turn the laptop over. Unscrew the ten screws and then take it off

3. What do you do before you take the hard drive out?

Unscrew the screw holding the plastic piece in place.

4. What do you do with the mSATA ribbon when replacing a hard drive?

Lift the HDD out of the chassis. Disconnect it from the old hard drive and connect it to the new one

5. How do you release the module from the memory slot?

Pusch down the levers on the sides of the RAM in an outward motion

6. What do you do after the RAM module pops up?

Find the half-circle notches

7. How do you remove the RAM module?

Hold it by the notches and lift it gently up

8. What do you do with the replacement module?

Align the notch on the gold edge of the RAM with the notch in the memory slot  
Tilt the card and push it in with two fingers and firm, even pressure

<sup>2</sup> Based on IT Matters, pp. 28-30

## 2. Reading about augmented reality peripherals pp.29-30



Development and testing an AR application requires a lot of new hardware. You've just received the first delivery of a new hardware and read some information about the equipment and how to use it.

A What do the following numbers refer to?

- |                       |  |
|-----------------------|--|
| a) 360 degrees        | how much it tracks the movement of your head             |
| b) 2160 x 1200 pixels | The resolution of the display                            |
| c) three hours        | how long a wireless vr-headset lasts without charging    |
| d) 64                 | amount of sensors in the handset                         |
| e) at least two       | the amount of base stations required                     |
| f) up to eight        | Amount of peripheral trackers you can use simultaneously |

B) Summarize each piece of hardware mentioned in the following table.

→ Describing capability – passive forms!

*A full 360 degrees of head motion can be tracked by the headset.*

Hardware	Headset	Handsets
<b>Function of hardware?</b>	Displays the Game and Outputs the Audio and tracks head motion	Track the movement of your hands and allow you to interact with the game
<b>How is it powered?</b>	Either through the cable you connect to the PC or through a battery	Through batteries
<b>What is it connected to? How?</b>	To the PC through either a thunderbolt cable or through a wireless adapter	To the headset via bluetooth

Hardware	Base stations	Peripheral tracker
<b>Function of hardware?</b>	Monitors the physical location of the player	Tracks peripheral devices
<b>How is it powered?</b>	Through a power cable	Through a battery
<b>What is it connected to? How?</b>	To the headset via infrared	To the headset via bluetooth And attached to any object

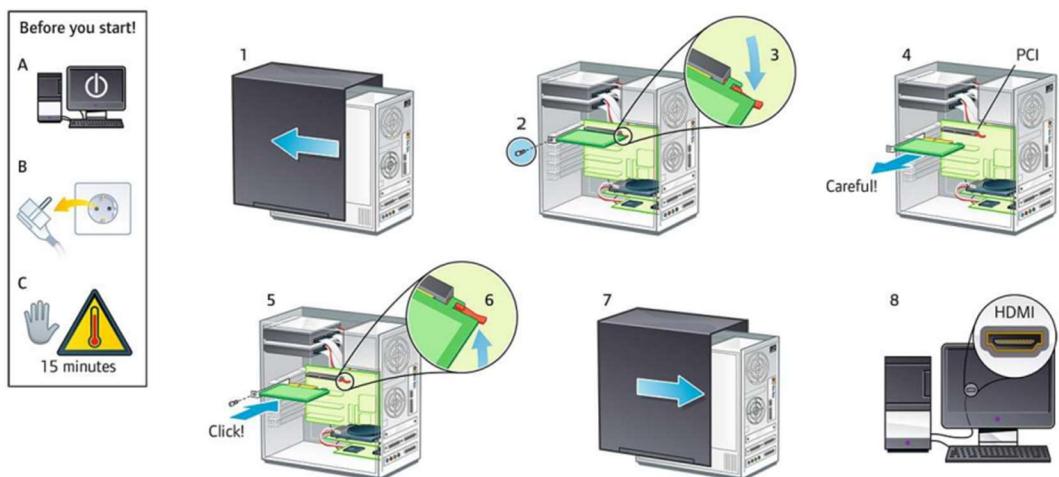
Name:

Datum:

## Unit 3, Part A, exercise 3

### 3 Replacing a graphics card

Complete the instructions below to describe the steps to replace the graphics card as shown in the picture guide. Use the verbs from the list.



Quelle: Cornelsen/ODI

~~connect ... to ... disconnect ... pull down • push ... into ... push ... up ... put ... back on ...  
remove ... take ... off • take ... out of ... turn off • wait~~

- A Before you start, turn off your computer and monitor.
- B Then disconnect the power cord.
- C Wait for 15 minutes until the computer / your system has cooled down.

- 1 First, take the case off your computer.
- 2 Then remove the screws holding the card in place.
- 3 Now pull down the latch.
- 4 Gently take the old card out of the PCI slot.
- 5 Next, push the new card into the PCI Express slot until you hear a click.
- 6 Then push the latch up to secure the card.
- 7 Put the case back on the computer.
- 8 Finally, connect the graphics card to your monitor via HDMI cable.

## Unit 3: Instructions in a computer manual (Part A)



### D Write phrases that mean the opposite.

- |  |   |
|--|---|
| <p>1 Turn the laptop on.</p> <p>2 Connect the power adapter.</p> <p>3 Insert the memory.</p> <p>4 Push the lever up.</p> <p>5 Plug the cable in.</p> | <p><b>Turn the laptop off</b></p> <p><b>Disconnect the power adapter</b></p> <p><b>Remove the memory</b></p> <p><b>Pull the lever down</b></p> <p><b>Unplug the cable</b></p> |
|--|---|

### E Complete the instructions with words from the list. Translate the verbs plus the prepositions.

Connect • Pull • Push • Remove • Take • Turn



- |   |               |
|---|---------------|
| <p>1 <b>Turn</b> <u>off</u> your computer and monitor.</p> <p>2 <b>Take</b> <u>the case</u> <u>off</u> your computer.</p> <p>3 <b>Remove</b> <u>the screws</u> holding the card in place.</p> <p>4 <b>Pull</b> <u>down</u> the latch.</p> <p>5 <b>Push</b> <u>the new card</u> <u>into</u> the PCI Express slot.</p> <p>6 <b>Connect</b> <u>the graphics card</u> <u>to</u> your monitor.</p> | <b>German</b> |
|---|---------------|

- |   |  |
|---|--|
| <p><b>Schalte</b></p> <p><b>Nimm</b></p> <p><b>Entferne</b></p> <p><b>Ziehe</b></p> <p><b>Drücke</b></p> <p><b>Verbinde</b></p> |  |
|---|--|

### F Solve the crossword puzzle.

#### Across →

- 2 *verweisen (auf)*  
 6 free something from its position  
 7 take something away from  
 8 fix something to

#### Down ↓

- 1 need something  
 2 update (the screen)  
 3 *Latenzzeit*  
 4 substitute; put back  
 5 link two things

