Look at the pictures and figure out the theme of today's topic.

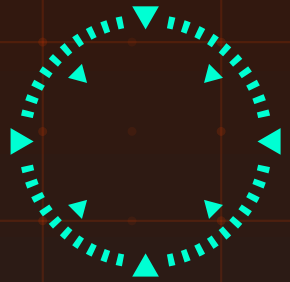


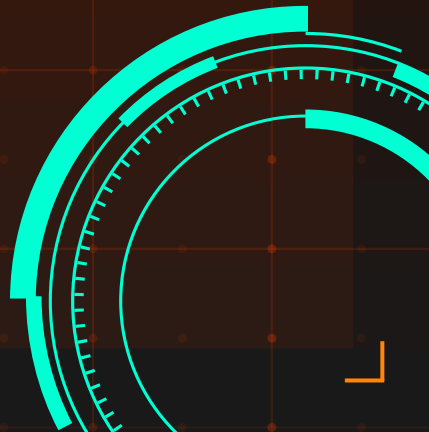




Programming languages

Unit 2





Questions about computer programming



1 How does computer programming affect business?



2 Why is computer programming becoming more important?

Useful terms which you need to know

- **Assembler** – is a low-level programming language that translates between computer programs
- Example: Assembler is less computer orientated than machine code.
- **Java** – is an object-oriented programming language
- Example: He has a passion for digital preservation, having previously worked on projects like conserving old-school mobile games that ran on Java.
- **C++** - is a programming language that adds object-oriented programming capabilities to C
- Example: In C++ we have to tell the compiler about the data type we are going to enter.
- **BASIC** – it is a high-level programming language that was invented in the 1960s and is declining in popularity
- Example: The Basic programming language is not closely related to any special type of computer, processor or operating system. It is a general-purpose language.

Useful terms which you need to know

- **C#** - is a programming language that was invented as an alternative to Java
- Example: C# (C-Sharp) is a programming language developed by Microsoft that runs on the .NET Framework. C# is used to develop web apps, desktop apps, mobile apps, games.
- **Multi-thread** – is to use a computer to execute several threads of execution simultaneously
- Example: Multi-threaded programs utilize multiple threads to handle tasks concurrently, potentially improving performance and responsiveness.
- **Machine code** – is made up of the instructions that a CPU can process
- Example: In computer programming, machine code is computer code consisting of machine language instructions, which are used to control a computer's central processing unit (CPU).

Useful terms which you need to know

- Compiler – changes human-readable source code into machine code that a CPU can understand
- Example: A compiler is a software that converts the source code to the object code. In other words, we can say that it converts the high-level language to machine/binary language.
- Linkers – take the machine code created by a compiler and make it into an executable file
- Example: In computing, a linker or link editor is a computer system program that takes one or more object files (generated by a compiler or an assembler) and combines them into a single executable file, library file, or another "object" file.
- CPU – (Central Processing Unit) is the part of a computer that handles most of the processing of files and data
- Example: The Central Processing Unit (CPU) is the primary component of a computer that acts as its “control center.” The CPU, also referred to as the “central” or “main” processor, is a complex set of electronic circuitry that runs the machine's operating system and apps.

4 Check (✓) the sentence that uses the underlined parts correctly.

1 ✓ A Linkers allow programmers to control computers.

__ B CPU was the first programming language.

2 __ A A new Java can make your computer run faster.

✓ B Machine code makes programming possible.

3 ✓ A Added memory allows computers to multi-thread.

__ B I'm learning compiler, a new programming language.



Mr. Daniels,

As the head of the computer programming department, I feel that we need to update the department's resources. This includes our programmers. Most of our programmers are comfortable with the **C**, **C++**, and **Java computer languages**. We even have one programmer who can use **C#**. But we don't have anyone proficient in **Assembler**. I think we need some programmers who are familiar with it. That way, we can translate between programs more easily.

In addition, we have two programmers who specialize in **BASIC**. This language is in decline and will probably be phased out soon.

Some of our machines are getting older, too. A few computers need their **compilers** and **linkers** updated. Otherwise, they'll never be able to convert to **machine code** efficiently. One of our older **CPUs** cannot **multi-thread** very well. As you know, the programming department is very important to this company's future. Please help us stay updated.

Thanks,
Sarah Jennings

2 Read the letter from the head of a computer programming department to her boss. Then, choose the correct answers.

1 What is the letter mainly about?

A purchasing more CPUs
B writing better computer programs
C learning new computer languages
D requesting updated resources

2 Which of these programming languages do the programmers NOT know?

A C#
B Assembler
C BASIC
D C++

3 What can be inferred about BASIC?

A It is used in Assembler.
B It is used less frequently than C++.
C It cannot be used by compilers.
D It is the most difficult to learn.

Vocabulary

3 Write a word that is similar in meaning to the underlined part.

1 He's writing a new language that computers can process.
c _ _ _ _ _ _ _ r _ _ _ _ _ u _ _ _

2 An object-oriented programming language is used often.
_ _ v _

3 I'd use a programming language that translates between programs. _ s s _ _ _ _ _ _ _

4 Many of the first PCs used an early programming language that is not widely used anymore.
_ _ S _ C

5 Harold often used a competitor to Java instead of Java. _ _

6 Do you know a programming language that adds capabilities to C? _ _ +

7 Linux® is created with a programming language that programs operating systems. _

8 The central processing unit is a computer's most important part. _ P _

9 A computer part that changes source code into machine code is essential to programming. _ _ _ _ _ _ _ e r

Listen to a conversation between a programmer and her manager. Mark the following statements as *True* or *False*.

1. The manager intends to hire more programmers. **True** / **False**

2. The woman is going to learn Assembler. **True** / **False**

3. The manager denied the request to upgrade the CPUs. **True** / **False**



Listen again and complete the conversation.



Manager: Sarah, could I see you in my office, please?
Programmer: Sure.
Manager: I got your email, but I don't think we can afford more programmers.
Programmer: Well, without someone who knows Assembler we can't efficiently 1) _____ _____ _____.
Manager: I know, but I think the best way to address that problem is to have you trained in it.
Programmer: I'm up for that. But I'm worried that I'll get behind on the 2) _____ programs I'm writing.
Manager: We can shift some of your workload to other 3) _____, then.
Programmer: Okay. What do you think about our 4) _____ _____?
Manager: How pressing would you say those needs are?
Programmer: If we had some updated CPUs, we could finish our projects in a 5) _____ _____ _____.
Manager: All right. Let me 6) _____ _____ _____ at the budget and see what I can do.
Programmer: Thanks, Mr. Daniels. I appreciate it.

Watch a video about types of programming languages and answer the following questions.

1. What types of programming languages were mentioned in this video?

2. What is the most famous programming language?

3. What are the high- and low-level languages?

Group Work Activity:

Prepare a short presentation

In a group of 4-5 members, students will be assigned a different programming language to work with (Python, Java, C++, C#, C, and BASIC) and make a short presentation. They should discuss the ease of implementation, the challenges faced, and how the language's features affected their development process.



Speaking

8 With a partner, act out the roles below based on Task 7. Then switch roles.

USE LANGUAGE SUCH AS:

I don't think we can afford more programmers.

What do you think about our CPU needs?

How pressing would you say those needs are?

Student A: You are talking to a programmer. Ask Student B about:

- department's needs
- importance of needs
- possible solutions

Student B: You are a programming employee. Answer Student A's questions.

Writing

9 Use the conversation from task 8 to write an email to your manager to ask for updated resources. Create names for the employee and his/her manager.

To: _____

From: _____

Subject: _____

Dear _____

_____

_____

_____

Thanks,

_____

01

INTRODUCTION

You can enter a subtitle here if you need it



HOME ASSIGNMENT

Students need to write a reflection on what they learned from the activity including their insights and any surprising findings.



ISPs and Internet access

Unit 3

AGENDA

1. Recognize and use key vocabulary related to ISPs and internet access;

2. understand basic information from texts about how ISPs work and different types of internet connections;

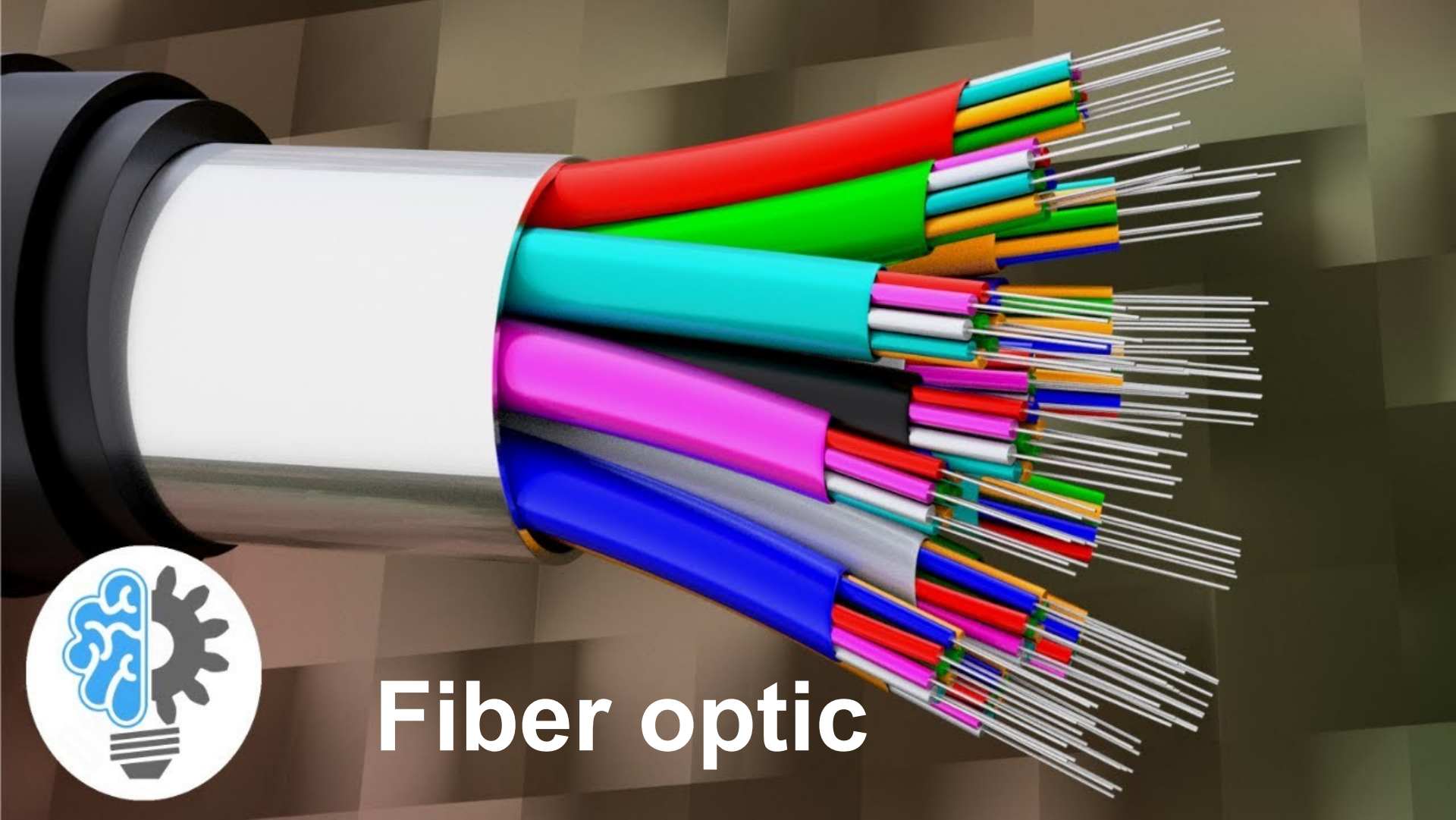
3. Use modal verbs to give advice about choosing internet services and express necessity;

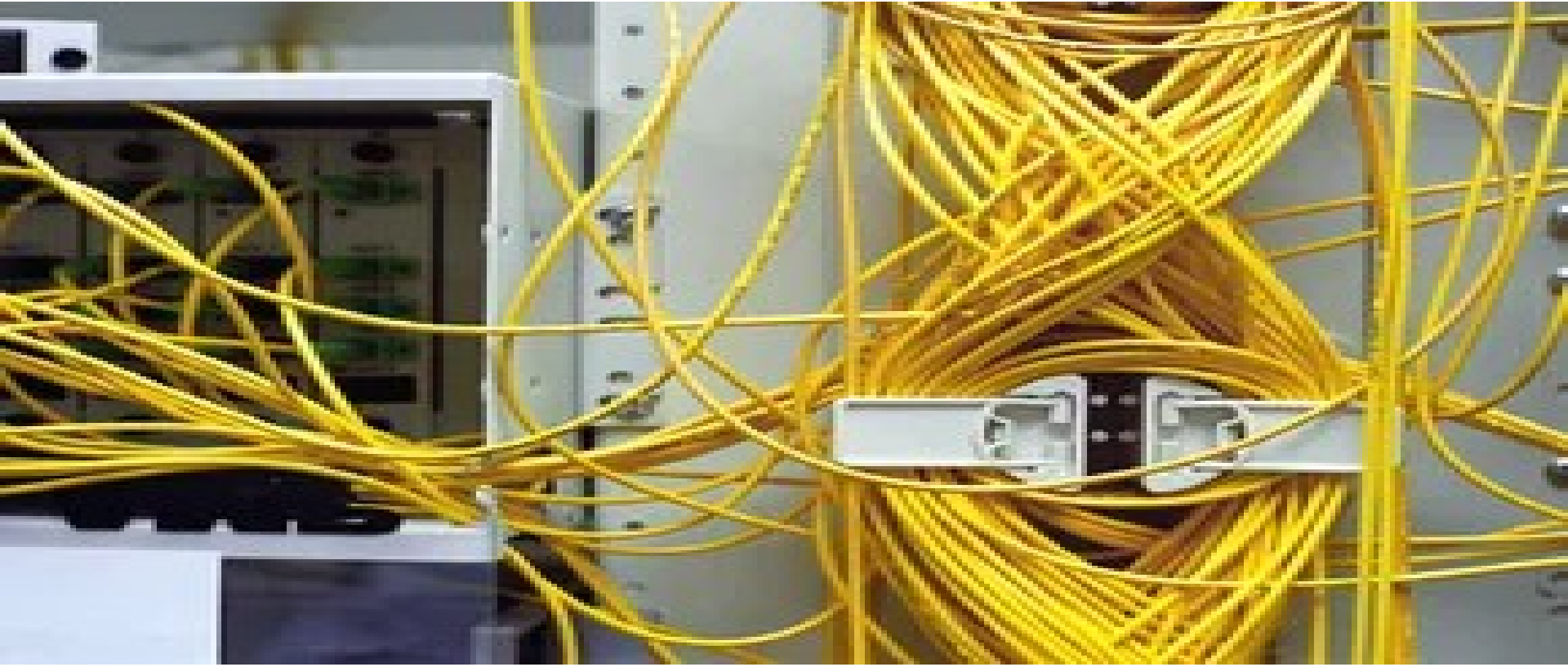
4. Discuss their own internet service or compare different types of internet access in a simple conversation.



Internet Connection Brainstorm

List all the ways people connect to the internet.


Fiber optic



T-1 Line

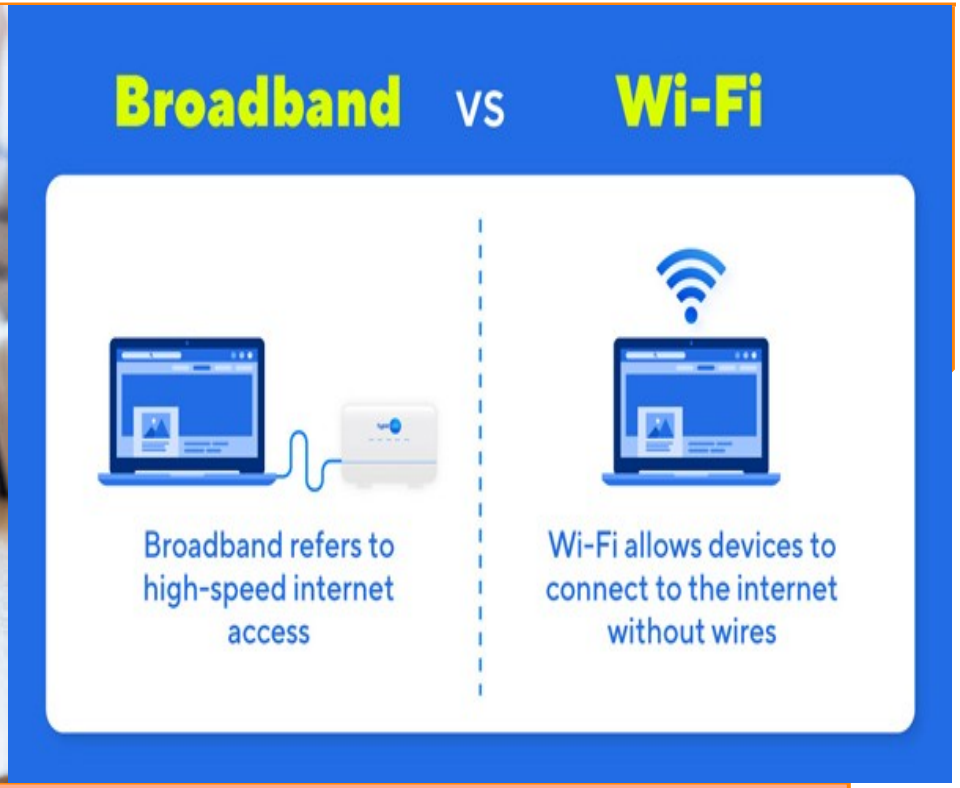


T-3 line



DSL (Digital Subscriber Line)




Broadband
VS
Wi-Fi
Broadband refers to high-speed internet access
Wi-Fi allows devices to connect to the internet without wires

Broadband

Fiber-optic- Fiber optics, or optical fiber, refers to the technology that transmits information as light pulses along a glass or plastic fiber.
Example: A fiber optic cable can contain a varying number of glass fibers, from a few up to a couple hundred. Another glass layer called cladding surrounds the glass fiber core.

T-1 – is a type of line used by businesses that connects many users at once to the Internet
Example: The T-1 is a dedicated connection provided by your local telephone company (or a reseller for the telephone company).

T-3 – is a powerful line made of 28 T-1 lines
Example: We're also building all-new T-3 lines to accommodate the new customers.

ISP – (Internet Service Provider) is a company that provides Internet access
Example: Dial-ups requires a modem connected to a computer and to a telephone line with an Internet Service Provider (ISP).

Vocabulary Building

DSL – (Digital Subscriber Line) is a high-bandwidth connection using normal telephone lines
Example: Since about 10 percent of people in the United States live in rural areas or places cable and DSL can't reach, satellite Internet is the only real option for broadband speed.
Broadband – is a system that allows computers to transfer large amounts of information
Example: I don't have wireless Internet, but I have a broadband connection.
Hotspot – is a location (like an airport or café) that provides wireless Internet access to users
Example: The border has become a major hotspot.
Upgrade – is to improve something, like a computer program or a type of service
Example: We've decided to upgrade our old computer.
Wireless router – is a device that forwards data as a wireless signal
Example: Place the wireless router or access point away from outside walls to minimize signal leakage.

Working on vocabulary

Vocabulary

3 Match the words (1-5) with the definitions (A-E).

1 D T-1
2 A Wi-Fi
3 B dial-up
4 C modem
5 E broadband

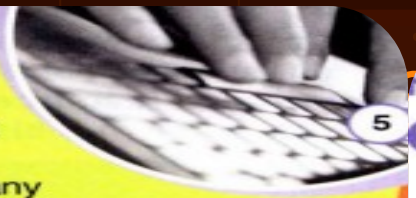
A an Internet connection using wireless signals
B an Internet connection using regular phone lines
C a device that sends information over phone lines
D lines that allow many users to connect to the Internet
E a system allowing the transfer of large amounts of data

4 Fill in the blanks with the correct words and phrases from the word bank.

WORD BANK

antivirus software hotspot ISP upgrade wireless router DSL T-3

1 This coffee shop has a(n) hotspot so customers can go online.
2 A DSL connection only requires a phone line to work.
3 Contact your ISP to get in touch with tech support.
4 Upgrade my service because I need more bandwidth.
5 Using antivirus software protects your computer.
6 You need a(n) wireless router to get a Wi-Fi network.
7 The new T-3 lines offer greater bandwidth



Dear Mindeye Customer,

Last week, Websurf Internet purchased Mindeye Communications. Starting next month we will be your **ISP**.

This new relationship has many benefits. First, you receive a free download of our exclusive VirusWatch 9.0 **antivirus software** to protect your computer. We're also building all-new **T-3** lines to accommodate the new customers. This means greater bandwidth for **broadband** and **T-1** users.

Unfortunately, we're discontinuing **dial-up** service. But we are **upgrading** to **DSL**. Turn in your old **modem** to us to receive a new DSL modem free of charge.

You also receive our award-winning technical support. We'll help you set up your **wireless router** to bring **Wi-Fi** to your household. We can even help recover your password if you forget.

You'll also have access to WebSurf **hotspots**. You can find them at selected airports, restaurants and coffee shops. All you need is a valid WebSurf account.

We look forward to providing you with the world's best Internet service.

Sincerely,
Gina Matson
Customer Relations,
Websurf Internet

5

6 dial-up



Reading

2 Read the notification from an Internet service provider. Then, choose the correct answers.

1 What is this notice about?

A Mindeye's plan to buy WebSurf
B what WebSurf offers to new customers
C WebSpot offering free wireless routers
D troubleshooting Internet access issues

2 Which service does WebSurf NOT offer?

A tech support
B dial-up Internet
C hotspot access
D broadband Internet access

3 What can you infer from the notice?

A Anyone can use WebSurf hotspots.
B More people use T-1 than broadband.
C WebSurf expects to retain Mindeye customers.
D Mindeye offers its customers more services.

Listen to a conversation between a customer and a WebSurf customer representative. Mark the following statements as True or False.

1 The customer plans to cancel his service.

True

False

2 The new T-3 lines will increase bandwidth.

True

False

3 Customers must pay extra for services like tech support.

True

False



Listen again and complete the conversation.

Representative: Welcome to WebSurf. This is Yvonne. How may I help you?

Customer: Hi, I used to be a Mindeye customer. I noticed that my bill increased after the switch to WebSurf.

Representative: What service do you have?

Customer: Just **1)** _____ Internet.

Representative: Oh, that's it then. We're in the process of installing new **2)** _____ lines.

Customer: But how does that affect my billing?

Representative: T-3 lines are expensive, so we've increased rates. But it allows for greater **3)** _____.

Customer: I'm not sure that justifies the price hike.

Representative: Well, it also supports other WebSurf benefits. Live **4)** _____ _____ , for instance.

Customer: I guess I've used that a few times already.

Representative: You also get free **5)** _____ _____ _____. And you can log into any of our **6)** at no additional charge.

Customer: Oh really? That might be worth the higher bill.

Answers:1. broadband; 2. T-3; 3. bandwidth; 4. tech support; 5. antivirus software; 6. hotspots

Watch a video about ISP and answer to each other’s questions

- https://www.youtube.com/watch?v=IrE6RIcXVdk&t=43s

Grammar Focus: Modals of Advice and Necessity ("should," "must," "ought to," and "need to").

We use “must” to say that we believe something is certain: You’ve been travelling all day. You must be tired. (travelling is tiring and you’ve been travelling all day, so you must be tired)

“Joe is a hard worker.” “Joe? You must be joking. He doesn’t do anything.”
We use can’t to say that we believe something is not possible: You’ve just had lunch. You can’t be hungry already. (we don’t expect people to be hungry immediately after a meal)

The structure is:

you/she/they (etc.)	must can’t	be (tired / hungry / at work etc.) be -ing (doing / going / joking etc.) get / know / have etc.

Must and Mustn’t

You must do something = *it is necessary that you do it:* Don’t tell anybody what I said. *You must keep it a secret*. We don’t have much time. *We must hurry.*

You mustn’t do something = *don’t do it:* You must keep it a secret. *You mustn’t tell anyone*. (= don’t tell anyone) We must be very quiet. *We mustn’t make any noise*.

Needn’t and don’t need to

You needn’t do something = **it’s not necessary to do it** (but you can if you want): We have plenty of time. We needn’t hurry. **(= it is not necessary to hurry)** Joe can stay here. He needn’t come with us. **(= it is not necessary for him to come)**

You can also use don’t/doesn’t need to: We don’t need to hurry. Note that we say ‘don’t need to do’, but ‘needn’t do’ (without to).

Compare needn’t and mustn’t: You needn’t tell Steve. I can tell him myself. (= it is not necessary) You mustn’t tell Steve. I don’t want him to know. (= don’t tell him)

Should

You should do something = **it is a good thing to do or the right thing to do**. You can use should to give advice or to give an opinion: You look tired. You should go to bed.

You shouldn't do something = **it isn't a good thing to do:** You shouldn't believe everything you read in newspapers.

Should is not as strong as **must** or **have to**: You should apologize. (= **it would be a good thing to do**) You must apologize. / You have to apologize. **(= you have no alternative)**

Should = ought to (expressing moral obligation)

You ought to help your friends.

You should choose a plan with unlimited data if you stream a lot of videos.

Complete the sentences with the necessary modal verbs (must, should, need to and ought to)

1. If you want to improve your internet speed, you _____ consider upgrading to a higher-speed plan.
2. You _____ choose a plan with unlimited data if you use the internet for streaming videos frequently.
3. It's very important that you _____ keep your router in a central location for better signal strength.
4. To avoid overage charges, you _____ check your data usage regularly.
5. If you have a slow connection and are often on video calls, you _____ consider switching to fiber-optic internet.
6. You _____ follow the ISP's installation instructions carefully to ensure your internet works correctly.

Answers: 1. should; 2. need to; 3. ought to; 4. need to; 5. should; 6. need to

Speaking

8 **With a partner, act out the roles below based on Task 7. Then, switch roles.**

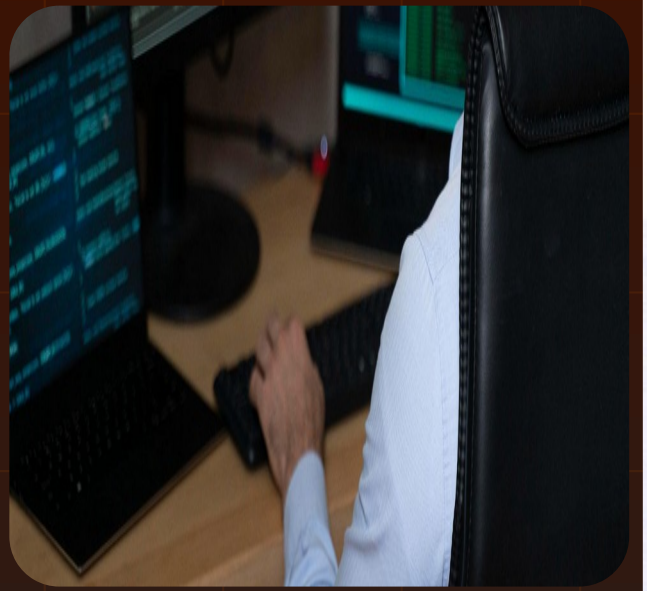
USE LANGUAGE SUCH AS:

What service do you have?
It allows for greater bandwidth.
You can log into hotspots.

Student A: You are calling customer service. Ask Student A about:

- a bill increase
- causes
- benefits

Student B: You work in customer service. Answer Student B's questions.



Writing

9 **Use the conversation from Task 8 to fill in the customer survey.**

Websurf.

Dear Customer,

Thank you for calling WebSurf customer service! In order to help improve the quality of our service, we'd like to ask you a few questions.

What was your call concerning?

_____

_____

_____

Was our Customer Rep able to help you with your problem? How?

_____

_____

_____

_____

Write a brief review of an internet service or a comparison between two types of internet connections and give a short presentation about it next lesson.

HOME ASSIGNMENT

THANKS

Do you have any questions?



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