Computing as a Science

An Introduction to Computer Science

"That's not computer science," a professor told me when I abandoned the traditional computer science and engineering study to pursue computing topics that I thought to be more societally valuable. Very quickly I learned that the best way to respond to such remarks was with a series of counter questions about what exactly computer science is and why. The difficulties that many brilliant people had responding to those questions led me to suspect that there's something deeper about the topic, yet the more I read about it, the more confused I got."

(Matti, Tedre - The Science of Computing, Shaping a Discipline)

Objectives of today's class

1. to talk about the aims and objectives of computer science
2. to review the history of computer science and computing in general
3. to get familiar with quick-reading strategies (*skimming* & *scanning)* in particular
4. to review past tenses and their use in English

Students, follow the instructions on the slide

Early Computing

How much do you know about the history of computers and computer science?

Think about early computing devices, inventors, milestones in the evolution of computers, etc.

Guess whether the following sentences are true or false.

The first fully functioning calculating machine was built by Charles Babbage.

TRUE / FALSE

Alan Turing conceptualised the first-ever machine capable of computing any problem presented in a set of instructions.

TRUE / FALSE

The first, fully electronic, program-controlled computer was Zuse's Z3.

TRUE / FALSE

The Manchester Baby was the first computer to run a program from memory.

TRUE / FALSE

No one has ever been awarded an exclusive license to produce computers.

TRUE / FALSE

Now watch the video and check your answers.

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Students browse: www.youtube.com/watch?v=d1pvc9Zh7Tg&ab_channel=ComputerHistoryMuse...

Watch the video again and extract information regarding the following dates.

Year	Name	Event
1834	_____	_____
* * *	Alan Turing	_____
* * *	Konrad Zuse	_____
World War II	_____	_____
_____	Manchester Baby	_____
1964	_____	_____

Students browse: www.youtube.com/watch?v=d1pvc9Zh7Tg&ab_channel=ComputerHistoryMuse...

“Computing is no more about computers than astronomy is about telescopes.”

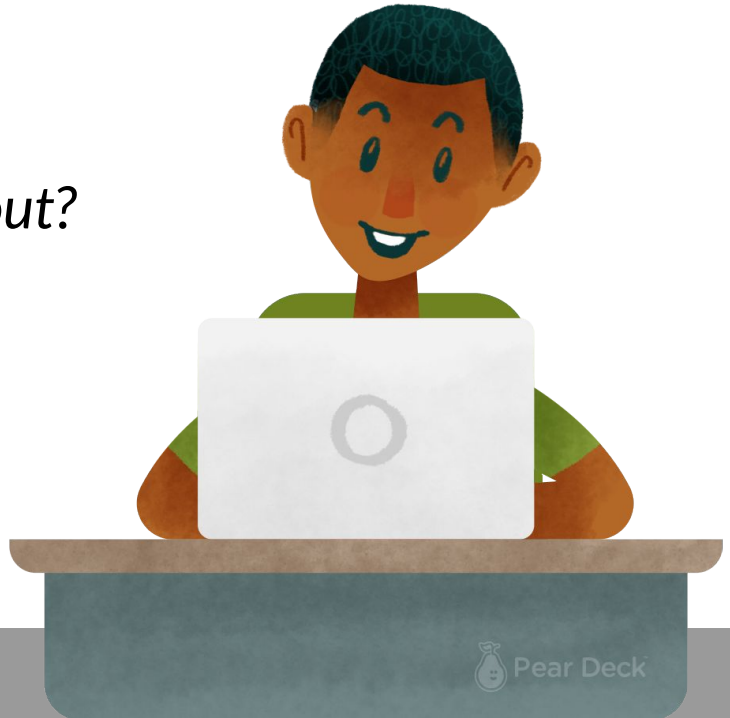
(Edsger Dijkstra)

Then what is computer science about?

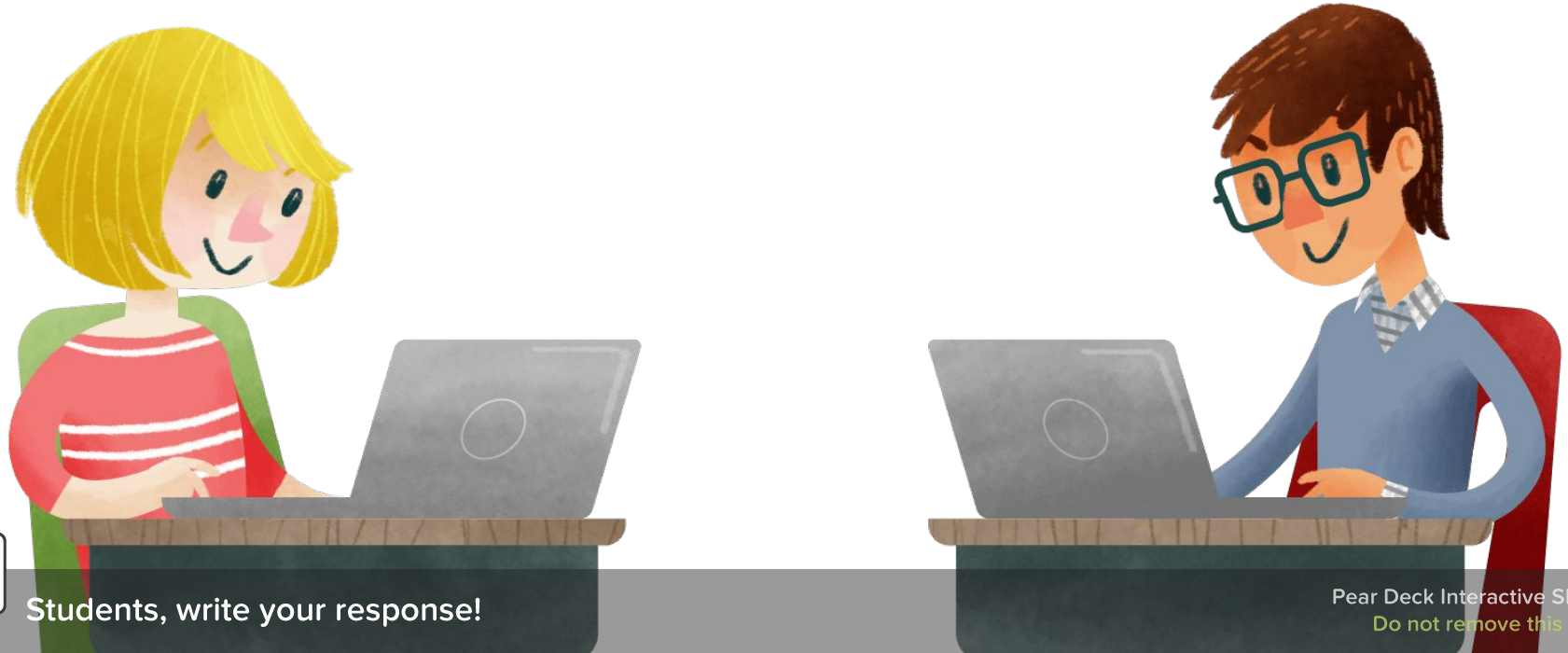
How would you define the term ‘computer science’ or ‘computing’?

What are the main objectives of computer science?

In other words, what is computer science about? What does it seek to do?



Can you think of key events in the formation of the scientific discipline of ‘computer science’?



Students, write your response!

Chronology

Drag the numbers to put the events below in chronological order.

Computing is called *"information processing"*.

Kurt Gödel, Alonzi Church, Emil Post and Alan Turing publish their highly influential papers

Universities start offering computer science programs.

The US and the UK commission projects to build the first digital computers.

Computing spreads into all fields, with the help of networks, supercomputers and personal computers.

Reading

Open the link in a new window and check your answers.

Students browse: docs.google.com/document/d/1MQzz_vUCSmNYsKdSuYGxSWHtm6TZN93iQeJvWT...

Reading

Open the link in a new window, and follow put the missing paragraphs back into their place.

Students browse: docs.google.com/document/d/1wNWBmTROnpM6dGJx22hXsDMyVg2LyiKnsSS9cn...

Reading

Write your answers in the appropriate box below.

1	2	3	4	5

Students, draw anywhere on this slide!

Grammar Review | Past Tenses

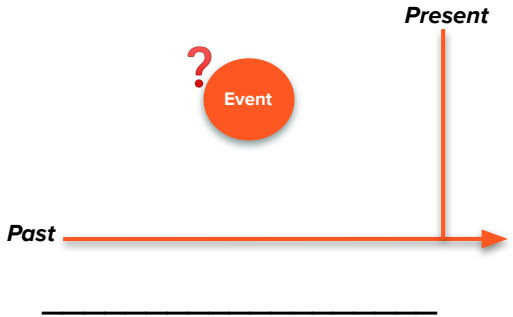
Below you can find a few sentences extracted from the text. Identify the tenses used in each sentence.

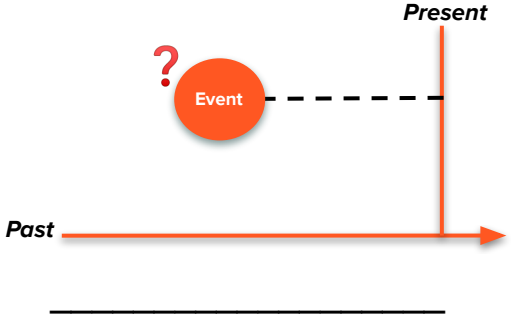
- Many people involved in those projects **went on** to … _____
- The field and the industry **have grown** steadily … _____
- By the 1980s, computing **had mastered** … _____
- … computing **was spreading** into all fields … _____
- These programs **had been working** since 1945 … _____
- They **have been debating** these questions ... _____

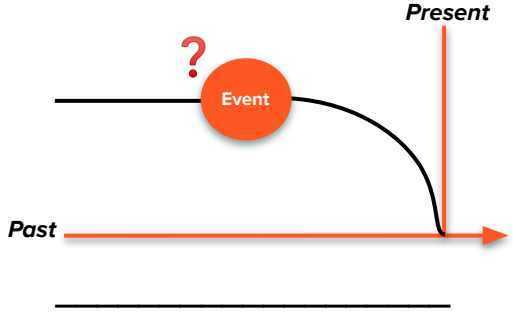
Students, draw anywhere on this slide!

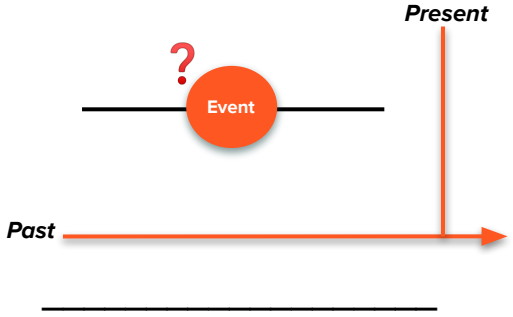
Grammar Review | Past Tenses

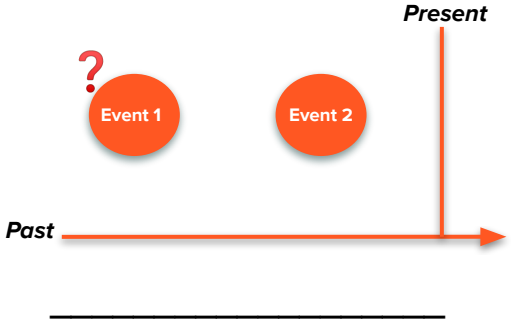
Look at the diagrams below. Try to identify which tense each diagram represents.

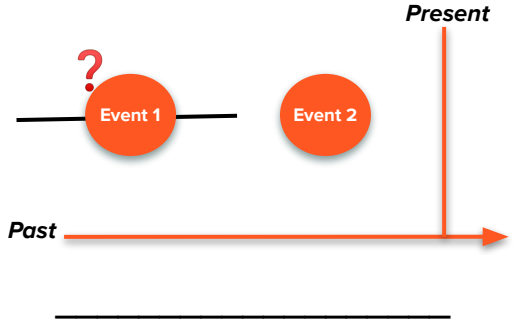












Grammar Review | Past Tenses

Below you can find a few sentences extracted from the text. Identify the tenses used in each sentence.

1. **Past Simple** ___
2. **Past Continuous** ___
3. **Past Perfect** ___
4. **Past Perfect Continuous** ___
5. **Present Perfect** ___
6. **Present Perfect Continuous** ___

a. something that happened before another action

b. a finished action or situation at a definite point in the past

c. an action in progress at a definite time in the past

d. something in progress up to a time / event in the definite past

e. an event that started in the past but with relevance to the present moment

f. an event in progress in the immediate / undefined past, with emphasis on duration

Students, draw anywhere on this slide!

Questions? Unclarities?

Students, write your response!

Grammar Review | Past Tenses

The sentences below contain either one or two mistakes. Find the mistakes and correct them.

1. I lived at home while I studied computer science, but after that I moved out.
2. When the crash happened, John used the computer, but it wasn't his fault.
3. He said he was feeling sick and he was apologising for not coming.
4. My program was lagging again, so I was deciding to take a look at it again that afternoon.
5. I had already been hearing the news about the new gadget when the manager told me.
6. When I arrived at the conference venue, I saw that 20 people waited; some were already waiting for over three hours.
7. When my test results were coming, I got exactly the grade that I had hoped for.
8. I think my colleague was sleeping badly the night before, as he was being very critical that day.

Grammar Review | Past Tenses

*Read the text and decide whether the expressions in **bold** are correct or not. If they are incorrect, write the correct form on the line.*

The mobile phone

People (1) **have been dreaming** of having a personal means of communication for a long time. In the late 1960s, the idea **(2) had seemed** so far in the future that it **(3) was included** in the science fiction series *The Star Trek*. Since the 1980s, however, mobiles **(4) became** a part of everyday life. Although they **(5) were** initially **seen** as a status symbol for successful business people, mobile use **(6) had spread** to include practically everyone in the developed world, old and young alike.

The impact on social life **(4) had been** enormous. We have got used to the idea of having constantly changing social plans, where a quick phone call is all it takes to rearrange things. Before this was possible, there were many occasions when friends who **(8) had arranged** to meet completely **(9) had missed** each other because of a slight misunderstanding. People would often have to make very careful arrangements to be sure of meeting up.

As mobiles **(10) have been becoming** more popular, so they **(11) have become** more powerful. The large, unreliable phone of the 1980s **(12) has evolved** into the small, stylish camera phone of today.

1 _____ 2 _____ 3 _____ 4 _____

5 _____ 6 _____ 7 _____ 8 _____

9 _____ 10 _____ 11 _____ 12 _____

Grammar Review | Past Tenses

Choose the correct answer.

A: Jack is still looking for a decent computer.
B: How long … ?

A was he looking

B has he looked

C is he looking

D has he been looking

Grammar Review | Past Tenses

Choose the correct answer.

A: Has Paul come to terms with his examination results?
B: Yes, he … the fact that he'll have to resist.

A had accepted

B accepted

C has accepted

D has been accepting

Grammar Review | Past Tenses

Choose the correct answer.

You … be so good at programming, did you?

A never used to

B are used to

C got used to

D wouldn’t

Students choose an option

Grammar Review | Past Tenses

Choose the correct answer.

Can you tell me, sir, what you … in the office at three in the morning?

A have done

B have been doing

C were doing

D had done

Students choose an option

Grammar Review | Past Tenses

Choose the correct answer.

I was angry when you saw me, because I … with my boss.

A have been arguing

B had been arguing

C argued

D would argue

Students choose an option

Grammar Review | Past Tenses

Choose the correct answer.

By the time we arrived, the meeting ...

A has already started

B already started

C would already start

D had already started

Students choose an option

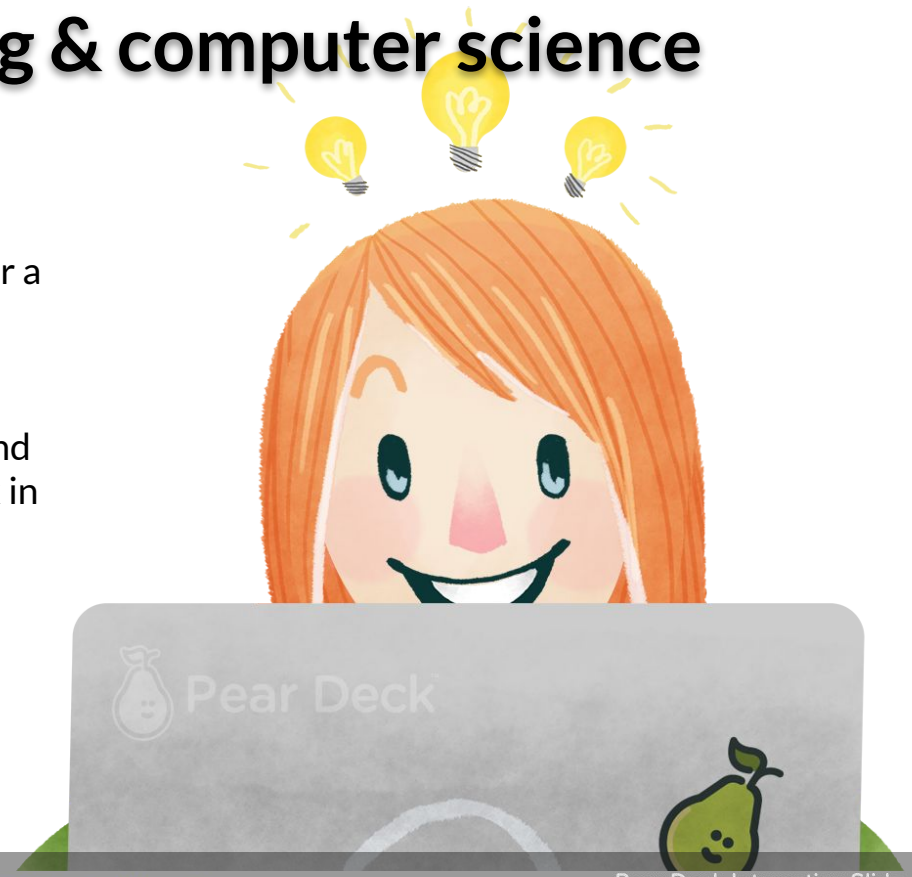
Let’s create a timeline of the main events in the history of computing & computer science

Using the information from the previous tasks, enter a few key milestones in the timeline.

Make sure to write the year as the title of the pin and add a short description to each event. You can work in pairs or teams if you prefer.

You can access the complete reading text here.

You can also use this resource for more information.



Thank you for your attention!

As always, feel free to rate today's lesson:

See you next week!