

Alan Turing

**Founder of computer science, mathematician,
philosopher, code-breaker**

What is a Computer?

Nowadays, the machine which is sitting in front of you.
The machine which can draw graphics,
set up your modem,
write letters
refresh your screen,
monitor your keyboard,
connect you to rest of the world through internet,
manage the performance of all these in synchrony...
and do all of these through a single principle:

reading programs placed in its storage.

1936 — the concept of the universal machine
Turing's discoveries in mathematical logic,
using the Turing machine concept,
depended on seeing that

**Programs operating on numbers could themselves
be represented as numbers.**

Turing's 1945 conception of the computer was NOT tied to numbers at all.

It was for the logical manipulation of symbols of any kind.

He stressed that a universal machine could switch at a moment's notice from Arithmetic to the Algebra of group theory, to Chess playing, or to Data processing.

In 1945 Alan Turing was taken on by the National Physical Laboratory at Teddington, (London suburbs).

His detailed plan for an electronic computer, with a visionary prospectus for its capacities, was accepted in March 1946. Everything seemed to be going for it.

In late 1946 the NPL put out press release

However, NPL did not follow up his ideas.
His main job was code-breaking which was in total secrecy.
He got depressed and left NPL in 1948.
He had become a marathon runner and was competing with national runners.

Alan Turing and the Internet

Alan Turing proposed in his 1946 report that it would be possible to use the ACE computer (Automatic Computing Engine) by a remote user over a telephone link.

So he foresaw the combination of computing and telecommunications long before others.
[Donald W. Davies](#), one of Turing's early colleagues at the NPL, went on to pioneer the principle of [packet switching](#) which led to the Internet you are using now.

For more information go through this site:

<http://www.turing.org.uk/turing/scrapbook/computer.html>

What is computer Science?

Physical sciences

Medical sciences

Social sciences

Not only science and technology of computing machines

It is a tool which allows computer scientists to operate in practice

Definition: Science of Information Representation and Management

Information : main product of computer technology

**Computer science comprises of not only
Technology of computers but also
Structure and management of information**

Computer Science becoming an integral part of all human activities

Science?? Information management handled

- rigorously and systematically

- Can be made automatic

(compare with Journalism – also having information)

Key idea : systematic study of algorithms which describe and transform information

Algorithm: (*Informal definition*)

Precise sequence of operations
that are clearly stated
and therefore
can be executed in automatic mode.

This course is about study of algorithms for problem solving, study implementation issues, arrangement of data in different ways (data structures).