## **Jack Kilby and Robert Noyce**

The invention of the integrated circuit was a milestone in the history of electronics. In the late 1950s, Jack Kilby and Robert Noyce, working independently, had intuitions that led to the creation of the first integrated circuits, and this was the first step that led to all of the further developments in electronic circuitry.



## ■ Jack Kilby

Born in 1923, Jack Kilby graduated in electrical engineering from the University of Illinois

in 1947. In 1958, he was a newly employed engineer at Texas Instruments and, as he did not yet have the right to a summer holiday, he spent the summer working on a big problem in circuit design: engineers could not increase the performance of circuits due to the high number of components that needed to be wired to every other component. Kilby concluded that a solution could be to produce all of the circuit components in a single piece of semiconductor material. In September he presented his company's management with an integrated circuit made from a single piece of germanium, a semiconductor which, when attached to an oscilloscope, showed a continuous sine wave, thereby proving that his integrated circuit worked.

In 2000 he was awarded the Nobel Prize in Physics.

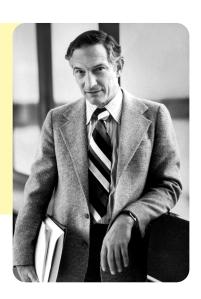
## **■** Robert Novce

Nicknamed "the Mayor of Silicon Valley", Robert Noyce was born in 1927 and graduated in physics from MIT in 1953. After working with William Shockley in his company, Noyce was among the founders of the Fairchild Semiconductor company in 1957 and then, in 1968, he created Intel together with Gordon Moore . In 1959, Noyce invented a type of integrated circuit in which all components were inserted into a silicon chip and connected with copper lines. His invention was patented only a few months after Kilby's. Noyce was honoured by three American Presidents for his coinvention of the integrated circuit and its great impact on the development of technology.

Noyce continued to supervise technological development in his company, such as the revolutionary invention of the microprocessor by Ted Hoff in the early 1970s.

Adapted from: https://en.wikipedia.org/wiki/Jack\_Kilby; https://en.wikipedia.org/wiki/Robert\_Noyce

to be awarded:
essere insignito di
due to: a causa di
germanium:
germanio
management:
direzione
to nickname:
soprannominare
to patent:
brevettare
sine wave: onda
sinusoidale



William Shockley is one of the inventors of the transistor, together with John Bardeen and Walter Brattain.

Read about Gordon Moore and his law using the Online Resources, Section 3 Unit 2.

Read the text and decide if the stateme	itts refer to Kilby (K) of Noyce (N).
1. He graduated in physics at MIT.	
2. He was the co-founder of a famous electron	ics company.
3. He was an electrical engineer.	
<b>4.</b> His integrated circuit was made of silicon.	
5. He was the first to patent an integrated circu	uit.
<b>6.</b> He received the Nobel Prize.	
7. He solved a big problem that affected engir	neers.
8. He received appreciation from several Amer	rican Presidents.
Complete the tables with the correct text about Jack Kilby and Robert Noyce.  Jack Kilby	t events then use the information to write a sho Robert Noyce
text about Jack Kilby and Robert Noyce.  Jack Kilby	Robert Noyce
text about Jack Kilby and Robert Noyce.	Robert Noyce
text about Jack Kilby and Robert Noyce.  Jack Kilby	Robert Noyce  1927:
Jack Kilby  1923: birth  1947:	Robert Noyce  1927:
Jack Kilby  1923: birth	Robert Noyce  1927:  1953:  1959:
Jack Kilby  1923: birth  1947:	Robert Noyce  1927:  1953:  1959:  1968:
text about Jack Kilby and Robert Noyce.  Jack Kilby  1923: birth  1947:  Summer 1958:  September 1958:  2000:	Robert Noyce  1927:  1953:  1959:  1968:
Jack Kilby  1923: birth  1947:  Summer 1958:  September 1958:	Robert Noyce  1927:  1953:  1959:  1968:  1970: