

The Hidden Network that Makes the Internet Possible

VOCABULARY

- ***Petabit** – a unit of information or storage equal to 10^{15} bits
- ***Souped-up** – more powerful
- ***Total Internal Reflection** – the complete reflection of a light ray at the boundary of two media, when the ray is in the medium with greater refractive index
- ***Fiber Optics** – is the use of long thin threads of glass to carry information in the form of light
- ***Photonics** – the study and design of devices and systems, such as optical fibers, that depend on the transmission, modulation, or amplification of streams of photons
- ***Bandwidth** – a bandwidth is the range of frequencies used for a particular telecommunications signal, radio transmission, or computer network

COMPREHENSION

1. What are the two ways copper metal wires influence the transmission of information as electrical signals?
2. When a ray of light inside glass hits its surface at an angle, what happens to the ray when it exits into air?
3. Why can fiber optics enable the internet to evolve into a “planetary computer,” where distance doesn’t limit cloud computing?
4. How do integrated photonics help solve the power problems of growing data centers?
5. How will integrated photonics help solve the bandwidth problems of growing wireless demand?

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LET'S TALK

1. Wireless cloud computing turns communications technologies into tools for data computation and storage. How may this lead to a more interactive virtual reality for daily life?