

Teacher Background Information

Everything you need to know in less than 300 words...

For this lesson, students will be transformed into packets, or tiny pieces of information that travel through the Internet. Packets allow people to browse websites and send and receive information such as email. Let's consider how an email may travel from a school computer to a home computer. The information must be broken up into tiny pieces, or bytes, called packets. Packets will leave the school computer with the computer address, part of the data, an ID number, the address of the destination computer, and a checksum.

They travel through the school network to the server, which is protected from viruses by anti-virus software and can add encryption shields to packets to avoid snooping hackers. If the router awards packets a Quality of Service (QOS) designation, they'll be considered priority items and will move more quickly to their destination.

Routers on the school network direct packets onto the Internet, which is a worldwide network of connected servers and computers. As packets move along, they encounter other routers that help them find the quickest and safest path to their destination. Packets may travel through wires or over wireless paths. If they use wireless routes, they are given a security key, or a code that will allow them to travel through wireless receivers. When packets reach the destination computer, they are reassembled into the original data. The checksum information carried by each packet ensures that all packets are received.

Most of the time this system works well, but sometimes you can't send an email, access a website, or download information. These problems may be caused by viruses, hackers, congestion, interference between wireless access points, broken wires, network repairs, or faulty routers.