

Networks & the Internet: Network Communication & Organization Grade: 3

Standard: 3.NI.NCO.01

Recognize how information is sent and received over physical and **wireless** pathways.

Essential Skills

Explain that information moves over the internet along physical wires and **wireless** connections.

Essential Questions

How is information transmitted over the Internet?

Why are **packets** used to help transmit information over the Internet?

Explanation

Transmission of information over the internet occurs over a series of interconnected wired and **wireless** paths. To send and receive information quickly and efficiently. Most information (e.g., a photo, an email or a website) is broken into smaller pieces called **packets**. In addition to the original information, packets contain information about where they come from, where they are going, and how many packets total there are and their sequence. These packets may take different routes since there are usually many paths between any two points on the internet. All the packets end up at the final destination where they are reassembled into the original email, photo or website. Students should be able to model this process in a drawing, an animation, or by acting out the process.

Think of this as similar to....

Imagine that you want to send a jigsaw puzzle to a friend who is far away., but you don't want to send all of the pieces in one package. Some of the pieces you send in the mail, some you send with another friend who is going to visit and the rest you put on a train that is going to the friend's town.

Implementation Examples—What would this look like in the classroom?

Title	Description	Link	Content Connection & Notes
Introduction to Seeing the Internet	Grade 3 --Students draw their concept of the internet and then locate physical evidence of the internet in photos and in their community. They identify wired and wireless connections along which information flows.	Introduction to Seeing the Internet	Some physical supplies needed for this lesson.
Let's Build the Internet	<p>Grade 3--Students build physical models of the internet and identify which objects can communicate with which other objects. Students trace information as it travels along the model network.</p> <p>Grade 4--Students trace different routes that different packets might take over their model internet to get to the same destination.</p> <p>Grade 5--Students model the transmission of packets over their model internet."</p>	Let's Build the Internet Directions for the construction of a network modeling kit are included in the lesson or you can create a drawing instead.	Some physical supplies needed for this lesson.

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These annotations are a collaboration between [Maryland Center for Computing Education](#) and the [Maryland State Department of Education](#).