

5.NI.1 Networks and the Internet

The student will identify and describe cloud computing. (a) Define cloud computing. (b) List examples of cloud computing. (c) List the advantages and disadvantages of cloud computing. (d) Identify safe practices and potential security risks when using cloud computing.



Integration Opportunities

English 5.RV.1 a,k, 5.RI.1 b

Summarize key concepts in technical texts describing cloud computing by accurately using content-specific vocabulary when participating in discussions or presenting information.

Science 5.1e Develop a model of a cloud computing service and identify the limitations of that model.

Understanding the Standard

By fifth grade, students have become familiar with the idea that all computing systems include input, processing, output, and storage. In recent years, cloud computing, or the practice of utilizing storage and processing power that is not physically housed in the computing device, has become more prevalent as the demand for fast, reliable, mobile computing has increased. Cloud services, such as Google Docs, Microsoft OneDrive, password managers, online backup services, and more, allow users to access their features through a web browser that connects over the internet to a network of servers that are maintained by the cloud service provider. While some of the biggest benefits for users include being able to access data on the go, reducing the need for storage space on your device, and protecting data from accidental loss, there are some drawbacks involved, including the need for Internet access to connect to your data, difficulty switching between cloud companies, and risks involved with storing sensitive data on remote servers.

Term	Definition
Cloud computing	Term that describes data and storage services provided over a network by remote servers. (from ComputerHope)

Prerequisite Knowledge

Before examining cloud computing, it is useful for students to have an understanding of the components of computing systems and a basic conceptualization of the form and function of a computer network.

Summary of a Lesson

Ask students what they think it means when someone says that they saved their work "in the cloud." Define "cloud computing" and connect it to the components of a computing system. This video, ["What is the Cloud?" from CNBC International](#), provides a good overview. In small groups, have students discuss both benefits and possible drawbacks or risks of using a cloud computing service, then share out to the group. To further understanding of how cloud computing works, have students take virtual tours to explore a data center for a cloud service, such as [Microsoft's virtual data center](#) tour or the [Amazon Future Engineer Uncovering Cloud Computing](#) tour.