How the Internet works

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| **Schule** | **HTL Villach** |
| Zweig | Netzwerktechnik |
| Organisationsform | Jahrgang 1 |
| Unterrichtsgegenstand | Labor |
| Schuljahr | 1. |
| Klasse | 1AHITN |
| Kompetenzbereich/Kompetenzmodul | Einfuehrung Internet |
| Kompetenzbeschreibung/Bildungs-und Lehraufgabe | Grundsaetzliche Zusammenhaenge des Internet-Verkehrs |
| Lehrstoff | Pakete, Firewall, Netzwerke |
| Unterrichtseinheiten | 1 |
| Lehrperson | Michael Kropfberger |

An introduction into the mechanics of network communication focusing on the data transfer over the Internet like when browsing the Web.

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| --- | --- |
| Activity Type/Method and Classroom Format (group work, pair work, ...) | 1. Watching a video, note-taking and creating a vocabulary list (= understanding & remembering) individual
2. Answering questions (= remembering) individual
3. Creating questions and discussing the main message (= understanding, analyzing & evaluating) individual + pair
4. Matching the vocabulary (= remembering) individual
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| Classroom format | Whole class |
| Time | 50 Minutes (1 lecture) |
| Distance Learning Options | None |
| Procedure | 1. Teacher gives introduction in german.
2. Handout Vocabulary.
3. Students watch a video and take notes.
4. Teacher summarizes the core messages presented in the video.
5. Teacher asks questions to check the understanding.
6. Teacher creates network topology picture.
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| Resources | <https://youtu.be/EOYe71RWMvk> |
| Content-related learning outcomes | * Students understand how data is transmitted over the Internet.
* Students get a visual representation of the mechanics of routers, switches and firewalls.
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| Language-related learning outcomes | Students know words and terms used in networking.Students can describe how data packets are transmitted from a computer to a server and back.Students can name reasons why some packets may be dropped.Students know that packages have a limited size. |
| Sources | - |

**VOCABULARY:**

TCP Packet

ICMP Ping Packet

UDP Packet

The Router

Ping of Death

The Router Switch

Geographical Boundaries

Race, creed and color.

Dawn

IP Packages

package and label (paketieren und frankieren)

Proxy

LAN

systematic

uncaring

methodical

conservative

to play fast and loose („unvorsichtig“, „schlampig“)

pinball wizard

to lessen the load

web address / URL

summarily („kurzerhand“ ~ 5:57)

corporate firewall

rather nasty things

prevent sensitive information from being sent out

narrow bandwith

narrow vs. broad

obviously

acknowledgement

replacement packet

establish

link

plenty

fertile soil („fruchtbare Erde“)

to push the envelope („Über die Grenzen gehen“)

dangers lurk

dread („gefürchtet“)

transoceanic

eventually

circumvent

the drop of a hat („Im Handumdrehen“)

source („Ursprung“, „Quelle“)

destination („Ziel“)

bastion of security („Sicherheitsfestung“)

adversary („Widersacher“, „Gegner“)

attempt („Versuch“)

thoroughly screened („detailiert kontrolliert“)

customs („Zoll“)

dubious („verdächtig“)

disguise („tarnen“)

supply („versorgen“)

effort („Mühe“, „Aufwand“, „Anstrengung“)

blissfully („glückseelig“, „seelig“)

serve your master well („Dem Lehrer gut dienen“)

# Content

TCP Packet

UDP Packet

Web Browser / Video Player

Limited Packet Size

Ports

Header

 Sender address

 Receiver address

 Packet type

Proxy Server

Router may not be up to speed (subtitle at ~ 3:40)

Intranet

Network Interface

Firewall

Acknowledgement

Replacement packet (Retransmission)

Interconnected networks

Ports 80 and 25

Web Server

Mainframe

CLIL Gruppe

Kropfberger Michael

Maurhart Oliver

Wirnsperger Michael