

TITLE: Internet of Things

LEARNING SCENARIO	
<i>School:</i>	<i>Duration (minutes):</i> 90
<i>Teacher:</i>	<i>Students age:</i> 10

<i>Essential Idea:</i>	Everything that can be connected by the internet will be connected. IoT will significantly affect our lives.
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Topics:

- Pupils can solve more complex logical problems with and without technology.
- Step-by-step and conditional instructions and events are utilized in problem solving tasks.

Aims:

- Pupils learn about the concept of artificial intelligence and different kinds of practical use of it.
- Pupils learn about safe and responsible behavior on the Internet.

Outcomes:

- Pupils describe the situations in their program where the decision and input values should be used.
- Pupils recognize positive and negative footprints, desirable and responsible behavior on the Internet.

Work forms:

- individual work
- work in pairs

Methods:

- presentation
- discussion
- graphic work

ARTICULATION

Course of action (duration, minutes)

INTRODUCTION

Teacher starts discussion:

What is Internet of Things?

Where and how it is used?



MAIN PART

Teacher presents, explains and starts discussion:

IoT

Internet of Things

Intelligent networked objects – a network of connected “things”

The internet of things is all around us. Watch to learn what IoT is and how IoT devices impact our personal and professional lives.

https://www.youtube.com/watch?time_continue=19&v=6YaXKxXSli0&feature=emb_logo

<https://www.youtube.com/watch?v=LlhmzVL5bm8>

Teacher presents, explains IoT and number of connected intelligent objects:

IoT around us

IoT in industry: smart machines, household appliances...

IoT in cars: electric autonomous minibus, Tesla, Rimac cars...

IoT in medicine: digital photo scanners, 3D print...

IoT smart cities, smart homes

The Future of IoT Security

https://www.youtube.com/watch?v=mLg95dLm-Gs&feature=emb_logo

As the IoT market skyrockets and more and more IoT devices are found in homes. Number of enterprises, security efforts also increase. However, how feasible is implementing and regulating IoT security, anyway?

IoT devices like smart home assistants, cell phones, gaming systems, even automated lights and cameras certainly make life better to an extent. But every IoT device is connected to the internet and that connection is inherently insecure. While some companies are becoming more proactive about IoT security and privacy policies, security and privacy is usually an afterthought.

But at the same time, hope for the future of IoT security is in the next generation. IoT technology in the hands of “digital natives” is more secure, as they will use the technology responsibly and have a lower tolerance for irresponsible use.

What do you think? Is the future of IoT security bright?

What factors will contribute to a successful IoT security and regulation strategy?

Let us know in the comments and discussion.

IoT examples, project ideas for pupils:

<https://www.upgrad.com/blog/iot-project-ideas-topics-for-beginners/>

<https://data-flair.training/blogs/iot-project-ideas/>

Teacher can choose some project for pupils, present and implement activities with pupils in the classroom.

Teacher presents, explains and starts discussion on Internet safety which includes:

Personal data

Privacy protection

Information

Teacher and pupils discuss on passwords.

What is a secure password?

How do we save our passwords?

They can test password suggestions and test strength.

Test How secure is your password: <https://howsecureismypassword.net>

Teacher and pupils discuss on digital footprints.

What is digital reputation?

How to preserve your digital reputation?

Teacher can present advices and ideas on digital footprints and implement activities with pupils in the classroom.

<https://www.netnanny.com/blog/what-every-teen-needs-to-know-about-their-digital-footprint/>

<https://www.teachthought.com/the-future-of-learning/11-tips-for-students-to-manage-their-digital-footprints/>

Task 1: Internet safety and digital footprints

Create a poster (on a computer or on paper).

Present digital footprints (positive and negative) on the poster.

Present tips for safe and responsible use of the Internet.

Introduce tips and tricks for a secure password.

Task 2: An animated story in Scratch

Create an animated story in Scratch.

In the story, present and explain how the IoT changes everyday life, learning and acquiring new skills.

Present your work to the students in the class.

Pupils solve tasks and present their works.

Students and teachers discuss and evaluate the presented solutions.

CONCLUSION

Everything that can be connected through the internet will be connected.

IoT will significantly affect our lives.

Methods

presentation
discussion
work on the text
graphic work
interactive exercise /simulation on the computer

Work forms

individual work
work in pairs
group work
frontal work

Material:

- https://www.youtube.com/watch?time_continue=19&v=6YaXKxXSli0&feature=emb_logo
- <https://www.youtube.com/watch?v=LlhmzVL5bm8>
- https://www.youtube.com/watch?v=mLg95dLm-Gs&feature=emb_logo
- <https://howsecureismypassword.net>
- <https://www.netnanny.com/blog/what-every-teen-needs-to-know-about-their-digital-footprint/>
- <https://www.teachthought.com/the-future-of-learning/11-tips-for-students-to-manage-their-digital-footprints/>

Literature

- <https://internetofthingsagenda.techtarget.com/definition/Internet-of-Things-IoT>
- <https://www.upgrad.com/blog/iot-project-ideas-topics-for-beginners/>
- <https://data-flair.training/blogs/iot-project-ideas/>

PERSONAL OBSERVATIONS, COMMENTS AND NOTES