Project co-funded by European Union under Erasmus+ Programme

**Teaching programming in primary school:**
**curriculum, didactic methods, textbooks, online support**
**CodeInnova**

## TITLE: How can I use brainstorming for my projects?

| LEARNING SCENARIO | | | |
|---|---|---|---|
| *School:* | | *Duration (minutes):* | 45 |
| *Teacher:* | | *Students age:* | 15 |

| *Essential Idea:* | How can I use brainstorming for my projects? |
|---|---|

*Topics:*

- Pupils have a broad understanding of programming, programs and their role in the modern society. In addition, they understand the importance of programming in influencing and expressing themselves.

*Aims:*

- Pupils design and implement various automation solutions as well as analyze automation solutions for various hardware and software applications.
- Pupils will explore opportunities to develop mobile operating systems via practical examples.

*Outcomes:*

- Pupils become familiar with blockchain technology and its applications, they understand the working principles of solutions that simulate block chains and they get acquainted with simple cryptographic principles.
- Pupils get familiar with mobile devices and their operating systems working principles.

*Work forms:*

- individual work
- work in pairs
- group work

*Methods:*

- presentation
- discussion

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- interactive exercise

| ARTICULATION |
| --- |
| **Course of action (duration, minutes)** |

**INTRODUCTION**

Teacher starts discussion with pupils:

As we make progress in our lives, the problems we have to solve and the projects we work on become more and more complex.

In this lesson we'll take a look at brainstorming – an interesting technique that can help you in solving complex problems.

**MAIN PART**

**Topics for discussion:**

Brainstorming is a technique that allows us to create new ideas for problem solving.

For example if we want to develop an app we can use brainstorming to gather ideas on how our app could make money.

Brainstorming is an effective technique in situations in which there is more than one possible solution.

There are different brainstorming techniques, and some of the most popular are:

**- Making a list**

This technique is very simple. You just take a paper and a pen and start writing down everything you can think of about solving a certain problem.

 If nothing comes to your mind, there are ways to „hack" the human brain.

For example, try to imagine you're somebody else. How would that person solve your problem?

Or you can imagine that you're a Marvel Multiverse superhero.

How would someone with the abbilities of Iron Man solve your problem?

You can also use the alphabet – try to write down words that start wit every letter of the alphabet, but somehow help you in solving your problem.

**- Making a mind map**

A mind map is an interesting way of drawing your ideas.

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Take a big piece of paper and start writing your ideas down, but don't write them in a list. Use different colors depending on how you see your ideas, different font sizes depending on how important they are, draw them further away or closer to the middle depending on how crucial they are for your problem.

Try to connect your ideas with arrows or in trees – to see how they interact with each other.

The most important feature of your mind map is that it has to be only yours and completely unique.

Don't look at how others are making their mind maps – instead just try to make one that works for you.

**- Free writing**

Free writing is exactly what it says – you just start to write whatever comes to your mind. Think about the problem you want to solve, but don't write only solutions to that problem. Concentrate on the problem, but try to be as relaxed as possible and write whatever goes through your brain.

You never know what kinds of ideas are lying in your subcouncious, and you don't know what ideas will come out of there.

**- Round-robin brainstorming**

To try round-robin brainstorming you need a group of people who are trying to solve the same problem.

One person needs to write all of the ideas into one document.

Go in a circle: the first person comes up with an idea, that idea gets written down. After that person goes the second one, and so on.

Ideas can't be criticized, but after a whole circle you can discuss them.

If the discussion hasn't resulted in a new way to solve your problem – do another circle.

**EXERCISE 1**

Pick a big problem humanity is facing right now, such as world hunger, global warming, or pandemics.

Try to apply each of the above methods to solve that problem.

Which method works best for you, and why?

**CONCLUSION**

Pupils and teacher discuss and evaluate the presented solutions.

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| Methods | | Work forms |
|---|---|---|
| *presentation* | *interview* | *individual work* |
| *discussion* | *demonstration* | *work in pairs* |
| *work on the text* | *role playing* | *group work* |
| *graphic work* | | *frontal work* |
| *interactive exercise /simulation on the computer* | | |

*Material:*

- 

*Literature*

- 

## PERSONAL OBSERVATIONS, COMMENTS AND NOTES