Author: Nela Slezenkova Nikovska

Title: We relax and play with the coder Picasso

Purpose of the challenge

- Recognize their basic emotions (happiness, sadness, anger, fear).
- Create a simple algorithm using visual symbols (Input → Process → Output).
- Identify the characteristics of Picasso's artistic style (abstraction, geometric shapes, color).
- Apply basic coding concepts (steps, sequence, symbols) to create their own abstract face.
- Understand and apply the simple algorithmic concept of input–process–output through play.
- Collaborate in pairs or groups, communicate, and help each other.
- Use creative artistic elements to represent algorithmic solutions and visual coding.

Description of the challenge

To introduce basic coding concepts and algorithmic thinking to young learners through unplugged, playful, and creative activities. By combining art, emotions, and problem-solving, students learned that coding is not only about computers, but about thinking in steps, using symbols, and finding solutions.

Target audience

Primary School students (6 to 12 years)

Experience

Beginner - No prior coding experience required; suitable for complete beginners.

Duration

5 x 40 minutes

Recommended tool:

-Worksheet1 My digital character link
-Video link for 3 activity Inside Out – Meet Your Emotions
- Worksheet 2 "Coding Emotions – My Daily Balance" link
-Painting by Pablo Picasso -Jigsaw Puzzle link
- Video with the instructions for How to Make a Cootie Catcher
-Music, signal cards (green/red),
-Emotion cards (happy, sad, angry, scared),
-Activity picture cards, one sheet of paper per group, markers, colored pencils, cut-out geometric shapes (circles, triangles, rectangles, squares) made from colored paper in various colors, and a prepared example of "Coder Picasso for Relaxation."

Instructions

Activity 1: My Digital Profile

Guiding question:

Can we recognise how technology influences our feelings and learn when it is time to rest?

This activity introduces the challenge by connecting children's everyday digital habits with emotional awareness and early coding logic.

Step 1 – Identify the Input (Emotion and Screen Time)

The activity begins with a guided classroom discussion about students' everyday digital friends such as mobile phones, tablets, and computers. Students are encouraged to share how often they use digital devices, what they enjoy doing with them, and how they usually feel after long periods of screen time. Through open questions and shared examples, students begin to notice patterns between screen use and emotions such as tiredness, lack of concentration, restlessness, or irritability.

Coding focus:

In this step, emotions and screen time are introduced as input data. Students learn that every program starts with information, and in this case, the information comes from real-life experiences.

Step 2 – Visualise the Problem

Each student creates a digital self-portrait (link for worksheet 1 My digital character) that visually represents how they feel after extended screen use. Facial expressions, colours, and body posture are used to communicate emotions without words.
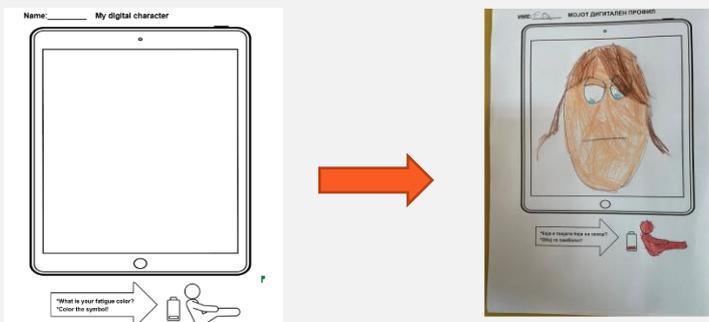
By turning feelings into drawings, students learn that information can be represented symbolically and visually.

Coding focus:

Students practise translating real-life data into visual symbols, an essential foundation for computational thinking.

Activity 2: Signal Game Instructions

Students play a game using music and signal cards. When the green signal is shown, students move freely around the space by jumping, clapping, or walking. When the red signal appears, they stop moving and imitate passive screen behaviour, pretending to watch a digital device.

The frequent alternation between movement and stillness allows students to physically experience how different activities affect their energy, mood, and focus.

Coding connection:

The signal cards function as commands and conditions. Students must observe the signal, interpret it correctly, and respond at the right moment. This introduces early concepts of rule-based behaviour and algorithmic thinking.

Playing the game

Activity 3: Wellbeing Algorithm

Can we design a code that helps us feel better?

This activity introduces the core concept of an algorithm through emotional problem-solving.

Step 1 – Define the Problem (Input)

Students watch a short silent video (link) related to emotions and then discuss situations in which they feel sad, angry, or scared. The discussion focuses on recognising emotions and understanding that they can sometimes be difficult to manage.

Each group receives one emotion card, which becomes their starting problem or input.

Step 2 – Create the Algorithm (Process)

The teacher presents a simple algorithm model on the board:

INPUT (How do I feel?) (→) a card showing a sad emotion or drawing

PROCESS (What will I do?) (→) pointing to a card showing an activity (e.g., hugging a teddy bear)

OUTPUT (How will I feel afterwards?) (→) pointing to a card showing a happy emotion

Explain:

Input = our emotion

Process = the action we take

Output = the improved feeling

Working in small groups, students use the worksheet 2 "Coding Emotions – My Daily Balance" to decide which actions could help improve their assigned emotion. They organise these actions into a clear and logical sequence.Students are encouraged to experiment, discuss different solutions, and adjust their ideas when needed.

WORKSHEET: I CODE EMOTIONS – MY DAILY BALANCE

Name:_____

ENTRY (EMOTION) 😄 🥳 😡	PROCESS (WHAT AM I DOING?) 🔄	OUTPUT (RESULT/FEELING AFTER) 🌈

Working in groups – creating a code of emotions

Coding focus:

Sequencing steps

Logical thinking

Understanding cause-and-effect relationships

Step 3 – Present and Test the Algorithm (Output)

Each group presents its wellbeing algorithm and explains how the chosen action leads to a more positive emotional outcome. Together, the class reflects on whether the solution works and how it could be improved.

Activity 4: Coding Feelings with Picasso

Can we encode emotions using shapes and colours?

This activity combines art and coding through abstraction and symbolism.

Step 1 – Observe and Decode

Students begin by assembling a puzzle (link) of a Pablo Picasso artwork. They carefully observe the shapes, colours, facial features, and unusual proportions. A short discussion helps students understand that Picasso expressed emotions through abstraction rather than realism.

Step 2 – Create the Code Key

Connect the colors to emotions and well-being.

Creating an Emotion Face Code – Collaborative Work on the Board:

Together with the students, start developing a "Code Key" on the board for representing emotions in faces using:

Colors → to represent feelings (e.g., yellow = happiness, blue = calm, red = anger)
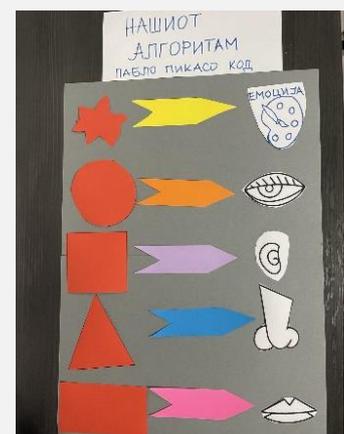
Symbol (Form) → Part of the face

　(Color) → Emotion

　(Circle) → Eye

　(Triangle) → Nose

　(Rectangle) → Mouth

　(Square) → Ears

I explain the concepts of coding in a simple way: Symbols are our shapes, and the sequence is the order in which we glue the shapes together to create the face (step by step).

Step 3 – Encode the Portrait

Working in small groups, students create abstract emotion faces using geometric shapes and coloured paper. Each group follows the coding key to represent a specific emotion and explains their design choices.

Coding focus:

Students practise symbolic representation, sequencing, and collaborative problem-solving.

Our Exhibition

Activity 5: The Magic Digital Tool

Can we build a paper-based tool that works like a computer program?

Step 1 – Follow Commands

Students first play the "Robot Speaks" game, following simple verbal commands. This helps them experience sequencing and instruction-following in a playful and embodied way.

Step 2 – Build the Tool

Students then create the Picasso Encoder for Rest using a paper fortune teller with the help of video instructions.

Structure of the tool:

Colours represent the entrance (input)

Numbers represent the steps (process)

Drawings represent the final solutions (output)

Step 3 – Run the Program

Working in pairs, students select colours and numbers and follow the steps until a relaxation or play activity is revealed.

Testing the "Magic Tool" – Relaxation and Play

After creating their emotion faces and coding key, students test their "magic tool" to relax, play, and learn through fun.

Explanation of the Game:

Roles:

Student 1 (User): Chooses a color → this is the INPUT.

Student 2 (Coder): Opens and closes the coder, counting the letters of the chosen color → this is the PROCESS.

Example: For "B-L-U-E" → count 4 times.

Student 1: Chooses one of the visible numbers → INPUT.

Student 2: Moves the coder as many times as the chosen number → PROCESS.

Student 1: Chooses another visible number → INPUT.

Student 2: Opens the flap under that number and reveals the drawing → OUTPUT / SOLUTION.

Example result: "Your relaxation activity is... drawing!"

After several rounds, students switch roles so everyone experiences being both the "user" and the "coder".

Play and relaxation

Coding focus:

Students experience how an algorithm is executed from beginning to end.

Reflection After the Game

Circle Discussion Questions:

· What did we do today?

· What did we learn about our feelings?

· Which relaxation activity from your "coder" did you like the most?

· Why is it important to take breaks and rest?

This reflection helps students consolidate learning, connect activities to emotions, and understand the value of rest and self-care.