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**Предмет:** Информационно-коммуникационные технологии/Информатика

**Класс:** 10 класс

**Раздел:** Алгоритмизация и программирование

**Тема:** Курс "Basics of programming in Python"

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| Цели обучения (ссылка на учебную программу): | To familiarize students with the detailed structure and content of the course, including an understanding of key modules and expected outcomes. To understand the relationship between the current lesson and the overall aims of the program, as well as its contribution to the achievement of final educational outcomes.  |
| Цели урока:                                  | Deep dive into the principles and basics of programming in Python. Development of skills in designing and creating mini projects with an emphasis on solving practical problems in Python.  |
| Языковые цели:                               | Expanding the vocabulary of students by introducing specialized programming terms and concepts. Improving academic writing and speaking skills in the context of programming in Python.   |
| Ожидаемый результат:                         | After learning the basics of programming in Python, you can expect to achieve the following results:<br>1. Understanding of Python syntax and concepts<br>2. Loops: comfortable with `for` and `while` loops for iterating over sequences or executing repetitive tasks<br>3. Data structures - lists, tuples, and sets: ability to store, access, and manipulate collections of data<br>4. Problem-solving skills: breaking down problems into smaller steps and writing code to solve them<br>5. Mini Projects: ability to work on Python mini projects |

### Ход урока

| Этапы урока   | Запланированная деятельность на уроке  | Ресурсы   |
|---|--|---|
| Introduction<br>(2:10 minutes)                          | Introduction to the content of 4 video-lectures on the course of the basics of programming in Python and encourage students to create world-changing products in the future  | <a href="https://www.youtube.com/watch?v=CNrlnYw82T8">https://www.youtube.com/watch?v=CNrlnYw82T8</a> |
| 1. First steps in Python<br>(15:22 minutes)             | 1.1 The <b>print()</b> function, <b>sep</b> and <b>end</b> parameters<br>1.2 <b>input()</b> function<br>1.3 Variables in Python. Types of variables in Python<br>1.4 Arithmetic operators in Python<br>1.5 Relational operators in Python<br><b>Practice</b> | <a href="https://www.youtube.com/watch?v=CX70vQWhre4">https://www.youtube.com/watch?v=CX70vQWhre4</a> |
| 2. Conditionals, for and while loops<br>(16:17 minutes) | 2.1 Conditional operator <b>if-else</b><br>2.2 Logical operators<br>2.3 Nested conditionals<br>2.4 Cascade conditionals<br>2.5 <b>for</b> loop<br>2.6 <b>while</b> loop<br><b>Practice</b>   | <a href="https://www.youtube.com/watch?v=n6WcNh5JjS8">https://www.youtube.com/watch?v=n6WcNh5JjS8</a> |
| 3. Lists, tuples<br>(15:35 minutes)                     | 3.1 Lists: Basic operations on Python lists<br>3.2 Lists: Practice<br>3.3 Tuples: Basic operations on Python tuples<br>3.4 Tuples: Practice<br><b>Mini project (Hangman)</b>   | <a href="https://www.youtube.com/watch?v=ewK5o2FRcvY">https://www.youtube.com/watch?v=ewK5o2FRcvY</a> |
| 4. Sets, dictionaries<br>(14:18 minutes)                | 4.1 Sets: Basic operations on Python sets<br>4.2 Sets: Practice<br>4.3 Dictionaries: Basic operations on Python dictionaries<br><b>Mini project (Secure Password Generator)</b><br><b>Mini project (Number Guessing Game)</b>                                | <a href="https://www.youtube.com/watch?v=7hgJNsmIjJE">https://www.youtube.com/watch?v=7hgJNsmIjJE</a> |