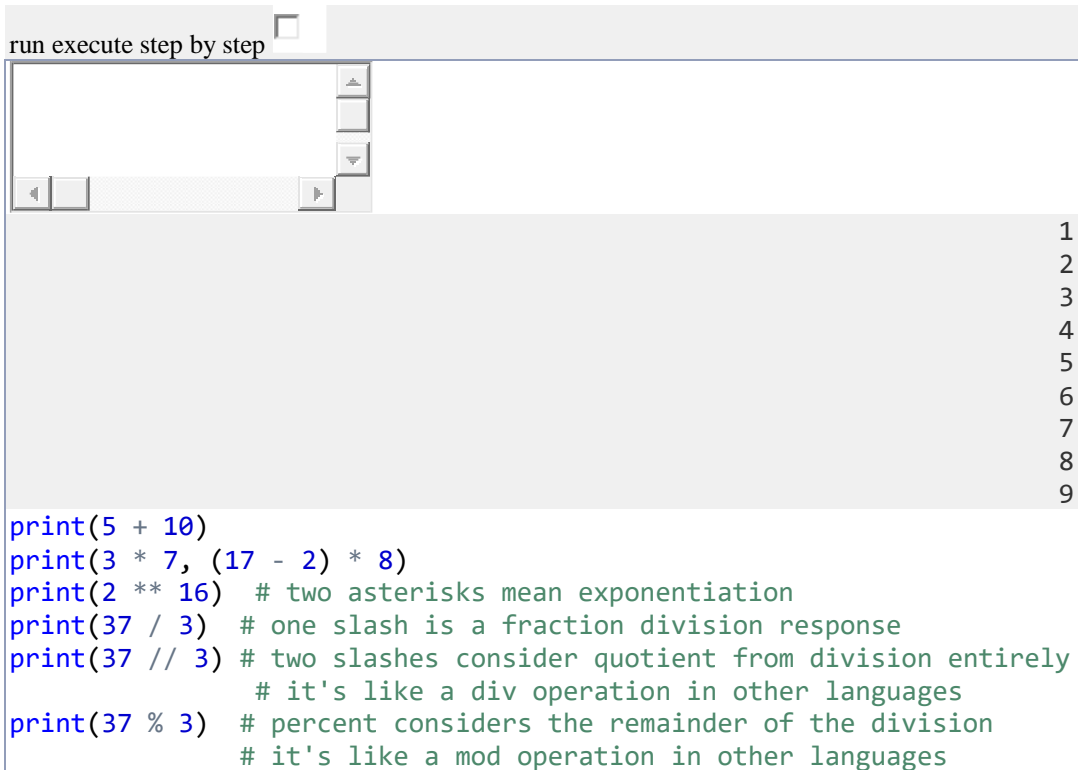


<b>School:</b>		
<b>Date:</b>	<b>Teacher's name:</b>	
<b>Grade:</b>	<b>Number present:</b>	<b>absent:</b>
<b>Topic of the lesson: Data input and output</b>		
<b>Learning objective(s) that this lesson is contributing to</b>	Introduce the design of data input and output Showing the principles of data input and output	
<b>Lesson objectives</b>	<b>All learners will be able to:</b> <ul style="list-style-type: none"> <li>Know the structures of data input and output and use when compiling programs</li> </ul> <b>Most learners will be able to:</b> <ul style="list-style-type: none"> <li>Distinguish between designs, the work of input and output of data and use when compiling programs</li> </ul> <b>Some learners will be able to:</b> <ul style="list-style-type: none"> <li>Create programs using condition input and output statements inside statements</li> </ul>	
<b>Assessment Criteria</b>	<b>Owens</b> the principles of data input and output <b>Able</b> to make simple programs using data input and output Compiles programs with various language constructs	
<b>Value links</b>	Spiritual development, respect for each other, mutual understanding	
<b>Previous learning</b>	Students work on their level of programming	
<b>Cross curricular links</b>	maths	

<b>Time</b>	<b>Planned activities</b>	<b>Resources</b>																																																																																					
<b>Beginning 2 min</b>	<b>Organizing time</b> <b>Greeting students.</b> <b>Announcement of the lesson topic, learning objectives, joint definition of lesson objectives and assessment criteria</b>	slide																																																																																					
<b>Middle 10 min</b>	<b>Go to the topic</b> <b>Grouping.</b> <b>Discussion with the class.</b> “Why did you come together that way?”  <b>II. Generalization and systematization of knowledge.</b>  Oral frontal survey using presentation.  Given an encrypted word, it is necessary to decrypt using 4 tasks the word consists of 4 letters.  Dan Russian alphabet.																																																																																						
<b>5 min</b>	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>А</td><td>Б</td><td>В</td><td>Г</td><td>Д</td><td>Е</td><td>Ё</td><td>Ж</td><td>З</td><td>И</td><td>Й</td><td>К</td><td>Л</td><td>М</td><td>Н</td><td>О</td><td></td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td></td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>П</td><td>Р</td><td>С</td><td>Т</td><td>У</td><td>Ф</td><td>Х</td><td>Ц</td><td>Ч</td><td>Ш</td><td>Щ</td><td>Ъ</td><td>Ы</td><td>Ь</td><td>Э</td><td>Ю</td><td>Я</td></tr> <tr><td>17</td><td>18</td><td>19</td><td>20</td><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td><td>31</td><td>32</td><td>33</td></tr> </table> <p>Python 3 is a modern language in which it is simple and pleasant to write programs.</p> <p>To print values in Python, there is a print () function. Inside the parentheses, <b>we</b> write what we want to output, separated by commas. Here is a program that does a</p>	А	Б	В	Г	Д	Е	Ё	Ж	З	И	Й	К	Л	М	Н	О		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16																			П	Р	С	Т	У	Ф	Х	Ц	Ч	Ш	Щ	Ъ	Ы	Ь	Э	Ю	Я	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	
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17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33																																																																							

few calculations:

```
run execute step by step 
```

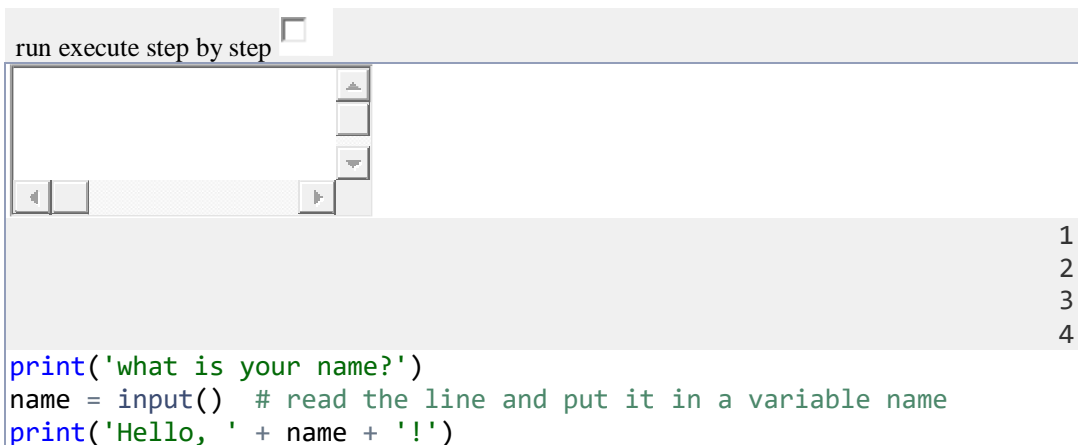


```
print(5 + 10)
print(3 * 7, (17 - 2) * 8)
print(2 ** 16) # two asterisks mean exponentiation
print(37 / 3) # one slash is a fraction division response
print(37 // 3) # two slashes consider quotient from division entirely
                # it's like a div operation in other languages
print(37 % 3) # percent considers the remainder of the division
                # it's like a mod operation in other languages
```

16 min

To enter data into the program, we use the `input ()` function. She reads one line. Here is a program that reads the username and greets him:

```
run execute step by step 
```



```
print('what is your name?')
name = input() # read theline and put it in a variable name
print('Hello, ' + name + '!')
```

We will write programs that read data, process it, and output some kind of result. When launched on a computer, such programs read data that the user enters from the keyboard, and the result is displayed on the screen.

Let's try to write a program that reads two numbers and displays their sum. To do this, count two numbers and save them in the variables `a` and `b`, using the assignment operator `=`. To the left of the assignment operator in Python programs, the variable name is put - for example, a string of Latin letters. To the right of the assignment operator is any expression. The name will indicate the result of evaluating the expression. Play this program and look at the results of its work:

5 min

```
run execute step by step 
```



The screenshot shows a Python IDE with a step-through debugger. The code in the editor is:

```
1 a = input()
2 b = input()
3 s = a + b
4 print(s)
5
```

The output window shows the result of the execution: 57.

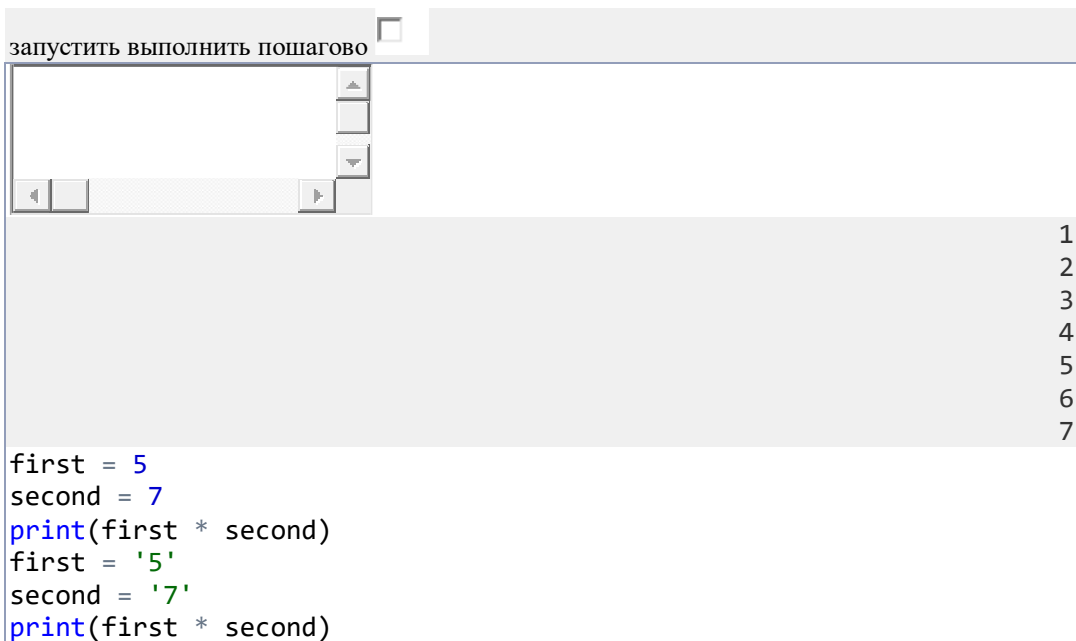
We see the program output 57, although in real life  $5 + 7$  will be 12. This happened because Python in the third line “folded” two lines, not two numbers. In Python, two lines are added like this: the second line is assigned to the first line.

Please note that in the visualizer the contents of variables `a` and `b` enclosed in quotation marks. This means that in `a` and `b` are strings, not numbers.

In Python, all data is called objects. Number 2 is represented by the object "number 2", line 'hello' – this is a string object 'hello'».

Each object belongs to some type. Strings are stored in objects of type `str`, integers are stored in objects of type `int`, fractional numbers (real numbers) - in objects of type `float`. An object type determines what actions can be done with objects of this type. For example, if in variables `first` and `second` objects of type lie `int`, then they can be multiplied, and if they contain objects of the type `str`, then you can't multiply them:

```
запустить выполнить пошагово 
```



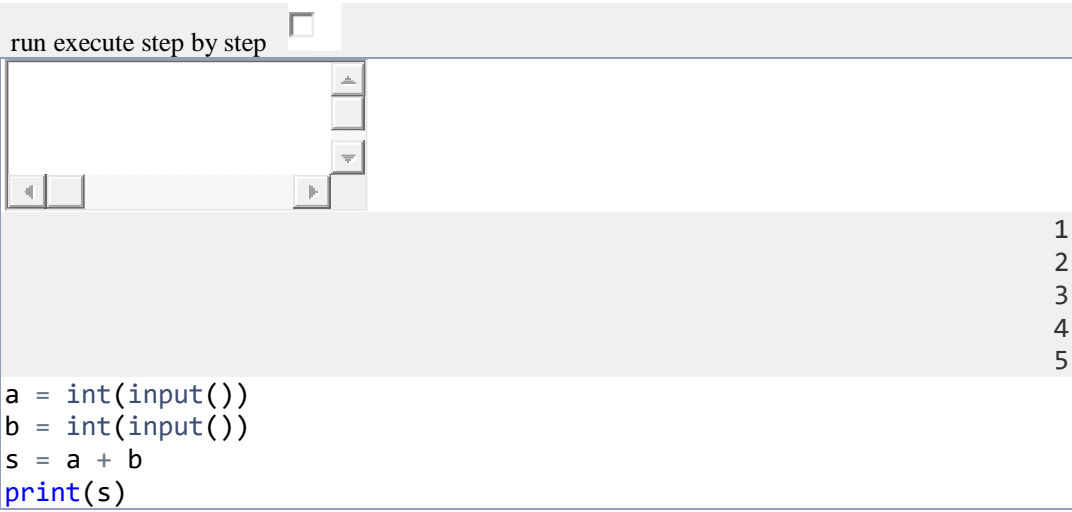
The screenshot shows a Python IDE with a step-through debugger. The code in the editor is:

```
1 first = 5
2 second = 7
3 print(first * second)
4 first = '5'
5 second = '7'
6 print(first * second)
7
```

The output window shows the result of the execution: 35 followed by 57.

To convert a string from digits to an integer, use the function `int()`. For example, `int('23')` will return a number 23.

Here is an example of a correct program that reads two numbers and displays their

	<p>sum:</p> 	
<p><b>End</b> <b>39-40min</b></p>	<p><b>Reflection.</b> Pupils analyze activity in the lesson, describe difficulties, suggest ways to overcome them.</p>	
	<p><b>Home task</b></p>	
<p><b>Differentiation – how do you plan to give more support?</b> <b>How do you plan to challenge the more able learners?</b></p>	<p><b>Assessment – how are you planning to check learners’ learning?</b></p>	<p><b>Health and Safety</b></p>
<p>Differentiation in the selection of tasks, in the expected result from a particular student, in the provision of individual support to the student at the stage of solving problems.</p>	<p>Mutual evaluation (according to the results of the experiment) Self-assessment (problem solving)</p>	<p>Compliance with safety regulations in the computer science cabinet</p>
<p><b>Lesson reflection</b> <i>Were the lesson / learning goals realistic?</i> <i>Have all students reached the CO?</i> <i>If not, why?</i> <i>Is the differentiation done correctly in the lesson?</i> <i>Have the temporary stages of the lesson been sustained?</i> <i>What deviations were from the lesson plan and why?</i></p>	<p><i>Use this section to think about the lesson. Answer the most important questions about your lesson from the left column.</i></p>	

