SOLVING PROBLEMS
With Python.

Katie Bell & Vivian Li
A BRIEF HISTORY OF GROK

- NCSS Summer School
- NCSS Challenge
- Grok Learning
Newbies (Blockly)
Beginner
Intermediate
Advanced
**COMPETITION VS. COURSE**

- New questions
- Live tutoring help
- Student discussion forums
- Streams
Dear tutor, I am not sure why it is an invalid syntax. What am I doing wrong!!??

Hi Lisa,

In this line in your code:

```
print(character + ' is for: 
```

you’re missing either a comma (,), or a plus (+) between the two things you’re trying to print.

Hope this helps 😊

Thanks a lot!

Hi Lisa,
10:40  Introduction
11:00  Setting up accounts & getting started
11:30  Curriculum alignment & introduce if-statements
12:10  Lunch
13:00  Classroom implementation discussion
13:40  Free work time & Introduction of loops
14:40  Finish
COLLABORATIVE LEARNING

Python Beginners

Python Intermediate

Introduction to Advanced
SETTING UP

- Go to the short URL on your card
- Enter your email address
- Check your email - click the "Click here" to accept
- Create an account
- Click 'Accept Free Invite' (red button)
- Click your name in the top-right corner then 'Account'
- Click 'Enrolments' and enter your **special enrolment code**: acce16-workshop
COURSE PROGRESSION

Newbies/Beginner Stream
<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-4</td>
<td>Define simple problems, and describe and follow a <strong>sequence of steps</strong> and <strong>decisions</strong> (algorithms) needed to solve them (ACTDIP010)</td>
</tr>
<tr>
<td>5-6</td>
<td>Design, modify and follow simple algorithms involving <strong>sequences of steps</strong>, <strong>branching</strong>, and <strong>iteration</strong> (repetition) (ACTDIP019)</td>
</tr>
<tr>
<td>7-8</td>
<td>Design algorithms represented diagrammatically and in English, and trace algorithms to predict output for a given input and to identify errors (ACTDIP029)</td>
</tr>
<tr>
<td>9-10</td>
<td>Design algorithms represented diagrammatically and in structured English and validate algorithms and programs through <strong>tracing</strong> and <strong>test cases</strong> (ACTDIP040)</td>
</tr>
<tr>
<td></td>
<td>Implement simple digital solutions as visual programs with algorithms involving <strong>branching</strong> (decisions) and <strong>user input</strong> (ACTDIP011)</td>
</tr>
<tr>
<td></td>
<td>Implement digital solutions as simple visual programs involving <strong>branching</strong>, <strong>iteration</strong> (repetition), and <strong>user input</strong> (ACTDIP020)</td>
</tr>
<tr>
<td></td>
<td>Implement and modify programs with user interfaces involving <strong>branching</strong>, <strong>iteration</strong> and <strong>functions</strong> in a <strong>general-purpose programming language</strong> (ACTDIP030)</td>
</tr>
<tr>
<td></td>
<td>Implement modular programs, applying selected <strong>algorithms</strong> and <strong>data structures</strong> including using an <strong>object-oriented programming language</strong> (ACTDIP041)</td>
</tr>
</tbody>
</table>
COURSE PROGRESSION

Week 1: Input, Output, Variables
Text (strings) and numbers

Week 2: If-statements (decisions/branching)

Week 3: Manipulating strings
For-loops (iteration/repetition)

Week 4: While loops (iteration/repetition)

Week 5: Lists (data structures)
IMPLEMENTATION
DISCUSSION
"Keep doing what you are doing. It is great. I especially like that the challenges start from basically zero programming knowledge and, hence, avoid disillusioning students at the start."

"My class suggests chocolate and money! But I have a group who are already very engaged. The instructional design of GROK is superb. The level of the problems progresses on a gentle but persistent learning curve and the interface is clear and friendly. Keep up the great work guys!"

"Really enjoyed the solutions/teacher notes and availability of online pd"

"My students were so engaged!!! They loved every minute of their challenge."
"My students are continually tempted to skip the circles and go straight to the diamonds. Then they say they don't know what to do."

"I think the notes and problems are good; the difficulty is getting the students to actually read, rather than skim and copy/paste."

"I found the timing very challenging for a few reasons. Firstly, to best support my students I wanted to turn up to each lesson having completed the tasks myself, but this was impossible when I had classes on a Monday."
CLASSROOM IMPLEMENTATION

○ Class Time
○ Homework
○ Extra curricular activity
○ Assessment task
○ Teacher PD
### My Students

#### Student Admin

- **Assign**
- **Unassign**
- **Add to group**
- **Remove from group**
- **Purchase subscriptions**

#### Assigned Progress

<table>
<thead>
<tr>
<th>Name</th>
<th>Grade</th>
<th>Groups</th>
<th>Assigned Courses</th>
<th>Assignment Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oberon (King)</td>
<td>12</td>
<td></td>
<td>Introduction to Programming</td>
<td></td>
</tr>
<tr>
<td>Titalia (Queen)</td>
<td>12</td>
<td></td>
<td>Introduction to Programming</td>
<td></td>
</tr>
<tr>
<td>Puck Robin Goodfellow</td>
<td>12</td>
<td></td>
<td>Introduction to Programming</td>
<td></td>
</tr>
<tr>
<td>Hermia Egeus</td>
<td>7</td>
<td></td>
<td>Introduction to Programming</td>
<td></td>
</tr>
<tr>
<td>Helena Troy</td>
<td>7</td>
<td></td>
<td>Introduction to Programming</td>
<td></td>
</tr>
<tr>
<td>Demetrius Athens</td>
<td>7</td>
<td></td>
<td>Introduction to Programming</td>
<td></td>
</tr>
<tr>
<td>Lysander Laconia</td>
<td>7</td>
<td></td>
<td>Introduction to Programming</td>
<td></td>
</tr>
</tbody>
</table>
HOW DO YOU USE GROK?

○ Which grades (or teacher PD)?
○ Course or Competition?
  ● Newbies/Beginner/Intermediate/Advanced?
○ How did you present it to the students?
  e.g. Class time, assessment, optional activity
○ How did it go?