



# SOLVING PROBLEMS

With Python.

○ Katie Bell & Vivian Li



## ○ A BRIEF HISTORY OF GROK

- NCSS Summer School
- NCSS Challenge
- Grok Learning



# ○ PYTHON AT GROK

Newbies (Blockly)

Beginner

Intermediate

Advanced

## ○ COMPETITION VS. COURSE

- New questions
- Live tutoring help
- Student discussion forums
- Streams



### Acrostic Poem

Tutor: Daniel Byron  
State: Replied Hijack

Dear tutor, I am not sure why it is an invalid syntax. What am I doing wrong!??

Lisa Simpson, 34 minutes ago

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 😊

Vivian Li, 31 minutes ago

Thanks a lot!

Lisa Simpson, 29 minutes ago

**Failed submission** Load

29 minutes ago

Hi Lisa, | Send

Instructions Forums Message student

### program.py

```
1 name = input('What is your name? ')
2 for character in name:
3     print(character + ' is for:')
```

Run Terminal Copy ★ Mark Acrostic Poem

### Submissions: Lisa Simpson (Student in Grade 5 at Springfield Elementary School)

▼ #1 Failed 29 minutes ago View Raw Load

✖ Testing the first example in the question. Your submission did not produce the correct output. Your program output:

```
What is your name? Sammy
S is for:
a is for:
m is for:
m is for:
y is for:
```

when it was meant to output:

LEARNING

# SCHEDULE

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

# CODING IN THE CURRICULUM

3-4

Define simple problems, and describe and follow a **sequence of steps** and **decisions** (algorithms) needed to solve them (ACTDIP010)

Implement simple digital solutions as visual programs with algorithms involving **branching** (decisions) and **user input** (ACTDIP011)

5-6

Design, modify and follow simple algorithms involving **sequences of steps, branching, and iteration** (repetition) (ACTDIP019)

Implement digital solutions as simple visual programs involving **branching, iteration** (repetition), and **user input** (ACTDIP020)

7-8

Design algorithms represented diagrammatically and in English, and trace algorithms to predict output for a given input and to identify errors (ACTDIP029)

Implement and modify programs with user interfaces involving **branching, iteration and functions** in a **general-purpose programming language** (ACTDIP030)

9-10

Design algorithms represented diagrammatically and in structured English and validate algorithms and programs through **tracing and test cases** (ACTDIP040)

Implement modular programs, applying selected **algorithms** and **data structures** including using an **object-oriented programming language** (ACTDIP041)

# ○ 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

## ○ TESTIMONIALS (GOOD)

"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."

## ○ TESTIMONIALS (NOT SO GOOD)

"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

Grok Learning

https://groklearning.com/dashboard/#/assignments/

GROK LEARNING Courses Comps Gym HoC Forums Enquiries My Students Theseus

# My Students

Upgrade Subscriptions + Subscribe Students

Student Admin Assigned Progress Course Progress

0 students selected

Assign Unassign Add to group Remove from group Purchase subscriptions

Search

Show students in: Grade Group Subscription

<input type="checkbox"/>	Name	Grade	Groups	Assigned Courses	Assignment Progress
<input type="checkbox"/>	Oberon (King)	12		Introduction to Programming	<div style="width: 100%;"><div style="width: 100%;"></div></div>
<input type="checkbox"/>	Titania (Queen)	12		Introduction to Programming	<div style="width: 100%;"><div style="width: 25%;"></div></div>
<input type="checkbox"/>	Puck Robin Goodfellow	12		Introduction to Programming	<div style="width: 100%;"><div style="width: 10%;"></div></div>
<input type="checkbox"/>	Hermia Egeus	7		Introduction to Programming	<div style="width: 100%;"><div style="width: 10%;"></div></div>
<input type="checkbox"/>	Helena Troy	7		Introduction to Programming	<div style="width: 100%;"><div style="width: 20%;"></div></div>
<input type="checkbox"/>	Demetrius Athens	7		Introduction to Programming	<div style="width: 100%;"><div style="width: 10%;"></div></div>
<input type="checkbox"/>	Lysander Laconia	7		Introduction to Programming	<div style="width: 100%;"><div style="width: 10%;"></div></div>



## ○ 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?