TEACHER GUIDE

Teacher Guide and Pacing

The lesson takes three 45-minute periods. The timings are what the lesson was written to. If you run short, protect the hands-on part in the middle.

Day 1 — Update Operators and Editor Tools

Min	What happens	Print / open
4	Bell ringer: The Trick Board	Day 1 bell ringer
11	Slides with the guided notes, Day 1 section	Deck, guided notes packet
15	Activity: Operator Relay. Partners take turns saying each new value, and each student writes every value and what prints, on paper with computers closed.	Day 1 activity sheet
10	Try-it: 1.1 Try It in CodeGrove. Students practice, and nothing is turned in.	A computer or tablet for each student
5	Exit ticket	Day 1 exit ticket

Deck: start at slide 1, the lesson cover, then the Day 1 slide.

What students turn in today: the bell ringer, the Operator Relay sheet and the exit ticket.

PAPER: the bell ringer, the guided notes, the Operator Relay activity and the exit ticket. **ONLINE, in CodeGrove:** the try-it, 1.1 Try It.

ONLINE TRY-IT: 1.1 TRY IT

Students type the link from the try-it slide (slide 11) and practice in 1.1 Try It for about 10 minutes. They write the code for each task and press Check, which shows them if their code works. It's practice, so nothing is turned in, and there's no sheet to print. Computers close before the exit ticket, which is on paper. Link: madlyproductivepathways.com/codegrove?course=python2&level=1.1

Day 2 — Fix and Finish with Editor Tools

Min	What happens	Print / open
4	Bell ringer: The Snack Stand	Day 2 bell ringer
7	Slides with the guided notes, Day 2 section	Deck, guided notes packet
27	Lab: Warm-Up Arcade in CodeGrove. Students turn off a test line, fix an error and finish two programs with update operators.	Day 2 lab sheet, ONLINE (a computer or tablet for each student)
7	Exit ticket, after students finish their Why answers	Day 2 exit ticket

Deck: start at slide 13, the Day 2 slide.

What students turn in today: the bell ringer, the Warm-Up Arcade sheet and the exit ticket.

PAPER: the bell ringer, the guided notes and the exit ticket. **ONLINE, in CodeGrove:** the Warm-Up Arcade lab.

ONLINE ONLY: THE WARM-UP ARCADE LAB

ONLINE only: Students play Warm-Up Arcade, a level of CodeGrove, our online game, on a computer or tablet. They do each task in the game, then write their code, the output and the Why answers on the sheet.
There's no PAPER version, because every lab in this course runs ONLINE only, in CodeGrove. Students type the link from the sheet, and they need no account. Link: madlyproductivepathways.com/codegrove?course=python2&level=1.1b
On the ONLINE sheet, each question's tag tells students to use CodeGrove or to stay on paper.

Day 3 — Find the Bonus Bug

Min	What happens	Print / open
4	Bell ringer: Laps and Powers	Day 3 bell ringer
7	Slides with the guided notes, Day 3 section	Deck, guided notes packet
13	Applied task in CodeGrove. Students work alone to fix an update that gives a wrong answer.	Day 3 applied task sheet, ONLINE
15	Quiz: Lesson 1.1 quiz, on paper with computers closed	Lesson 1.1 quiz
6	Exit ticket	Day 3 exit ticket

Deck: start at slide 20, the Day 3 slide.

What students turn in today: the bell ringer, the 1.1 Quiz Task sheet, the guided notes packet, the lesson quiz and the exit ticket.

PAPER: the bell ringer, the guided notes, the lesson quiz and the exit ticket. **ONLINE, in CodeGrove:** the 1.1 Quiz Task activity.

ONLINE ONLY: THE 1.1 QUIZ TASK ACTIVITY

ONLINE only: Students play 1.1 Quiz Task, a level of CodeGrove, our online game, on a computer or tablet. They fix the bug in the game, then write the fixed program, the output and the Why answer on the sheet.
There's no PAPER version, because every lab in this course runs ONLINE only, in CodeGrove. Students type the link from the sheet, and they need no account. Link: madlyproductivepathways.com/codegrove?course=python2&level=1.1q
On the ONLINE sheet, each question's tag tells students to use CodeGrove or to stay on paper.

The lesson quiz: 12 points, about 15 minutes. Part A has 8 three-choice questions worth 1 point each. Part B has 2 written questions worth 2 points each. You grade the written answers by hand. Give it after 1.1 Quiz Task. Collect that sheet first. The key is 06 Answer Keys/1.1_Lesson_Quiz_Answer_Key.pdf.

Day 2: setting up the lab

This lab runs ONLINE only, in CodeGrove, our online game. There is no paper version.

What you need

- The ONLINE sheet, 1 per student, and a computer or tablet that's already online for each student. Students type the game link from the sheet. They need no account.

What to print, and how many

Page	Copies	Note
Guided notes packet (all three days)	1 per student	Print it once, for Day 1
Vocab slip	1 per student	Day 1. Students keep it in their notebook.
Bell ringers, Days 1-3	1 per student per day	Or project it and have students answer on paper
Operator Relay (Day 1)	1 per student	Students write on it. Computers stay closed.
Warm-Up Arcade, ONLINE (Day 2)	1 per student	Students need a computer or tablet that's already online.
1.1 Quiz Task, ONLINE (Day 3)	1 per student	Students work alone, and they need a computer or tablet that's already online. Collect it before the quiz.
Exit tickets, Days 1-3	1 per student per day	At the end of each day
Lesson quiz	1 per student	Day 3

Grading at a glance

Each written question says how many sentences to write, but you grade the idea, not the number of sentences. The keys give a sample answer and what to look for. Give full points when an answer has the sample's idea, in any words, and part of the points when it is partly right.

Piece	Points	How to grade it fast
Bell ringer	2 a day (6 in all)	1 per question. Give it when the answer has the key's idea, in any words.
Guided notes	5-6 a day (17 in all)	1 per blank: 6 on Day 1, 6 on Day 2 and 5 on Day 3. Only the blanks earn points, and the word bank is on the page. Collect the packet at the end of Day 3.
Activity or lab	6-12	Each sheet prints its own points. The sample answers are in 06 Answer Keys/Activity_and_Lab_Keys.pdf.
Exit ticket	2-3 a day (8 in all)	1 per multiple-choice item, plus the written answer's points
Lesson quiz	12	8 multiple choice, 2 written at 2 points each

What students usually get wrong

Students often believe these five things. Name them out loud before students meet them.

Students think...	Actually...
`points =+ 5` adds 5 to `points`, the same as `points += 5`.	Python reads `=+ 5` as `= +5`, so it sets `points` to 5 and throws the old value away. The update operator is `+=`, with the plus sign first.
`**` works left to right, so `2 ** 3 ** 2` is 8 times 8, or 64.	`**` works right to left. Python works out `3 ** 2` first, which is 9, and then `2 ** 9`, which is 512.
`-2 ** 2` is 4, because the minus sign goes with the 2.	`**` comes before a minus sign in front. Python works out `2 ** 2` first and then flips the sign, so `-2 ** 2` is -4.
`/=` keeps a whole number whole, so 8 divided by 2 with `/=` makes 4.	`/=` always gives a decimal, so it makes 4.0. Use `//=` to keep a whole number.
A line with `#` in front of it is gone for good.	The line is still there, and Python skips it. Delete the `#` to turn the line back on.