Tax, Tips, and Fees

Three tiles, about 7 minutes each with its Let me try a few, then the exit ticket. Students add a percent on top of a price with one multiplier, build tips from 10 percent, and learn that commission is a share of the sale rather than an add-on.

TIME	25 minutes: three tiles at about 7 minutes each, then the exit ticket
WHO	7th grade, about age 12. Follows Lesson 2, Part, Whole, and Percent.
MATERIALS	The Deep Dive 5 lesson hub and its three tiles (percent bar past 100, receipt, sort), the worksheet (PDF), pencil, a calculator for the cents.
PRIOR KNOWLEDGE	Finding the part (Lesson 2); the benchmarks (Lesson 1).
STANDARDS	NC.7.RP.3.
KEEP OUT	Simple interest. Real local tax rates (say that rates depend on where you live).

Learning goals

1. Find a total with tax two ways and explain why the multiplier is 1.07.
2. Find 10, 15, 18, and 20 percent tips mentally.
3. Add a fee on, and tell commission apart from tax, tips, and fees.
4. Fill in a receipt to the cent.

Vocabulary: say both, every time

The rule for the whole lesson: whenever the adult or the student says a math word, they follow it with the plain-English version. Proper term first, plain English second, until the student does it without being asked.

TERM	LOOKS LIKE	PLAIN ENGLISH
Sales tax	7% on $40	Added to the price.
107 percent	1.07	The price plus 7 percent.
Tip	20% of $35	Build from 10 percent.
Commission	5% of $1,200	A share of the sale, not added.

> THE ONE SENTENCE TO SAY OUT LOUD
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> Added on, or a share of the sale?

Lesson timeline (25 minutes)

0:00 to 0:07	Tile 1, Sales Tax. Finn's hook, the $40 game both ways, the bar past 100%. Fill in the headphones receipt together. Let me try a few.
0:07 to 0:14	Tile 2, Tips. 20% of $35 and 15% of $24 out loud, no calculator. Let me try a few.
0:14 to 0:21	Tile 3, Fees and Commission. The $50 ticket, then Elle's warning card on commission. The added-on-or-not sort. Let me try a few.
0:21 to 0:25	Exit ticket. Back on the hub. Success looks like $3.60 and $27.60 with the 10 percent step shown.

Misconceptions to listen for

- **Times 0.07 is the total.** That is the tax. The total is times 1.07.
- **Commission is added to the bill.** It comes out of the sale.
- **Rounding early.** Keep the cents until the end.
- **Tips need a calculator.** 10 percent and halves do it.

Support and stretch

Support

Say 100 percent plus 7 percent is 107 percent before every multiplier. For tips, always start with 10 percent out loud.

Stretch

Ask for the multiplier for 8.25 percent tax and use it. Ask: if a 20 percent tip is $6, what was the bill?

Where this goes next

Lesson 4: sales and markups. A discount takes a percent off, so you pay less than 100 percent, and a markup adds on like tax.

> THE HABIT TO BUILD
>
> Ask whether the percent is added to the price before you multiply.