PhET Tips for Teachers

Make-A-Ten

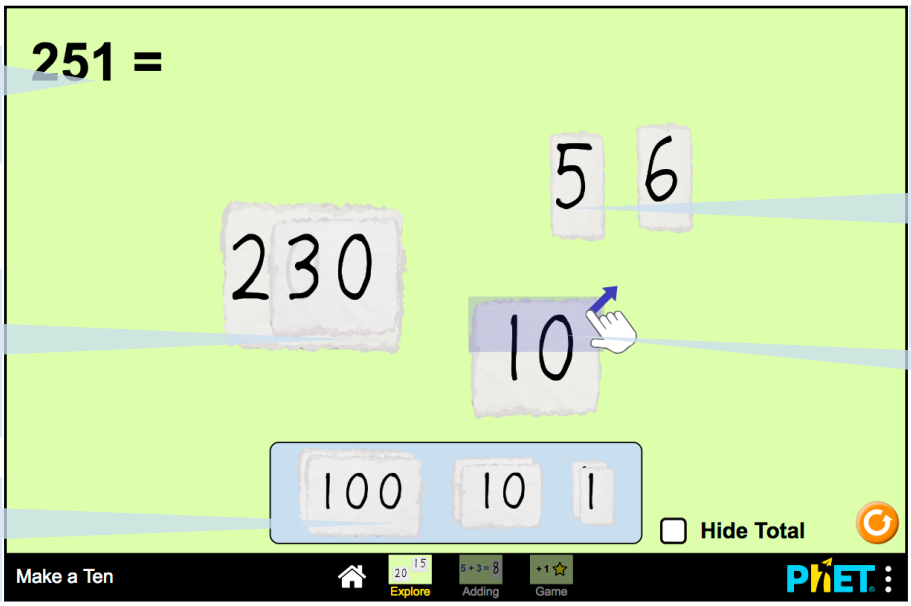
Explore Screen

In the Explore screen, students can focus on place value, adding strategies, and even subtraction, as they figure out how to combine and break apart numbers. Teachers can use this screen as a tool for number talks.

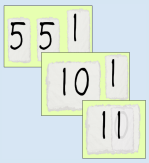
TOTAL of all the numbers in use

MOVE numbers by dragging the bottom

DRAG numbers out and play!



COMBINE numbers that add over ten by making tens

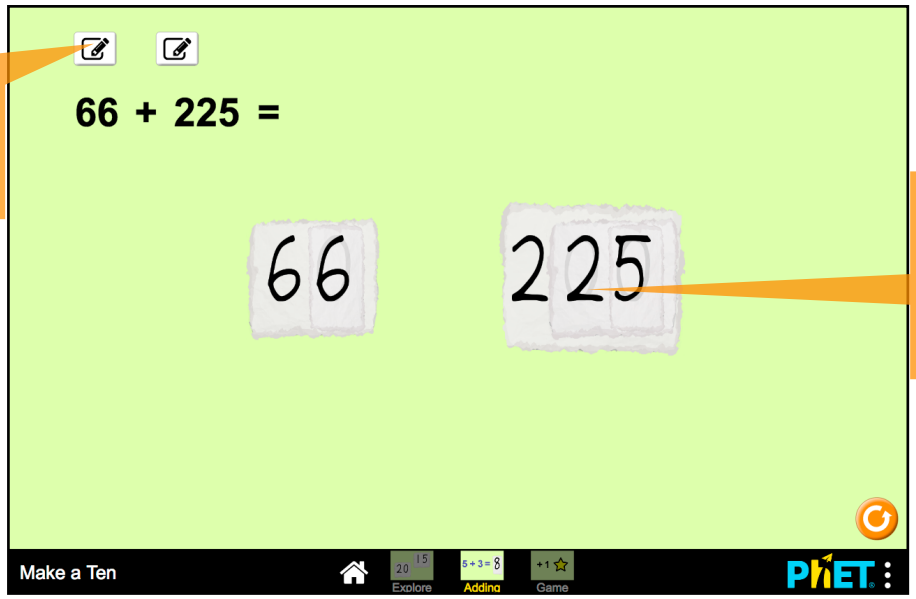


BREAK APART numbers by dragging the top

Adding Screen

The Adding can be used as an intervention tool or homework helper. Here students can enter a custom addition problem and find the sum using the combining strategies they learned on the Explore screen.

EDIT the numbers you want to add



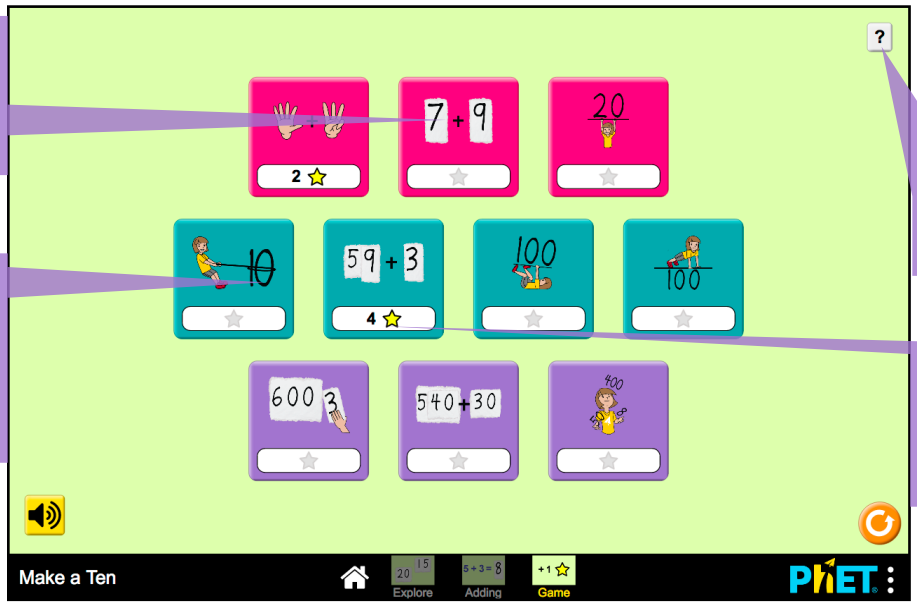
MAKE TENS to combine the two numbers and find the sum

Game Screen

In the Game screen users answer challenges that build their number sense and addition skills.

LEVEL 2: Discover an add-with-9 strategy

LEVEL 4: work on place value by adding with decade numbers

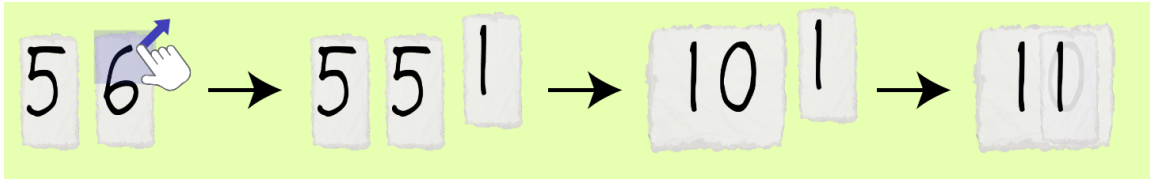


DESCRIBE the learning goals of each level

EARN a star for every completed challenge

Insights into Student Use

- When two numbers add over 10, you must first "make a ten" by splitting up one of the numbers.



- Some students, especially younger ones, will want to break apart a number into 1s. Encourage them to count how many 1s they get from the number they started with.
- Some students will put a 3 next to a 4 and say "This is 34." This is an opportunity to see that 34 is not made of a 3 and a 4 but rather 30 and 4 – an important insight into place value.

Suggestions for Use

Number Talks (using the Explore screen)

- Pick a number like 12 and explore; you can break it into a 10 and 2, twelve 1s, three 4s, or four 3s.
- Break apart 63 into six 10s and three 1s. Predict how many 10s and 1s you will get with 75.
- Hide the total. Bring up a selection of numbers and challenge the class to find the total.
- Start with 63 and ask what needs be added to make 85.
- Start with 85 and ask what needs to be removed to make 63.

Sample Challenge Prompts

- How many different ways can we express the same number?
- If I break up a number and put it back together, will I always get the same number?
- When I need to "make a ten" to combine two numbers, do I always make ten in the same way?

See all published activities for Make-A-Ten here.
For more tips on using PhET sims with your students, see Tips for Using PhET.