

Professor Pete's Gadgets: Ten Frames

This interactive teaching app has a powerful function that allows for subtraction to be shown on Ten Frames.

Intended learning outcomes:

- Demonstrate familiarity with subtraction number facts within 0 to 20
- Demonstrate subtraction strategies to 20 with visual prompts
- Demonstrates two models for subtraction: "taking away" counters and the difference between two numbers

Toolbox: tools allow for manipulation of ten frames and counters

Double Ten Frame: click in Toolbox to show

EQUATION: hides or shows the equation shown on the ten

The screenshot shows the app interface with a large red-bordered preview overlay. The overlay contains the text: "This is a **PREVIEW** Subscribe today for a whole year's access to ALL our worksheets and videos! Already a subscriber? Log in to download the full version of this worksheet." To the right of the text is a cartoon illustration of Professor Pete, a man with glasses wearing a black graduation cap and gown, holding a green pencil. Below the overlay is the app's main interface, which includes a key pad with buttons for numbers 0-9, a minus sign, and a "Diff" button. There are also buttons for "-10", "-9", and "-8". A "NUMERAL" box displays the number "0", and a "COUNTERS" box is visible. The background features a green field with ladybugs and a white flower.

Subtraction: click and hold down for pop-out box to reveal selector panel then select "-" or "Difference" strategies

NUMERAL: hides or shows the symbolic form of the number

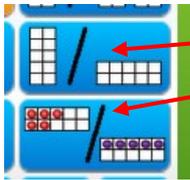
NAME: hides or shows the number name

Key Pad: for entering numbers for display

COUNTERS: hides or shows the counters on the ten frames

Random Subtraction Number Facts:

TEN FRAMES



- Choose between horizontal or vertical ten frame layout
- Choose between pairs or rows arrangements



- Click and **hold down** the Number Facts button and a pop-out panel will appear.
- Select subtraction facts
- Subtraction:** With the double ten frames selected, all the strategies can be selected.

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Use of the



- Select:** numbers to be displayed.
- Subtract:** show subtraction from numbers to 20
- Difference between:** Shows the difference between two numbers up to 20

Lesson Plan: Introduction to subtraction strategy; e.g.,  the “count back 2” and “difference of 2” strategies

1. **Close** the EQUATION, NAME and NUMERAL boxes
2. Make sure that double ten frames are selected
3. **Enter** an equation such as $11 - 2$ on the keypad
4. **Discuss** how taking 2 can be found just by counting back 2 (skip count, no fingers!).
5. **Count back** pointing to the 2 counters that are subtracted. Look at the remaining number.
6. **Ask** students to visualise the 2 being taken away.
7. **Open** the EQUATION, NAME and NUMERAL box
8. **Check answers**
9. **Discuss** what is shown in the equation box.
10. **Repeat**



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EQUATION: $11 - 2 = 9$

NAME: _____

COUNTERS: _____

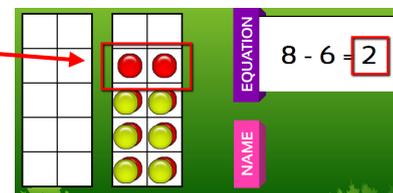
11 - 2:
point to the 11
counters taken

Subtract 2):
the equation is

Lesson Plan: Introduction to the **difference of 2 strategy**; e.g.,  “Difference of 2” facts



1. **Select** “Number Facts” in the toolbox, “-” and then “Diff 2”
2. **Discuss** how the counters show the difference of 2 between the two numbers
3. **Point** to the connection between the difference of 2 and the answer of 2.
4. Draw children’s attention to the close proximity of the numbers 4 and 6 on a number line.
5. Encourage students to find the difference of 2 when looking at numbers that are close to each other, rather than to count back the 6 (as seen by the $- 6$) This strategy is a much more efficient way to learn these number facts.



6. **Repeat** with other numbers: click the  button for more “difference of 2” equations.