

Professor Pete's Gadgets: Ten Frames

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

Intended learning outcomes:

- Demonstrate familiarity with addition number facts within 0 to 20
- Demonstrate addition strategies to 20 with visual prompts

Main Interface:

The screenshot shows the main interface of the 'Professor Pete's Classroom' app. At the top, there is a red-bordered box containing a 'PREVIEW' message and a cartoon character of Professor Pete. Below this, there is a green background with a key pad, a numeral display showing '0', and a 'COUNTERS' button. Several callout boxes with arrows point to specific features: 'Toolbox' (top left), 'Double Ten Frame' (top middle), 'EQUATION' (top right), 'Addition' (bottom left), 'NUMERAL' (bottom middle), 'NAME' (bottom right), and 'Key Pad' (bottom center).

Toolbox: tools allow for manipulation of ten frames and count

Double Ten Frame: click in Toolbox to show

EQUATION: hides or shows the equation shown on the ten

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7 8 9 +
4 5 6 -
1 2 3 Diff
0 10

NUMERAL

COUNTERS

Addition: click and hold down for pop-out box to reveal selector panel then select "+"

NUMERAL: hides or shows the symbolic form of the number

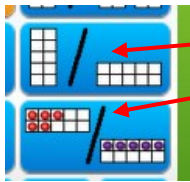
NAME: hides or shows the number name

Key Pad: for entering numbers for display

COUNTERS: hides or shows the counters on the ten frames

Random Addition 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 addition facts
- **Addition:** Select the **strategy** you are currently working on. e.g. doubles

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Use of the



- **0-10:** Select numbers to be displayed
 - **Add:** show addition of numbers to 20 using counters of two colours
- e.g., click "9" "+" "4" to show addition fact $9 + 4 = 13$

Lesson Plan: Introduction to addition strategy; e.g.,  the "doubles" strategy

1. **Close** the EQUATION, NAME and NUMERAL boxes
2. Make sure that double ten frames are selected
3. **Enter** an equation such as "5 + 5" on the keypad
4. **Discuss** how double 5 is 10 (a fact already known). It is a full ten frame.
5. **Enter** an equation such as "6 + 6" on the keypad
6. **Discuss** how double 6 is double 5 and double 1 making 10 and 2 more (point to the full ten frame of double 5 and then the double 1). It is a full ten frame and 2 more, 12.
7. **Show strategy** for Doubles - to double numbers larger than 5 think of doubling the "extras", this is the ones above 5, one full frame of 10 and ones. You will need to enter other numbers such as "7 + 7" or "8 + 8" (It is really important that students are familiar with both the pairs and rows and columns)
8. **Open** the ten frames
9. **Check** the results
10. **Discuss** the results in double ten frames



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Double 5:
point to the double 5 is 10, a full ten frame

Double 1:
point to the double 1, the extra, making 2. $10 + 2 = 12$