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FLASH for the TI73/83/84

Fact Flash was created to aid students in achieving automaticity in memorizing the addition, subtraction, multiplication and division facts that give them difficulty. The student is able to build customized flash card decks in multiple ways, select the operation desired, and set the speed interval allowed to input the answer. However, the student need not be hurried between each new card flashed since s/he can adjust the timing. This alleviates tension.
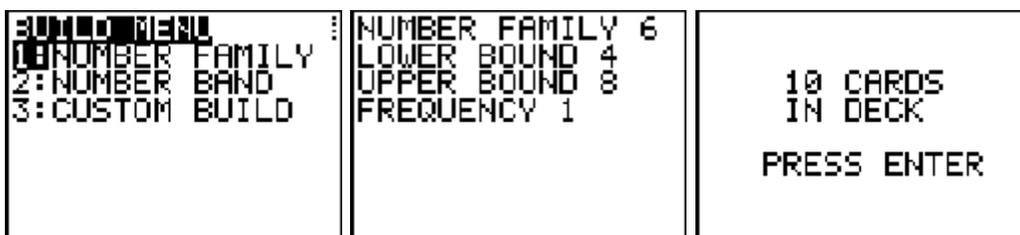
The program opens with the Main Menu. The student first needs to build a new deck. This step can only be skipped if a deck has already been built and resides in the calculator's lists.

Below is an example of building a deck using the Number Family Method.
The following facts from the Six Family have been selected:
(6,4) (4,6) (6,5) (5,6) (6,6) (6,6) (6,7) (7,6) (6,8) (8,6)

In the second screen, the 6, 4, 8 and 1 are inputs after each prompt, followed by $\boxed{\text{ENTER}}$.
The flash cards (6,4) and (4,6) become 6+4 and 4+6 for addition; 10-4 and 10-6 for subtraction; 6x4 and 4x6 for multiplication; and 24/6 and 24/4 for division. The card count can be checked by selecting 3:Card Count from the Deck Menu.

Next is an illustration of these sixteen cards selected by the Number Band Method:
(3,3) (3,4) (3,5) (3,6)
(4,3) (4,4) (4,5) (4,6)
(5,3) (5,4) (5,5) (5,6)
(6,3) (6,4) (6,5) (6,6)

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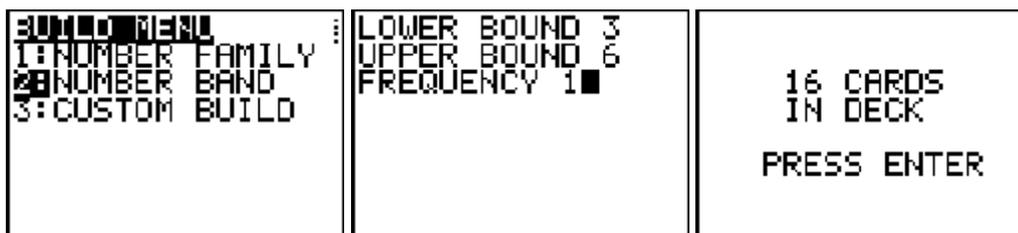
Last is the Custom Build Method. This time the student can enter any fact pair desired.

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BUILD MENU       ⋮    HOW MANY FACTS?      FOR CARD 1
1:NUMBER FAMILY       4
2:NUMBER BAND         FREQUENCY 2▪        FIRST NUMBER 5
3:CUSTOM BUILD                            SECOND NUMBER 9▪
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This student chose to enter 4 fact pairs; the first one being (5,9). Perhaps the other three fact pairs will be (6,7), (8,6) and (4,3). It is often a good idea to include an easy fact pair that the student has memorized well! This time the student has also decided that each fact pair will appear twice (a frequency of 2) for extra practice. Thus the deck will have 16 cards in all – the four listed, their reversals, and each of these eight cards duplicated.

One can use several methods to build a single deck to practice by using the "Add to Deck" feature. If the above three examples had been thus combined to build a single deck, that deck would contain 42 cards.

Once the deck has been built, the user can return to the Main Menu to select the operation and flash speed. Note: the same deck of cards can be used to practice one operation for awhile at increasing speeds and then could be used to practice a different operation. A new deck would not have to be built each time.
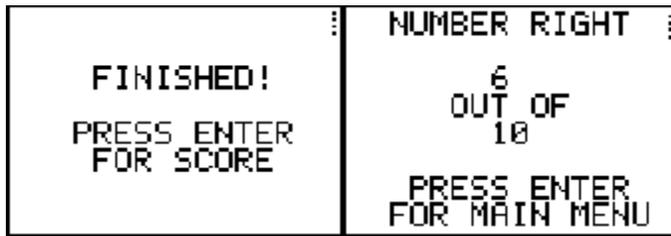
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OPERATIONS MENU  ⋮    SPEED MENU          ⋮
1:ADD                 1:VERY FAST
2:SUBTRACT            2:FAST
3:MULTIPLY            3:MEDIUM
4:DIVIDE              4:SLOW
                      5:VERY SLOW
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Now it is time to practice! The program will shuffle the deck so that the cards appear in a random order. The student needs to input the correct answer **and press** ENTER before the "Timed Out" message appears or s/he will not get credit. However, please note that it is not the student's answer that appears on the screen. The number that appears on the screen will always be the right answer. The student can study this before pressing ENTER for the next card.

```
SHUFFLING        ⋮                        ⋮
COMPLETED
                        6   × 7   =
PRESS ENTER
TO START                     42

                      TIMED OUT
```

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Once the deck has been gone through, the result screens will appear.

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                          :  NUMBER RIGHT   :
                                  6
     FINISHED!                 OUT OF
                                  10
   PRESS ENTER
    FOR SCORE               PRESS ENTER
                          FOR MAIN MENU
```

In order to review all the cards in the deck and the student's response for each card, one must go to the list editor. (TI-73 press [LIST]; TI-83/84 press [STAT] 1:Edit…)

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L1    L2    L3    1 | L4    L5    2
6     6     36    |  36     0
6     7     42    |  1000   1
6     8     48    |  1000   1
6     4     24    |  25     1
8     6     48    |  48     0
6     5     30    |  30     0
4     6     24    |  24     0
L1(1)=6           |  30
```

The problem and correct answer appear in L1, L2, and L3. The student's response is in L4. An entry of "1000" in this column means that the student "timed out" on this flashcard. A "1" appearing in L5 means that the student either got the card wrong or "timed out"; a "0" means that the student responded correctly in the given time interval. If the teacher wants to check the speed setting that the student used, just press the X key on home screen. The value of the X variable matches the speed setting on the Speed Menu.

Two other options for building a deck are as follows:

(1) Build a deck on just one calculator then link L1 and L2 to other calculators. Perhaps the teacher will build the deck ahead of time.

(2) Enter the fact pairs directly into L1 and L2 without using the "Building Deck" menu in the program.