IBM

Personal Computer Education Series

FACT TRACK™

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CONTENTS

What is the FACT TRACK Program? 2 Operating the FACT TRACK Program 3
Equipment to Use3Turning On the FACT TRACK Program3Signing On4Menus4Time and Goal Options9Go!12Feedback12What to Do Next?13
Using the Keyboard
Addition .17 Subtraction .17 Multiplication .17 Division .17 Mixed .17 Extensions .18
FACT TRACK Program Record Form
Procedure for Initial Setup22

What is the FACT TRACK™ Program?

The FACT TRACK program is a personal computer program designed to help students master the arithmetic facts. Since the program is organized by levels of difficulty and is not a childish program, it can be used with older children and adults who need fact practice, as well as with young children.

All computational skills depend on the arithmetic facts—the sums and products of 1-digit numbers (for example, 6 + 8 = 14) and the corresponding subtraction and division combinations (for example, 14 - 8 = 6).

Mastery of the arithmetic facts has two parts: (1) knowledge of the correct answers and (2) rapid rate of response. The final goal is instantaneous recall of the answers to all 390 facts.

All the facts are stored on the FACT TRACK program diskette. When the computer is told which type of fact is needed, the FACT TRACK program delivers the facts in random order. Each student will see a different sequence of facts.

There are three ways to use the FACT TRACK program. In each, the student or teacher selects a method of timing the work. The FACT TRACK program then presents exercises for which the student provides the answers. In two approaches, the student types each answer; the FACT TRACK program then reports on the student's performance and lists all errors. In the third approach, the student answers on paper and then the FACT TRACK program displays the answers.

As an option, the student may set a goal against which to compare actual performance. A race format is also available, in which the student tries to beat a rocket whose speed is determined by the student's goal.

Operating the FACT TRACK Program

The best way to understand the FACT TRACK program is to experiment with it. Try the different types of facts and ways of practicing them. Set various goals. Then try the optional race format. Nothing you or your students do on the keyboard can hurt the FACT TRACK program.

Following is a detailed discussion of how the FACT TRACK program works and what it can do. You can easily operate the program without reading beyond "Turning On the FACT TRACK Program."

Equipment to Use

The FACT TRACK program will operate on the IBM Personal Computer with a minimum 64K of memory. The computer with one or two diskette drives should be connected to a television set or monitor with the Color/Graphics Monitor Adapter as discussed in the IBM Personal Computer Guide To Operations.

Turning On the FACT TRACK Program

CAUTION: The first time you use FACT TRACK you must follow the procedure as outlined in the initial setup of FACT TRACK on page 22. This must be followed only the first time you use FACT TRACK.

When FACT TRACK is used after the initial setup the following procedure should be followed:

- 1.) Put the FACT TRACK diskette in drive A.
- 2.) Turn on the computer with the on/off switch on the right side of the computer.
- 3.) Follow the instructions on the video display to use FACT TRACK.

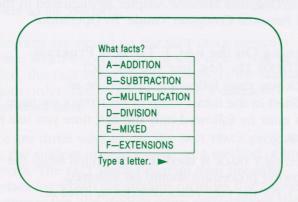
Signing On

After the diskette spins for a few seconds, the copyright notice and licensing notice appears on the screen, and then the "title page" of the FACT TRACK program. It asks the student to type his or her name.

After typing the name, the student presses ENTER. (Throughout the FACT TRACK program the user has to press ENTER after typing something. Otherwise the computer won't know what has been typed or that the student is ready to go on.)

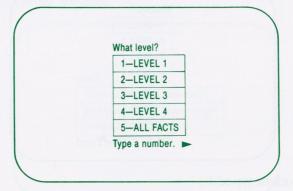
Menus

In computer talk, as in a restaurant, a menu is a list of available choices. After typing his or her name, the student sees this menu:

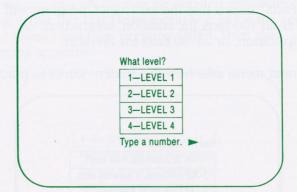


The student selects which group of facts to practice, types the corresponding letter, and presses ENTER. ("Extensions" are skills a little beyond facts, such as multiplying by 10. See page 17 and 18 for a list of skills in "Mixed" and "Extensions.")

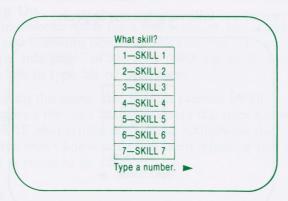
Now one of the following menus appears:



(If student previously typed A, B, C, or D)



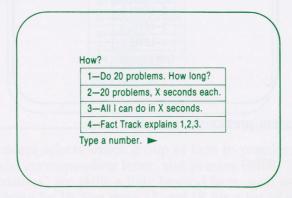
(If student previously typed E)



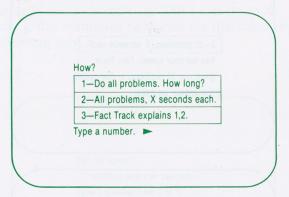
(If student typed F)

The levels and skills are listed on pages 17 and 18. "All Facts" means that the FACT TRACK program will deliver all 100 facts for addition, subtraction, or multiplication, or all 90 facts for division.

The next menu asks how the student wants to practice:



If the student previously chose "All Facts" level, then the following appears:



The student can obtain a more detailed explanation by typing 4 (for the first How? menu) or 3 (for the second How? menu) and then pressing ENTER. Then the following appears:

1—Do 20 problems. How long?

Fact Track gives you 20 problems.

You type answers. Then Fact Track
tells how long you took.

2—20 problems, X seconds each.

You set your speed. Fact Track
gives you 20 problems at that speed.
You answer on paper.

3—All I can do in X seconds.

You set the time you want. Fact
Track gives you problems. You
type answers until the time is up.

Options 1 and 3 are interactive. The student types an answer, presses ENTER, and gets another exercise.

Option 2 can be used by groups of students as well as individuals. The computer presents 20 facts (or all the facts for one operation), one at a time, at a rate that you can specify. Students answer on paper. (See pages 20 and 21 for answer forms.) The computer supplies the answers.

Time and Goal Options

Set the timing If option 2 or 3 was chosen ("20 problems, X seconds each" or "All I can do in X seconds"), the computer next asks for the value of X in the following way:

Option 2

Set the speed:

1 problem every ► seconds.

Type a number from 2 to 10.

Then press ENTER.

Option 3

How much time?

20 seconds

Press ← or ← to move arrow.

Then press ENTER.

(The student can choose a time from 20 to 200 seconds.)

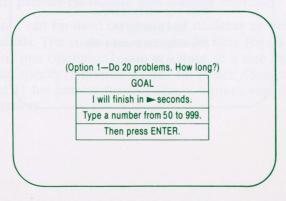
If option 1 ("Do 20 problems. How long?") was chosen, there's no time to set. The computer will deliver exercises and then report the time taken by the student to do them.

NOTE: It may take the student a little longer to type an answer and press ENTER than to write or say the same answer.

Set a goal In options 1 and 3, the student is asked:



"Y/N" indicates that the student is to type "Y" for *yes* and "N" for *no*. If the answer is N, the FACT TRACK program proceeds to set up the lesson. If the answer is Y, the computer presents a goal statement.



No goal is set in option 2.

(Option 3—All I can do in X seconds.

Suppose the student specified 100 seconds.)

GOAL

I can do
problems in 100 seconds.

Type a number from 1 to 100.

Then press ENTER.

The race If the student specifies a goal, the computer now asks:

Do you want to race? (Y/N) ►

In the race there are two rockets. One moves at a speed determined by the student's actual performance. It only advances for correct answers. The other rocket moves at the speed determined by the student's goal.

Go!

After all the necessary information has been gathered, the computer spins the diskette to set up the lesson. This takes from 10-30 seconds. A message on the screen advises the student to wait.

When "PRESS ENTER" appears on the screen, the FACT TRACK program is ready to present facts. Students working in option 2 (20 problems, X seconds each) should have their papers ready.

When the lesson is over, ENTER must be pressed to go on.

If the student is racing and beats the goal rocket, his or her rocket may start over—that is, the student enters the second lap of the race before the other rocket finishes the first.

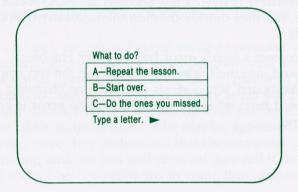
Feedback

In the interactive options (1 and 3), the student next sees a report of performance, including the number of facts worked, the number correct, and the time spent working on them. If the student sets a goal, then the goal appears; if the student beats the goal, there's a message about that, too. After the reports, pressing ENTER produces a list of all the errors (if any), as discussed in the following section, "What to Do Next?"

In option 2 ("20 problems, X seconds each"), pressing ENTER when the lesson is over will produce the answers on the screen. If all the facts were practiced, ENTER must be pressed several times to display all the answers.

What to Do Next?

The screen shows the following:



Option C does not always appear.

If option A, "Repeat the lesson," is chosen, the FACT TRACK program presents a new sequence of facts following all the specifications previously supplied.

If option B, "Start over," is chosen, the FACT TRACK program returns to the beginning.

If option C, "Do the ones you missed," is chosen, the FACT TRACK program delivers all the exercises just missed, in order but without timing. After working these, the student sees a report of results and errors and then returns to the menu shown above. (If there are no errors, option C is not offered.)

Using the Keyboard

No one has to be a typist to use the FACT TRACK program. Students who aren't familiar with the keyboard may need a few seconds at first to locate the keys, but they quickly develop the necessary typing skills.

To correct a typing error before ENTER has been pressed, use the left-arrow key: ← on the top row of the keyboard. When ← is pressed, one character is deleted from what was typed. When the error is gone, retype.

Using the FACT TRACK Program in the Classroom

The options discussed in this guide let you adapt the FACT TRACK program to the way you want your students to practice the facts. Your standards for accuracy and speed become the FACT TRACK program's standards.

Most children are excited about using a computer and will be able to use the FACT TRACK program with a minimum of instruction. Students like to play with the keyboard to "see what happens." There is no way they can hurt the FACT TRACK program by what they type. (Some older students and adults may be apprehensive; however, once they understand that the computer is patient and amiable and will do what they tell it to do, there should be few problems in using the program.)

Here's a suggestion for introducing the FACT TRACK program: Demonstrate several lessons while the class or group watches. A student can operate the keyboard while you discuss what's on the screen and what to type. Encourage questions. If you're not sure "What happens if . . . ," try it to find out. Then schedule time for each student to experiment with the FACT TRACK program.

If any of the students have trouble following the options at the start of the FACT TRACK program, you can give them a list of characters to type to produce the appropriate drill. For example, the sequence A, 1, 1, in response to the various choices will produce 20 Level 1 addition facts and then give the time taken by the student to do them. A form that could be used is found on page 19.

Students can use various features of the FACT TRACK program to improve their performance. For example, in option 1 ("Do 20 problems. How long?"), the student might first work at a comfortable pace. In subsequent trials the student should try to shorten the

time while maintaining or improving accuracy. In option 3 ("All I can do in X seconds"), the student should try to increase the number completed in a given time while maintaining or improving accuracy. The goal option allows the computer to help with these efforts. The form on page 19 provides a way for the student to keep a record of successive trials.

You will need to determine the best way to schedule computer time for the FACT TRACK program, keeping in mind that only one student at a time may be using it (depending on the practice option chosen). In general, regular use for a short time is preferable to irregular use for a long time.

Option 2 ("20 problems, X seconds each") was designed for use with groups of students (as many as can see the screen) as well as individuals. For example, you might use it to test a group on all the addition facts. You could also have a student answer out loud to avoid the delay caused by writing or typing answers.

The FACT TRACK program can be used to help diagnose the difficulty students are having with specific facts. By having a student work through a lesson several times, you may be able to see a pattern by observing the report of errors.

Contents of the FACT TRACK Program

Addition

- Level 1 Sums 2 to 5; nonzero addends
- Level 2 Sums 0 to 9; emphasis on sums 6 to 9
- Level 3 Sums 0 to 12; emphasis on sums 10 to 12
- Level 4 Sums 12 to 18; emphasis on sums 13 to 18

Subtraction

- **Level 1** Minuends 2 to 5; nonzero subtrahends and differences
- **Level 2** Minuends 0 to 9; emphasis on minuends 6 to 9
- **Level 3** Minuends 0 to 12; emphasis on minuends 10 to 12
- **Level 4** Minuends 10 to 18; emphasis on minuends 13 to 18

Multiplication

- Level 1 2 or 5 as one factor; 1 to 9 as the other
- Level 2 3 or 4 as one factor; 1 to 9 as the other
- **Level 3** 2 to 5 as one factor; 0 to 9 as the other; also 0 x 0, 1 x 1, 1 x 0, 0 x 1
- Level 4 Any factors; emphasis on factors 6 to 9

Division

- Level 1 2 or 5 as divisor
- Level 2 3 or 4 as divisor
- Level 3 1 to 5 as divisor
- Level 4 Any divisor; emphasis on divisors 6 to 9

Mixed

- **Level 1** Sums and minuends 0 to 9; emphasis on sums and minuends 6 to 9
- **Level 2** Sums and minuends 0 to 18; emphasis on sums and minuends 10 to 18
- Level 3 Multiplying and dividing by 2 to 5
- **Level 4** Multiplying and dividing by 2 to 9; emphasis on multiplying and dividing by 6 to 9

Extensions

- **Skill 1** Adding and subtracting multiples of 10:40 + 70 =
- **Skill 2** Adding and subtracting 10 to/from a 2-digit number that is not a multiple of 10: 37 + 10 =
- **Skill 3** Adding three 1-digit addends; sum less than 20: 5 + 6 + 3 =
- **Skill 4** Adding three 1-digit addends; sum 20 or greater: 8 + 7 + 6 =
- **Skill 5** Adding a 2-digit number, not a multiple of 10, and a 1-digit number; no renaming (adding by endings): 53 + 6 =
- **Skill 6** Adding a 2-digit number, not a multiple of 10, and a 1-digit number; some renaming (adding by endings): 69 + 5 =
- **Skill 7** Multiplying 10 and a 2-digit number: $10 \times 25 = 16 \times 10 = 100$

FACT TRACK™ Program Record Form

Date	What facts?	Level or skill?	How?	Goal	Race	How much time?	Number worked	Number correct
6		1/2						
		12.	.9	1 13		114	11 16	
	31	17	, Alt				ST I AL	
	-42	22	- 191	129		1 28	25.	
		97		Ī an		146		
					3		S 35	
9	.01	37	.0	38.	.8	3.	1 1 4	
	ar I	10	Tar.		8		grit I	
	20.	47	19.	46.	3		10 50.	
		62.		153.		54		
						17		
1	.01		.8	- 13	.8	1 84	3 68.	
	.ar]		, N	la.	â			
	.65	7.6	13.				N D	V
				18.		79.7	30.	
	8					100		
	100.	N/A	8			180	3 80.	
			1				64 1 98	
	00		81				XE 100.	

FACT TRACK[™] Program Answer Form—20 Facts

NAME Facts	nortmust .	Level or skill	Number correctsecond		
racts	The day	Level of Skill	_ One fact every	second	
1.	2.	3.	4.	5.	
6.	7.	8.	9.	10.	
11.	12.	13.	14.	15.	
16.	17.	18.	19.	20.	
1.	2.	3.	4.	5.	
6.	7.	8.	9.	10.	
11.	12.	13.	14.	15.	
16.	17.	18.	19.	20.	
	zates l	20 × 20 × 10 ×			
1.	2.	3.	4.	5.	
6.	7.	8.	9.	10.	
11.	12.	13.	14.	15.	
16.	17.	18.	19.	20.	
1.	2.	3.	4.	5.	
6.	7.	8.	9.	10.	
11.	12.	13.	14.	15.	
16.	17.	18.	19.	20.	

FACT TRACK™ Program Answer Form—100 Facts

NAME	A NUMBER OF STREET	<u> Participa A a</u>	Number correct		
Facts	Leve	or skill	One fact every_	seconds	
1.	2.	3.	4.	5.	
6.	7.	8.	9.	10.	
11.	12.	13.	14.	15.	
16.	17.	18.	19.	20.	
21.	22.	23.	24.	25.	
26.	27.	28.	29.	30.	
31.	32.	33.	34.	35.	
36.	37.	38.	39.	40.	
41.	42.	43.	44.	45.	
46.	47.	48.	49.	50.	
51.	52.	53.	54.	55.	
56.	57.	58.	59.	60.	
61.	62.	63.	64.	65.	
66.	67.	68.	69.	70.	
71.	72.	73.	74.	75.	
76.	77.	78.	79.	80.	
81.	82.	83.	84.	85.	
86.	87.	88.	89.	90.	
91.	92.	93.	94.	95.	
96.	97.	98.	99.	100.	

Procedure for Initial Setup

- 1. Insert DOS diskette in drive A and turn on computer.
- 2. The computer will ask for the date. Answer and press "ENTER."

IMPORTANT:

The next instruction is different depending on the number of diskette drives on your IBM Personal Computer. Follow instruction 3A if you have one diskette drive and 3B if you have two diskette drives.

- 3A. If your IBM Personal Computer has one diskette drive
 - When "A>" appears on screen, type b:setup1 and press "ENTER."
 - You will see the message:
 "Insert diskette for drive B:"
 - Remove the DOS diskette, insert the FACT TRACK diskette and press "ENTER."
 - You will see the message:
 "Insert the DOS diskette when the system asks for drive A: Insert the FACT TRACK diskette when the system asks for drive B:"
- 3B. If your IBM Personal Computer has two diskette drives
 - When "A>" appears on screen insert the FACT TRACK diskette in drive B. Type b:setup2 and press "ENTER."
 - You will see the message:
 "Insert the DOS diskette in drive A: Insert the FACT TRACK diskette in drive B:"
- The computer will now copy DOS from the IBM System diskette to your FACT TRACK diskette.
 Please follow the instructions on the video display.
- 5. When the computer is finished you will see the message:
 - "Your FACT TRACK diskette is now ready for use.
 PLEASE PUT A WRITE PROTECT TAB OVER THE NOTCH IN THE DISKETTE." Doing this will protect your FACT TRACK diskette from accidental erasures.
- 6. To use FACT TRACK refer to turning on the FACT TRACK Program on page 3.

Continued from inside front cover

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