

Exploring Data - Drill Core Samples/Iron

For the Teacher

Objectives:

Using the **DRILL CORE** applet, the student will explore relationships among the different data.

Functionality:

When the student selects **START**, the **DRILL CORE NOTE** will be displayed. The source of the data is from an integrated mathematics and science class at the Mississippi School for Mathematics and Science in Columbus, MS.

```

DRILL CORE NOTE
Drill core data is
contained in this
applet. The data were
collected at MSMS,
Columbus, MS.
C1 - density (g/mL)
[SPACE] PAGE 1 A...2 BKSP
    
```

The data contained in each column is defined in the note as indicated. **C1 - Density (g/mL)** **C2 - % Fe**
There is a standard set of data established for verification purposes. It follows:

```

DRILL CORE NOTE
C1 - density (g/mL)
C2 - % Fe

The standard data
that has been
established for
[SPACE] PAGE 1 A...2 BKSP
    
```

Density (g/mL)	2.60	3.25	3.91	4.55	5.20
% Fe	0	14	30	44	59

The **VIEWS** provides several options for the student. The first choice, **Load Data**, must be selected to input the data into the columns. Most of the remaining options deal with adjusting the **PLOT** window once the student decides which columns to analyze.

```

Load Data
Auto Scale
Plot-Detail
Plot-Table
Start
[CANCL] [OK]
    
```

Once the student has chosen **Load Data**, the calculator returns to the **NUMERIC** View. The **NUM** key provides access to the columns of data any time the student wishes to return to this view.

```

n  C1  C2  C3  C4
1  2.6  0  .....
2  3.25 14  .....
3  3.91 30  .....
4  4.55 44  .....
5  5.20 59  .....
2.9
[EDIT] [INS] [SORT] [BIG] [2VAR] [STATS]
    
```

The student should then press **SYMB** to define which columns of data will be analyzed. The student can press **PLOT** to look at a scatterplot, then return to **SYMB** to select the type of fit.

```

DRILL CORE SYMBOLIC VIEW
✓S1: C1 C2
✓Fit1: m*X+b
S2:
Fit2: m*X+b
ENTER USER DEFINED FIT
[EDIT] [CHK] [X] [SHOW] [EVAL]
    
```

Press **SYMB** to access the **DRILL CORE SYMBOLIC VIEW** to select the type of fit.

```

DRILL CORE SYMBOLIC SETUP
ANGLE MEASURE: Radians
S1FIT: Linear S2FIT: Linear
S3FIT: Linear S4FIT: Linear
S5FIT: Linear
CHOOSE STATISTICS MODEL TYPE
[CHOOSE]
    
```

VIEWS allows for changes to be made in the PLOT window. When the data are first graphed, **Auto Scale** might be the best choice. It will usually give the best window for the scatter plot.

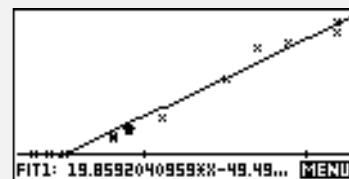
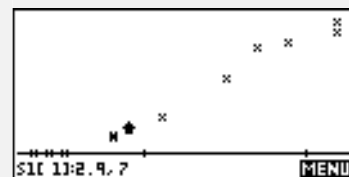
Press **FIT** on the menu bar to draw the regression curve that was selected in **SYMB**.

Return to the numeric view, **NUM**, and press **STATS** to find the statistical information. Use the down arrow to scroll to the correlation coefficient.

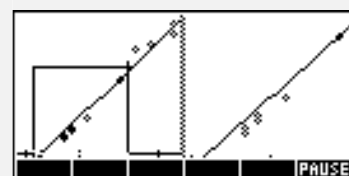
Note: The corr is defined only for LINEAR fits.

Plot-Detail allows the student to see the entire plot on the left side of the screen while viewing a more detailed area on the right side of the screen.

Plot-Table will display the data plot with the data table.



2-VAR	S1		
ΣX2	150.5		
MEANY	12.2		
ΣY	183		
ΣY2	4549		
ΣXY	682.3		
CORR	.9876592		
	.987659183244		
			OK



S1.I	S1.D
2.9	7
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Ideas can be applied to:

Algebra I, Algebra II, Precalculus, Statistics, Science

Programs associated with this applet:

.DC.D, .DC.SV