

Tutorial do Data Studio para o Experimento de Mapeamento do Campo Magnético

Abra o Data Studio

The image shows a Windows desktop environment with a blue background. The Itautec logo is prominently displayed in the center. On the left side, there is a grid of desktop icons. A tooltip is visible over the 'DataStudio' icon, showing the file path: 'Local: C:\Arquivos de programas\DataStudio'. The taskbar at the bottom contains the 'Iniciar' button and several open applications: 'Henrique Barbosa : | ...', 'Earth's magnetic field...', 'teste - Bloco de notas', 'Femm - teste', and 'Sem título 1 - BrOffic...'. The system tray on the right shows the time as 13:11.

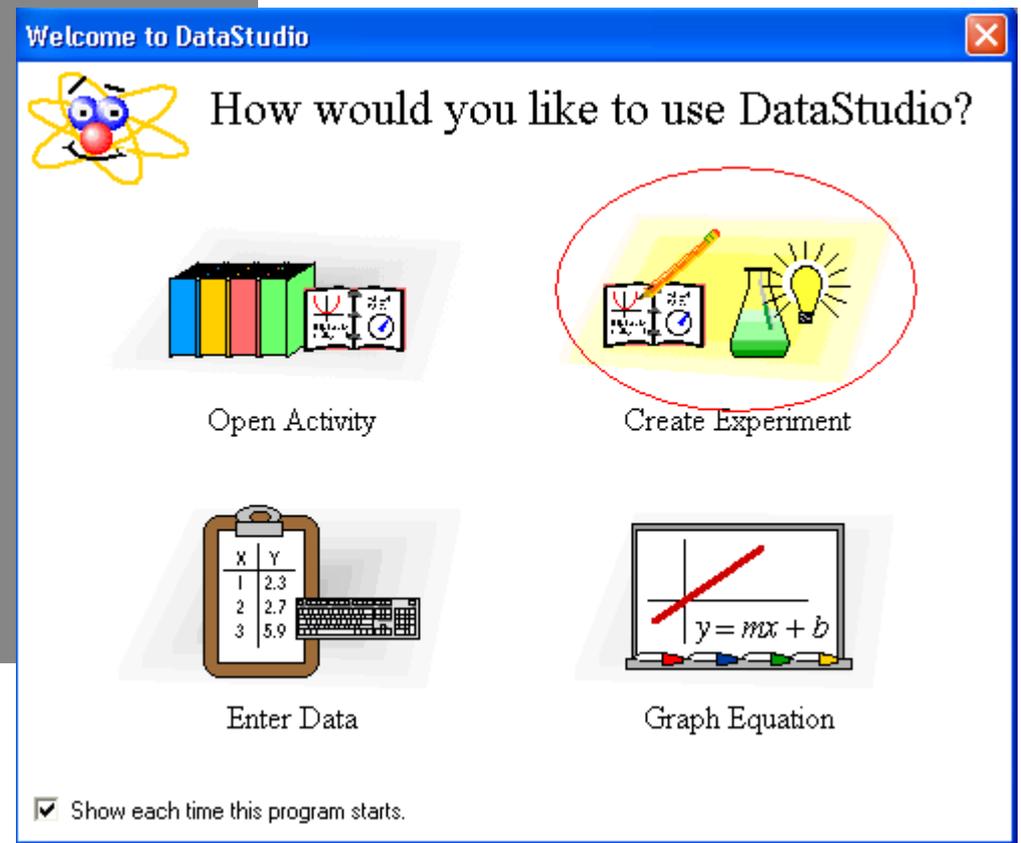
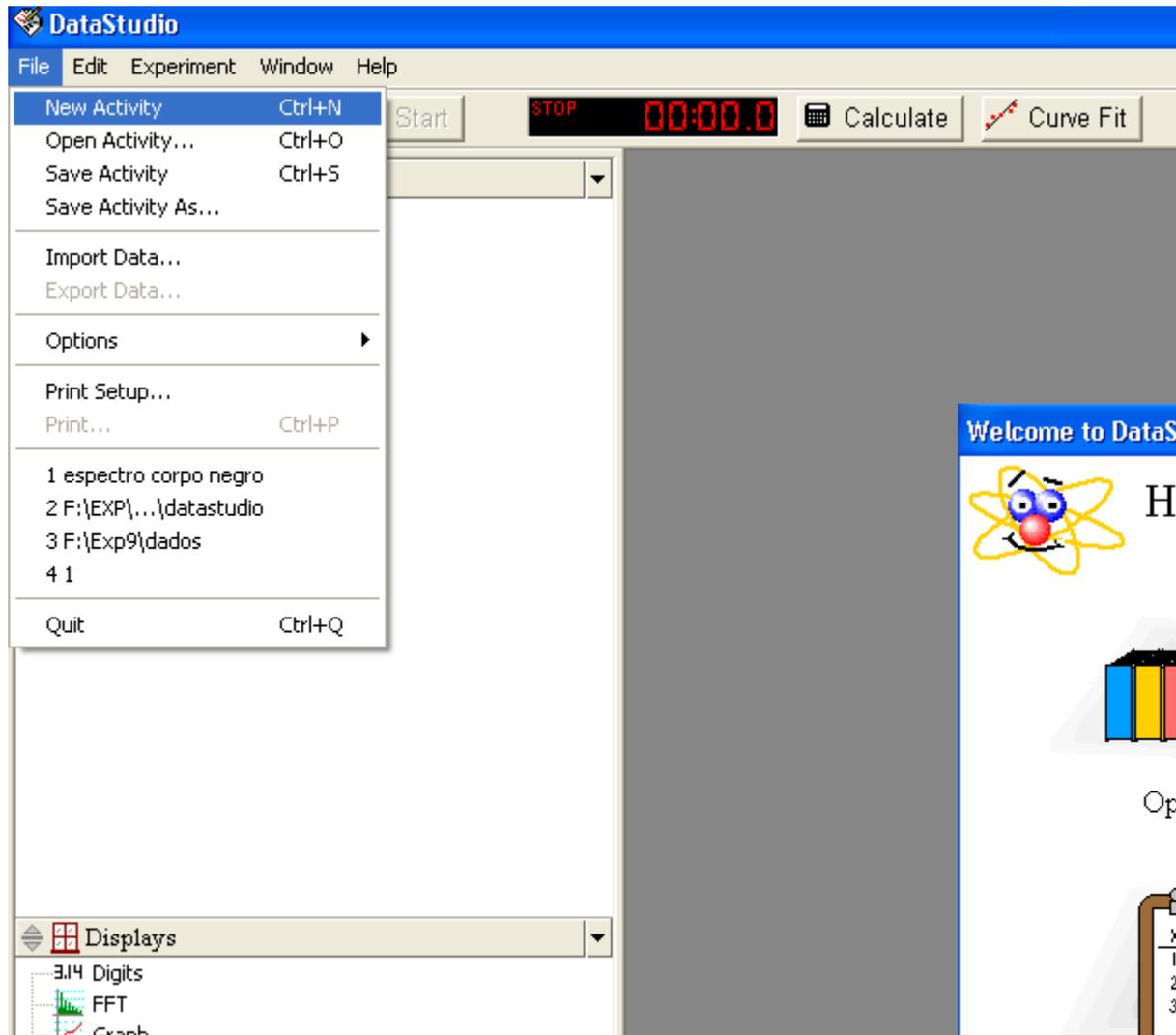
Local: C:\Arquivos de programas\DataStudio

Itautec

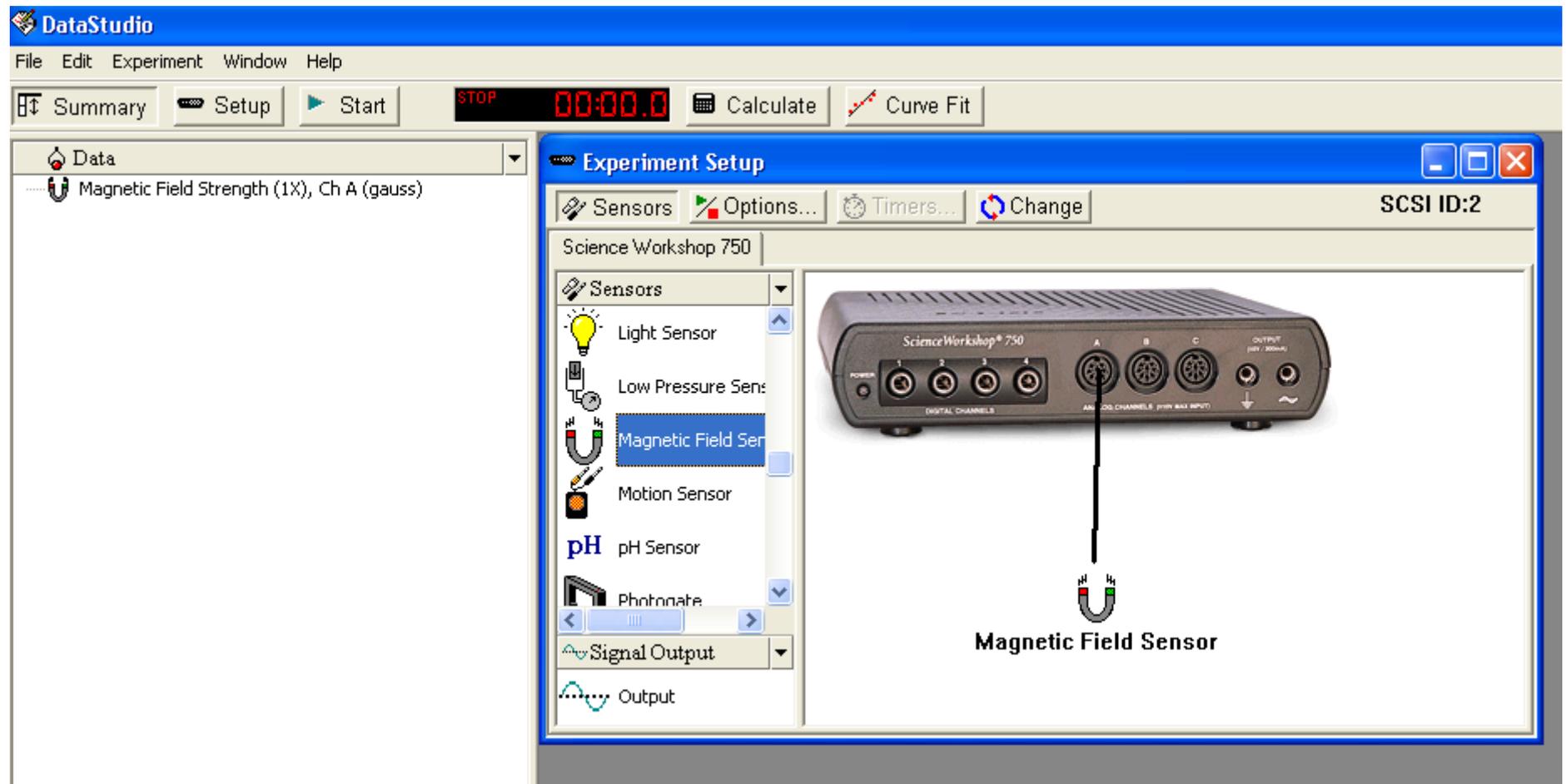
Desktop icons include: Lixeira, BOBREAL 2010, medidas TRC, Internet Explorer, espectro corpo negro, Adobe Reader 9, Femm, BrOffice.org 3.0, FUNÇÕES CORPO NEGRO - AULA, EWB, DataStudio, Mozilla Firefox, QuickField 3.4a, F-Secure Client Security, TRAJETORIAS+..., QFIELD, teste, Origin 6.0, teste, Origin 8, teste.

Taskbar: Iniciar, Henrique Barbosa : | ..., Earth's magnetic field..., teste - Bloco de notas, Femm - teste, Sem título 1 - BrOffic..., 13:11

Criando Novo Experimento



Em 'Sensors', selecione 'Magnetic Field Sensor' e arraste-o até o canal utilizado (no caso, A)



Ajuste as propriedades do sensor como indicado abaixo. Tome o cuidado de escolher o multiplicador (1x,10x ou 100x) de acordo com o que estiver selecionado no aparelho.

The screenshot displays the Science Workshop 750 software interface. The main window, titled "Experiment Setup", shows a list of sensors on the left and a central image of the Science Workshop 750 hardware unit. A "Magnetic Field Sensor" is selected and connected to the hardware. A red arrow points from a text box at the bottom left to the sensor icon in the software interface.

Experiment Setup (SCSI ID:2)

Sensors | Options... | Timers... | Change

Science Workshop 750

Sensors

- Light Sensor
- Low Pressure Sens
- Magnetic Field Ser**
- Motion Sensor
- pH pH Sensor
- Photogate

Signal Output

Output

Magnetic Field Sensor

Sensor Properties

General | Measurement | Calibration

Measurement List

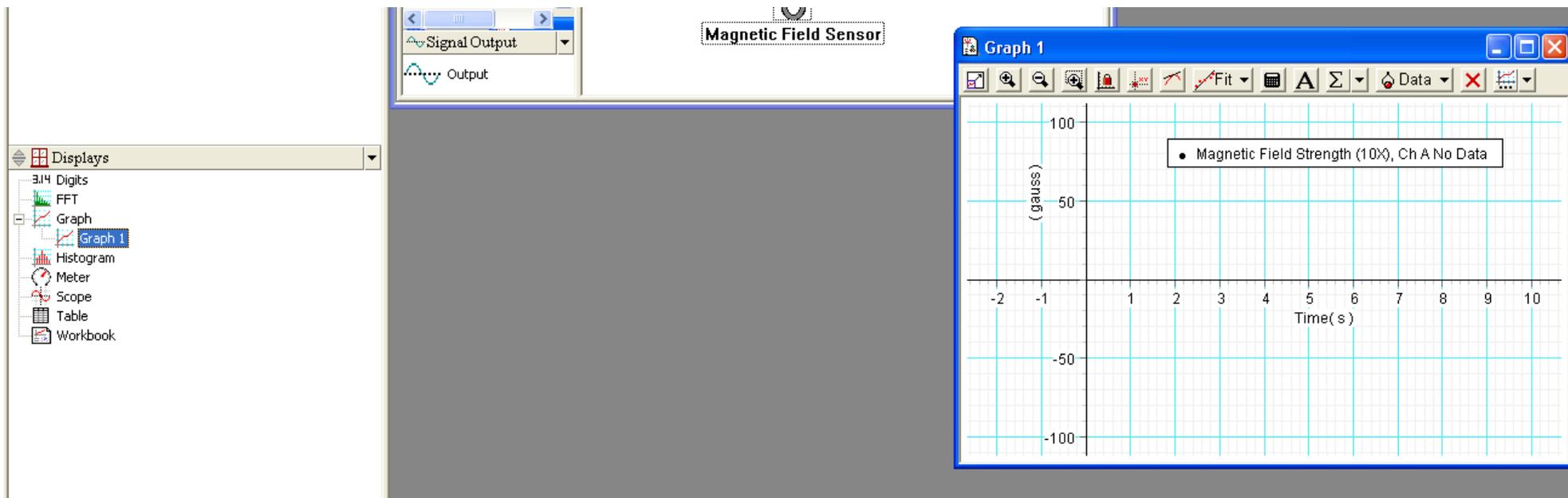
- Magnetic Field Strength (100X), Ch A (gauss)
- Magnetic Field Strength (100X), Ch A (T)
- Magnetic Field Strength (10X), Ch A (gauss)**
- Magnetic Field Strength (10X), Ch A (T)
- Magnetic Field Strength (1X), Ch A (gauss)
- Magnetic Field Strength (1X), Ch A (T)
- Magnetic Field Strength, Ch A (gauss)
- Magnetic Field Strength, Ch A (T)

Range: -100 to 100 Unit: gauss Accuracy: 1

OK Cancelar Help

clique 2 vezes

Clique duas vezes em Graph na lista à esquerda para adicionar o gráfico.

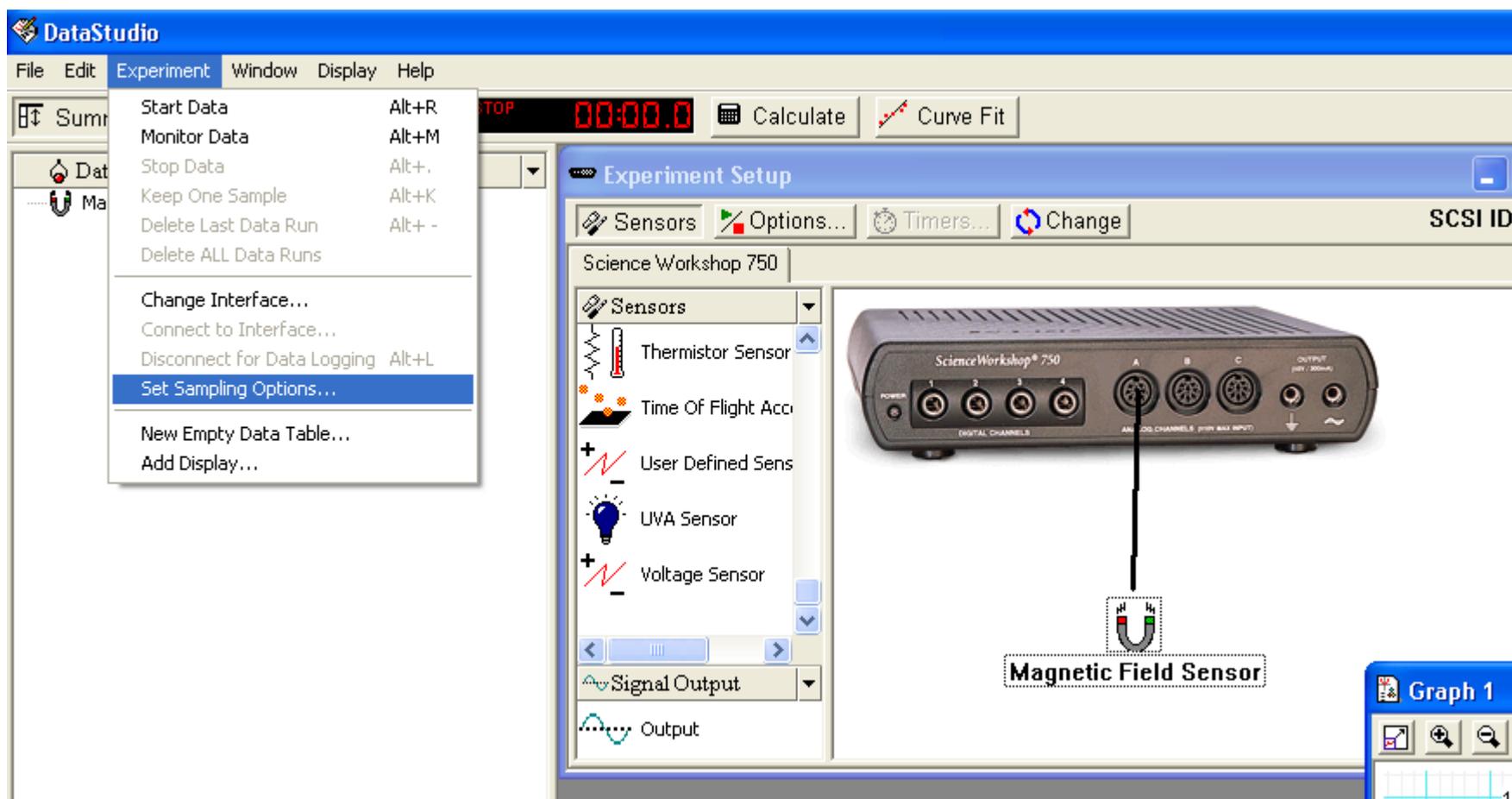


Arraste o ícone do Keyboard 1 para o eixo x do gráfico. Pelo teclado você dará as medidas de posição.

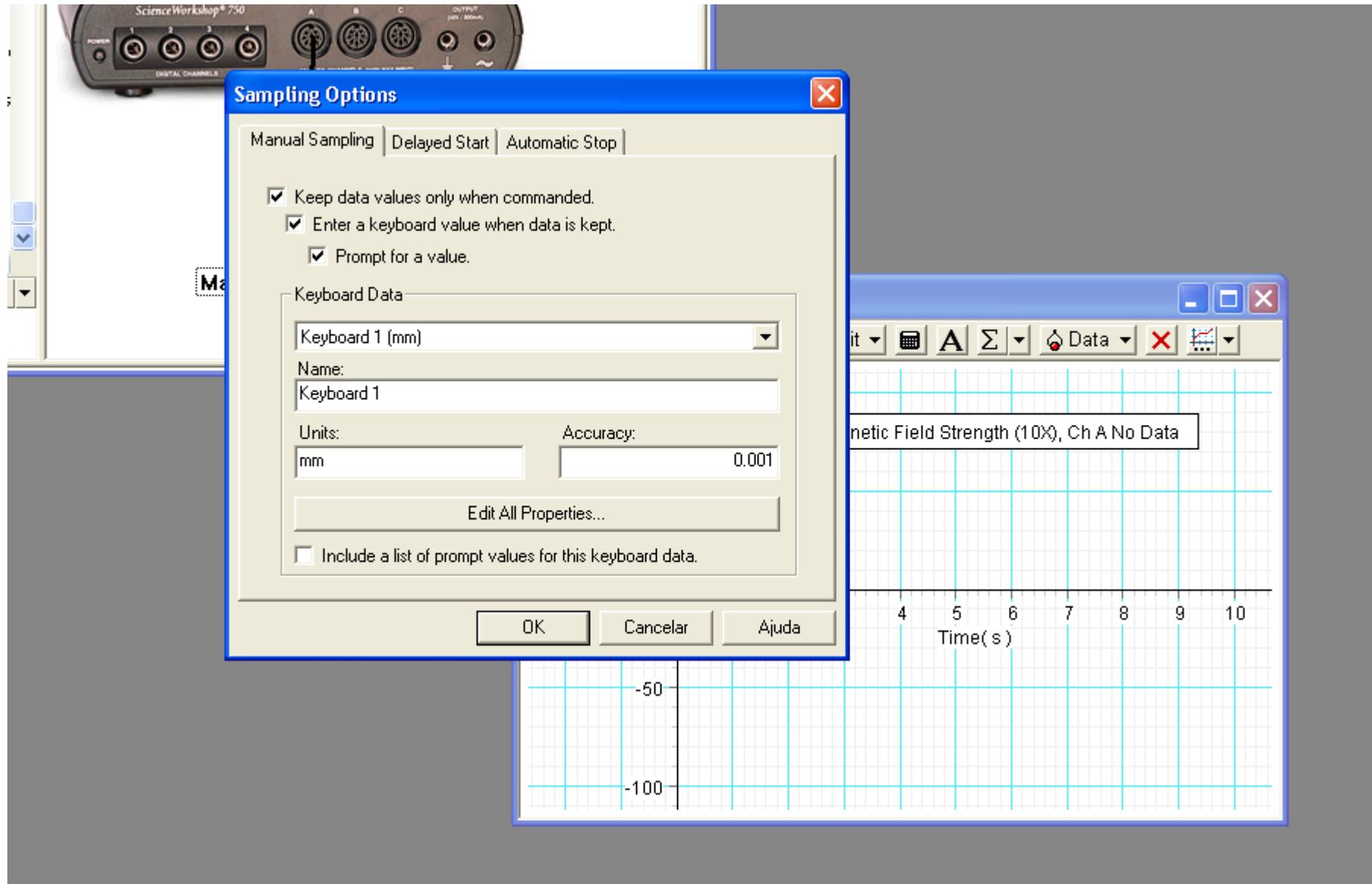
The screenshot displays the DataStudio software interface. The main window is titled "Experiment Setup" and shows a "Science Workshop 750" interface with a "Magnetic Field Sensor" connected to the "A" channel. The sensor is represented by a U-shaped icon with "N" and "S" poles. A red arrow points from the "Keyboard 1 (mm)" data source in the left-hand "Data" panel to the x-axis of the "Graph 1" window. The graph shows "Magnetic Field Strength (10X)" in gauss on the y-axis (ranging from -50 to 100) and "Time (s)" on the x-axis (ranging from -2 to 6). A red box with the word "arraste" (drag) is positioned below the graph, with a red line pointing to the x-axis. The "Data" panel on the left lists "Magnetic Field Strength (10X), Ch A (gauss)" and "Keyboard 1 (mm)". The "Displays" panel on the left lists various visualization options, including "Graph 1".

arraste

Para coletar os dados de posição será necessário escolher quando medir. Para isso, siga os próximos passos.



Deixe ticadas todas as caixas (exceto a última) e escolha a unidade de medida dos dados que serão colhidos através do teclado (ou seja a posição do aparelho de medida).



Inclua o mostrador para checar o valor de suas medidas (clcando em 'Digits' à esquerda).

The image shows the DataStudio software interface. The main window is titled "DataStudio" and has a menu bar with "File", "Edit", "Experiment", "Window", "Display", and "Help". Below the menu bar are buttons for "Summary", "Setup", "Start", a "STOP" indicator with a red digital display showing "00:00.0", "Calculate", and "Curve Fit".

The "Experiment Setup" panel is active, showing a "Science Workshop 750" interface. It includes a "Sensors" list with options like "Thermistor Sensor", "Time Of Flight Acc", "User Defined Sens", "UVA Sensor", and "Voltage Sensor". A "Magnetic Field Sensor" is connected to the "ANALOG CHANNELS (PWR MAX INPUT)" port of the Science Workshop 750. The sensor is labeled "Magnetic Field Sensor".

The "Displays" panel on the left shows a tree view with "3.14 Digits" expanded to "3.14 Digits 1". Other display options include "FFT", "Graph", "Histogram", "Meter", "Scope", "Table", and "Workbook".

A "Digits 1" window is open, showing the following content:

- Magnetic Field Strength (10X), Ch A
- No Data
- Magnetic Field Strength (10X)
- gauss

Antes de começar a medir, segure o botão 'Tare' no aparelho por uns 3 segundos. Para realizar as medidas, clique em 'Start', mova o aparelho e clique em 'Keep' para tomar o dado. Você deverá inserir o valor de posição (de acordo com um referencial que você determina).

The screenshot displays the DataStudio software interface. The top menu bar includes File, Edit, Experiment, Window, Display, and Help. The main toolbar contains buttons for Summary, Setup, Keep, a RUN TIME display showing 00:54.6, Calculate, and Curve Fit. The left sidebar shows a Data tree with 'Magnetic Field Strength (10X), Ch A (gauss)' selected, and a Displays tree with 'Graph 1' selected. The central 'Experiment Setup' window shows a 'Science Workshop 750' interface with a 'Magnetic Field Sensor' connected to the 'A' input. A dialog box titled 'Please enter a value.' is open, showing 'Keyboard 1' and a text input field containing '7 mm'. The 'Digits 1' window at the bottom shows the current reading as '-4 gauss'. On the right, 'Graph 1' shows a plot of magnetic field strength in gauss versus position in mm, with a red diamond data point at approximately (-0.5, -4).

Ao terminar, antes de exportar os dados, clique 2 vezes em 'Run #1' do 'Magnétic Field Strength vs Keyboard 1' e ajuste 'accuracy' e 'precision' como indicado.

The screenshot displays the DataStudio software interface during an experiment. The main window shows the 'Experiment Setup' for a 'Science Workshop 750' interface board. A 'Magnetic Field Strength (10X)' sensor is connected to channel A. The 'Data' panel on the left lists the active data set: 'Magnetic Field Strength (10X), Ch A vs Keyboard 1 (gauss)'. The 'Graph 1' window shows a plot of magnetic field strength in gauss. The 'Digits 1' window displays the current reading as -9 gauss. The 'Data Properties' dialog box is open, showing the following settings:

Data Properties	
Name:	Magnetic Field Strength (10X), Ch A vs Keyboard 1
Description:	
X Variable:	
Y Variable:	
Variable Name:	Magnetic Field Strength (10X), Ch
Variable Units:	gauss
Display Min:	-100
Display Max:	100
Accuracy:	6
Precision:	6
Variable Type:	Other

ANTES DE FECHAR OS DATA STUDIO, verifique o arquivo com os dados que você criou.

The screenshot shows a Windows desktop environment. A Notepad window titled "dados - Bloco de notas" is open, displaying the following text:

```
Magnetic Field Strength (10X), Ch A vs Keyboard 1, Run #1  
Keyboard 1 ( mm )      Magnetic Field Strength (10X), Ch A ( gauss )  
0.000  0.122074  
2.000  0.177007  
5.000  -15.771966
```

A tooltip is visible over a file icon on the desktop, providing the following information:

- Tipo: Documento de texto
- Data de modificação: 17/8/2011 13:24
- Tamanho: 174 bytes

The taskbar at the bottom shows several open applications: "Iniciar", "Henrique Barbosa : | ...", "Earth's magnetic field...", "teste - Bloco de notas", "dados - Bloco de notas", "femm - teste", "Sem título 1 - BrOffice...", "exportar2 - Paint", and "DataStudio". The system clock in the bottom right corner shows the time as 13:25.