

Database

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Scientific Notation

Practice Activity

Technology Overview A database program is a useful tool in which to store and organize large amounts of data. You can even perform calculations with the data. In this activity, you will edit a database by adding information you locate on the Internet. Then, you will convert the numeric data into scientific notation. Finally, you will create a report of the information.

Content Overview Scientific notation is a method of representing a number as a decimal between 1 and 10 multiplied by a power of 10. It can make numbers that are very long much easier to write and work with. In this activity, you will convert the atomic masses of several elements from the periodic table into scientific notation.

TERMS

Database file The file that contains all objects of your database.

Datasheet A grid showing the data in a table, with the field names as column headings and the records in rows beneath them.

Datasheet view The view of a table that shows you the data in each record. Like a spreadsheet, the datasheet shows rows (records) and columns (fields).

Data type The type of data that a particular field is designed to hold. Common types include *Text*, *Number*, *Date*, and *Memo*.

Field description An optional brief comment or explanation of a field. The field description appears in the status bar at the bottom of the window when its field is selected.

Field Edit mode A mode in which the insertion point displays in a selected field.

Field properties Characteristics of a field that determine how long an entry can be, how the entry will be formatted, whether there should be a default entry, and what can be entered (for example, numbers only or valid dates only).

Form A window showing the data in a table with one record's fields appearing at a time in individually labeled boxes.

Navigation mode A mode in which the entire field entry is highlighted in a selected field.

Navigation Pane The listing of all the objects in the database.

Object A table, form, query, report, or other item used to store and manage data in a database.

Table A collection of database fields designed to be used together.

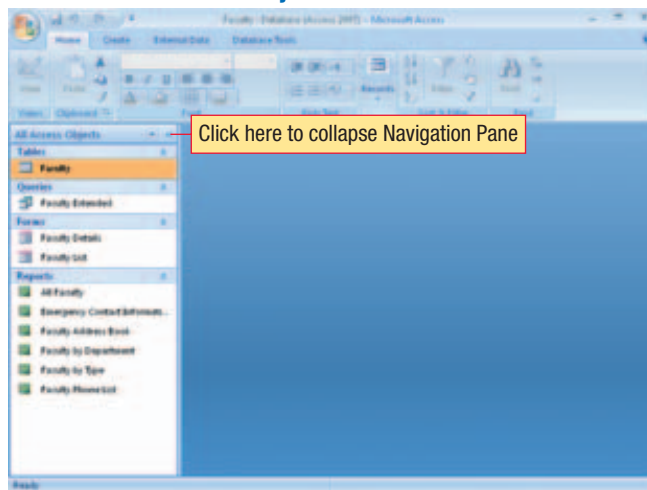
Table Design view A view in which you can add, edit, and delete fields from the table, change field types and descriptions, set a primary key, and more.


KEY CONCEPTS

Work with the Navigation Pane

- After the **database file** opens, you see the Access application window.
- The **Navigation Pane** lists all the objects in the database. An **object** is a table, query, report, form, or other item that is used to display and manage the data.


The Navigation Pane contains a list of the objects in the database



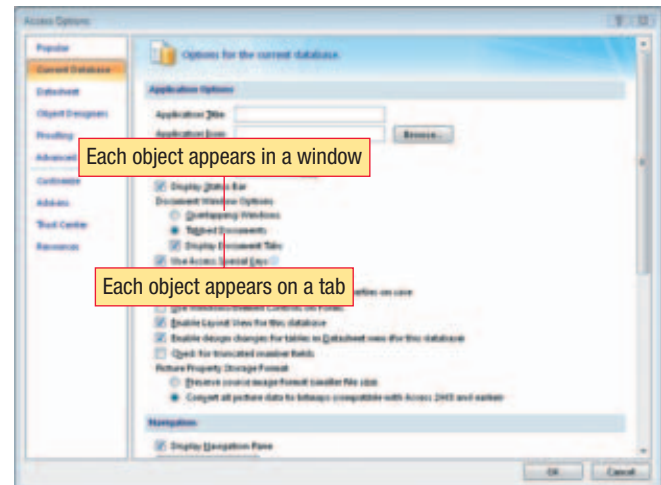
- In Access 2007, you can collapse the Navigation Pane by clicking the  button. When the Navigation Pane is collapsed, it appears as a thin bar along the left side of the screen. Click the bar to expand the Navigation Pane.

Open and Close Objects in a Database

- To open an object in the database, double-click it from the Navigation Pane. The object appears on a tabbed page. When more than one object is open, you can switch between objects by clicking the desired tab.
- Objects can be opened in different views. The default view opens when you double-click the object; to select one of the other views, right-click the object and select a view from the top of the menu that appears.

- To close the active object (that is, the one whose tab is on top), you can click the  to the far right of the tabs or you can right-click the tab and choose Close.
- Tip: To close all objects at once, right-click a tab and choose Close All.
- Some databases, especially ones that were originally created in earlier versions of Access, are set to display objects in overlapping windows rather than with tabs. You can change a database's behavior in this regard by opening the Access Options dialog box, selecting Current Database, and then choosing Tabbed Documents. You must then close and reopen the database file for the change to take effect.

Changing document window options



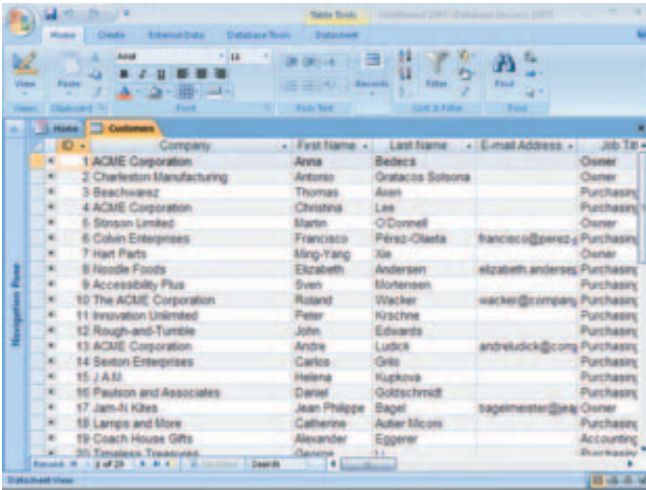
- In a database that is set to display objects in overlapping windows, you can maximize or restore the object window as you would any other window. When the window is maximized, its window controls appear immediately below the window controls for the Access window itself.

Move through a Datasheet or Form

- When you open a table, data displays in a row and column format similar to a spreadsheet. Each column heading displays the caption or field name for the field, and each row contains all the information for a single record.

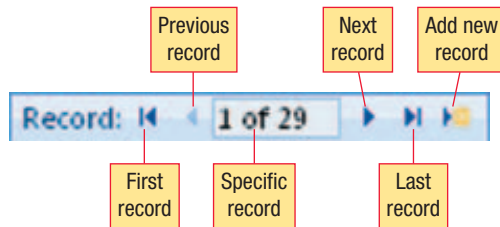
- This row and column display is called **Datasheet view**. This view enables you to see more than one record at a time on the screen.

Datasheet view displays data in rows and columns





- To move through the datasheet, you can use the navigation buttons at the bottom of the window.
- The navigation buttons also show the current record and the total number of records. You can type a record number in the specific record box and press Enter to move to that record.

Datasheet navigation buttons

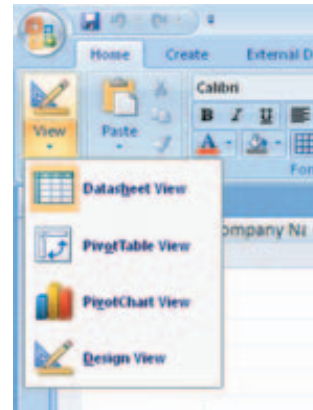


- When you move into a field, you are in one of two modes: **field edit mode** or **navigation mode**. The insertion point displays in the field in edit mode; the entire field entry is highlighted when you are in navigation mode. To switch back and forth between the two modes, press F2.
- Press Tab to go from one column to the next column. In the last column, press Tab to go to the first column in the next record.
- You can use the arrow keys to move around the datasheet, and you can also use a number of shortcut keys to move to specific points in the datasheet.

Switch between Views

- To switch to Datasheet view from Table Design view, click the View button  on the Home tab (in Access 2007) or the View button  on Standard toolbar (in Access 2003).
- When in Datasheet view, the View button's face changes, and clicking it switches you to Table Design view.
- This button also has a drop-down list, so you can choose other views from it.

Switch between Datasheet and Table Design views via the View button



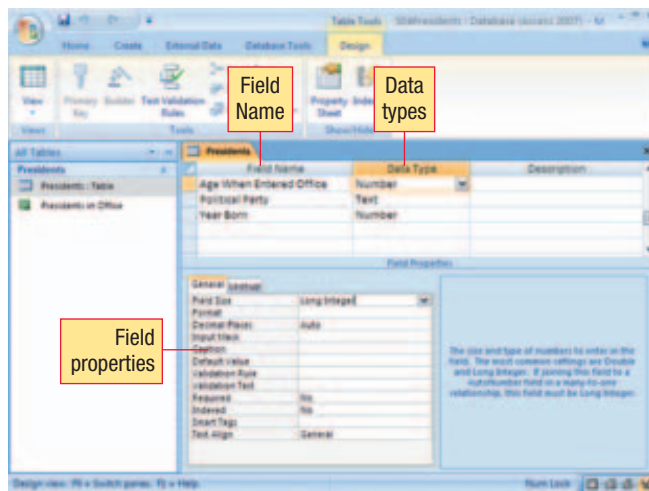
Enter Records

- When you enter records, they are stored in a **table**. Of all the types of objects in Access, tables are the only object type that can hold records. Most of the other types of objects are simply ways of looking at the data from one or more tables.
- To enter records in a **datasheet** or in a **form**, type the information you want in a field, and press Tab or Enter to go to the next field.
- To enter records in a datasheet, type the data below each field name as you would in an Excel worksheet.
- Type the information you want for the record, and press Tab or Enter to go to the next field.
- When you enter data in the last field for a record, press Tab or Enter to go to the first field of the next record. If you are at the last record of the table, this will automatically create a new record.
- Unlike other Microsoft Office applications where you have to choose the Save command, Access automatically saves a record when you go to another record.

Create a Table in Design View

- **Table Design view** contains a list of the fields in the table, including name, **data type**, and **field description**.
- The Data type column tells you what kind of information your field can store. Click the drop-down arrow in this cell to choose from the list of data types. You can also type the first letter of the data type to make this choice, if you prefer to use the keyboard:
- When a field is selected, its **field properties** appear in the lower half of the Table Design view window. Field properties specify advanced options for the field, such as maximum entry length and default value.

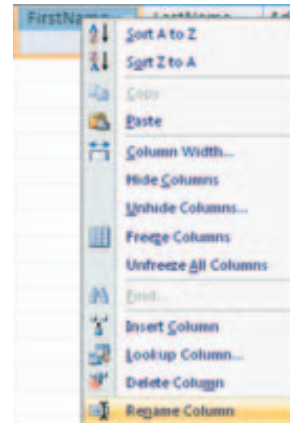
Table Design view



Rename a Field in a Datasheet

- The field names appear at the top of each column in the datasheet.
- When needed, you can rename the file to match the data it contains.

Rename a field by right-clicking it and choosing Rename Column



PROCEDURES

Work with the Navigation Pane (Access 2007)

Collapse the Navigation Pane:

- Click the on the Navigation Pane.

Expand the Navigation Pane:

- Click anywhere on the collapsed Navigation Pane.

Open and Close Objects in a Database

Open an Object in its Default View:

- Double-click the object in the Navigation Pane.

Open an Object in Other Views:

1. Right-click the object in the Navigation Pane.
2. Click the desired view.

✓ *The available views depend on the object type.*

Close an Object (Tabbed Display—Access 2007):

- Click to the right of the object tabs (in tabbed display).

OR

1. Right-click the object's tab.
2. Click **C**lose.....(C),

Close an Object:

- Click below the Access 2007 application window controls (in overlapping window display with active object maximized).

OR

- Click in object window's title bar.

Move through a Datasheet or Form

Move through a datasheet:

- Press **Tab** to go to the next field.....
- Press **Shift+Tab** to go to the previous field.....+

- Press **Ctrl+End** to move to last field and last row..... (Ctrl)+End
- Press **Ctrl+Home** to move to first field and first row..... (Ctrl)+Home
- Press **End** to move to last field in row..... End
- Press **Home** to move to first field in row..... Home

In Navigation mode, to move to:

- Last field, last record of table..... (Ctrl)+End
- First field, first record of table..... (Ctrl)+Home
- Last field, current record..... End
- First field, current record..... Home
- Last record, current field..... (Ctrl)+↓
- First record, current field..... (Ctrl)+↑
- Next field (or if in last field to first field of next record)..... Tab↔
- Previous field..... ←Shift)+Tab↔

Switch Between Views

Access 2007:

1. Click the **Table Tools Design** tab..... (Alt)+D

OR

- Click the **Home** tab..... (Alt)+H

Views Group

2. Click the **View** button..... W
3. Click the desired view.

Access 2003:

1. Click **View**..... (Alt)+V
2. Click **Datasheet View**..... S

OR

- Click **Design View**..... D

✓ You can also use the View button, the left-most button on the Standard toolbar, to switch views.

Enter Records

1. Click in the first blank cell in the first field (the first column and first row).
2. Type data for field.
3. To correct an error, press Backspace..... ←Backspace and type again.
4. Press **Tab** to go to next field..... Tab↔
5. Repeat steps 2–4 for each field in record.
6. Click in first cell in the next row to begin new record.

Create a Field in Table Design View

1. Click in the **Field Name** column of an empty row.
2. Type field name.
3. Press **Tab**..... Tab↔
4. Click the **down arrow** in the Data Type column.
5. Click the field type.
6. Press **Tab**..... Tab↔
7. (Optional) Type field description.

Rename a Field in a Datasheet

1. Double-click the field name.
2. Type the new name
3. Press **Enter**..... ↵Enter

Change Datasheet Column Width

1. Position mouse pointer between two column headers.
2. Drag to adjust column to left of pointer.

ACTIVITY DIRECTIONS

1. Using Windows, copy the database file **01Elements** and rename the copy **01Elements_xx**.
 ✓ If necessary, ask your instructor where this file is located.
 ✓ Alternatively, you could use the Backup Database commands to create a copy of 01Elements named 01Elements_xx, then close 01Elements and open 01Elements_xx.
2. Start Access and open **01Elements_xx**.
3. Open the Elements table.
4. Add the atomic mass for Krypton: **83.8**, and Tin, **118.71**.
5. Change to Design view. Save the table if prompted.
6. Add a new field, **ScientificNotation**, and set its data type to **Number**. Change the Field Size to **Double**. Change the Format to **Scientific**.
7. Change back to Data Sheet view. Save the table if prompted. Widen the new ScientificNotation field.
8. Type the atomic mass for Krypton in the ScientificNotation field. Notice that it's automatically rewritten in scientific notation: 8.38E+01.
9. Type the atomic mass for the remaining elements in the corresponding ScientificNotation field. Close the table, saving changes when prompted.
10. Close the database, saving all changes if prompted.
11. Exit Access.