Solution of newspaper-style cryptograms

Overview. This is a warm-up exercise in straight cryptanalysis. You will study one or more short texts that have been encrypted using a monoalphabetic substitution cipher. You will try to "break the code" by discovering the alphabet that was used to encrypt each text.

Things to do.

1. Obtain a copy of the handout called "Cryptograms." Pick one, and go to it. (A suggestion: Copy the ciphertext onto a sheet of graph paper, leaving plenty of room *below* each letter. When you guess a plaintext letter, fill it in below the ciphertext, in pencil, and preferably in a different color from the ciphertext.)

2. As you work, keep notes on what clues lead you to each guess you make. We'll try to collect everyone's notes to make up a full list of Cryptogram Solution Techniques.

3. (Optional) If you want to, you can use Excel to deal with the drudgery of filling in plaintext letters. Here's how:

   (a) Start with a new Excel workbook. Click on the grey cell in the top left corner to highlight the whole book, and then choose the menu item `Format>Column>Width`. Type "2" to set the column width to 2 for the entire worksheet.

   (b) Using the arrow keys and the keyboard, enter the (upper-case) letters `A` through `Z` into cells A1 through Z1. Then enter a single space into each of the cells A2 through Z2. Highlight the rectangle from A1 to Z2, and choose the menu item `Insert>Name>Define`. Type in "alphabet" to name this region.

   (c) Starting at cell A4, enter the ciphertext, in upper-case letters, one letter per cell. If you need to wrap around to a new line, start it in cell A7. Always leave two blank rows between one line of ciphertext and the next.

   (d) Highlight cell A5, and type in the formula

   ```
   =hlookup(A4,alphabet,2)
   ```

   (don't forget the leading `=`). Click on the grey "5" cell to highlight all of row 5, and type Ctrl-R. This copies your formula into every cell in row 5.

(e) If there's ciphertext in row 7, then you need to enter `=hlookup(A7,alphabet,2)` into cell A8, and copy it along the row as above. Same for rows 10, 13, and so on.

(f) Now each time you guess a plaintext letter, enter it (in lower case) into the cell below the corresponding ciphertext letter, and press any arrow key. Excel will fill in the plaintext letter below each instance of the corresponding letter in the ciphertext.