**Presentation Notes**

1. What does the ASCII acronym stand for?

American Standard Code for Information Interchange

1. What is the ASCII code used for?

* Representing and storing text in computers
* Encoding text for electronic communication

1. Encoding characters (i.e. letters on the keyboard) into ASCII code numbers  
   1. What is the ASCII code for the letter “A”

65

* 1. What is the ASCII code for the letter “a”

97

* 1. Why are they different?  
     Upper case and lower case are different symbols. The computer does not understand the alphabet.
  2. What is the ASCII code for the space bar?

32

1. Decoding ASCII code numbers into characters and letters   
   1. What character corresponds to ASCII code 61 decimal

=

* 1. What character corresponds to ASCII code 8 decimal

backspace

* 1. Why is the character 8 not the same as ASCII code 8

Character “8’ is the text symbol white code 8 is a number.

* 1. What is the range of non-printable characters in ASCII

Codes 0 to 31

1. How would you code the string “Hello” in ASCII?

H e l l o

72 101 108 108 111

1. How would you code the string “127” in ASCII?  
    1 2 7

49 50 55

1. What is the difference between 127 and “127”?

127 is an integer number. Computers don't need to use ASCII for numbers.  
"127" is a string of text symbols. A human might see this as the number 127. A computer doesn't know it's a number.

**Student Questions**

1. Why do computers have to convert characters (i.e. letters on the keyboard) into numbers? Why can’t computers just use the letters directly?

Computers do not understand the alphabet. So, they use ASCII code in order to convert letters into numbers for the computer to understand.

1. How do computers communicate with people who speak different languages and use different alphabets? What is used instead of the ASCII code table?

Instead of using the ASCII code table, we instead use the Unicode table. This is used to communicate with people who speak different languages.

1. Research online-documentation for the Python **ord()** function. Provide some sample code that demonstrates the use of the **ord()** function.

The ord function returns an integer which represents Unicode point for the inputted Unicode character.

An example of this would be:

print(chr(c))

1. Research online-documentation for the Python **chr()** function. Provide some sample code that demonstrates the use of the **chr()** function.

The chr function returns a character or string whose Unicode point is the integer.

An example of this would be:

print(chr(65))

1. Write a Python program that uses the ord() and chr() functions to do the following:
   1. Read a single character (i.e. single letter or keyboard symbol) from the console input.
   2. Convert the character to an ASCII code number.
   3. Add 3 to the code number.
   4. Convert the new code number back to a character (i.e. single letter or keyboard symbol)
   5. Print the new character to the console output.

chr1 = (input("Type a single character:"))

ord1 = ord(chr1)

ord2 = ord1 + 3

chr2 = chr(ord2)

print("The character added by 3 is:", chr2)

1. Enhance your program to add the following features:
   1. After reading the single character from console input, check to make sure that the character is a letter (i.e. a to z or A to Z). Print a warning message if the character is not a letter.
   2. After converting the code number back to a character, print a “\*” if the character is not a letter.

chr1 = (input("Type a single character:"))

ord1 = ord(chr1)

isChrOk = False

if(ord1 >= ord('a') and ord1 <= ord('z')) :

**Extension (Optional)**

1. Extend your program to operate on a string read in from the console input.
   1. Use a loop to process the string as a sequence of single characters
   2. Use your original code process the characters
   3. Append the characters to make a new output string
   4. Print the new string to console output