TOPIC	KEY POINTS

Constructing data objects:
`data.frame()`
`matrix()`
`cbind() rbind()`
`list()`
	Complex data objects can be created using various commands. The `data.frame()` command takes 1D vectors of equal length and creates a data frame. The `matrix()` command creates a 2D matrix object from a single 1D vector. The `cbind()` and `rbind()` commands assemble a matrix, by columns or rows, from several other objects. The `list()` command creates a list from several other objects.

Summarizing data objects:
`summary()`
`str()`
`class()`
`length()`
`max()`
`min()`
`head()`
`tail()`
	Objects can be summarized and viewed in a variety of ways. The `summary()` command gives a broad overview, while the `str()` command is useful to see the object structure. The type of object can be ascertained using the `class()` command. The `length()` command can be used to determine the number of items in an object. The `max()` and `min()` commands display the largest and smallest values in a numeric object. The `head()` and `tail()` commands are used to display the first or last few rows of an object.

Extracting parts and manipulating objects:
`attach()`
`detach()`
`with()`
`$ [row, col]`
`names()`
`rownames()`
`sort()`
`order()`
`rank()`
`stack()`
	The contents of complicated data objects are not directly visible to R. To access the columns of a data frame, for example, you can use the `attach()` command. You can "close" the object using `detach()`. The `with()` command enables the contents of a complicated object to be accessed temporarily. You can access elements of data objects using the `$` and `[row, col]` syntax. You can set or view the names of columns or rows using the `names()`, `rownames()` or `colnames()` commands. Objects can be rearranged using `sort()` or `order()` commands. The `rank()` command shows the relative size of numeric vectors. The `stack()` command is used to recombine objects, for example to join two vectors into one and create a second (factor) vector that shows the origin of each observation.

Converting objects between forms:
`as.data.frame()`
`as.matrix()`
`as.list()`
	Objects can be converted from one form to another using a variety of commands. For example, the `as.data.frame()` command converts an object to a data frame.