# PowerShell Object pipeline shell

## CONCEPTS

Commands pass .NET objects, not text: filter and sort by property, no column parsing.

**Get-ChildItem** file objects
↓ |
**Where-Object** keep some
↓ |
**Sort-Object** reorder
↓ |
**Select-Object** shape
↓ |
**Format / Export** text at the end

Objects flow through the pipeline; $_ is the current one

Cmdlets are named Verb-Noun. Names and parameters are case-insensitive and Tab-complete.

## DISCOVER

`Get-Help <cmd>`
Show help for a command

`Get-Help <cmd> -Examples`
Show usage examples

`Get-Command *<word>*`
Find commands by name

`<cmd> | Get-Member`
List an object's type, properties, methods

## PIPELINE

`Where-Object <prop> -gt <val>`
Keep objects matching a test

`Where-Object { $_.Length -gt 1MB }`
Filter with a script block

`Select-Object <prop>, <prop>`
Keep only these properties

`Select-Object -First <n>`
Take the first n objects

`Select-Object -ExpandProperty <prop>`
Output the bare values

`Sort-Object <prop> -Descending`
Sort by a property

`ForEach-Object { $_.Name }`
Run a block per object

`Format-List *`
Show every property

## FILES & PROVIDERS

`Get-ChildItem`
List items here

`Get-ChildItem -Recurse -Filter <glob>`
Find files recursively

`Set-Location <path>`
Change directory

`Get-Content <file>`
Read a file line by line

`New-Item <dir> -ItemType Directory`
Create a directory

`Copy-Item <src> <dst> -Recurse`
Copy files or folders

`Test-Path <path>`
Check if a path exists

`Select-String <pattern> <file>`
Search text, like grep

## VARIABLES & TYPES

`$name = <value>`
Assign a variable

`$env:<NAME>`
Read or set an environment variable

`$a = @(1, 2, 3)`
Array; $a[-1] is the last item

`$h = @{ Key = 'val' }`
Hashtable; $h.Key or $h['Key']

`[pscustomobject]@{ A = 1; B = 2 }`
Build an object with properties

## STRINGS & OPERATORS

`"Hi $name, $($obj.Prop)"`
Double quotes expand variables

`'literal $text'`
Single quotes do not expand

`-eq -ne -gt -lt -ge -le`
Compare (case-insensitive)

`-like '<glob>*'`
Wildcard match

`-match '<regex>'`
Regex match; groups in $Matches

`-replace '<regex>', '<new>'`
Regex replace

## DATA FORMATS & WEB

`Get-Content <file> -Raw | ConvertFrom-Json`
Parse a JSON file

`ConvertTo-Json -Depth <n>`
Serialise objects to JSON

`Import-Csv <file>`
Read CSV as objects

`Invoke-RestMethod <url>`
Call an API, parse the reply

## SCRIPTS & FUNCTIONS

`function <Name> { param($x) ... }`
Define a function

`param([Parameter(Mandatory)] [string]$Name)`
Required, typed parameter

`.\<script>.ps1`
Run a script

`if (<cond>) { } elseif () { } else { }`
Conditional

`foreach ($i in $items) { }`
Loop over a collection

## ERRORS

`try { } catch { $_ } finally { }`
Handle terminating errors

`-ErrorAction Stop`
Make one command's errors catchable

`$ErrorActionPreference = 'Stop'`
Stop on every error in scope

`<cmd> -WhatIf`
Preview what would change

## SESSION & SETUP

`$PROFILE`
Path of your startup script

`Set-ExecutionPolicy RemoteSigned -Scope CurrentUser`
Allow local scripts (Windows)

## PSREADLINE KEYS

Tab / Shift + Tab
Cycle completions