System info

Host, CPU, memory

CONCEPTS

Most of these tools just format files under /proc and /sys, so the same data is available to scripts.

Load average counts runnable tasks: compare it with nproc, not with 1.

free's available column, not free, tells how much memory new programs can still get; cache is reclaimable.

SYSTEM AND OS

uname -a
Kernel name, release, arch and host

uname -r
Kernel release only

uname -m
Machine architecture (x86_64, aarch64)

hostnamectl
Hostname, OS, kernel, virtualization

hostname
Print the current hostname

cat /etc/os-release
Distro name and version (ID, VERSION_ID)

UPTIME AND LOAD

uptime
Time up, users, load averages (1/5/15 min)

uptime -s
Boot time as a timestamp

w
Who is logged in and what they run

MEMORY

free -h
Memory and swap, human-readable

free -h -s *<sec>*
Repeat every <sec> seconds

CPU

lscpu
Model, sockets, cores, threads, caches

nproc
CPUs usable by this process

VMSTAT

vmstat *<sec> <count>*
Sample every <sec>, stop after <count>

vmstat 1
Sample every second until Ctrl+C

vmstat columns

Column	Read it as
`r / b`	Runnable / blocked tasks; r above nproc means CPU-bound
`si / so`	Swap in / out; non-zero means memory pressure
`bi / bo`	Blocks read / written on disks
`us sy id wa`	CPU user, system, idle, I/O wait

The first vmstat line is an average since boot; judge the lines after it.

HARDWARE

lspci
List PCI devices (GPU, NIC, controllers)

lspci -nnk
IDs and the kernel driver in use

lsusb
List USB devices

lsblk
Disks and partitions as a tree

KERNEL LOG (DMESG)

dmesg -T
Log with readable timestamps

dmesg --level=err,warn
Only errors and warnings

USERS AND SESSIONS

whoami
Name of the current user

id
UID, GID and all groups

RECIPES

Quick host report

```
uname -srm
grep PRETTY_NAME /etc/os-release
uptime -p
nproc
free -h | head -2
```