Kubernetes Resources

In Kubernetes, resources are like building blocks used to create and manage your cluster. Each resource is an object with metadata (such as names and labels) and a desired state that defines its behavior. All objects in Kubernetes are managed by an API and stored in the etcd database.

For example, a Pod resource defines how to run a group of containers, while a Service resource manages network access to those containers. Everything you can manage with `kubectl` or the Kubernetes API - like workloads, storage, or configuration - is a resource, making them essential for defining and controlling your cluster's behavior.

The following command lists all the resources that can be managed in a Kubernetes cluster, including their names, short names, API versions, and whether they are namespaced:

```
kubectl api-resources
```

The most relevant resources for the KCNA exam are marked red

Resource Overview

You can link to the table here

Core Resources

- **Pod**
- **Service**
- **ConfigMap**
- **Secret**
- **Namespace**
- PersistentVolume
- PersistentVolumeClaim
- ServiceAccount
- Binding
- ComponentStatus
- **Endpoints**
- Event
- LimitRange

- PodTemplate
- ReplicationController
- ResourceQuota

Workloads

- **Deployment**
- **ReplicaSet**
- **DaemonSet**
- StatefulSet
- **CronJob**
- **Job**
- ControllerRevision

Networking

- **Ingress**
- NetworkPolicy
- IngressClass

RBAC (Role-Based Access Control)

- **Role**
- **RoleBinding**
- ClusterRole
- ClusterRoleBinding

Storage

- **StorageClass**
- CSIDriver
- CSINode
- CSIStorageCapacity
- VolumeAttachment

Admission Control

- MutatingWebhookConfiguration
- ValidatingWebhookConfiguration

API Extensions

- CustomResourceDefinition
- APIService

Authentication and Authorization

- TokenReview
- LocalSubjectAccessReview
- SelfSubjectAccessReview
- SelfSubjectRulesReview
- SubjectAccessReview

Autoscaling

- **HorizontalPodAutoscaler**

Certificates

- CertificateSigningRequest

Coordination

- Lease

Discovery

- EndpointSlice

Events

- Event

Flow Control

- FlowSchema
- PriorityLevelConfiguration

Node Management

- RuntimeClass

Policies

- PodDisruptionBudget

- PodSecurityPolicy

Scheduling

- PriorityClass