

### 3. Populations

#### Starter Quiz · 课前小测

AP Environmental Science

Name: \_\_\_\_\_ Score: \_\_\_\_\_

1. A species' **niche** is...

- ☐ its role and the range of resources it uses
- ☐ the exact spot where it sleeps
- ☐ its number of offspring
- ☐ its colour

2. An **r-selected** species tends to...

- ☐ produce many offspring with little parental care
- ☐ produce few offspring with much care
- ☐ never reproduce
- ☐ live for centuries

3. A **survivorship curve** shows...

- ☐ how many of a group survive to each age
- ☐ the weather over a year
- ☐ the size of an animal
- ☐ the colour of a species

4. The **carrying capacity** of an environment is...

- ☐ the largest population it can support long-term
- ☐ the number of species
- ☐ the total rainfall
- ☐ the size of the area

5. With **unlimited** resources, a population grows...

- ☐ exponentially, faster and faster (a J-curve)
- ☐ in a straight line
- ☐ not at all
- ☐ downward

6. A species with a narrow niche, using very few resources, is a \_\_\_\_\_.

\_\_\_\_\_

7. A species that reproduces fast and colonises new areas quickly is usually \_\_\_\_\_-selected.

\_\_\_\_\_

8. Frogs and fish, whose young die in huge numbers, show a Type \_\_\_\_\_ curve.

\_\_\_\_\_

9. When a population grows past its carrying capacity, it is said to \_\_\_\_\_ the capacity.

\_\_\_\_\_

10. Anything that slows population growth, like scarce food, is a \_\_\_\_\_ factor.

\_\_\_\_\_

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Answers · 答案

AP Environmental Science

#### 1. its role and the range of resources it uses

A **niche** is a species' role — what it eats, where it lives, and the conditions it needs.

#### 2. produce many offspring with little parental care

r-selected species have many offspring quickly and give little care — most young die, but some survive.

#### 3. how many of a group survive to each age

A **survivorship curve** plots how many individuals of a group are still alive at each age.

#### 4. the largest population it can support long-term

The **carrying capacity** (K) is the maximum population an environment can sustain with its resources.

#### 5. exponentially, faster and faster (a J-curve)

With no limits, growth is **exponential** — a J-shaped curve that gets ever steeper.

#### 6. specialist

A **specialist** uses a narrow set of resources — like a panda that eats almost only bamboo.

#### 7. r

r-selected species reproduce fast and are good at colonising disturbed or new habitats.

#### 8. III

**Type III** (frogs, fish): very high early death, but a few survive — typical of r-strategists.

#### 9. overshoot

An **overshoot** happens when a population briefly exceeds K; it then crashes back down (dieback).

#### 10. limiting

A **limiting factor** (food, water, space, disease) restricts how large a population can grow.