Breeding for balance • Surviving siblings

**Year 9**

|  |  |
| --- | --- |
| **Name:** |  |

### How much care do animals’ parents need to provide?

K-strategy: Some animals, such as koalas, kangaroos, and wombats, have pouches to carry their offspring until they can survive on their own. The offspring of these animals take a long time to become adults, so the parents need to teach them how to find food and water and how to avoid predators.

r-strategy: Other animals (insects, spiders, cane toads) produce hundreds of offspring, abandoning them to conserve their own energy. The offspring of these animals usually rapidly mature into adults so they can quickly reproduce.

**Equipment**

* 6-sided die
* Animal cards

**Procedure**

1. Select one of the animal cards and identify if your animal uses r- or K-strategy.
2. Identify which reproductive strategy (r-strategy or K-strategy) the animal uses.
3. Identify how many babies are produced in one generation.
4. Work through each scenario. For each scenario, record how many offspring survive.
5. Repeat steps 1-4 two more times with new animals

**Results**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Animal** | **Reproductive strategy** | **Number of offspring produced** | **Scenario 1**  Number of offspring that survived | **Scenario 2**  Number of offspring that survived | **Scenario 3**  Number of offspring that survived |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**Discussion**

1. Describe the advantages and disadvantages of the reproduction strategies by completing the table below.

|  |  |  |
| --- | --- | --- |
|  | **r-strategy** | **K-strategy** |
| **Advantages for the parents** |  |  |
| **Disadvantages for the parents** |  |  |
| **Advantages for the offspring** |  |  |
| **Disadvantages for the offspring** |  |  |

1. An environment that is rapidly changing can affect the amount of food available in locations that were previously reliable sources of food.
   1. Make a claim about which strategy would be most affected by a changing environment.
   2. Use evidence from the scenarios to support your claim.
   3. Provide reasoning to link the evidence to your claim.

A porcupine on the ground

AI-generated content may be incorrect.A kangaroo standing on rocks

AI-generated content may be incorrect.

Echidnas have specialised spines made of tough hair for defense, which they use to roll into a ball or dig for safety when threatened. Their spines can vary in color depending on location, with darker ones in South Australia and lighter ones in Queensland. During breeding season, males form an "echidna train" to follow a female, with the largest male mating after pushing others aside. Male echidnas have a unique four-headed penis. They lay a single egg, and the offspring, called a "puggle," stays in the den for up to a year. Echidnas are toothless but use a 15 cm long, sticky tongue to feed on ants and insects.

**Echidna**

*(Tachyglossus)*

The Red Kangaroo is the largest living marsupial and can be found in Australia's arid zones. Males are an orange-red colour, while females are blue-grey, with both having lighter underbellies. They live in open plains, grasslands, and deserts across mainland Australia and mostly eat grasses and shrubs. Breeding can occur all year, with most females giving birth in spring and summer. Females can delay giving birth until their previous joey leaves the pouch. Joeys stay in the pouch until about 8 months old and continue to suckle for up to 12 months.

**Red kangaroo**

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<https://commons.wikimedia.org/wiki/File:Red_kangaroo_-_melbourne_zoo.jpg>

A turtle on the beach

AI-generated content may be incorrect.

**Coral**

<https://commons.wikimedia.org/wiki/File:Red_kangaroo_-_melbourne_zoo.jpg>

Loggerhead turtles are large sea turtles with strong, heart-shaped shells and powerful jaws. They live in warm oceans around the world, including the Atlantic and Pacific. These turtles can grow up to 1 m long and weigh as much as 180 kg. They eat a variety of sea creatures, including jellyfish, crabs, and conch. Loggerhead turtles travel long distances between feeding and nesting areas. They reproduce by laying up to 120 eggs in the sand before returning to the sea. They are considered at risk due to habitat loss, pollution, and getting caught in fishing gear, which is why they are considered a vulnerable species.

**Loggerhead turtle**

*(Caretta caretta)*

Close-up of a group of sea creatures

AI-generated content may be incorrect.

Coral spawning on the Great Barrier Reef is a spectacular event that happens once a year, usually just after a full moon when the water is warm enough to cause the egg and sperm bundles to mature. During spawning, corals release millions of these bundles into the water, where fertilization occurs. This creates tiny coral larvae that float and drift until they settle on the ocean floor to form new coral colonies. The timing is crucial as it helps the coral larvae find each other and increases the chances of successful reproduction.

A black spider on a branch

AI-generated content may be incorrect.A seahorse in the water

AI-generated content may be incorrect.

**Red-back spider**

*(Latrodectus hasselti)*

The Redback Spider is a venomous species found throughout Australia. Females are black with a red stripe on their abdomen, while males are lighter with less distinct markings. These spiders build tangled webs in sheltered sites, such as sheds or rocks. They prey on insects, small lizards, and even other spiders. Males engage in risky mating behaviours, offering their abdomen to the female, often leading to their death. Females can store sperm for up to two years and produce up to 250 eggs in each sac. Spiderlings cohabit on the maternal web for several days to a week before dispersing.

The narrow-bellied seahorse is a marine species found in waters off Australia and Papua New Guinea. It inhabits soft-bottom substrates near coral reefs, at depths of 3–63 meters. This species feeds on small crustaceans and is ovoviviparous, with males carrying eggs in a brood pouch before giving birth. The seahorse is monogamous, with males fertilizing the 100-250 eggs from only one female per season due to its sparse population and high reproductive costs. While the males could mate with more than one female, they tend to return to the same partner each year.

**Western spiny seahorse**

*(*[*Hippocampus angustus*](https://commons.wikimedia.org/wiki/File:Hippocampus_angustus.jpg)*)*