

2 Adaptations

An **adaptation** is a special skill which helps an animal to survive and do everything it needs to do. Adaptations could be physical changes to the animal's body or behavioural changes in how an individual animal interacts with the environment i.e long legs, wings or claws etc.

Adaptations are the ways animals have evolved to survive in different conditions or habitats (homes). Over many generations, these adaptations have come about through variation.

Variation involves small changes between organisms which may allow that organism to compete better for survival. Variation can have environmental or genetic causes.

ACTIVITY 1 CATERPILLAR CAMOUFLAGE



INTRODUCTION

BLENDING IN OBJECTIVE

To see how prey species use camouflage to hide from predators, follow the instructions below.

MATERIALS

- Coloured pipe cleaners (red, brown, green, black, orange, white, yellow, and then any other colours)
- String
- A measuring tape

INSTRUCTIONS

1. Use the string and measuring tape to mark off 4 squares of grass that measure equal areas. 5x5m is a good size.
2. Cut 40 ½ inch pieces of each colour of pipe cleaner for each square and spread them as evenly as possible in each of the four squares.
3. Divide the class into four teams and assign each group to a square. See how many pipe cleaners each team can find in five minutes.
4. After the five minutes is up, talk to the students about adaptation and camouflage. i.e. which colour was easier to see first and why did it take longer to find the colours that were more camouflaged in the grass. Perhaps discuss how it would be different if you did the activity on the woodland floor or on a beach and how different species are more camouflaged to different habitats.
5. Remember to pick up all of the left over pipe cleaners to avoid them being picked up by dogs or wildlife etc.

REVIEW

The colours similar to green are harder to find in the grass. Darker colours blend into the shadows and woodland better than lighter colours. Relate this to rainforest species of prey and predator species. For Key Stage 2 talk about different times of the year and camouflage in the particular habitats which can change i.e. with mountain hares in the snow.

ACTIVITY 2 BEAKS GAME



INTRODUCTION

How do different beaks relate to different food types? Can be a good way to discuss Darwin and Darwin's finches.

MATERIALS

- 2 buckets
- A table
- Log with holes
- Access to a tap/hose
- Floating and non-floating foodstuffs
- Whole peanuts
- Rice/popcorn to insert into holes
- Tongs
- Tweezers
- Pliers
- 2 wooden spoons
- Other utensils that can demonstrate a beak (see step 1 for indication of what may be useful)
- Photos of woodpecker, bullfinch, mallard and little egret (lamine for use outside)

SIMULATED HABITATS

POND SURFACE

Bucket with water and surface floating objects

POND MARGINS

Bucket with water and raisins or other non-floating objects

WOODLAND

Log with holes and rice/popcorn to put into holes

MEADOW

Whole peanuts laid out on some grass/table

INSTRUCTIONS

1. Tell the students that they are going to become different kinds of birds. Show them the different “beaks.” These include the tongs, tweezers, and other utensils.
2. Explain to the group that their job is to find the proper habitat for which each bird is suited. The game is very varied.
3. Mention that the tools or “beaks” give some clue of what a bird eats and where it may live. Show the students four habitats (See Simulated Habitats). As you move into each new habitat, give a short description of the habitat to create a mood.
4. The four habitats are marsh, pond, forest, and prairie. Divide students into groups of four.
5. Each group receives a different tool (i.e. one group receives pliers; one group receives tweezers, etc.). Groups will keep the same tool throughout the whole activity
6. Tell the students they will move from one habitat station to the next. They will have 30 seconds at each habitat station to eat as many food items as possible
7. The students must keep one hand behind their backs and cannot let their hand get wet. For food to qualify as eaten:

POND MARGIN, MARSH

Sunken objects must be dropped in another container and hands can't touch the water.

POND

Floating objects must be dropped in another container and hands can't touch the water.

FOREST

Rice/popcorn must be dropped in another container, can't be dropped on the floor.

GRASSLAND

Sunflowers must be crushed over a container and the nut taken out. Emphasise to students that they are not competing against one another. Remind them that they are trying to find the habitat that they are best suited to. Have the students record the number of food pieces eaten on the Habitat Record Sheet (Insert B).

Woodland habitat

WOODPECKERS - corresponds to tweezers, eats insects

Adaptations

1. Long, sharp, "chisel" bill for hammering into tree trunks
2. Stiff tail feathers used as prop to hold the bird upright on the side of the tree
3. Long tongue that wraps around inside of skull - aids in extracting insects
4. Toes - two face forward, two face backward for better vertical support on tree trunk
5. Long flexible barbed tongue for extracting insects from deep within cavities

Grassland habitat

BULLFINCH - corresponds to pliers, eats seeds

Adaptations

1. Heavy, conical bill with sharp edges for splitting seeds open. Strong jaw muscles
2. Flocking behaviour in winter because food may be concentrated in fields or "weed" patches
3. Toes - three face forward, one behind for perching and hopping

Freshwater habitat 1

(Pond surface layer / floating vegetation)

MALLARD DUCK - corresponds to sieve, use floating cereal, eats aquatic vegetation near the water surface

Adaptations

1. Fringed or fluted bill for straining food from the water
2. Webbed feet for propulsion through water. Also act as "snowshoes on mud"
3. Legs short, far back on body for swimming

Freshwater habitat 2

(Margin / marsh)

EGRET - use sunk material, similar to heron and terns, corresponds to long handled salad tongs, eats fish, frogs, large insects

Adaptations

1. Long neck for plunging into water
2. Sharp bill for spearing fish
3. Long toes for walking on mud and grasping clumps of vegetation
4. Colouration for blending into marsh vegetation

**Woodland
(Deadwood)**
Rice/cereal
wedged in holes

**Freshwater
(Pond
Surface)**
floating cereal

**Freshwater
(Pond margin
/ marsh)**
Sunk food such
as grapes/sweets

Grassland
Whole peanuts

	Woodland (Deadwood)	Freshwater (Pond Surface)	Freshwater (Pond margin / marsh)	Grassland
SHORT PLIERS (Bullfinch)				
TEA STRAINER (Mallard)				
SALAD / BBQ TONGS (Egret)				
TWEEZERS (Woodpecker)				



REVIEW

In which habitat was each bird most successful? Can you think of other ways aside from beaks that these birds are adapted to their habitats? (Hint, look at other parts of the bird's body).

Can bring in Darwin's Finches and the way different birds from the same family have different beaks to feed on different food stuffs so they don't compete for the food.