LESSON 1.1

Micro-bat life cycle

Overview

Students investigate the similarities and differences between the life-cycle of completely different organisms to help understand that all living organisms have a life cycle. This is followed by reviewing the reproduction cycle of the eastern bent-wing bat.

Background information

All living organisms have a life cycle of birth - reproduction - death. The process on how this occurs can be similar, but also can be very different. Understanding the similarities and differences helps us to classify species, such as mammals give birth to live young and suckle young with milk, birds lay eggs etc.

Most micro-bats (in temperate climates) have a hibernation period during the colder months of the year and this makes their reproduction cycle different to many other mammals. They have to delay the development of the embryo while hibernating. Micro-bats also give birth to one or two young (depending on the species) that are 20-30% the size of the mother. This is a huge size compared to the size of the parent.

For more details on micro-bat reproduction use the 'Bats of the Burnett Mary' pocket guide book or refer to the All About Bats website: www.allaboutbats.org.au/biology/

Activity descriptions

Activity 1: Compare life-cycles

All living organisms have a life cycle of birth - reproduction - death. To illustrate this, present students with the 'Comparing life-cycles' fact sheet (either as a hand-out or on a SmartBoard).

Give students 5 minutes to examine the life-cycle and record anything that is similar or different in their workbooks. Go through all the answers as a class.

Similarities	Differences
Fertilisation	Frog - lay eggs
Embryo	Frog - metamorphosis
Grow to an adult	Tree - fruit and seeds
Death	Tree - seeds carried away
	Human - give birth

EXTENSION ACTIVITY: Combine this activity with an investigation into the life-cycle of another species, such as the flying-fox: www.allaboutbats.org.au/sqffek-year-4/

Time requirement: 20 mins (approx)

Activity 2: Micro-bat reproduction

Discuss the life-cycle stages identified in the fact sheet about micro-bat reproduction. Back up this discussion by watching a YouTube video showing a micro-bat giving birth: youtu.be/Shv1RGOzkck (pre-watch this to make sure it is suitable for your students).

Students use this information in the fact sheet to complete the micro-bat reproduction word search.

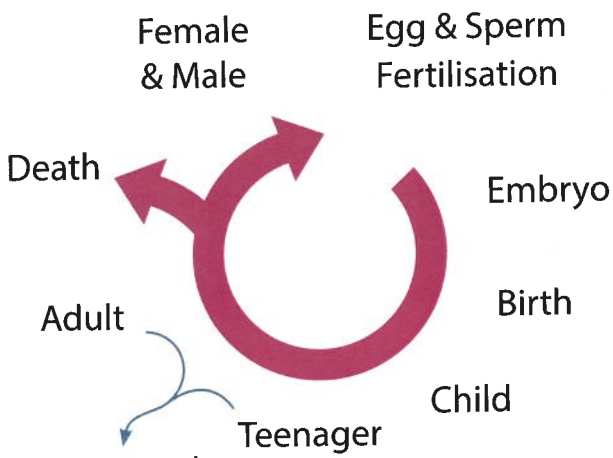
EXTENSION ACTIVITY: Students research and define all the words in the word search.

Time requirement: 20 mins (approx)

ACTIVITY SHEET 1.1A

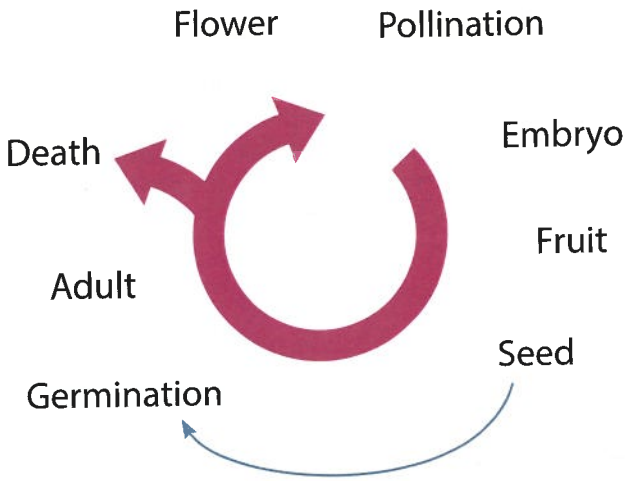
Comparing life-cycles

HUMAN LIFE-CYCLE



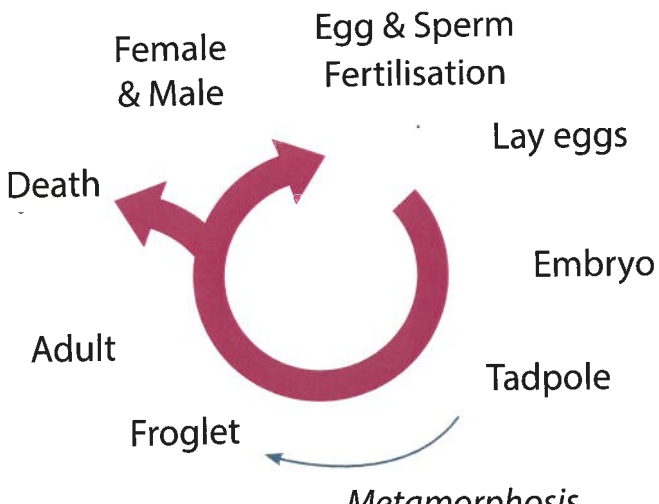
Parents send offspring away to start their own life-cycle

TREE LIFE-CYCLE



Seed is cast away by parent tree and transported by wind, water or animal

FROG LIFE-CYCLE



Metamorphosis

ACTIVITY SHEET 1.1B

Micro-bat reproduction

Most micro-bats have a hibernation period during the colder months of the year and this makes their reproduction cycle different to many other mammals. The example below if of the **eastern bent-wing bat** that can be found living in eastern Australia.

YEAR 1

Autumn

Mating occurs between females and males.

Winter

Fertilised egg (early embryo) will stay dormant inside the female until spring, or after hibernation is over.

Spring

When hibernation is over, the embryo will continue to develop.

The female is pregnant for 60-80 days.

Females gather in large maternity colonies before giving birth.

Summer

Single young is born. Baby bats are sometimes called 'pups'.

Young are left together in the colony while mothers feed at night.

Mothers find their young by smell and sound.

Mothers will feed their young milk from teats in their armpits.

YEAR 2

Autumn

Juveniles can fly seven weeks after birth.

Mothers leave the colony in early March.

Juveniles leave the colony a few weeks after the mothers. The colony is deserted by April.

Juveniles will be sexually mature in two years.

JUVENILES IN A MATERNITY COLONY (L.HALL)

CHURCHILL, S. (2008) AUSTRALIAN BATS (2ND EDITION). ALLEN AND UNWIN, SYDNEY.

ACTIVITY SHEET 1.1B

Micro-bat reproduction word search

R	T	T	H	B	E	F	B	L	E	T	I	A	Z	R
W	W	N	I	I	L	M	I	A	L	N	R	D	I	E
T	I	R	A	Y	B	F	B	T	A	A	R	U	D	H
K	T	N	I	N	E	E	B	R	M	M	J	L	K	T
H	G	N	T	C	G	E	R	E	Y	R	U	T	N	O
P	G	Z	Y	E	G	E	V	N	R	O	V	J	G	M
Z	C	C	O	W	R	Y	R	A	A	D	E	Y	G	B
I	L	C	O	L	O	N	Y	P	C	T	N	N	W	V
E	M	R	E	P	R	O	D	U	C	T	I	O	N	F
Y	T	I	N	R	E	T	A	M	N	R	L	O	A	E
G	N	I	T	A	M	R	T	M	P	E	E	Y	N	M
S	U	M	M	E	R	U	U	S	J	K	S	X	G	A
M	S	T	A	E	T	T	N	T	L	P	U	P	Z	L
R	L	O	A	J	U	P	Y	I	A	T	W	G	R	E
M	H	U	D	A	K	U	M	J	C	M	N	T	V	U

ADULT
AUTUMN
BIRTH
CAVE
COLONY
DORMANT
EMBRYO
FEMALE
FLYING
HIBERNATION
JUVENILES
LIFE-CYCLE
MALE
MATERNITY
MATING
MATURE
MILK
MOTHER
PUP
PREGNANT
REPRODUCTION
SPRING
SUMMER
TEATS
WINTER