

Spring Block 2

# Animals, including humans

## Small steps

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The human life cycle

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Step 3

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# The human life cycle

## Notes and guidance

In this small step, children learn how humans grow and develop. They look at the six stages of the human life cycle – foetus, baby, child, adolescent, adult and elderly adult. Children briefly look at the key features of each stage of the human life cycle, but will explore each stage in more detail throughout this block.

Encourage children to explore where they and other familiar people (such as teachers and family members) are within the life cycle. Children should understand that babies, children and adolescents grow rapidly in terms of mass and height. They tend to reach a peak in their growth when they become an adult.

Children do not need to look at the stages of foetal development or the process of conception within this step, as this is covered in later curriculum.

## Key questions

- What are the six stages of the human life cycle?
- Around what age is a human described as a baby?
- Around what age is a human described as a child?
- In which life stages do humans grow the most?
- What is the difference between a foetus and a baby?
- How might a human look different as an elderly adult compared to an adult?
- During which stage of the human life cycle might a human have a baby?
- Where does a foetus grow and develop?

## Things to look out for

- Children often think that a foetus grows in the mother's stomach rather than in the womb.
- Children may think a baby and a foetus are the same thing.

## National curriculum links

- Describe the changes as humans develop to old age.
- **Working scientifically** – Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.

# The human life cycle

## Key vocabulary

- **adolescent** – the stage between early childhood and adulthood from around age 11 to 17



- **baby** – from birth to around 1 year old



- **foetus** – an unborn baby growing inside the mother's womb



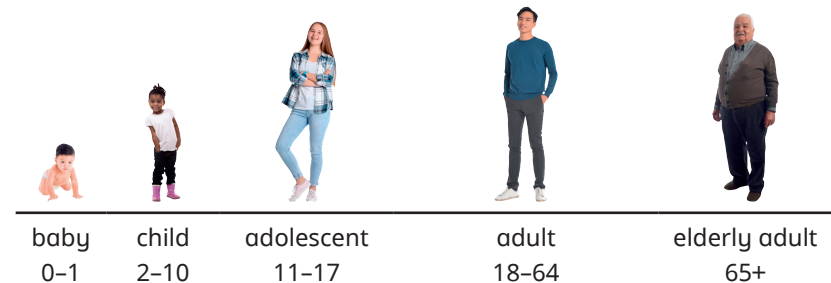
- **elderly adult** – a person who is over the age of 65



- **adult** – from around age 18 onwards
- **life cycle** – a series of stages a living thing goes through during its life

## Practical ideas

- Split the class into small groups.  
Give each group a stage of the human life cycle.



Children could research the main changes that occur within that life stage and present findings back to the class.

- Create a whole-class timeline using photos of children, staff and parents/carers, with permission.  
Children could discuss key features of each life stage by observing photos.

## Factual knowledge

- The human life cycle has six main stages – foetus, baby, child, adolescent, adult and elderly adult.
- Every human goes through the same life stages in the same order.
- All humans start their life as a foetus inside their mother's womb.
- After puberty, humans can reproduce.

# Babies and children

## Notes and guidance

In this small step, children explore key milestones in baby and child development. They understand that babies are completely dependent on an adult to survive and will cry to communicate if they are hungry, uncomfortable, too hot or too cold. As a baby grows into a child most learn to walk, run, jump and eat independently. Most also communicate by talking and eventually learn to read and write.

Children learn that both the mass and length of a baby changes drastically within their first year after birth. Children work scientifically by reading and interpreting data about the length and mass of babies. They will also plot a line graph to show how the length of a baby changes in their first months after birth.

### Things to look out for

- Children may think that all babies hit milestones at exactly the same time.
- Children may think that all babies are the same length and mass when they are born.

## Key questions

- Around what age will most babies start to crawl?
- Around what age will most babies start to walk?
- Do all babies hit milestones at the same age?
- How do babies communicate their needs?
- Why does a baby depend on an adult?
- When does a foetus become a baby?
- How does the length of a baby change as age increases?
- How does the mass of a baby change as age increases?

### National curriculum links

- Describe the changes as humans develop to old age.
- **Working scientifically** – Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.

# Babies and children

## Key vocabulary

- **milestone** – a significant event in a person’s life



- **baby** – from birth to around 1 year old



- **toddler** – a young child who is between 1 and 3



- **child** – a young human below the age of puberty



- **womb** – the organ in mammals in which a baby develops



## Practical ideas

- Measure the height of every child in the class.  
Plot this data on a whole-class graph.  
Repeat this task in 6–12 months’ time.  
Plot the data on the same graph to see how much children have grown in height over this time.
- Encourage children to collect simple data from different year groups.



- For example, they could measure the heights of children in Reception and compare this to the heights of children in Year 6
- Ask children to bring in photographs of themselves from when they were younger, with permission. Children could describe key changes between the photographs and how they look now.

## Factual knowledge

- Babies are dependent on adults for food, warmth and comfort.
- Most babies and toddlers hit certain milestones in their first two years of life, such as crawling and walking.
- Throughout childhood, children grow and develop at a rapid rate in terms of their mass, height and brain development.

# Adolescence and puberty

## Notes and guidance

In this small step, children explore adolescence and puberty in more detail. Children should understand puberty as the process of changing from a child to an adult. Puberty prepares humans for reproduction. Children learn that puberty can happen at any time between age 8 and 16 and they explore the key changes that happen to humans throughout puberty.

In this step, children are introduced to the term “hormone” for the first time. At this stage, hormones are described as chemicals released by your body that cause both physical and emotional changes. Children should understand that puberty is controlled by hormones.

### Things to look out for

- Children may think that puberty begins at the same age for every person. Explain to children that it usually happens between the ages of 8 and 16. On average, girls start puberty two years before boys.
- Children may think that all physical changes happen quickly.
- Children should be aware that puberty is a gradual process that happens over several years.

## Key questions

- What is puberty?
- On average, what age do girls start puberty?
- On average, what age do boys start puberty?
- Do girls and boys start puberty at the same time?
- What key changes happen to girls during puberty?
- What key changes happen to boys during puberty?
- What key changes happen to both boys and girls during puberty?
- Why is puberty important?
- What are hormones?

### National curriculum links

- Describe the changes as humans develop to old age.
- **Working scientifically** – Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas (non-statutory).

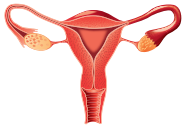
# Adolescence and puberty

## Key vocabulary

- **adolescent** – the stage between childhood and adulthood, from around age 11 to 17



- **period** – normal bleeding from the vagina that is part of a female's monthly cycle



- **reproduce** – to produce offspring

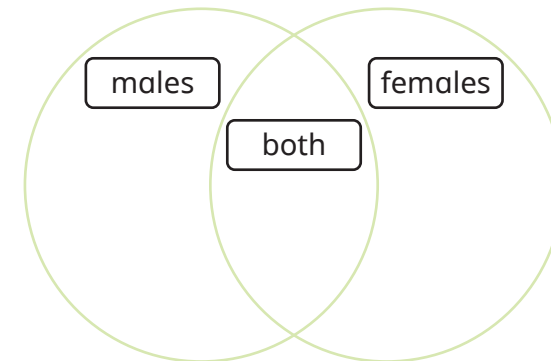


- **puberty** – the process that prepares humans for reproduction
- **hormone** – a chemical released by the body that causes physical and emotional changes during puberty

## Practical ideas

- Provide cards with key changes that happen to both males and females during puberty.

Children could sort the cards into a Venn diagram – changes that happen to females only, males only or both.



## Factual knowledge

- Puberty is the process that prepares humans for reproduction.
- Hormones are chemicals that are released by your body during puberty which cause physical and emotional changes.
- Key changes that happen to females during puberty include the start of periods, growth of underarm and pubic hair, mood swings, spots and growth of breasts.
- Key changes that happen to males during puberty include growth of body hair, growth of the penis and testicles, spots, mood swings and deepening of the voice.



# Adults and the elderly

## Notes and guidance

In this small step, children explore the key changes that happen to humans in adulthood and late adulthood. They learn that a human is categorised as an adult from the age of 18 and by this point rapid growth will have slowed down. The body is fully developed and ready to reproduce.

Children learn about physical changes that happen to the body over time including loss of skin elasticity causing wrinkles, a reduction in height and the weakening of bones. They learn that humans are categorised as elderly adults from the age of approximately 65 and around this time the body gradually starts to slow down and movement may become more restricted.

## Things to look out for

- Children may think that all humans have the same life expectancy. Explain that life expectancy varies among humans for many different reasons such as health, sex and where you live.
- Children may think that all humans experience the same physical changes at the same time as they age. Explain that a variety of factors can influence this, such as exercise and keeping your brain active.

## Key questions

- What age is a human classed as an adult?
- What age is a human classed as an elderly adult?
- What physical changes occur in adulthood?
- What physical changes occur in late adulthood?
- In which life stage is a human most likely to reproduce?
- Why is an elderly person more likely to break bones?
- Do all humans have the same life expectancy?
- Why do wrinkles develop in adulthood?
- What advice would you give to an elderly person to help them stay healthy?

## National curriculum links

- Describe the changes as humans develop to old age.
- **Working scientifically** – Identifying scientific evidence that has been used to support or refute ideas or arguments.

# Adults and the elderly

## Key vocabulary

- **adult** – from around age 18 onwards



- **elderly adult** – a person who is over the age of 65



- **reproduce** – to produce offspring



- **life expectancy** – the average time a person may expect to live

## Practical ideas

- Ask children to bring in photographs of their parents/carers and grandparents, with permission.



In groups, children should look at the photographs and make a list of the key differences between adults and elderly adults and present this to the class.

- Children could investigate whether there are any links between age and height.

## Factual knowledge

- A person is classed as an adult from age 18 onwards.
- A person is classed as an elderly adult from approximately 65
- When a person enters adulthood, their rate of growth slows down and their body is fully developed.
- The human body gradually changes with age. For example, skin loses elasticity, resulting in wrinkles, bones may become weaker and height may decrease.

# Gestation periods of mammals

## Notes and guidance

In this small step, children explore the gestation periods of different mammals. Children should already understand that humans are classed as mammals because they are warm-blooded, give birth to live young and feed their offspring on milk. Children learn that gestation is the period of time that a foetus develops in its mother's womb.

In this step, they compare the gestation periods of different mammals such as humans, elephants, domestic cats, domestic dogs, blue whales and wild rabbits. Encourage children to identify any patterns seen in the data, such as "the larger the mammal, the longer the gestation period". Children begin a pattern seeking enquiry in this small step.

## Things to look out for

- Children may think that all mammals have the same gestation period. Usually, the larger the mammal the longer the gestation period. Clarify to children that there are some exceptions, such as the blue whale's gestation period of 12 months compared to the African elephant's gestation period of 22 months.

## Key questions

- What is a mammal?
- Why are humans classed as mammals?
- What is gestation?
- What are offspring?
- Approximately how long is the gestation period of a human?
- Which mammal has the longest/shortest gestation period?
- Can you identify any patterns when comparing the gestation periods of different mammals?

## Enquiry question

- Are there patterns linking gestation periods and lifespans?

## National curriculum links

- Describe the changes as humans develop to old age.
- **Working scientifically** – recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.

# Gestation periods of mammals

## Key vocabulary

- **womb** – the organ in mammals in which a baby develops



- **foetus** – an unborn baby growing inside the mother’s womb



- **gestation** – the period of time that a foetus develops in its mother’s womb



- **mammal** – an animal with a spine and with fur or hair on its body, which gives birth to live young and feeds its young on milk



- **offspring** – the young of a living thing



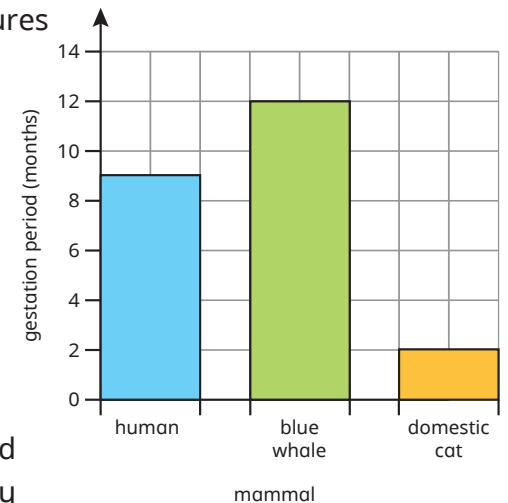
## Practical ideas

- Provide children with pictures of different mammals.

Ask them to order the mammals by size.

Give children information about the length of each mammal’s gestation period.

Ask children to plot this information in a graph and see if they can identify any patterns between animals and their gestation periods.



## Factual knowledge

- Humans are mammals because they are warm-blooded, give birth to live young and feed their offspring on milk.
- Gestation is the period of time that a foetus develops in its mother’s womb.
- Mammals have different gestation periods.
- The gestation period of a human is approximately nine months.

# Gestation periods and lifespan

## Notes and guidance

In this small step, children analyse data to explore whether there is a relationship between the gestation periods of animals and their lifespans. They should look at a range of different animals including African elephants, blue whales, domestic cats, domestic dogs, wild rabbits, horses and sheep. Children should conclude that the longer the gestation period of an animal, the longer the lifespan. However, humans are an anomaly because they have a relatively short gestation period compared to their lifespan.

In this small step, children work scientifically by reporting and presenting findings from their enquiry and forming a conclusion as to whether there is a relationship between the gestation period of an animal and its lifespan.

## Things to look out for

- Children may think that there is no correlation between the length of an animal's gestation period and its lifespan. Usually, the longer the gestation period of an animal, the longer the lifespan. However, there are some animals that do not fit this pattern and have relatively short or long gestation periods compared to their lifespans.

## Key questions

- What does lifespan mean?
- What is the gestation period of this animal?
- What is the lifespan of this animal?
- Is there a relationship between the gestation period of an animal and its lifespan?
- What is an anomaly?
- What conclusions can you draw from the data?

## Enquiry question

- Are there patterns linking gestation periods and lifespans?

## National curriculum links

- Describe the changes as humans develop to old age.
- **Working scientifically** – Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations.

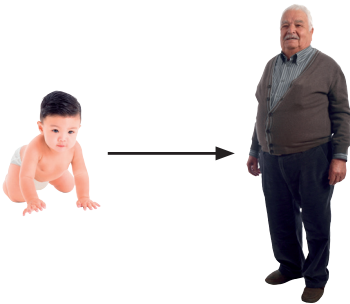
# Gestation periods and lifespan

## Key vocabulary

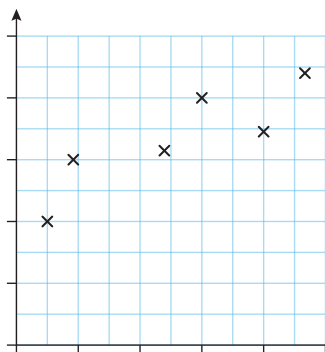
- **gestation** – the period of time that a foetus develops in its mother’s womb



- **lifespan** – the period of time that an animal is alive



- **correlation** – a relationship between two or more things



- **anomaly** – something that does not fit the pattern

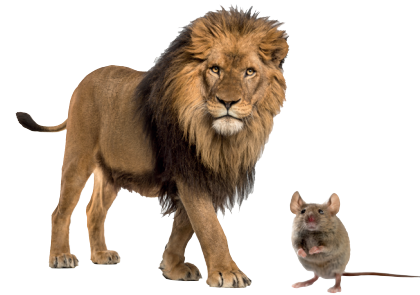
## Practical ideas

- Provide children with pictures of different animals and their gestation periods.

Ask them to predict the lifespans of the animals using their gestation periods. Then they can put the animals in order from shortest to longest lifespan.

Give children the correct lifespans of the animals and ask them to compare these with their answers.

- Encourage children to use secondary sources to research the gestation period and lifespan of other mammals.



## Factual knowledge

- The lifespan of an animal is how long the animal is alive.
- Usually, the longer the gestation period of an animal, the longer the lifespan.
- Humans have a relatively short gestation period compared to their lifespan.