

# YEAR 5: AUTUMN 2 – TIMECOP

## SCIENCE: Animals including humans

### UNDERSTAND, DESCRIBE AND EXPLAIN: KEY KNOWLEDGE

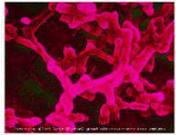
To understand and describe the changes as humans develop to old age.

<i>Reproduction</i>	<i>Sexual</i>	<i>Asexual</i>	<i>Offspring</i>	<i>Sex cells</i>	<i>Male</i>	<i>Female</i>	<i>Fertilise</i>
<i>Foetus</i>	<i>Womb</i>	<i>Prenatal stage</i>	<i>Baby</i>	<i>Toddler</i>	<i>Childhood</i>	<i>Adolescence</i>	<i>Adulthood</i>

#### How does new life start?

All living things reproduce to ensure that their *species continues to exist* beyond their own life span. Living things can reproduce in **two different ways: asexually or sexually.**

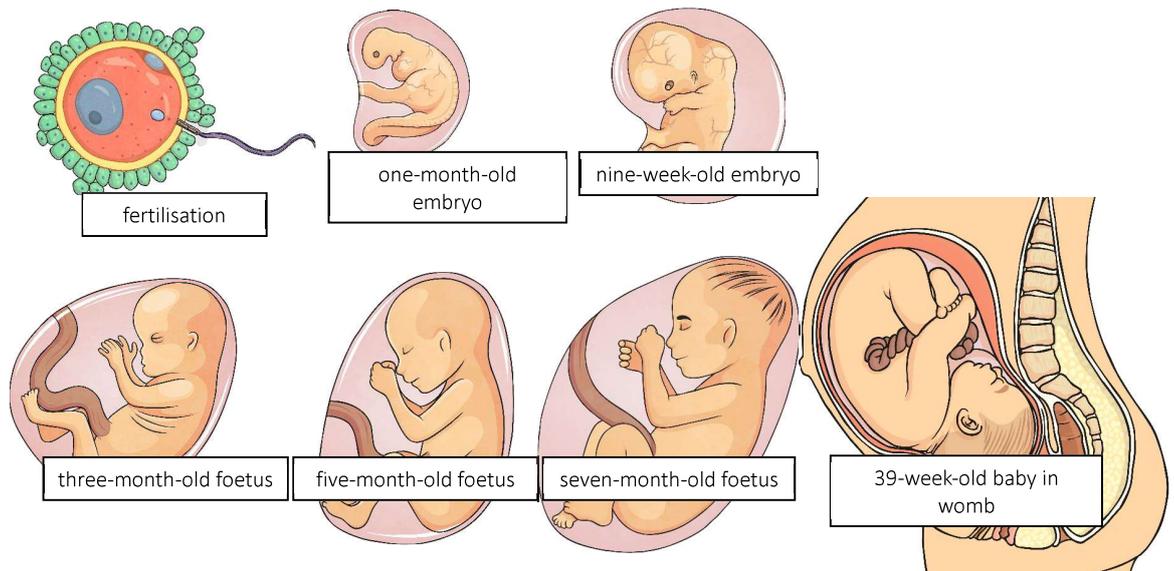
<b>Learning links:</b>
Science
Year 3: Plants – Sexual and asexual reproduction
Year 5: Living things and habitats – animal reproduction

	<u>Asexual Reproduction:</u>	<u>Sexual Reproduction:</u>
<b>What is it?</b>	<b>One parent</b> produces new life.	<b>Two parents</b> – one <b>male</b> and one <b>female</b> – are required to produce new life.
<b>How does it occur?</b>	One <b>cell</b> simply starts to <b>divide itself</b> . All <b>cells</b> of the <b>offspring</b> are <b>identical</b> to the <b>parent</b> . This means that it is a <b>clone</b> of the parent.	<b>Male sex cells</b> (sperm/angiosperm/pollen are different versions of male sex cells) <b>fertilise female sex cells</b> (eggs). This fusion means that the offspring resembles but is <b>not identical</b> to the parents.
<b>Examples</b>	 Bacteria  Fungi  Stick Insect  Aphid	 Rose  Lion  Seahorse  Salmon  Seal  Human

#### Human Reproduction and growth:

Once the **egg** is **fertilised** inside the **female's body**, a **foetus** begins to **grow inside the womb** for approximately **9 months**. This is called the **prenatal stage**. **Prenatal** means **before birth**. This stage of development is from the time of fertilisation (when the male and female sex cells fuse together) to the time of birth.

#### Prenatal stage of human development:



Once the **foetus** reaches its **full term**, it is ready to be **born**: a **baby** is born and the rest of its **development happens outside**.

#### Human development from 0months-12months (Baby):

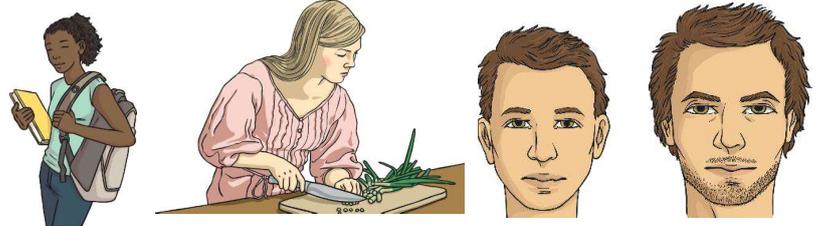


**Human development from 1 year – 10 years (Early childhood):**



**Human development from 10 years – 18 years (Adolescence):**

During this stage, **puberty** results in **changes in the body**. These **changes occur to enable reproduction** during adulthood. Adolescents are **increasingly independent**.



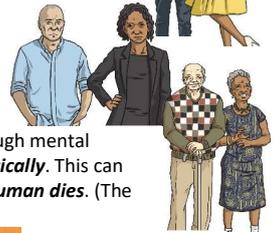
**Human development from 18 years – 40 years (Early Adulthood):**

The **human body** is at its **peak of fitness and strength**. There is **still some growth but not of height**. This is the **age** that most **humans reproduce**. Humans are **able to take care** of their **physical needs** completely **independently**.



**Human development from 40 years – 60 years (Middle Adulthood):**

Both male and female **ability to reproduce declines** with age. Women experience **menopause** in their 40s or 50s when **they no longer produce eggs**. **Physical changes** can include **loss of hair** and **greying hair**.



**Human development from 60 years (Late Adulthood):**

This is the **last stage of human development** and takes place after the **age of 60**. There is **no physical growth** although mental development is possible. The body **declines in fitness and health**. Some older people can become **more fragile physically**. This can sometimes result in **increasing dependency** on others to care for them. The **end of the human life cycle** is when a **human dies**. (The age at which this happens varies and is not simply dependent on physical factors.)



**EXPLORE AND INVESTIGATE:**

HYPOTHESISE  
ENQUIRE  
TEST  
RECORD  
REPORT  
CONCLUDE

**Comparing gestation periods and life expectancy of varying animals – is there a link?**

Research the average life expectancy and gestation period of various animals and compare these on a graph.

Do animals who live longer have longer gestation periods?

If so, why do you think this is?

**KEY ASSESSMENT AND APPLICATION OPPORTUNITIES:**

**EXS:**

- What is the difference between sexual and asexual reproduction?
- Describe the process of human life and how it develops over time.
- How can you tell how old somebody is?
- How have you changed since you were born? What has stayed the same?
- What are the main differences in human development between \_\_\_\_\_ and \_\_\_\_\_?

**GDS:**

- Produce a graph to show human growth over time.
- Compare the gestation periods of various animals. Why would it suit their lifestyle to have such short/long terms?
- Compare the average life expectancy of humans and other animals. Why are they different? Why are some animals expected to live longer or shorter than others?